
Biofuel market development

- Increasing biofuel production in Europe due to the favorable political frame conditions
→ strong influence of tax exemptions and reductions

Economic aspects

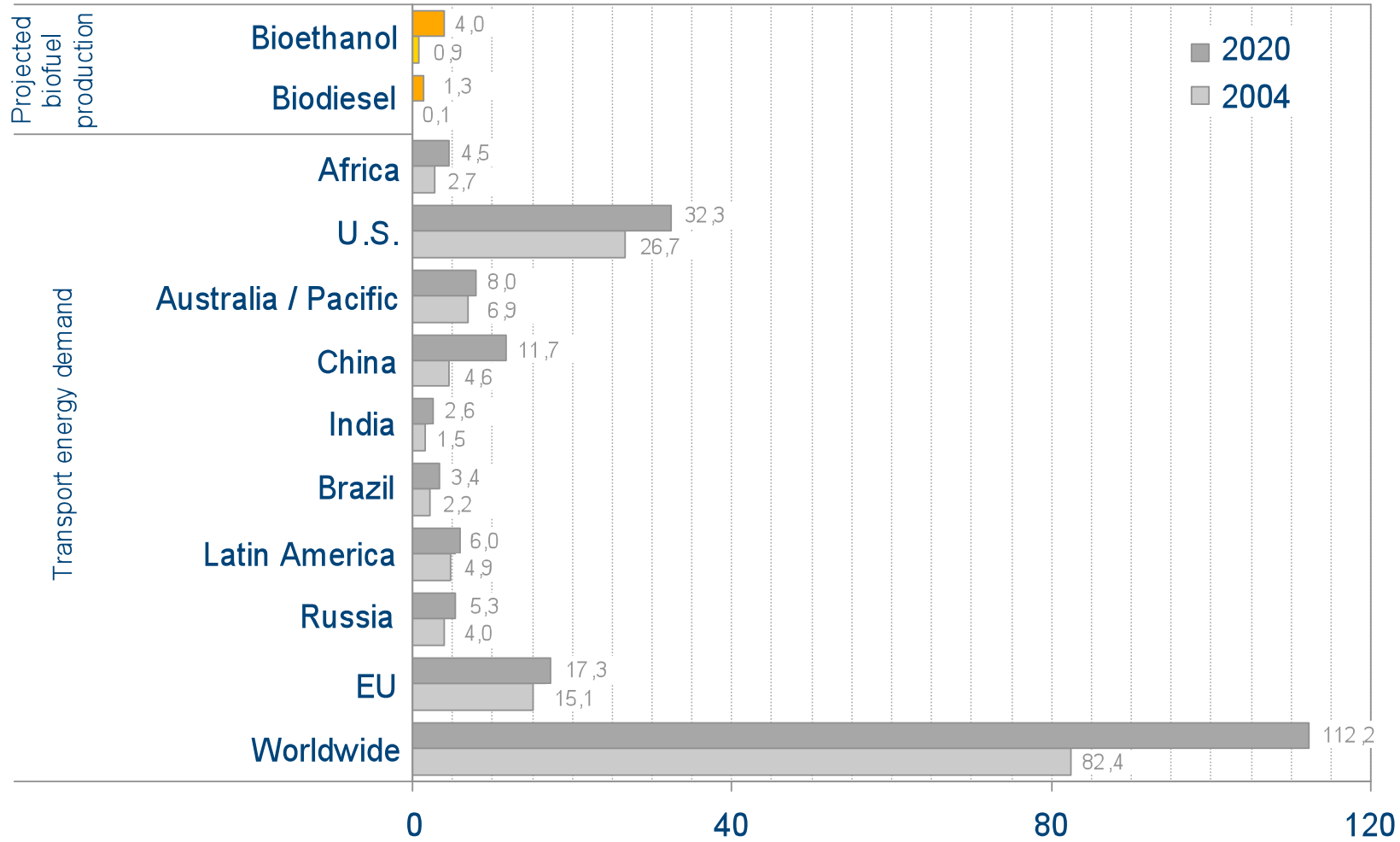
- Biofuel production costs are dominated by feedstock costs as well as capital related costs (efficiency and availability of high importance) → in future feedstock costs/prices are expected to increase, also due to an increasing trade of biomass and higher demand for bioenergy → resulting in increasing fuel market prices

