



Sustainability principles and criteria for the Baltic Sea Region



Michael Krug

Freie Universität Berlin

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for the future energy system”

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My presentation

- The project *Bioenergy Promotion* and its extension
- Overview of actual sustainability schemes and initiatives
- Characteristics of sustainable bioenergy systems
- Sustainability principles and criteria for the BSR
- Some conclusions and recommendations from *Bioenergy Promotion*



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The INTERREG IV B project

Bioenergy Promotion

- Duration: Feb 2009- Jan 2012
- 33 partner organisations from 10 countries
- 17 demo regions
- Ministries, public authorities and agencies, chambers of industry/commerce/agriculture, research institutes & universities
- Lighthouse project under Baltic 21
- Flagship project under the EU BSRS
- Strategic project under the BSR Programme
- Website: <http://www.bioenergypromotion.org/>





Bioenergy Promotion: Key outputs

Policy

- Sustainability principles & criteria for the BSR
- National policy assessment reports
- Policy guidance

Regions

- Regional biomass potential analyses
- Regional business and industry analyses
- Identification of pilot projects
- Regional strategies for the demo regions

Business

- Technology assessments
- Good practice business models
- Virtual brokerage platform biobrokers.eu



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Bioenergy Promotion 2: From strategies to activities

- Extension stage project (2/2012-1/2014)
- 13 partner organisations
- Lead partner: *Agency for Renewable Resources FNR* (Germany)

Main project activities

- Capacity development & strategy implementation in demo regions
- Transfer of experiences to non partner regions
- Dialogue with energy utilities, EC and other stakeholders on sustainability criteria
- Input to main EU financing instruments 2014-2020
- Dialogue with CBSS/Baltic 21, BSSSC, NCM et al.



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The *Bioenergy Promotion* demo regions

17 regions in the
1st project period
2009-2011



7 regions in the
2st project period
2012-2013



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Sustainability schemes and initiatives for solid and gaseous biomass used in electricity/heating/cooling

- Renewable Energy Directive (2009) and EC proposals for amendments (2012)
- EC Biomass Sustainability Report (2010), 2nd report pending
- Global initiatives (e.g. GBEP)
- National/regional policy initiatives (e.g. UK, the Netherlands, Belgium)
- Voluntary corporate initiatives (e.g. E.ON, Drax, IWPB, regional energy companies)
- Voluntary agreements (e.g. *Vattenfall-Berlin agreement, Green Deal*)
- Standards (e.g. ISO 13065, CEN TC383, NTA 8080, Blue Angel)
- Certification systems (e.g. NTA 8081, ENPlus, ISCCplus, Green Gold, FSC, PEFC)
- Project based initiatives (e.g. BP, *Biomass Futures, SUSTAININGAS, Solid Standards*)

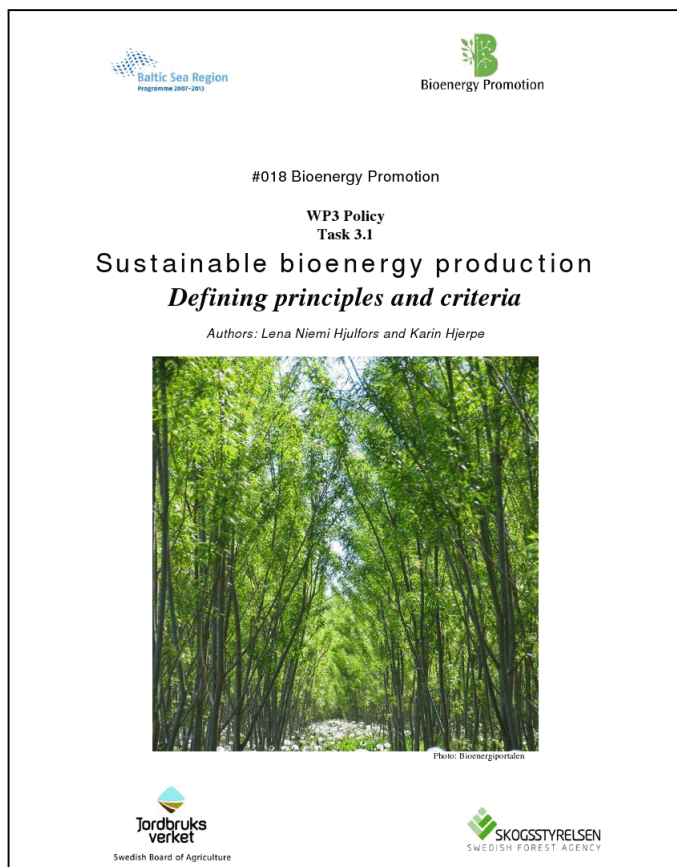


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Bioenergy promotion: principles & criteria



