

# MINUTES

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Meeting: ILUC meeting with Advanced biofuel producers  
Date: 13 November 2013  
Time: 9:00- 12:00

Attendees: Daan Peters (chair, Ecofys), Matthias Spöttle (Ecofys), Nicklas Forsell, Hugo Valin (IIASA), Aussilio Bauen, Maarten van den Berg (E4tech)

Nour Amrani (Novozymes), Niels Hendriksen (Dong Energy), Piero Cavigliasso and Alberto Riva (Biochemtex), David Chiaramonti (University of Florence), Angela Grassi (ETA Florence), Kees Hettinga (Carbon Recycling International), Eelco Dekker (BioMCN), Sari Mannonen (UPM), Mikko Kara (ForestBTL), Mika Aho (St1 Biofuels Oy)

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## **1. Explain and discuss the ILUC modelling project**

### General points concerning the project and its results

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.

The current meeting is part of a series of stakeholder meetings during which the consortium aims to obtain relevant input and suggestions from stakeholders. This will result in a draft Inventory of changes to GLOBIOM and draft baseline and policy scenarios, which are to be published by the end of January. These draft versions are to be discussed with the Advisory Committee, the Commission and stakeholders. After the final changes to GLOBIOM and final baseline and policy scenarios have been agreed upon, IIASA will update the GLOBIOM model, will subsequently run the model and perform sensitivity analysis.

- Stakeholder: Will there be other stakeholder consultations?
  - Ecofys: In total there will be four stakeholder organisation consultations with the bioethanol and biodiesel supply chains, advanced biofuel producers and NGOs.
- Stakeholder: Will the commission use this study?
  - Ecofys: It is up to the Commission to decide how they will use study results, the consortium has no indications on this.
- Stakeholder: What were the criteria for the selection the Advisory Committee members? All seem to have the same approach to ILUC

- Ecofys: The criteria are independent academic and willingness to help improving the models.
- Ecofys: The consortium indicates that it currently considers a possible extension of the AC although no decision on this has been taken. The list of the current advisory committee is available on the project website and stakeholders are welcome to suggest names of independent academics that could be considered as potential AC members.

## **2. Discussing the GLOBIOM model and the planned modelling**

- Stakeholder: What is the output of the model?
  - IIASA: It gives different types of output both land use change and associated emissions, but also figures on production and market development.
- Stakeholder: Do you differentiate between dLUC and ILUC?
  - Ecofys: Only LUC is modelled, but we suggest that dLUC emissions based on default values or LCAs be deducted from the outcome to get the ILUC factor.
- Stakeholder: Politicians should focus on LUC.
  - LUC is already in baseline and is at the core of this modelling approach. The shock in biofuel demand in the model shows differences between baseline and scenario and that is the effect of biofuels policy. The scope is limited to biofuels. About 99% of LUC will be in the baseline and we will mention exact figure explicitly in the study.

### Feedstock considered and data sources

- Stakeholder: Is land- based algae included?
  - IIASA: No, because it is not available on commercial scale and is unclear which technology will be used (raceway pond vs. photobioreactor). So it is difficult to set up a precise scenario.
  - E4tech: we could use certain criteria to selection of feedstocks that are included in the modelling. These criteria could be: 1) their relevance in terms of volume, 2) potential positive or negative ILUC effect, 3) feasibility of inclusion in the model.
- Stakeholder: How is roundwood in the G4M model defined and where is the data taken from?
  - IIASA: There are a number of different sources, which will be shared with you for comparison with own data.
- Stakeholder: Do you include black liquor as well?
  - IIASA: Yes the production is covered by the model, but currently nothing is going into biofuels, so there is no biofuel pathway represented for this feedstock in the model.
- Stakeholder: How are secondary forestry residues are estimated?
  - IIASA: We use FAO data and published estimates.
- Stakeholder: Should an advanced biofuel pathway with a big surplus of the used residue not better be left out of the model? Otherwise it is assumed that there is also an ILUC factor.
  - IIASA: That is a valid point open for further discussion and linked to suggested criteria for selection feedstocks for the model.
- Stakeholder: Is corn silage included?