Environmental aspects

- The Environmental and social aspects of biofuels are strongly discussed in the EU
→ Sustainability criteria for biofuels will be implemented in future directives in Europe esp. with focus on:
 - a the sustainable biomass production,
 - GHG mitigation potentials of biofuel pathways

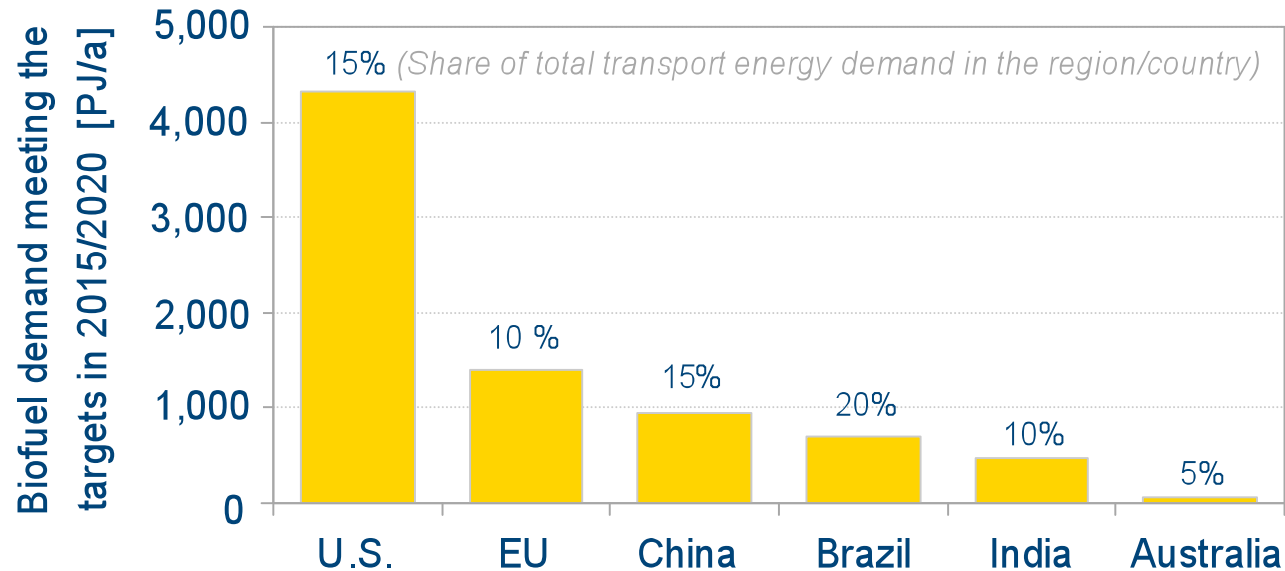
Introduction

Projections on transportation fuel demand



Transport energy demand vs. (projected) biofuel production [EJ/a]

Energy policy targets



General targets on biofuels

- Superior targets within the framework of sustainability
- Production of biofuels that are (i) technical efficient at achieving emission standards, (ii) economic efficient with (iii) high GHG mitigation potential
- Integration of biofuels production system into regional existing technical biomass potentials
- Implementation of a reasonable mix of promising biofuels into the energy system under consideration of the defined sustainability criteria and the existing infrastructure (fuel distribution and use)

