

Roundtable on Sustainable Biofuels

An initiative of the EPFL Energy Center



Expert Advisory Group on GHGs

Minutes of the first virtual Expert Advisory Group Meeting

Present :

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1. General point

- The summary of Experts Advisory Group on GHG's meeting of July 25th will be sent out to the GHG WG.
- **The RSB GHG approach will be life cycle based.** The emissions linked to the supply chain will be taken into account. Alex Farrell's paper in Jan. 2006 published in Science presents the lifecycle emissions of gasoline. In EcoInvent Swiss database – all aspects (energy necessary to extract one liter of gasoline) are included.

2. Summary of feedback about the draft principle tackling GHG issues

Discussion:

- One cannot necessarily assume that because a liter of biofuels is produced, a liter of gasoline is not produced. For the draft principle, fossil fuels should be the references, but one shouldn't subtract the saved energy.
- We should define qualitatively or quantitatively the word 'significant'.
- This discussion took place in Germany as well. On one side, one should leave the threshold value out, because it's difficult to justify. On the other side, being 'just a little bit better' than fossil fuels is not enough, because of the potential negative impacts, so it makes sense to put a threshold at a 30% improvement. If we put a threshold then we should recognize that this is arbitrary.
- The principle can use the word significant, and within the criteria and indicators, a threshold can be set as the Cramer Commission in NL has done.

- The emission reduction of greenhouse gases amounts to at least 50-70% for electricity production and at least 30% for biofuels.
- It is important to take into account the potential negative impacts of the reference system, in this case gasoline production.
- Two points made in the Expert Group session: first biofuels are an immature market, and putting the word ‘significantly’ would harm this new market. Second, agriculture impacts are highly variable – putting an arbitrary goal might not allow room for improvements.
- Fossil fuel companies could capture and sequester their carbon emissions, so they can improve also.
- In Brazilian sugar cane production, there is not so much room for improvement. Therefore, for cellulose, there is much room for improvement

3. Key points/criteria for the future RSB GHG approach:

1. *The approach will be based on life cycle approach from well to wheel.*

Discussion:

- Well to wheel implies that utilization step is included. Due to the number of possibilities of uses (e.g. E5, E10, E15, E85, etc. in the case of bioethanol) and to the improving performance of engines that are different from one country to the other, international comparisons will be quite difficult. Therefore the Expert Advisory Group new proposal is ‘wheel to tank’, rather than ‘well to wheel’, which would be consistent with the energy unit in point 2.
- What is difference of well to wheel vs. well to tank?
We don’t have enough data on the performance of different biofuels in different vehicles to make judgments about their performance. We decided to stop at the use phase to avoid this complexity.
- Second half seems important and should be taken into consideration. Other groups could concentrate on wells to tank. Important to clarify that while assessing biofuels (for instance in a low carbon standard) well to wheels must be considered.
- Well to tank would simplify a lot.
- A neutral comparison between biofuels is only possible with the well to tank approach, we don’t want to compare technologies tank-to-wheel.

Decision:

There is an agreement on “well to tank”.

2. *The unit will be: gCO_{2e}/MJ gram of carbon dioxide equivalent per mega-joule of energy.*

Discussion: There is no other option than this unit.

Decision:

Use this unit

3. *The approach will use a reference system: the greenhouse gas emissions along the biomass chain will be compared with a relevant standard fossil reference chain.*

Discussion:

- Agreement that fossil fuels should be the reference system. But with which fossil fuel will we compare? We need to compare biodiesel with diesel, and ethanol to petrol.

Decision:

Agreed with the original suggestion

4. *The approach will focus on those steps/inputs with the biggest impact on GHG emissions. Where emissions in one step represent a small part of overall emissions, or where they are similar amongst different feedstock and processing types, default values will be used.*

Discussion:

- Which are the steps with the biggest impact, and does this include land use change?
Yes, land use change is one of the big impacts and will be included.

Remark: Land use will be tackled in its own session.

Decision:

Agreed with the original suggestion

5. *The approach will focus on the impacts which vary from crop to crop or production method to production method – we want to create a tool that can compare different types of production to each other, and then that overall number to fossil fuel.*

Discussion:

- Difficulty is to know which are the steps with the biggest impact. Does this include land use change? Direct land use change is considered as one of the biggest impact of crop production.