- IIASA: Yes, corn silage is included in the data, we have to discuss how we represent a bioenergy pathway for this feedstock.
- Stakeholder: Is Arundo Donax also included in the model?
  - IIASA: Arundo Donax is not yet included.

#### Land availability, (changes to) area harvested

- Stakeholder: What happens if a farmer is not cultivating, but starts again due to increased demand. How does the model capture that?
  - IIASA: Land use change is driven by economic behaviour (endogenously). However policy changes (exogenous) also play a role. These are independent from scenarios and will not be changed – apart from biofuel policies. So a first thing to consider is why the land is not cultivated. If it is for economic reasons, the land can be cultivated again. If it is for policy reasons (for instance, conservation policy), it may not change.
  - Ecofys: There are differences why land is not used, as it could be for instance set-aside or abandoned. It is important how long the land has not been used for cultivation. In the model the carbon stock will be different depending on for how long the land has been abandoned. The model can represent some forest regrowth on recently converted agricultural land (different from older forests).
- Stakeholder: We are concerned that unused land is considered to be potential forest land, as it could also be polluted, arid or something else without carbon stock.
  - IIASA: Local information on the suitability of land and the opportunity cost of using unused land for biofuel feedstock cultivation will always be more accurate than in a modelling setting that cannot ingest this level of details. However, there are several key aspects to keep in mind when assessing unused land potential:
- Stakeholder: What is the effect of growing feedstocks on land carbon stock? The model takes this into account as well as suitability of the land, whether it is arid etc.
  - IIASA: For comparison you could run a scenario with and without forest regrowth on unused land.

#### Validation of modelling results

- Stakeholder: Is the date of the base year 2000?
  - IIASA: Yes, the model is calibrated to the year 2000 because most geographically explicit datasets are available for the year 2000; but the model results are also compared with available data for the year 2010.

#### Co-products

- Stakeholder: How do you allocate GHG emissions for co-products and residues? E.g Straw?
  - E4tech: That is an issue that comes up when you take a causal descriptive approach. In our simulation approach, we represent in the model the effect of additional demand for a specific single feedstock, and the model calculates the additional co-products associated to it and their cascading effect across the supply chain and land use. The final GHG emission estimate is therefore net of all co-products adjustment

and the potential land savings from co-products used are automatically taken into account.

#### Yields, land management and processing technology

- Stakeholder: How are the yields, conversion coefficients and costs estimated / what data is used?
  - Ecofys: All our data sources will be explained in the online documentation. We encourage stakeholders to check these data to help us refine the modeling.
- Stakeholder: What does substitution with the Leontieff approach mean?
  - IIASA: This approach describes a substitution between management systems with fixed input. This means that for instance the fertilizer input is fixed in the management system (low input) and the change in fertilizer input is covered by a switch to another management system (from low input to high input).

#### GHG emissions

- Stakeholder: What sources of GHG and ILUC emissions do you include for forestry products?
  - IIASA: The carbon stock is accounted for in GLOBIOM and change in the management intensity in the G4M model can change forest productivity but also carbon stock. Higher demand of forest products lead to conversion of unmanaged to more managed forest, without further land use change. But land conversion can also produce short rotation plantations with change in carbon stocks (carbon pool releases and carbon sequestration).

### **3. Stakeholder input**

The consortium is interested in getting information and data from the stakeholders to support the model, especially on the following:

- Refineries
  - Current pathways / future pathways
  - Coefficient of conversion of feedstocks
  - Input requirements
  - Processing costs
  - Output and co-products
- Feedstocks availability constraints
- Downstream market bottlenecks
- Competition from foreign markets and pathways
- Any information on current developments deemed of interest
  - Market information
  - Literature
- Angeli Grassi, ETA Florence Renewable Energies will kindly forward recent study on Arundo Donax

- Stakeholder: How far along the supply chain are you looking for data?
  - Ecofys: Anything that you consider to be important could be useful for us.

Participants expressed the wish to be involved in next steps in the project. The consortium is open for further exchange of ideas later in the project and will communicate on this shortly.

*The consortium welcomes all information and suggestions from the stakeholders that could be relevant to the project. Please send your input preferably by the end of November to: [ILUC@ecofys.com](mailto:ILUC@ecofys.com)*

*These minutes will be published on: [www.globiom-iluc.eu](http://www.globiom-iluc.eu)*