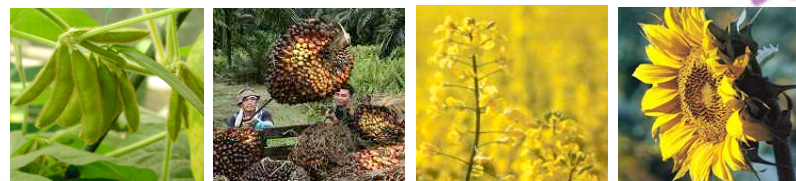
Bioethanol and biodiesel market

Bioethanol production worldwide



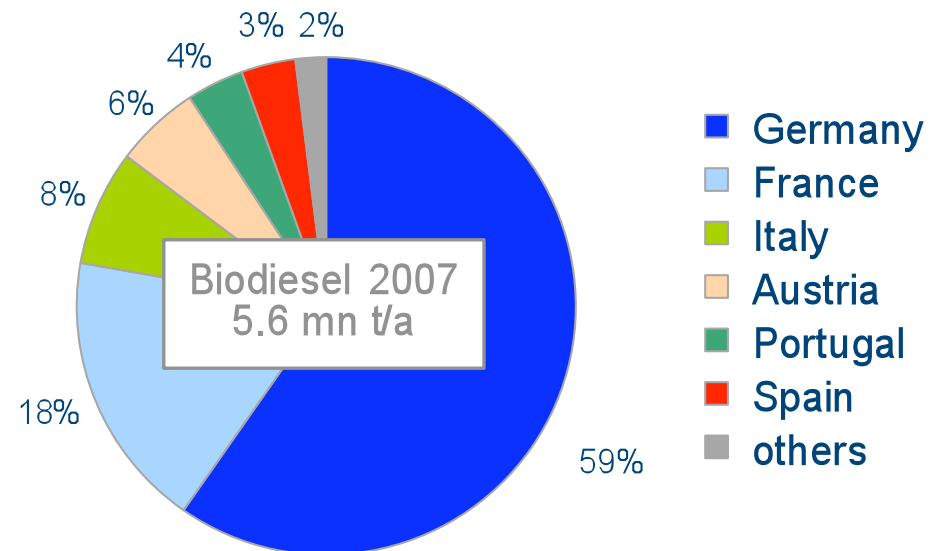
