

Policies and measures to promote sustainable bioenergy production and use in the Baltic Sea Region



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Baltic Sea Region
Programme 2007-2013

My presentation

- **The project *Bioenergy promotion* and its extension**
- **Ensuring sustainable bioenergy production and use – the EU policy framework**
- **Bioenergy in the BSR region – status quo**
- **Policy measures at national, regional and local level**
- **Conclusions and lessons for policy-making**



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The project *Bioenergy Promotion*

- Project co-financed by EU Baltic Sea Region Programme (INTERREG IVB)
- Duration: Feb 2009- Jan 2012; extension up to Jan/2014
- 33 partner organisations from 10 countries
- 17 demo regions
- National & regional authorities, 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/>



The project *Bioenergy Promotion* – selected outputs

Policy

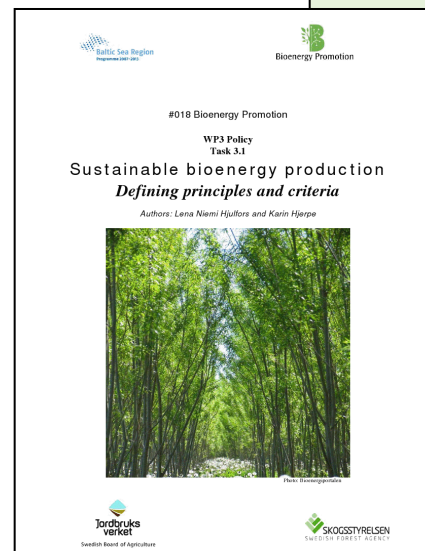
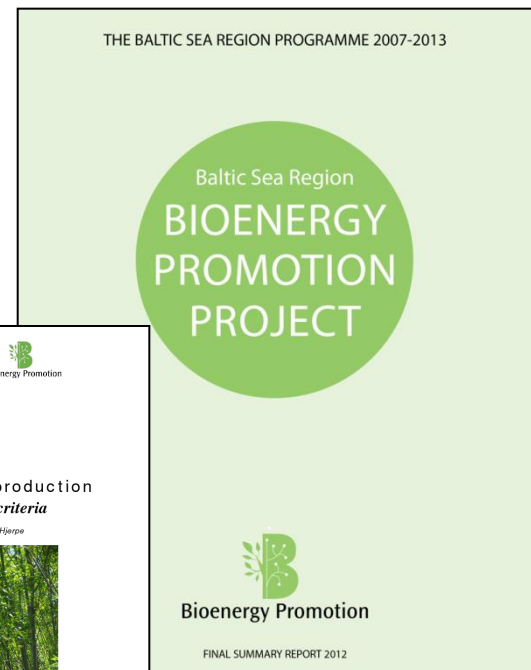
- Sustainability principles & criteria for the BSR
- National policy assessment reports
- Policy guidance

Regions

- Regional 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



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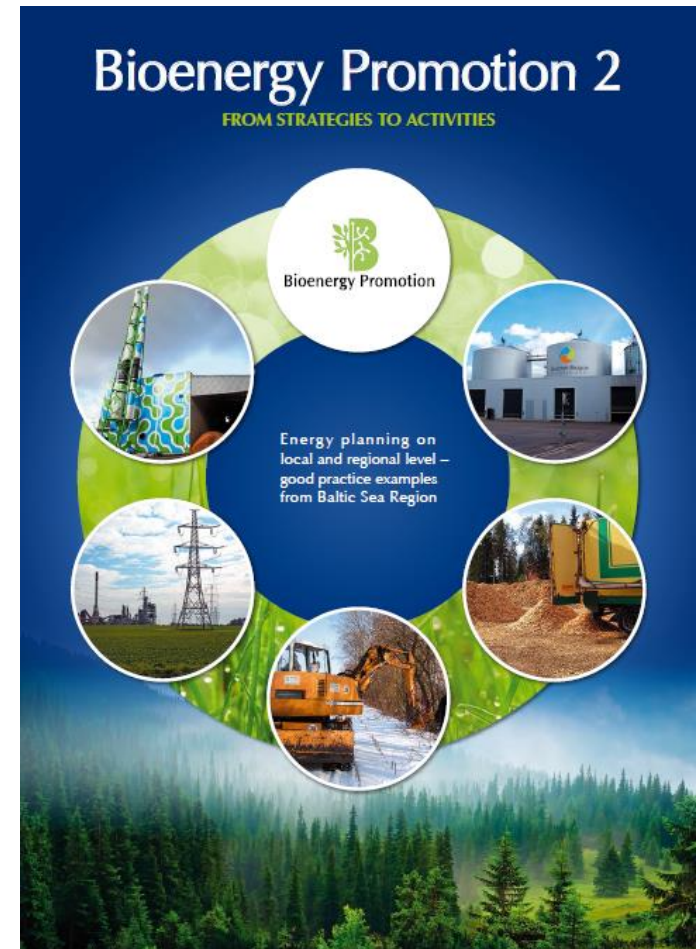


