

Criteria for sustainable bioenergy production - comparison of project results and other sustainability and certification initiatives

Kaunas, Lithuania
25th November 2010

Agency for Renewable Resources (FNR)

Aino Martikainen



- ▶ Introduction
- ▶ Legal framework at European level
- ▶ Project results
 - Sustainability principles and criteria developed in the project
 - Identification and description of sustainability initiatives and certification systems in the BSR
 - Comparative analysis of sustainability initiatives and certification systems
- ▶ Conclusions

- ▶ Sets the target of a 20% share of energy from renewable sources in the Community's energy consumption in 2020
- ▶ Sets mandatory national overall targets for renewable energy shares
- ▶ Sets the target of a 10% share of renewables in transport (incl. Biofuels) in 2020 in every Member State
- ▶ Requires national renewable energy action plans (June 2010)
- ▶ Sets sustainability criteria for biofuels
- ▶ Requires reporting and monitoring by the Member States and Commission

- ▶ GHG saving of at least 35%
 - 50% from 2017
 - 60% for new installations from 2018
 - default values and calculation method for actual values included

- ▶ No raw material from converted land with:
 - high biodiversity value
 - Primary forest, protected areas, biodiverse grassland
 - high carbon stock
 - Forests, peatland, wetlands

- ▶ Chain of custody: mass balance methodology

Sustainability Scheme for energy uses of biomass, other than biofuels and bioliquids COM 2010 (11)



nachwachsende-rohstoffe.de

- ▶ Report adopted on 25th of February
- ▶ Commission: No binding legislation is necessary
- ▶ National biomass sustainability schemes can be developed – report recommends criteria for them
- ▶ Recommended criteria
 - Based on the sustainability scheme in the Renewable Energy Directive for biofuels/bioliquids
 - Specificities for gaseous and solid biomass
 - Member States should support efficient use of biomass
 - No sustainability criteria for waste
 - Criteria should apply only to plants larger than 1MW
- ▶ The Commission will report on the issue at the end of 2011 and consider if additional measures are appropriate

Bioenergy Promotion- Criteria for sustainable bioenergy production



nachwachsende-rohstoffe.de

- ▶ A guidance report „Sustainable bioenergy production – Defining principles and criteria“
 - A tool and guidance for reaching sustainable systems for bioenergy production in the Baltic Sea Region and possibly beyond
 - Task leader Swedish Board of Agriculture

- ▶ Biodiversity
- ▶ Resource efficiency
- ▶ Energy efficiency
- ▶ Climate mitigation efficiency
- ▶ Social aspects
- ▶ Economic issues

Identification of sustainability initiatives and certification systems in the BSR



nachwachsende-rohstoffe.de

- ▶ Eleven certification systems or initiatives were identified to be relevant in the Baltic Sea Region
 - RED Sustainability criteria for biofuels and –liquids
 - Forest Stewardship Council (FSC)
 - Programme for the Endorsement of Forest Certification Schemes (PEFC)
 - Nordic Ecolabel (Swan)
 - Verifiable Sustainable Ethanol Initiative (Sekab)
 - International Sustainability & Carbon Certification (ISCC)
 - Cramer criteria
 - Better Sugarcane Initiative (BSI)
 - Roundtable on Sustainable Palm Oil (RSPO)
 - Roundtable on Sustainable Biofuels (RSB)
 - Round Table on Responsible Soy (RTRS)

Biomass production shall not endanger biodiversity at the landscape level. However, special considerations to threatened species shall be taken at the local level. Biomass production shall whenever possible strengthen biodiversity and contributing to landscape variability.

In all of the analysed initiatives biodiversity is a key issue considered.

Natural resources such as soil, water and land, shall be used efficiently

Biomass production or extraction shall not endanger soil status or cause further deterioration of water quality and quantity

- ▶ Soil conservation, sustainable water use and air pollution mostly covered by national law and regulations
- ▶ All certification systems require compliance with all applicable laws and agreements
- ▶ Only both Swan standards do not have any requirements on resource efficiency
- ▶ RED refers to the minimum requirements for good agricultural and environmental condition from the Council Regulation (EC) Nr. 73/2009 → apply only for raw materials cultivated in the EU

Energy balance shall be considered, the use of fossil energy sources during production of bioenergy should preferably be avoided.

Input energy shall be minimized throughout the whole production chain and be distributed and accounted for on all products.

Heat and electricity: energy used in biomass production, extraction and conversion to bioenergy < 20% of the energy gained

Biofuels: energy input in biomass production, extraction and conversion < 50% of the energy output

- ▶ Not covered by the most of the initiatives
- ▶ RSB: By-products and waste shall be reused in a way which improves the energy balance of the system
- ▶ Swan for pellets: criterium applies only for manufacture
- ▶ Swan for biofuels: max. energy consumption for production and transport of 1MJ biofuels 1,4 MJ
- ▶ BSI: total net primary energy usage per kg product stays under 3000kJ/kg

Greenhouse gas emissions from bioenergy production and use shall be minimized.

Biomass production shall not endanger important carbon stocks.

Greenhouse gas emissions caused by land-use change shall be low in relation to the emissions that can be avoided in a long-term perspective.

- ▶ GHG emissions from bioenergy production and use covered by all initiatives except FSC
- ▶ GHG emissions through land use change are not an issue in the criteria of FSC, Swan pellets and RSPO

The GHG emission savings from the production and use of biomass for heat, cooling and electricity production should preferably be at least 80 % compared to if fossil fuels had been used

The GHG emission savings from the production and use of biofuels should, compared to if fossil fuels had been used, preferably be at least 35 %. From 1 January 2017 it shall be 50 % and from 2018 60 % for new plants

- ▶ RSPO, Swan, FSC and RTRS do not comply with the BP threshold
- ▶ Cramer, ISCC, RED, RSB and BSI fulfil the requirement for biofuels

The production and use of biomass for energy shall not endanger food security or local production of biomass for other applications.

Bioenergy production should not endanger the conservation of cultural remains and heritages or prosperity of local communities and cultures.

- ▶ Only RED has no explicit social criteria
- ▶ Generally difficult to quantify
- ▶ Securing of food supply is explicitly mentioned in the criteria of ISCC, RSB and Cramer Commission
- ▶ Local communities are regarded by RSPO, RTRS, Cramer Commission, FSC and ISCC
- ▶ A social impact assessment is required by BSI, ISCC, RSPO and RTRS

Bioenergy production, extraction and use should contribute to an increase in rural activity and to the development of viable business and security in energy supply.

- ▶ Not covered by Swan, SEKAB and the RED
- ▶ BSI measures the criterion with “value added / tonne cane”, whereby the agricultural operation should make a profit of at least 2 \$, and the mill at least 4 \$ for a tonne produced/ processed cane
- ▶ Cramer Commission requires reporting on the direct economic value that is created; policy, practice and the proportion of the budget spent on local supply companies and the procedure for appointment of local staff and the share of local senior management
- ▶ Economic issues can also be a topic of a social impact assessment, which is required in some certification systems

- ▶ Biodiversity is the only criterion, which is considered in all of the analysed initiatives and certification systems
- ▶ But reference dates for conversion of HCVAAs differ between the initiatives
- ▶ Many sustainability aspects are difficult to quantify
- ▶ Some sustainability issues, particularly energy efficiency and climate mitigation efficiency, are not fully covered
- ▶ Wood is the most important bioenergy source in the Baltic Sea Region, especially the certification systems for woody biomass should take into consideration, if they shouldn't include these issues into their criteria

Thank you for your attention!



Fachagentur Nachwachsende Rohstoffe e.V. (FNR)