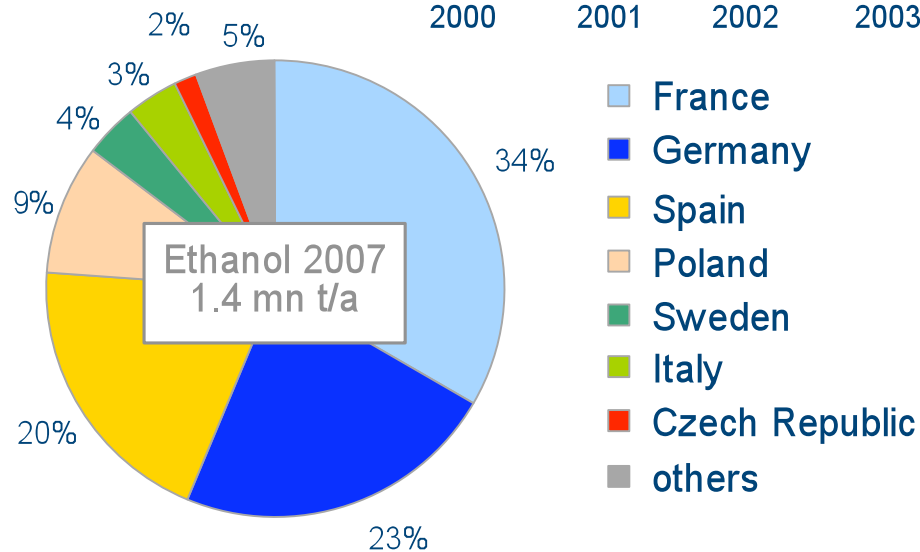
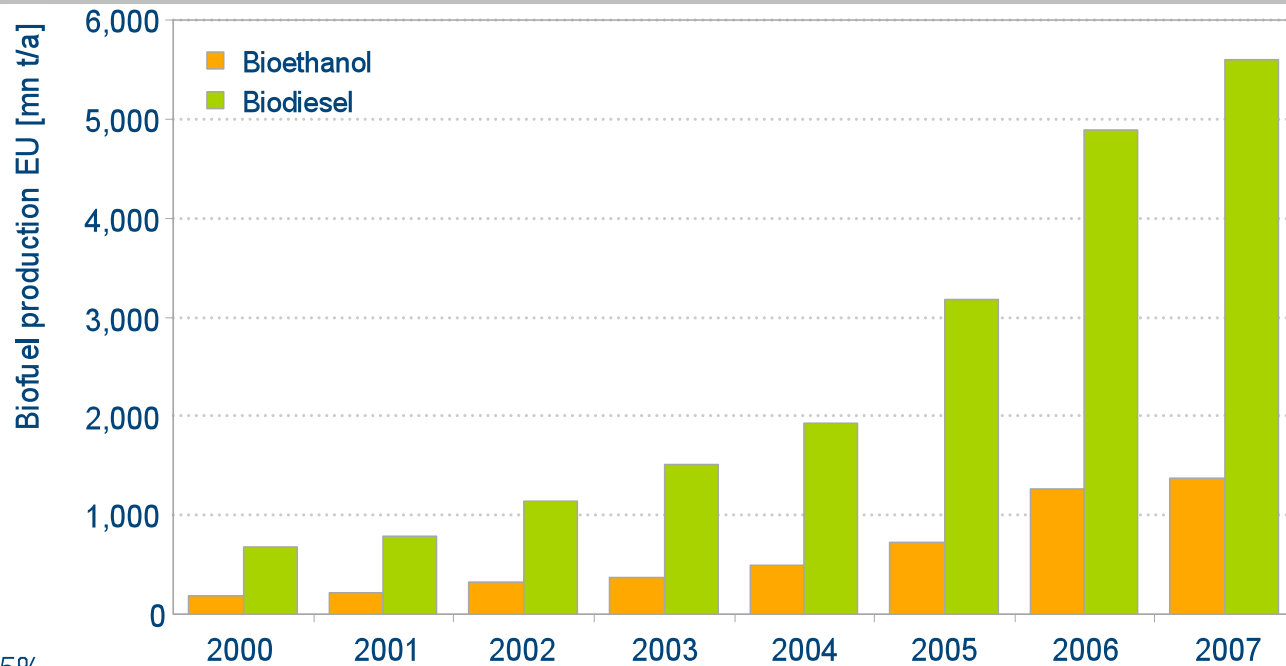
Bioethanol and biodiesel market