Bioenergy Promotion 2 – from strategies to activities

- 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 7 demo regions
- Transfer of experiences to non partner regions
- Dialogue with energy utilities on sustainability criteria
- Input to main EU financing instruments 2014-2020
- Policy dialogue with Council of Baltic Sea States Expert Group *Baltic 21*, Nordic Council of Ministers, BSSSC.



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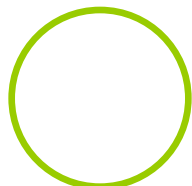


The *Bioenergy Promotion* demo regions

17 regions in the
Main stage period
2009-2012



7 regions in the
Extension stage period
2012-2014



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Renewable Energy Directive (2009/28/EC)

- Overall target for EU: 20% share of renewable energy in final energy consumption by 2020
- Binding national overall renewable energy targets (2020)
- Binding national target of 10% renewable energy in the transport sector
- National Renewable Energy Action Plans
- Cooperation mechanisms (stat. transfers, joint support schemes & projects)
- Provisions referring to administrative procedures, regulations, information, training, grid access etc.
- Sustainability scheme for biofuels and bioliquids



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EU policy framework: biofuels and bioliquids

Renewable Energy Directive (2009/28/EC)

- Contains **binding** sustainability standards for **transport biofuels and bioliquids** to be met in order to count towards the mandatory RES targets and to benefit from financial support.

- **Minimum lifecycle GHG savings** of **35%** (2017: 50%; 60% for new installations)
- Raw material not to be obtained from **land with high biodiversity value**
- No conversion of **land with high carbon stock** (forested areas, wetland, peatland)
- Agricultural raw material cultivated in the EC to comply with **Cross Compliance rules**
- Complementary **reporting** requirements (soil, water, air quality, social criteria)



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Actual EU policy developments: biofuels & bioliquids

- EU Commission **proposal** to limit global land conversion for biofuel production and to raise the climate benefits of biofuels COM(2012)595
 - Limit the contribution of **conventional food-based biofuels (i.e. from cereals, sugars, oil crops)** to the renewable energy target in transport **to 5%**
 - Increase the **minimum GHG saving requirement** for new installations **to 60% (2014)**
 - **Indirect land use change** to be included in the reporting of fuel suppliers and MS
 - Incentives for **advanced biofuels** with no or low land use change: algae, straw, waste resources etc. (multiplication factor of 4!)



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EU policy framework: solid and gaseous biomass used in electricity, heating and cooling

Biomass Sustainability Report COM 2010(11)

- **Non-binding** recommendations
- In principle **the same criteria** as for **biofuels/bioliquids**
- **Harmonised calculation methodology** for lifecycle GHG emissions, GHG accounting to include end use conversion;
- GHG savings criterion not to be applied to wastes
- Support schemes to differentiate in favour of plants with **high conversion efficiencies**
- Sustainability schemes shall apply only to **larger energy producers**
- Legislative proposal for binding criteria before the end of the mandate of the current Commission (2014) ?



