

The Roundtable on Sustainable Biofuels

International multi-stakeholder initiative developing principles and criteria for sustainable biofuels production that are:

- **Simple, accessible** and implemented worldwide
- **Generic** to all crops
- **Adaptable** to new information
- **Efficient and cheap** to measure
- **In line with WTO rules** (use ISEAL code)



Principle No. 3 : Climate Change and GHG

3. Biofuels shall contribute to climate stabilization by reducing GHG emissions as compared to fossil fuels. Emissions shall be estimated via a consistent approach to lifecycle assessment, with system boundaries from “root to tank”. This shall include direct and indirect GHG emissions, for instance from fossil energy used in growing, transporting and processing biofuels. It shall also include GHG emissions resulting from land use changes as land is converted to biofuel crop production, or as other production is displaced.

Challenges

The controversial points are:

Co-product allocation. When making a biofuel, there are various side-products that can be used in other markets (for instance, animal feed). How do we decide which product gets 'charged' with which amount of GHG emissions? We could use the value of the end product, or the volume, or other systems. We need to pick one, to be consistent.

Indirect land use changes. Growing biofuels may displace food crops or livestock into forested areas, resulting in displaced deforestation. How can we account for this loss in stored carbon?

The GHG Working Group

There is a need to agree on a global methodology to calculate the GHG emissions over the lifecycle of the biofuel, taking into account the energy and fossil inputs used to grow, process, and transport the biofuel to the pump, as well as any stored carbon lost during land conversion to crops.

The GHG Working Group within the Roundtable will recommend methodologies to calculate the efficiency of particular production and processing techniques in terms of replacing GHG emissions as compared to fossil fuels.

We are using a combination of teleconferences, online discussions, and in-person expert meetings to come to consensus on a methodology to use for calculating the GHG emissions of different biofuels.

Structure of GHG WG

The Working Group is led by two **Co-chairs**:

➤ Dr. Bruce Dale (Michigan State University)

➤ Dr. Stephan Krinke (Volkswagen)

and a **coordinator**:

Mr. Georgios Sarantakos (EPFL)

The participants of the **Expert Advisory Group** are:

Dr. Alex Farrell (UC Berkley)

Dr. Hisashi Ishitani (Keio University)

Dr. Jeremy Woods (Imperial College London)

Dr. Rainer Zah (EMPA, Switzerland)

Dr. Guido Reinhardt (IFEU, Germany)

Dr. Isaias Macedo (UNI CAMP, Brazil)

Dr. Michael Wang (Agronne National Labs, USA)

Dr. Edgard Gnansounou (EPFL)

Dr. Shoba Veeraraghavan (Shell)

Results (2)

- ✓ Reference system: relevant standard fossil reference chain. (biodiesel with diesel and ethanol with petrol).
- ✓ Focus on those steps/inputs with the biggest impact. Use default (average) values as much as possible, to reduce the reporting or certification burden on farmers and companies.
- ✓ Focus on the impacts that vary from crop to crop or production method to production method.
- ✓ Land use change (direct and indirect) will be taken into account

Next steps

Having agreed on the scope of our work, we are now trying to decide which lifecycle assessment tools and methodologies are best-suited to the needs of the RSB.

A questionnaire was sent to 8 scientific groups which developed GHG accounting methodologies specifically for biofuels and we are now discussing the feedback received.