Biodiesel production worldwide



Bioethanol and biodiesel market

Biofuels production in the EU





Policy instruments for promoting biofuels Overview Europe

	TAX REDUCTION MEASURES	OBLIGATIONS	BOTH
Base	<p>Directive EC 2003/96 on Energy Taxation</p> <p>In 07/2007 16 member states notified tax system to EC; exemptions and reductions limited to a max. of six years, but may be renewed</p>	<p>Directive EC 2003/30</p> <p>Some member states: obligation to blend biofuels with petroleum fuels, while others have passed legislation to do so in the coming years</p>	
Current	<p>UK, Italy, Sweden Belgium, Spain, Denmark, Poland, Cyprus, Estonia, Hungary, Ireland, Latvia, Malta, Portugal, Slovakia, Slovenia</p>	<p>Austria, Lithuania, Netherland</p>	<p>France, Germany</p>
Future	<p>Sweden, Cyprus, Estonia, Hungary, Ireland, Latvia</p>	<p>UK, Netherlands, Italy, Czech Rep., Slovakia, Austria, Lithuania, Hungary, Slovenia</p>	<p>Germany, Belgium, Poland, France, Portugal, Spain</p>

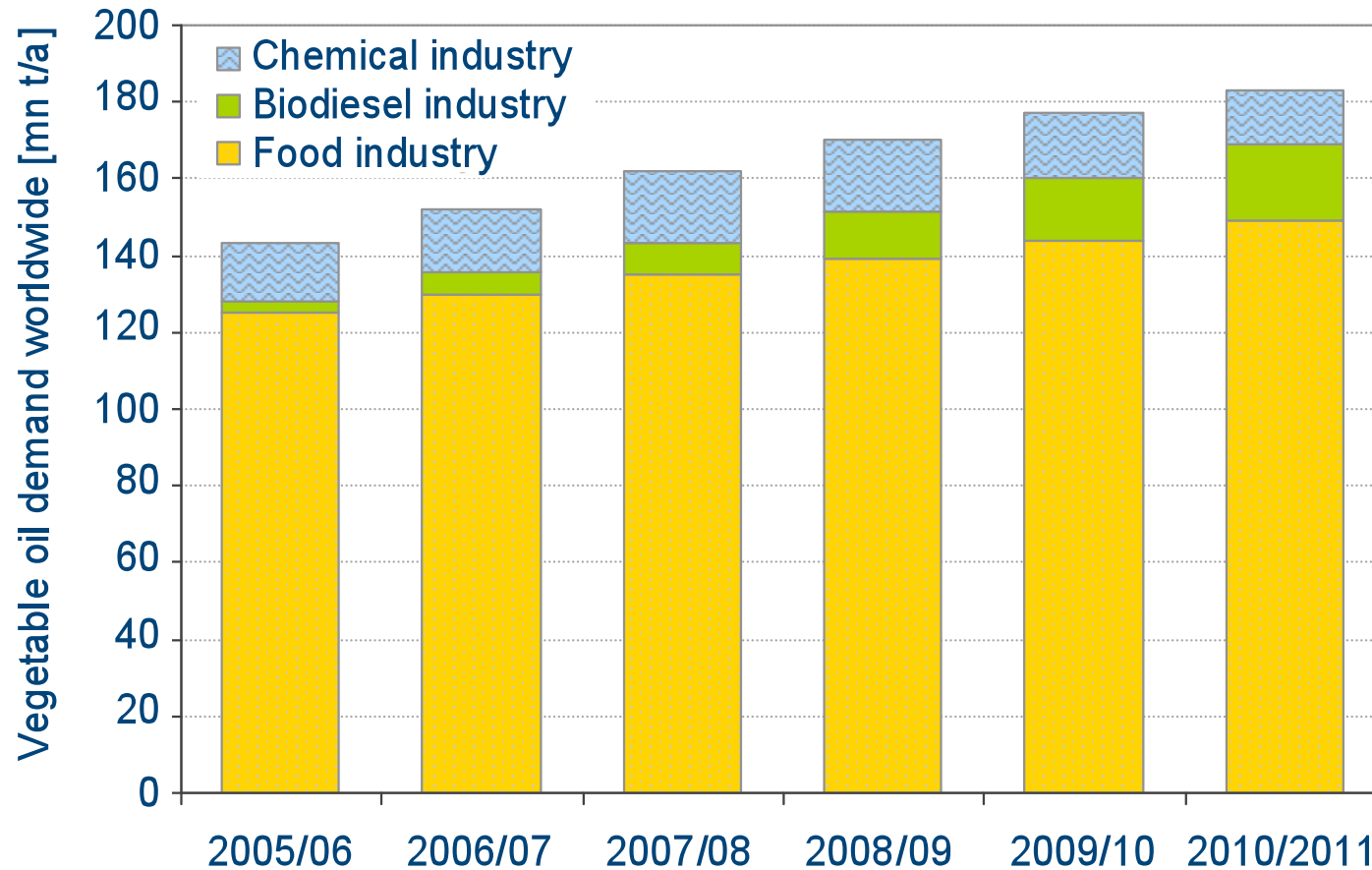
Renewable Energy Roadmap (2007), (proposal)

- Roadmap for the future development of renewable energy within the EU
- Commitment on obligatory targets for the use of renewable energy (10% in the transport sector)
- Development of criteria to ensure the sustainability of biofuels