- Project consortium developed P&C during 2010 and 2011 (3 workshops)
- Coordination: *Swedish Board for Agriculture, Swedish Forest Agency*
- Aim: general **guidance** to multiple stakeholders in the BSR, not primarily as the basis for a standard or certification system
- P&C apply to all types of bioenergy
- Mostly very general formulations
- Only few guiding values (e.g. GHG performance, energy efficiency)
- Starting point, further specifications needed

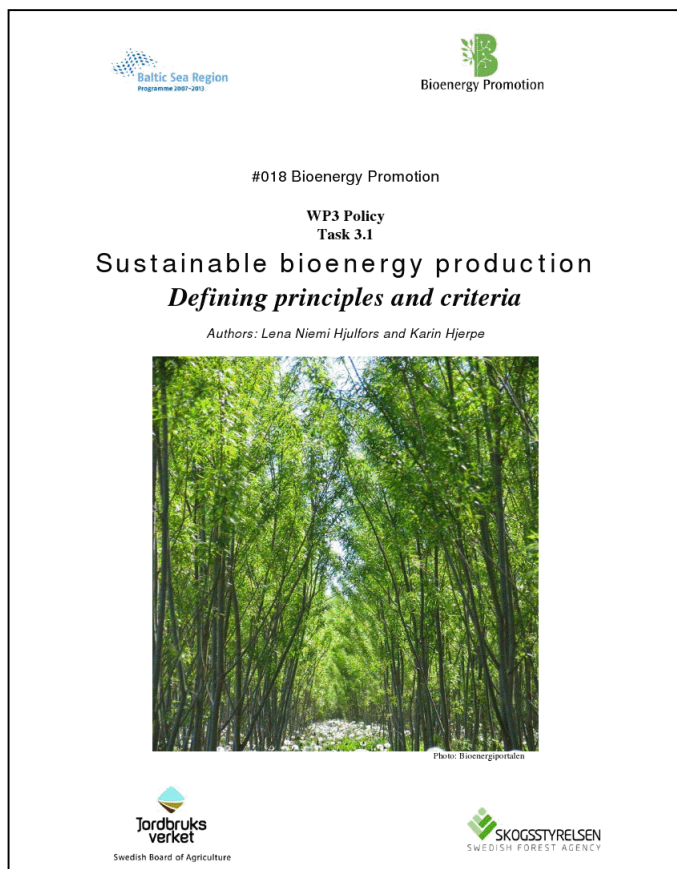


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Bioenergy promotion: principles & criteria



Biodiversity

Resource efficiency

Energy efficiency

Climate change mitigation
efficiency

Socio-economic criteria



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Genuinely sustainable bioenergy systems

- Clear priority for the use of residues, by-products and organic waste
 - Contribute to the decarbonisation of the energy system by 2050
 - Efficient use of natural resources (land, soil, water etc.)
 - Efficient production and use of biomass and bioenergy (energy yield ratio + energy conversion efficiency)
 - Closed material & nutrient cycles (e.g. use of digestate, wood ash recycling)
 - Local use of biomass, low transportation requirements
 - System approach, lifecycle approach
 - Distributed, combined & multiple uses of biomass (e.g. cascading, symbiosis systems)
 - Contribute to strengthen regional economy and regional value creation
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Sustainable bioenergy system