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Sustainability initiatives for solid & gaseous biomass

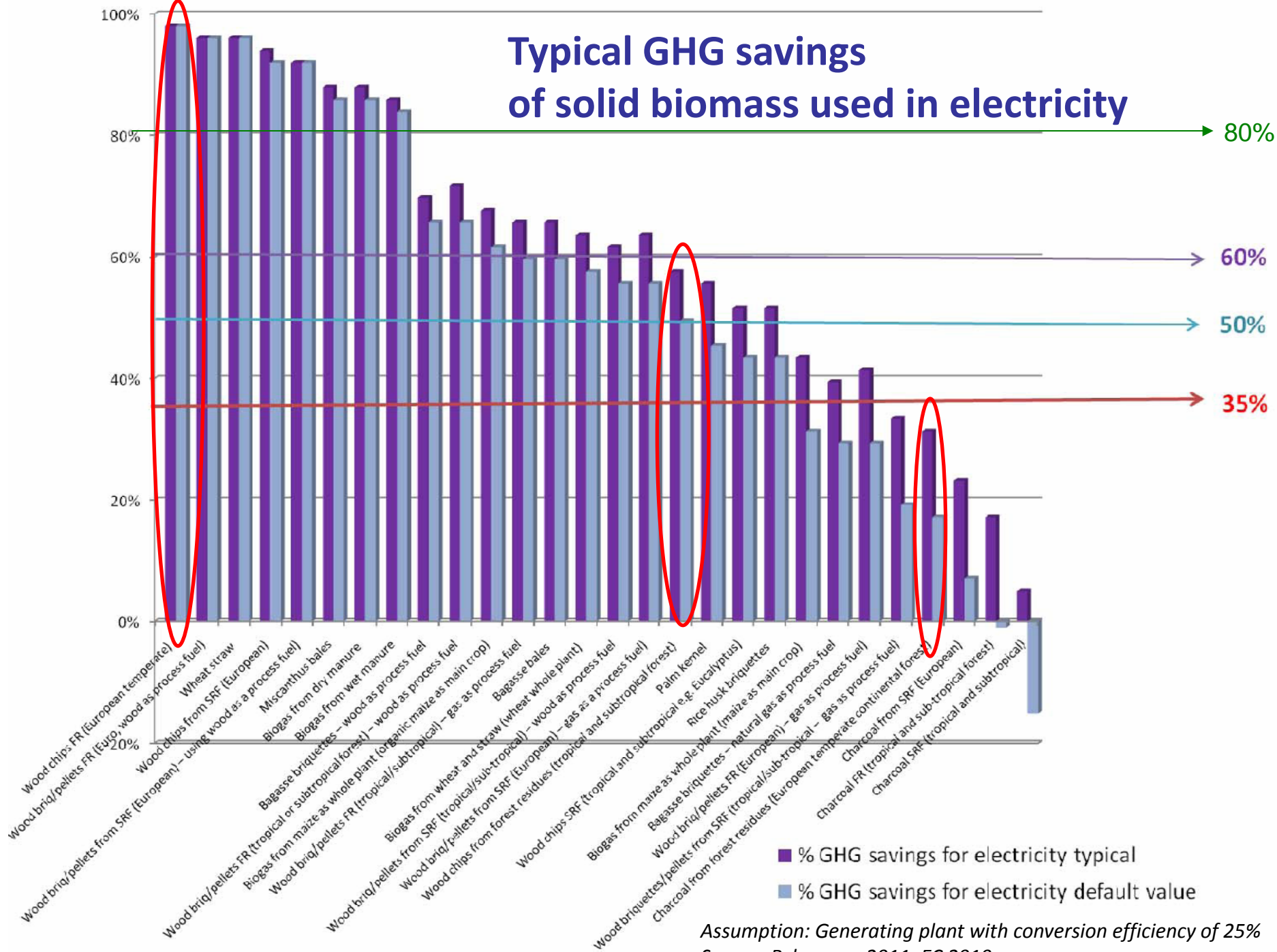
- Three EU MS have so far introduced binding sustainability schemes following the EU COM recommendations: **UK, Belgium, Netherlands**
- **Voluntary corporate sustainability initiatives** (e.g. E.ON, *Drax*, *Initiative Wood Pellet Buyers*, regional and municipal energy companies)
- **Voluntary sustainability agreements** (e.g. *negotiated agreement Vattenfall-Berlin*, Green Deal on sustainability reporting for solid biomass/NL)
- **Voluntary sustainability standards** (e.g. ISO 13065, CEN TC383, *Blue Angel*)
- **Certification systems** (e.g. ENPlus, ISCCplus, Green Gold, FSC, PEFC)
- **Project based initiatives** (e.g. *Bioenergy Promotion*, *Biomass Futures*, *SUSTAINGAS*, *Solid Standards*)