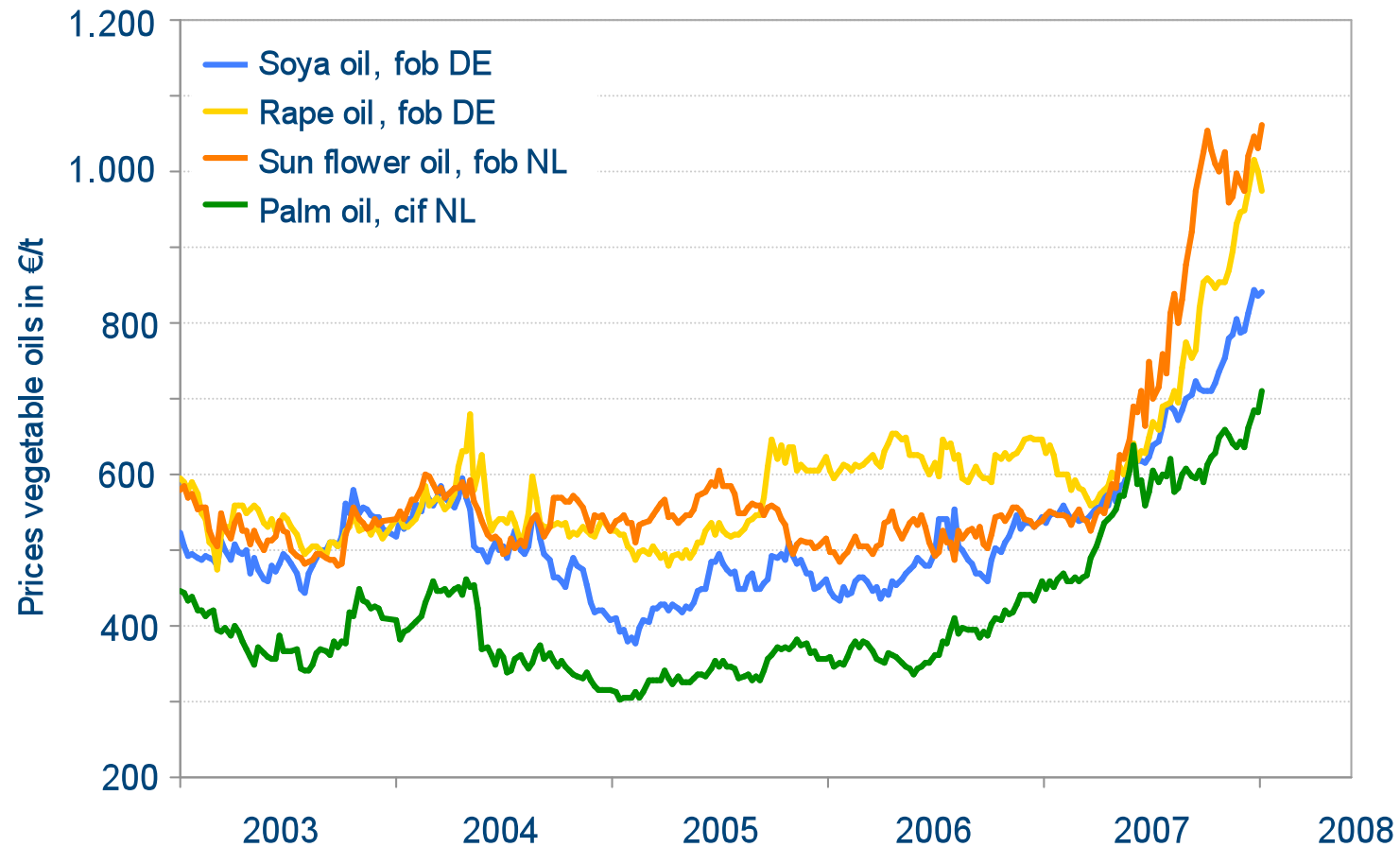
Fuel Quality Directive (2007), (proposal)

- Target: reduction of air pollution and GHG-Emissions in the transport sector
 - Fuel producers have to monitor the GHG-Emissions along the whole production chain (from 2009)
 - Annually GHG-Reduction by 1% (from 2011)
- This could lead to price benefits for biofuels with a high GHG-mitigation potential