Biodiversity

Resource efficiency

Energy efficiency

Climate change mitigation efficiency

Social issues

Economic issues

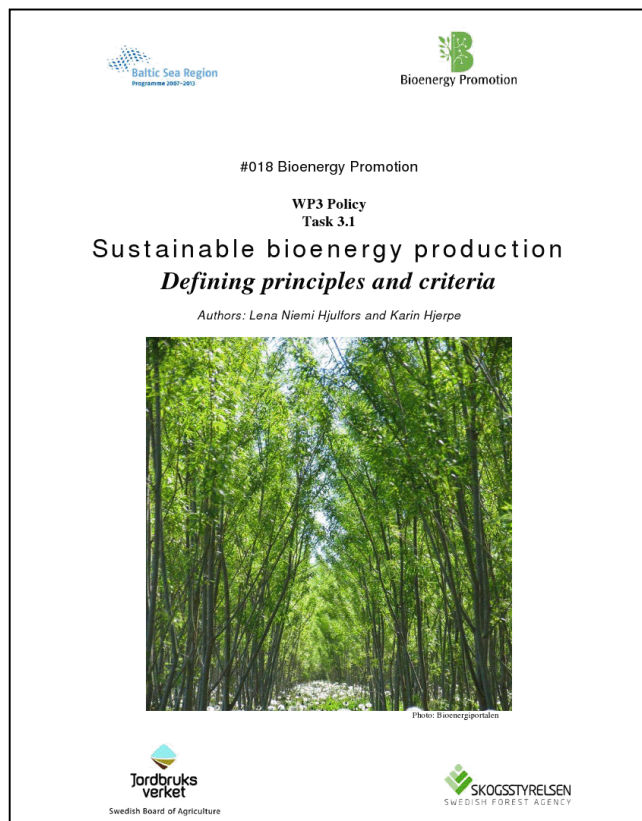


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Minimum GHG savings



- Minimum lifecycle GHG savings for solid and gaseous biomass used in electricity, heating and cooling preferably 80% (guiding value)
- GHG saving target in line with the EU aspiration of an 80%-95% GHG reduction by 2050 (EC Energy Roadmap 2050)
- Average EU fossil fuel comparators for electricity, heat
- No time frame
- GHG target includes LUC, no iLUC



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Minimum GHG savings



Pathways based on **residues** from European forests and agricultural land, **processed residues**, **organic waste**, **perennial energy crops/energy grasses**



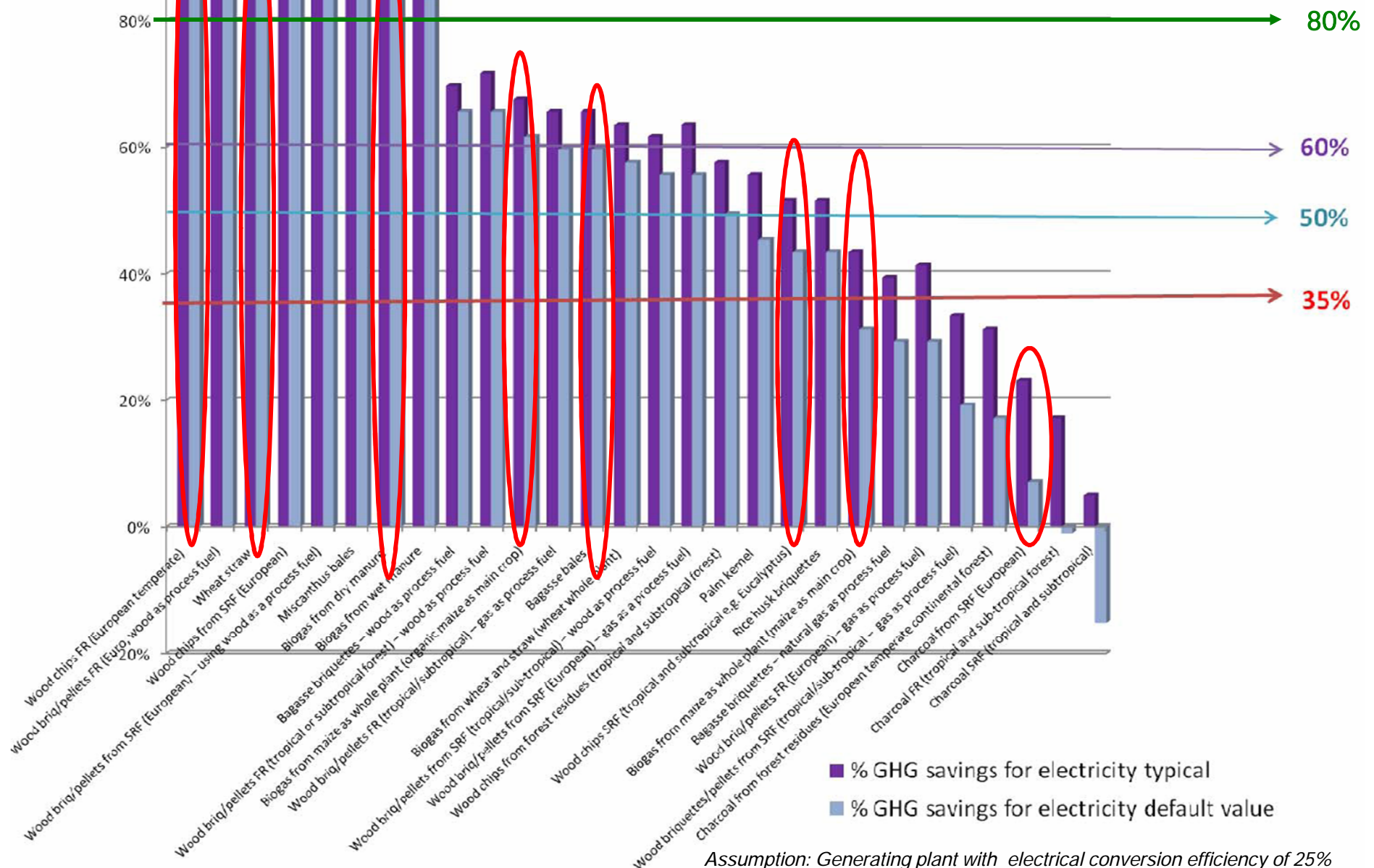
Pathways based on biomass from **tropical/sub-tropical feedstock**, with high amounts of **fossil process energy**, pathways using **certain annual energy crops** like **maize for biogas**; **inefficient uses** of biomass