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Typical GHG savings of solid biomass used in electricity



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

Category	Sustainability scheme/initiative	Minimum GHG savings (%)	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	2015: 66% 2020: 72% 2025: 75%	EU wide fossil fuel comparator for electricity
	Cramer criteria/Corbey Commission (NL)	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 (NL)	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

Solid and gaseous biomass – status quo in the BSR

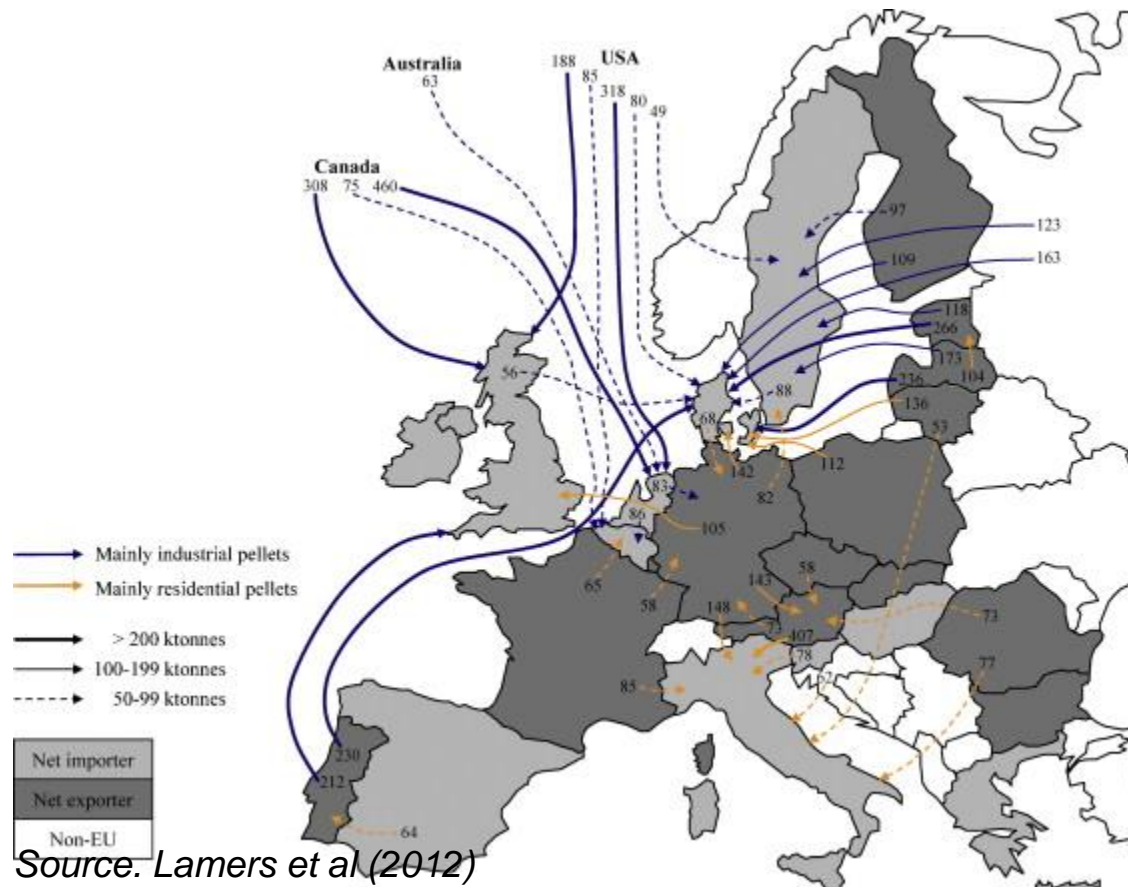
- Main EU bioenergy markets are in the BSR: **DE, DK, SE, PL**
- In the BSR the share of biomass is expected to grow substantially by 2020
- **Biomass imports** (particularly wood pellets) are expected to grow, particularly in **SE, DK, DE**
- Growing imports from non EU countries (e.g. **RUS, CDN, USA**)
- **Environmental risks** of solid biomass imports from non EU countries (e.g. South America, Asia, Central Africa)
- **Environmental risks** of increased energy uses of biomass from forestry (e.g. nutrient depletion through whole tree harvesting, stump extraction, removal of dead wood)
- **Environmental risks** of increased energy uses of biomass from agriculture



