3rd Biomass Industry Day
How to mobilise the development of
sustainable large scale bioenergy

Overview of existing processes for the development of sustainability criteria for biomass:
Analysis of crucial issues from a global and European perspective

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Historical scale

2003: EU Biofuel Directive (indicative quota)

2005: USA: Renewable Fuel Standard

2005: G8: Global Bioenergy Partnership **(GBEP)**

2006: NL: Cramer Commission, **UK:** RTFO

2007: Germany: Biofuel Quota Law (+ Sustainability Regul.)

2007: California: issued LCFS (05/09 regulation proposed)

2008: EU Draft RES Directive (06/09 passed)

2008: CEN Standardisation starts (TC383)

2009: USA EPA draft RFS2

2009: ISO standardisation starts

EU Renewable Energy Sources Directive (2009/28/EC)

Scope concerning biomass sustainability issues developed during 2008, reflecting the previously discussion in several MS (NL, UK, DE etc.)

Passed in June 09 → has to be implemented by member states until 5th December 2010

Biomass sustainability concerns 3 articles:

Art. 17: Sustainability criteria for biofuels and bioliquids

Art. 18: Verification of compliance

Art. 19: Calculation of greenhouse gas impact

EU Renewable Energy Sources Directive

Article 17:
Sustainability criteria for biofuels and bioliquids

(1) compliance for national biofuel targets, obligations and eligibility for financial support.

(2) GHG saving shall be at least 35% (enhanced after 2016)

(3) Not from land with high biodiversity (status after 01/2008)

(4) Not from lands with high carbon stocks

(5) Not from peatland

(6) Within EU biomass prod. requires Cross Compliance

(7) Bi/multilateral agreements
→ report on soil/water/air, ILO, Cartagena/CITES

EU Renewable Energy Sources Directive

Article 18:
Verification of compliance with the sustainability criteria for biofuels and bioliquids

(1) Chain of custody via a mass balance system.

…

(3) Operators report on measures
- for soil/water/air protection,
- restoration of degraded land,
- the avoidance of excessive water consumption where water is scarce.

…

(9) End of 2012 the COM reports about the effectiveness of the criteria system and the appropriateness of mandatory requirements for soil/water/air

EU Renewable Energy Sources Directive

Article 19:
Calculation of greenhouse gas impact

(1) calculate by using
- (a) default values (Annex V, A/B) if there is no LUC.
- (b) actual values (calculate on your own applying Annex V, C "rules for calculating the GHG"
- (c) combining (a) and (b)

(2) MS shall report on regions (NUTS2 level) meeting the default values for biomass cultivation

(3) Default values can only be applied for biomass
- from outside the EU;
- from reported NUTS2-regions
- from waste, residues

EU Renewable Energy Sources Directive

Article 19:
Calculation of greenhouse gas impact (cont.)

(5) COM will report by end of 2012 about the estimated values and may correct where necessary.

(6) COM reports by end of 2010 about the impact of indirect land-use change and propose a concrete methodology, if appropriate;
decision shall be endeavoured by end of 2012.

(7) Annex V can be adapted (comitology process)

(8) Definitions for “severely degraded land” and “highly contaminated land” have to be précised.

EU Renewable Energy Sources Directive

Hence there is still a number of open issues, also for immediate implementation.
e.g..: Art. 17 (3) "land with high biodiversity"

- **primary forests (→ needs exact specification and approved maps)**

- **protected areas by law (→ which status?)**

- **areas for the protection of rare, threatened ecosystems/species (→ approved data base?)**

- **highly biodiverse grassland (→ needs exact specification and approved maps)**

EU Renewable Energy Sources Directive

e.g..: “direct land-use change” for the calculation of the GHG balance (Annex V, Part C, Nr. 7), since default values are not provided.
(as long sustainability is excluded acc. to Art. 17 (4), “land with high carbon content”)

e.g. How to make a GHG calculation “transportable” all along the production chain.