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Typical GHG performance of solid biomass used in electricity



Assumption: Generating plant with electrical conversion efficiency of 25%
 Source: Rykmanns 2011, EC 2010, JRC 2009

Category	Sustainability scheme/initiative	Minimum GHG savings (%)	Fossil fuel comparator
EU sustainability framework for biofuels/bioliquids	Renewable Energy Directive 2009/28/EC (referring to biofuels and bioliquids)	35% (50%/60%)	EU fossil fuel comparator
	Proposal for a Directive amending Directive 98/70/EC and amending Directive 2009/28/EC. COM (2012) 595 final	60% for new installations in operation from 7/2014	EU fossil fuel comparator
EU sustainability framework for solid/gaseous biomass	Biomass Sustainability Report COM (2010)11	35%	EU-wide fossil fuel comparators for different technologies
National/regional sustainability schemes	UK Renewable Obligation	60%/66% [Proposal: from 2020 66%/72%]	EU wide fossil fuel comparator for electricity
	Cramer criteria/Corbey Commission (NL)	70%	National fossil fuel comparator for electricity
	Belgium (Brussels, Walloon region)	GHG reduction is calculated to determine the amount of green certificates	Best available natural gas system
Voluntary standards and certification systems	NTA 8080 (NL)/NTA 8081	70%	National fossil fuel comparator for electricity
Corporate sustainability schemes and voluntary agreements	Initiative Wood Pellet Buyers	60%	Reference fossil fuels
	Agreement between the city state of Berlin and <i>Vattenfall Europe</i>	50%	EU-wide fossil fuel comparators in accordance with COM(2010)11
	Green Deal on sustainability reporting of solid biomass for energy between the Dutch government and various energy companies	60%	Reference fossil energy
Project based initiatives	<i>Biomass Futures (IEE)</i>	55% (2015) 60% (2020) 75% (2030)	Natural gas
	<i>Bioenergy Promotion (EU Baltic Sea Region Programme)</i>	80%	Fossil fuel based energy systems



Conclusions

- Consortium recommends ambitious GHG performance in order to achieve effective decarbonisation of the energy system.
- Biomass is a **limited resource** with comparatively high demand of land. Its use should therefore be as efficient as possible.
- Besides **GHG performance** and **biodiversity** the BP consortium emphasizes therefore **resource efficiency** and **energy efficiency** as important complementary criteria.
- BP consortium concerned about the **environmental risks** of solid biomass imports (particularly from South America, Asia, Central Africa).
- BP consortium critical about **inter-continental trade** of biomass.
- BP consortium critical about **inefficient uses** of biomass, particularly in large scale co-firing power plants with no or low utilization of surplus heat (DK, PL)



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Recommendations

- Take actions to ensure a **level playing field for all biomass applications** and to progressively develop a coherent set of sustainability criteria;
 - Promote the local and regional use of biomass residues and minimize transportation requirements;
 - Encourage the deployment of highly efficient conversion processes and discourage/ban inefficient uses of biomass;
 - Promote and disseminate integrated and multiple uses of biomass, e.g. cascading systems, symbiosis systems, bio-refineries, multi-functional bioenergy systems etc.;
 - Consider to introduce minimum energy efficiency standards for bioenergy and fossil power plants.
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Thank you very much
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mikru@zedat.fu-berlin.de



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