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Wood pellet trade streams (>50 ktons) 2010



Numbers are maximum annual volumes, i.e. may be based on import or export data. Exports may include re-exports.



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Policies to support sustainable production and use of solid and gaseous biomass in the BSR

- Most governments in the **Baltic Sea Region (BSR)** rely mainly on **cross-sector legislation** (e.g. ambient air/water/soil protection, Cross Compliance, nature conservation etc.).
- **None** of the **governments** in the **BSR** has so far introduced any binding sustainability scheme for solid and gaseous biomass following the EU recommendations.
- **Diverging government positions** in the **BSR** regarding the extension of the binding EU criteria for biofuels/bioliquids to solid and gaseous biomass (Contra: SE, FIN, LV, LT, EST; Pro: DE, DK, PL).



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Policies to support sustainable production and use of solid and gaseous biomass in the BSR

- Integration of sustainability considerations into **support schemes**
 - Special boni for using **environmentally beneficial material** (e.g. manure, landscape management material) under feed in tariff systems (**DE, LV**)
 - Differentiation of **financial support** in favour of highly efficient cogeneration plants (e.g. CHP bonus **DE**, heat premium **FIN**)
 - **Minimum energy efficiency requirements** for bioenergy plants (**DE, LV, LT**)
- **Negotiated agreements** on sustainable biomass procurement (**DE**)
- **Guidelines** for wood energy harvesting (**FIN, SE**)
- **Institutional support** (**DK**)
- **R&D** programmes for environmentally sound energy cropping systems (**DE**)



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Some conclusions from *Bioenergy Promotion*

- The use of renewable energy sources is **not sustainable per se** and its promotion has to be performed with a sense of proportion.
- Biomass is a **renewable**, but **limited** natural resource with comparatively high demand of land. Therefore its use should be as efficient as possible.
- The **most promising pathways** from a *Sustainable Development* perspective are those that use **locally available by-products** and **residues** as well as **biogenic waste streams** and which employ **highly efficient conversion processes** and **technologies**.
- There is a need for a consistent policy framework at EU level **ensuring a playing field for all biomass applications**.



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Some conclusions from *Bioenergy Promotion*

- There is a need for **ambitious GHG saving requirements** for solid and gaseous biomass in order to achieve the EU decarbonisation targets (80%-95% GHG savings compared by 2050)
- Besides **lifecycle GHG savings** and **biodiversity**, **resource efficiency** and **energy efficiency** have to be considered.
- **Product standards** are a promising but not sufficient policy measure to ensure sustainable bioenergy production and use.



