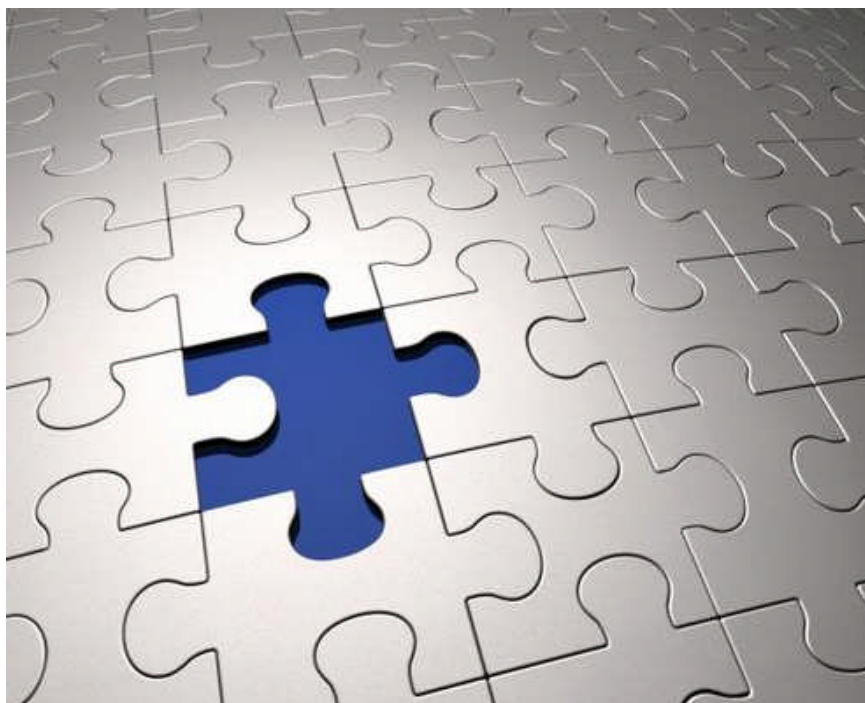




Options for integrating principles & criteria of sustainable bioenergy production and use into policy



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Overview



Inventory of policy options for integration

Example: Integration into bioenergy support schemes

Good practice cases from Germany



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Sustainability principles and criteria

Binding EU sustainability criteria for transport biofuels and bioliquids

- Minimum GHG savings
- No-go areas (to protect biodiversity-rich lands)
- No-conversion areas (to protect carbon-rich areas from conversion)
- Environmental cross compliance rules

Recommended EU sustainability requirements for solid and gaseous biomass use

- Minimum GHG savings
- No go areas (to protect biodiversity-rich lands)
- No-conversion areas (to protect carbon-rich areas from conversion)
- Environmental cross compliance rules
- End use efficiency

Complementary principles and criteria for BSR (Bioenergy Promotion)





Integration into bioenergy policies (I)

Regulatory instruments (“command & control”)

- Technology standards, product standards etc
- Mandatory sustainability product standards and corresponding third party certification schemes evaluating GHG performance and other environmental performance indicators
- Area-specific standards (prohibiting or limiting the production of feedstock/crops in specific areas)
- Mandatory energy efficiency performance standards for the conversion of biomass into bioenergy
- Mandatory sustainability reporting by companies
- etc.





Integration into bioenergy policies (II)

Economic incentives and support schemes

- Integration into feed-in tariff systems, “Green” tradable certificate systems etc.
- Conditional support (support linked to the compliance with certain minimum environmental performance requirements)
- Differentiation of support schemes in favour of more sustainable forms of bioenergy production and use (e.g. bonus systems)
- Examples
 - Encourage environmentally sound /locally adapted energy crops via crop premia
 - Promoting the use of by-products, residues, wastes
 - Promoting highly efficient conversion technologies and the utilization of surplus heat in cogeneration





Integration into bioenergy policies (IV)

Information and education

- Advise to farmers, forest owners and plant operators (e.g. Regional bioenergy advisory services and teams in Germany)

R&D

- Sustainable and locally adapted energy crop cultivation, synergies between biodiversity and energy crop cultivation, use of residues and wastes, conversion technologies cascading uses.