Decision:

Agreed with the original suggestion

6. *Default values will also be used when no data are available from particular links in the chain. The defaults value will be evaluated conservatively, and be as specific as necessary for various feedstocks, countries, processing technologies, etc. This will encourage process improvements. If an owner of biomass thinks he is performing better than the standard value, he will have to prove this with the aid of a predetermined methodology (and perhaps third-party verification). We hope to reduce the need for verification and monitoring, yet still incent producers to improve GHG performance.*

- Default values would be useful to reduce reporting burden – if a company can take a default value, don't have to be inspected for this. But if they're a superstar performer, could ask the inspector to prove that, and get a better balance than they would have had from the default value.
- Need to be careful in deriving default values.
- It is necessary to careful consider how to define/assess these defaults values. Maybe we should use an available tool to have default values.
- Actually it would make sense to use an available tool, for example the ipcc tool.
- The community will in general not agree to deal with land use change simply qualitatively. This is true, that is why we are going to deal with direct land use changes quantitatively. A combination of methods required for tackling land use changes.
- Insofar as there will be a conference/session on land use change, there should be an effort to involve those from the Kyoto protocol land use negotiations. The avoided deforestation discussions there need to be made in concert with the discussions here.
- In Switzerland we study these displacement effects for our country right now (diploma thesis), the study is based on a consequential LCA based on the EMPA study.

- How to promote 2nd generation fuels? Is this for implementation WG?

Decision:

Default values will be used.

For the land use part, which will be held on a separate specific virtual meeting, we will involve people from the IPCC, Kyoto protocol and land use negotiations.

7. *Direct certification tool based on RSB GHG approach versus indirect incentives:*

Discussion:

- If you make a GHG calculation, there are always a lot of sophisticated points – for instance, how to deal with co-generation and co-products. Need to feed company data into the same tool to get comparable results.
- Another indirect effect that isn't mentioned here: if you displace food, need to take into account the differences in production styles. For instance, a metric ton of corn not grown in the US would have a different impact if it were grown elsewhere. Copenhagen conference in June 2007 attempted to answer this question.
- Need to take into account changes in prices, because displacement will not be one to one, as if prices rise demand will go down, and people might plant less.
- In the US, some of the displaced market is replaced by other products or feed stocks. Seems very difficult to do it right.
- Switzerland has a big study going on based on consequential LCA.
- Is JRC working on displacement? We are thinking about how to tackle this – it's difficult, but we shouldn't ignore it. It could have a very large impact.

Decision:

Tackling indirect effects deserves its own discussion, its own session/discussion. It will be put in the agenda.

8. *Additional inputs:*

- After the meeting, a participant suggested that ISO 14041 should be the baseline for an agreed LCI of GHG but induced (better term than indirect) effects are beyond the scope of ISO 14041 but would be part of the "consequential LCA methodology" that is little developed so far. He mentioned the "Modèle à paramètres caractéristiques" used within naturemade certification (see <http://www.naturemade.org/f/zertifizierung/index.htm>). These indicator models have been developed after we performed full LCA of an energy system and looked into the major factors affecting the results. He concludes that biofuels from certain regions could not be certified until a government establishes (and controls) a strict law that guarantees no induced land use changes.

4. Next meeting and agenda:

We are going to make an analysis of the different databases & tools for assessing GHG emissions. The expert group will fill it out first, and then it will be open to everyone.

The theme of next meeting will be to discuss the comparison of databases & different methodologies, to see where the major differences lie and where there is broadly consensus on an approach.

Next meeting will take place at the end of October. A doodle survey has been created to confirm a date.

Link to the doodle survey: <http://www.doodle.ch/dpDFbeWNMAd2>

New timeline:

	2007								2008		
	May	June	July	Aug	Sept	Oct	Nov	Dec	Jan	Feb	March
Constitution of Expert Advisory Group		■	■								
Expert Advisory Group meetings/ conf calls			■		■		■		■		■
Choice of the methodology for GHG assessment:											
<i>1) Inventory and comparisons of the existing LCA tools/ methodologies</i>			■	■	■	■					
<i>2) Identify the main points in the life cycle that contribute the most to GHG emissions</i>				■	■	■	■	■			
<i>3) How to tackle indirect effects/ the question of allocation</i>							■	■	■		
<i>4) Address GHG emissions from land use changes</i>									■	■	■
Draft overall recommendation GHG elements of draft standard											■
Devise recommendations for governance structure to continually update GHG tool (Phase Two)											■