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Some recommendations for policy-making

- Ensure a **level playing field for all biomass applications** and progressively develop a coherent set of sustainability criteria applying to all energy uses of biomass.
- Prioritize the use of processing residues, by-products and wastes.
- Encourage the deployment of **highly efficient conversion processes**
- Avoid **inefficient uses** of biomass, particularly in large scale co-firing power plants with no or low utilization of surplus heat (DK, PL).
- Promote and disseminate **integrated** and **multiple uses** of biomass, e.g. bio-refineries, cascading/symbiosis systems etc.



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Thank you very much for your attention!

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EU policy framework: Key support schemes

Biomass production

- Common Agricultural Policy/Rural development policy

Biomass utilisation

- Renewable Energy Directive (2009/28/EC)
- GHG Emissions Allowance Trading Directive (2003/87/EC + 2009/29/EC)
- Energy Performance of Buildings Directive (2010/31/EU)
- Energy Efficiency Directive (2012/27/EU)
- Waste Framework Directive (2008/98/EC)
- Structural Funds/Cohesion Fund/EAFRD

Cross-sector

- Research & development (e.g. IEE, ELENA, SET-PLAN/EIBI, FP-7 etc.)
- Covenant of Mayors



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Key national support schemes for bioenergy (2012)

		DE	DK	EST	FIN	LT	LV	NO	PL	SE
Electricity	Feed in tariff	X			X	X	X			
	Feed in premium	X	X	X	X		X			
	Quota obligation							X	X	X
	Investment grants				X	X	X			
	Tax incentives	X		X					X	
Heat	Renewable heat obligation for new buildings	X				(X)				
	Investment grants	X		X	X	X	X		X	X
	Tax exemptions/reductions		X			X				X
Transport	Quota obligation	X	X	X	X		X	X		
	Tax exemptions/reductions	X	X		X	X	X	X	X	X
Cross-sector	Emissions Trading (EU ETS)	X	X	X	X	X	X	X	X	X
	Green Investment Schemes			X		X	X			
	CO ₂ taxes and levies		X	X	X			X		X



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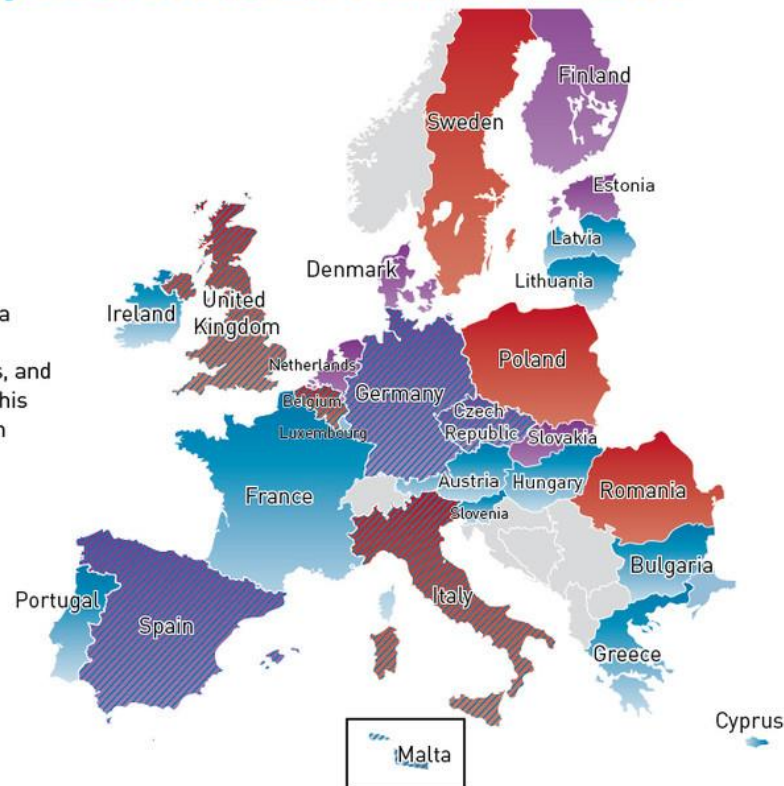