German Biomass Flow Sustainability Order

(BioSt-NachV)

This regulation adopts the requirements of the RES-Directive entirely – enhancing one aspect:

→Electricity produced from liquid biomass entitling to the bonus for renewable raw materials (acc. to the Act on Renewable Energies) **has to fulfil the sustainability requirements (esp. the GHG saving) effective as from coming into force (i.e. beginning of 2010).**

→ certification has to be in operation yet in 2009.

German Biomass Flow Sustainability Order (BioSt-NachV)

To do!!

→ the practical implementation of the sustainability criteria for operational certification

→ the recognition (even the procedure of recognition) of approvable certification systems

→ furnishing the Competent Authority to be able to carry out recognition and control.

→ currently an "implementation tool" is under development to support these tasks .

USA Renewable Fuel Standard (RFS 2)

Proposed regulation by EPA (May 09)

Referring to EISA (Energy Independance and Security Act): requires an Life Cycle Assessment (LCA) for biofuels.

Each fuel category required to meet mandated GHG performance thresholds.

→Only criterion GHG saving (for the time being)

→land-use change (direct and indirect) has a significant importance (calculation by a macro-economic model)

USA Renewable Fuel Standard (RFS 2)

Conventional Biofuel (ethanol derived from corn)

- Must meet **20%** lifecycle GHG threshold (only new facilities)

Advanced Biofuel

- Essentially anything but corn starch ethanol
  includes cellulosic ethanol and biomass-based diesel
- Must meet a **50%** lifecycle GHG threshold