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Integration into bioenergy policies (V)

Co-operative instruments

- Co-operative agreements between public authorities and industry
- Urban Development Contracts: Municipalities as landowners may impose special sustainability/environmental performance requirements on project developers via UDC and *covenants* when selling real property and land (*städtebauliche Verträge*).
- Voluntary self-commitments by industry to improve environmental performance beyond existing legislation and regulations (e.g. German pellet industry)
- Voluntary certification/labelling schemes (e.g. *Green Gold*, *ok Power*)





Integration into forest policy



- Adjustments of international recommendations on Sustainable Forest Management (MCPFE process)
- Adjustments of national standards and regulations for forest management (e.g. whole tree harvesting, stump extraction, deadwood removal)
- Incentives and subsidies for forest mobilisation linked to sustainable forest management and remuneration of ecological services of forests
- Targeted information and guidance for forest owners
- Adjustments of existing voluntary certification schemes (e.g. FSC, PEFC)



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Integration into agricultural policy

- Enforce and optimize **Cross Compliance** rules and **Good Agricultural and Environmental Condition** in order to take into account new risks of cultivating biomass for non-food purposes
- Examples Germany: Minimum standards for crop rotations, limited share of maize, no further conversion of permanent grassland
- Promotion of innovative cropping systems through Rural Development Programmes
- Agri-environmental programmes
- Compensation mechanisms for phasing out set aside
- Targeted information and advisory services for farmers





Integration into other policies

Integration into environmental policy

- Environmental protection standards for bioenergy facilities and plants (e.g. emission standards, ambient air standards etc.)
- Environmental permitting of bioenergy plants
- Environmental Impact Assessments
- Strategic Environmental Assessments
- Integrated Pollution and Prevention Control etc.

Integration into climate change policies

- Carbon taxes
- Emissions Trading System





Integration into other policies (II)

Integration into landscape planning

- Coordination and regulation of biomass cultivation and land use (e.g. priority zoning or restriction of areas for energy crop cultivation)
- Landscape planning to avoid land use conflicts and to develop synergies between energy cropping and nature protection

Integration into spatial planning

- Mainly informal tools
- Designation of biomass plants/siting decisions

Integration into public procurement policies



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Example: Integration into bioenergy support schemes



Example: Feed-in tariff system in Germany

- Renewable Energy Sources Act (2000, amendments 2004, 2009)
- Fixed payments for each kWh RES-E supplied to the national grid.
- **Basic payments** differentiated according to type of RES, conversion technology and plant size
- **Cumulative bonus payments** on top of the basic tariff
 - “Renewable raw material bonus” (NawaRo)
 - “Cogeneration bonus”
 - “Technology bonus”



Energy crop bonus led to sharply increasing number of biogas plants with energy maize becoming the most important substrate. The areas cultivated with silage maize significantly increased.



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Unsustainable developments

Regionally concentrated unsustainable developments

- Shorter crop rotations
- Increasing conversion of permanent grassland for energy maize (in some regions e.g. Schleswig-Holstein losses of >5% between 2003 and 2009)
- Monocultures (maize); loss of biodiversity (?)



Other undesirable developments

- Competition of biomass use with fodder production
- Increasing prices for agricultural land





Selected policy amendments (2008)

- Amendments in force since 1.1.2009
- Higher basic payments for small-scale plants
- Higher **Renewable raw material bonus, Positive list/negative list** of eligible feedstock
- Higher cogeneration bonus (positive list)
- New extra bonus for using **liquid manure** in biogas plants
- New extra bonus for using **landscape conservation** material
- Improved incentives for **biogas upgrade** and **injection** (technology bonus)





Regional biomass support scheme of *Schleswig-Holstein*



- **Investment support scheme** providing grants for biomass plants using agricultural feedstock (residues) and biogas to produce heat and electricity
- Support rate: max. 40% of eligible investment costs
 - Biomass CHP plants, heating plants, biogas plants
 - Peripheral equipment (storage, special machinery, pumps)
 - Fuel supply measures, fuel treatment and logistics



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Regional biomass support scheme of *Schleswig-Holstein*



Selected eligibility requirements

- Maximum 10 MW_{th}
- Minimum share of 55% agricultural biomass (average of all supported projects)
- Technical, environmental and economic performance criteria
 - GHG mitigation efficiency
 - High fuel efficiency/priority for cogeneration
 - Surplus heat utilization (minimum 75% of the available surplus heat)
 - Priority for agricultural by-products and residues (straw, liquid manure, hedgerow coppicing residues)
 - Involvement of agriculture (e.g. supply contracts, direct capital shares etc.)
 - others



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Regional biomass support scheme of *Schleswig-Holstein*



Hedgerows („Knicks“) are a **traditional landscape element** in North Germany (protection against wind erosion, important biodiversity function)



Preservation of biodiversity functions, requires controlled coppicing (12-15 years)

Use of hedgerow biomass for energy purposes delivers potential **synergies** between nature conservation, landscape management and bioenergy use



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Regional biomass support scheme of *Schleswig-Holstein*



Additional eligibility criteria for **biogas plants** (since 2007) referring to the cultivation of maize and the use of the fermentation digestate.



- A **three field crop rotation** has to be respected
- The **share of maize** in the total cropping system of the respective supplier must not surpass 50%;
- **Conversion of permanent grassland** is not allowed;
- Realization of **integrated biodiversity areas** (field flower strips along certain landscape elements)
- Storage tanks for the digestate must be leak-proof and covered with a **gas tight membrane**.
- **Annual fertilization plan** and specific requirements for digestate fertilization



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Thank you for your attention!



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