Overview of support instruments for electricity from renewable energy sources in EU Member States

-  Quota obligation
-  Feed-in tariff
-  Feed-in premium
-  Other instruments

Notes:

- 1) The patterned colours represent a combination of instruments
- 2) Investment grants, tax exemptions, and fiscal incentives are not included in this picture unless they serve as the main support instrument



Source: Fraunhofer ISI et al. ; Status: 02/2012

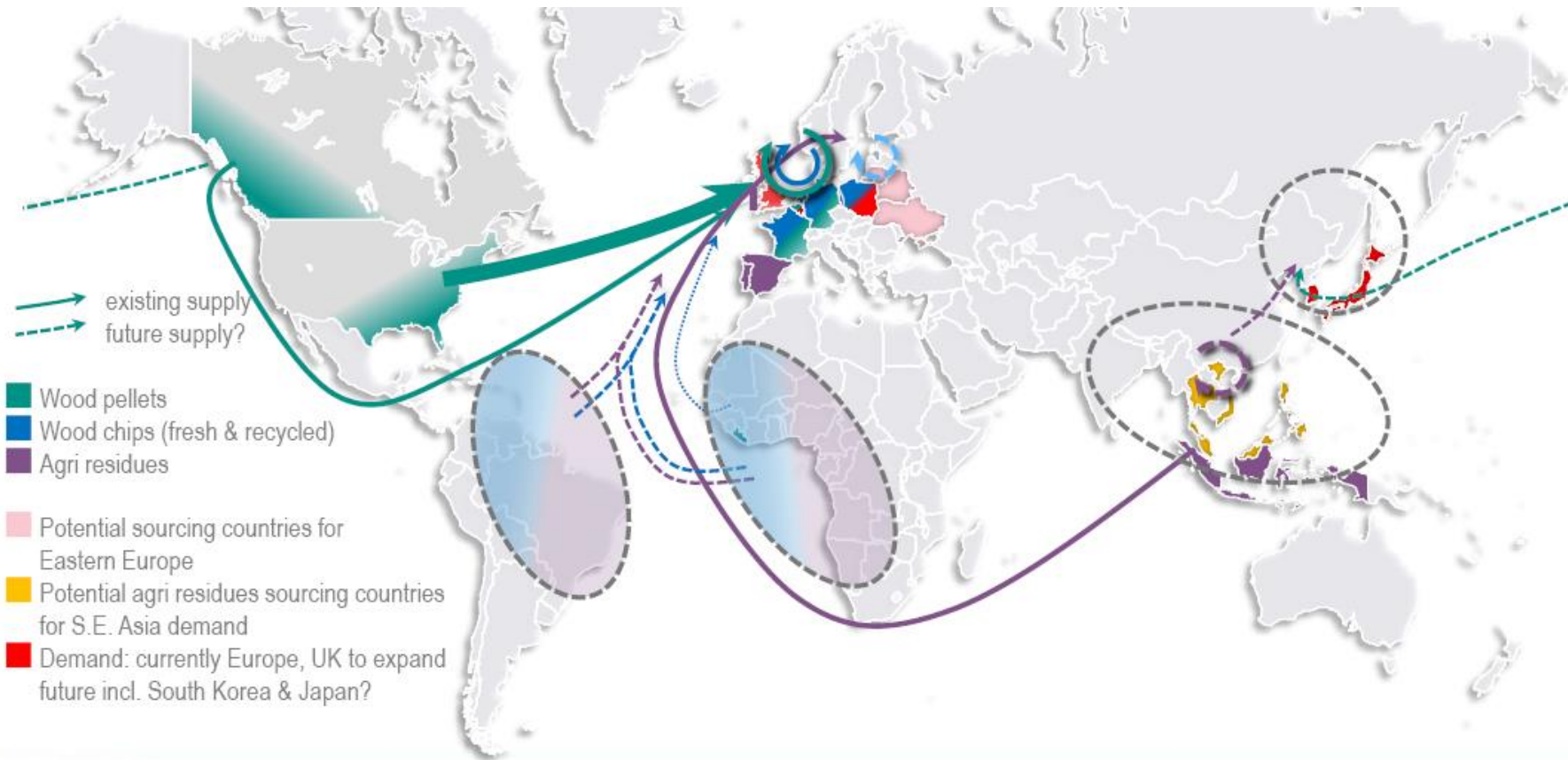
www.renewables-in-germany.com



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Wood pellet trade streams > 10 ktonnes (2010)