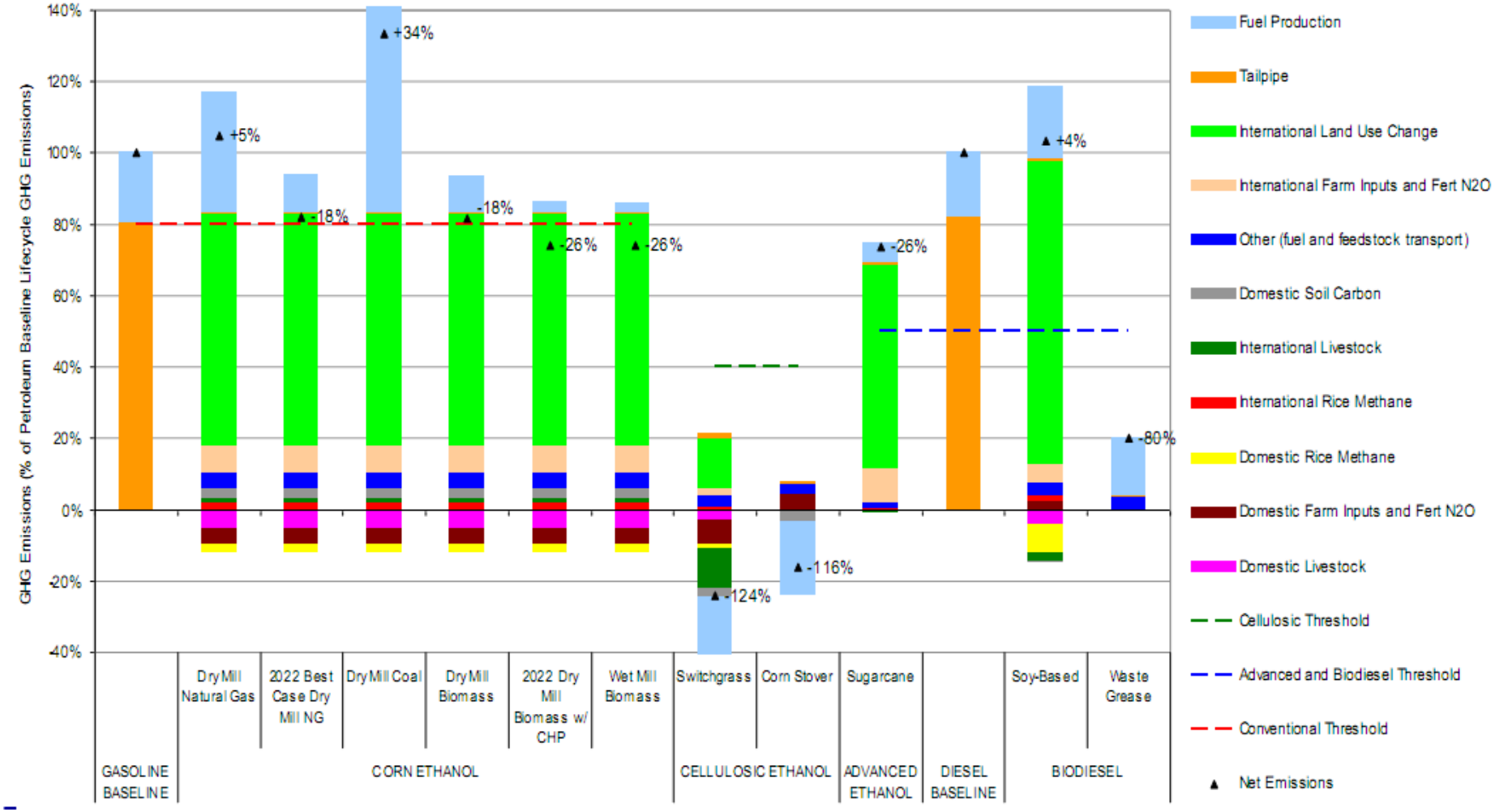
Cellulosic Biofuel

- Renewable fuel produced from cellulose, hemicellulose, or lignin e.g. cellulosic ethanol, BTL diesel
- Must meet a **60%** lifecycle GHG threshold

USA Renewable Fuel Standard (RFS 2)

GHG Results from different pathways

with 0% discount rate 30 years



SOURCE: U.S.EPA; Laughlin 2009

Global Bioenergy Partnership

- **Launched at the G8 Summit 2005 in Gleneagles to initiate an international discussion on the issues related to bioenergy**

- **Objective: support "bioenergy deployment, particularly in developing countries"** and **„to work on biofuel best practices and take forward … sustainable development of bioenergy“**.

- **Members G8 + 5 (originally), meanwhile: 18 countries, 10 organizations + 20 observers.**

- **In 10/07 the Task Force GHG methodology started**

- **In 06/08 the Task Force Sustainability started work.**

Global Bioenergy Partnership

Task Force GHG methodology:

- Developed a *Methodological Framework for GHG Lifecycle Analysis of Bioenergy*.
- Objective: provide a template for LCA that is transparent and that can be applied to a wide range of bioenergy systems. It does not set data standards and does not specify particular emissions models, but shall help to ensure using methods appropriate to their circumstances, conditions and systems of production.

Global Bioenergy Partnership

Task Force GHG sustainability:

- **Develops a set of global science-based criteria and indicators regarding the sustainability of bioenergy → useful platform.**
- **Provisional criteria:**
  GHG emissions, natural resource utilisation and impacts, indirect effects, resource availability and use efficiency, economic development, economic viability and competitiveness, rural and social development, food security, issues of access to energy and natural resources, labour and human health issues and energy security
- **Next step: developing science-based indicators reviewing the criteria**

CEN TC 383:

“Sustainability criteria for biomass“

Scope:

a.) Detailing of the given European regulatory sustainability themes in the area of renewable energy, laying down indicators, methodologies and guidance for the legally given criteria,
b.) Elaborate on and define possible additions to the given criteria and methodologies related to the European regulatory sustainability themes in the area of renewable energy.

Conflict with DG TREN:

→ re-definition of the work: only offering supporting contribution useful in the context of practical implementation of the requirements of the RES Directive

SUMMARY

The EU RED is a fact and the current key regulation
But, there is a number of issues to be précised in the short run (and some more in the medium term: ILUC)

The German Bio-Electricity order puts pressure on the time schedule.

The US RFA2 only accounts for GHG performance but includes a "highly-sensitive" LUC-model.

GBEP is the most relevant global platform to discuss and find agreements on the understanding of sustainability by the involved nations and international institutions.

Thank you for listening!

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