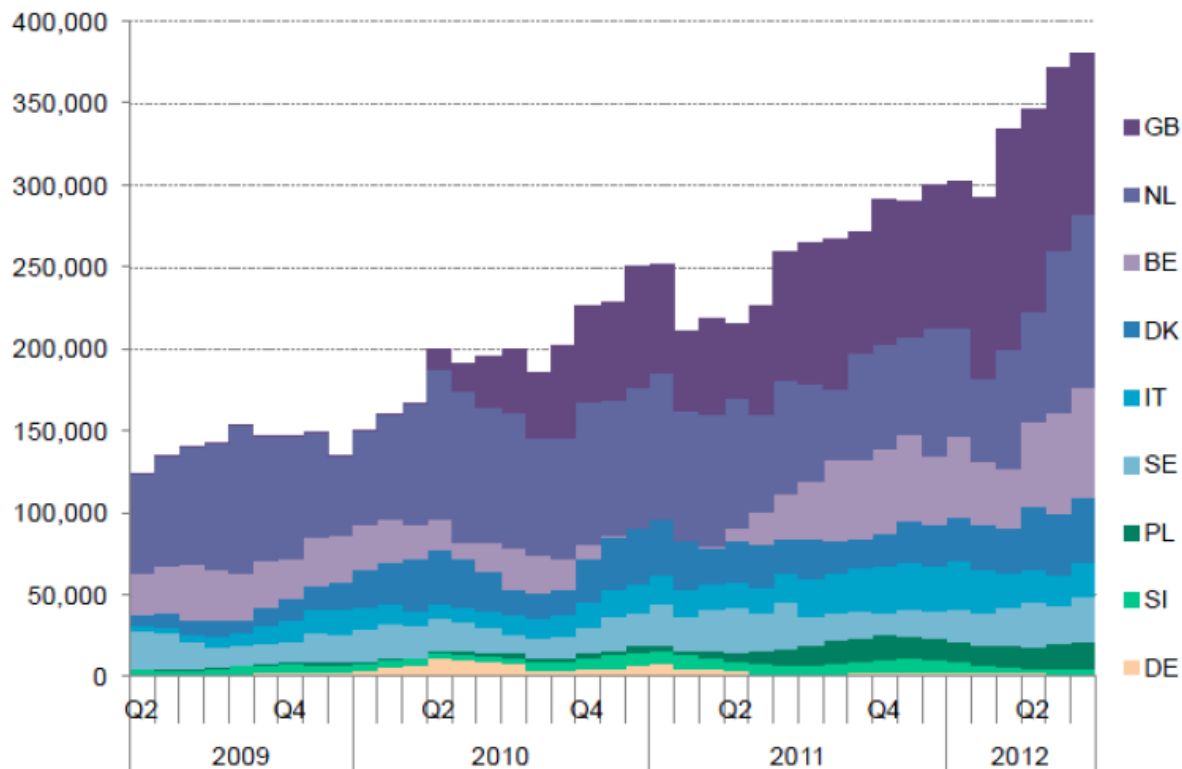
Source: Jossart 2013, GDF Suez



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Pellet imports from non EU countries (tons/month)



Note: Figures are a four-month moving average of trade flows. Data represents the nine largest importers. Since January 2012 wood pellets are captured in a dedicated category (CN 4401-3100), before 2012 in code CN 4401-3020.

Source: Bloomberg New Energy Finance, Eurostat

Source: Jossart 2013, Bloomberg New Energy Finance, Eurostat



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