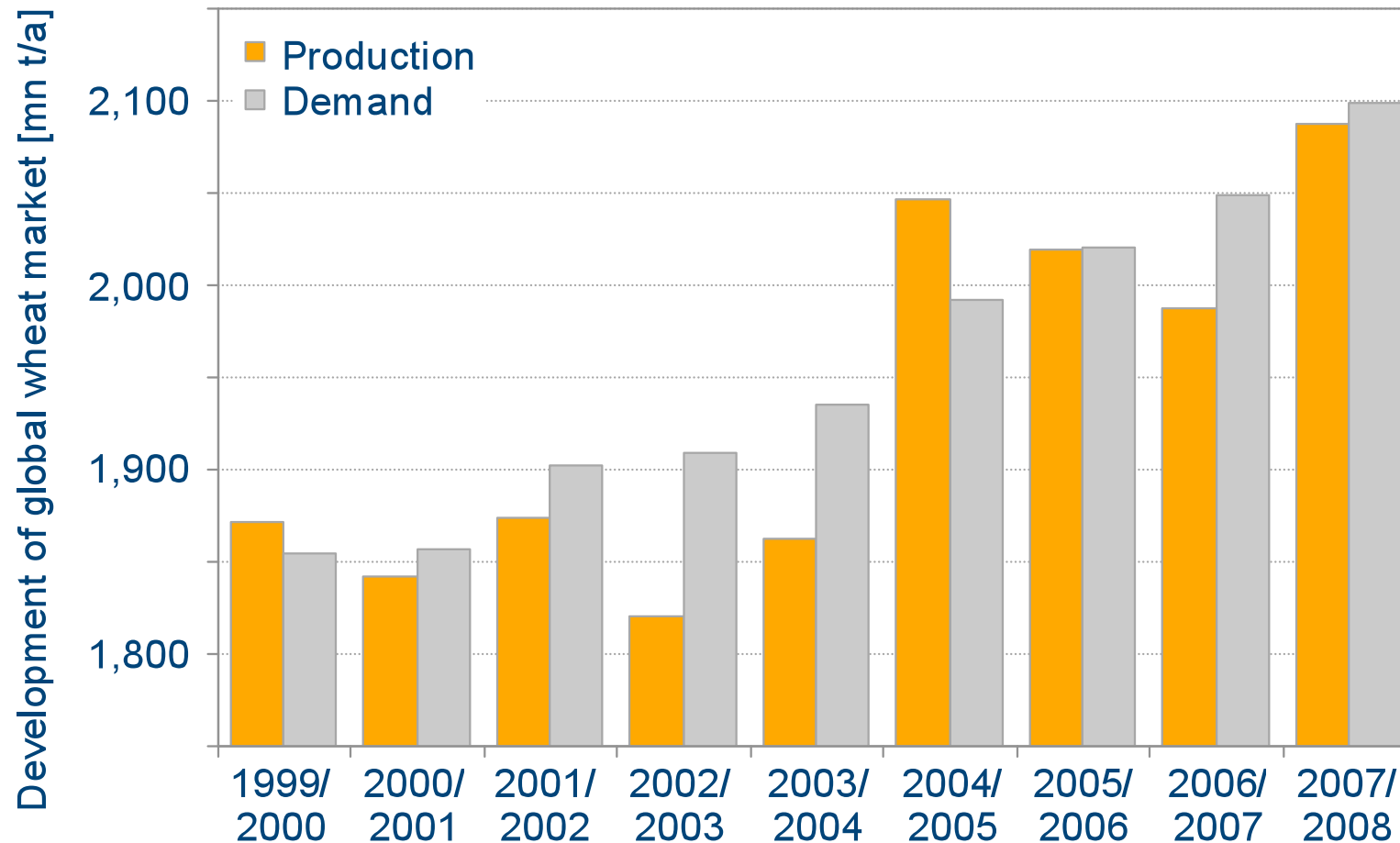
Economic aspects Biodiesel feedstock – market projections



Economic aspects Biodiesel feedstocks – price development



Economic aspects Bioethanol feedstocks – wheat market



Economic aspects Bioethanol feedstocks – wheat prices



- Since sustainability has become a major issue in the field of bioenergy (esp. in biofuels policy) the sustainable production of biomass for energetic use is planned to be implemented in legal regulations, e.g.:
 - EU Directive (proposal) on the promotion of the use of energy from renewable sources,
 - German biomass sustainability decree (proposal).
- Both directives define requirements for the production of biomass and the production of biofuels (as one aspect of energetic biomass use)

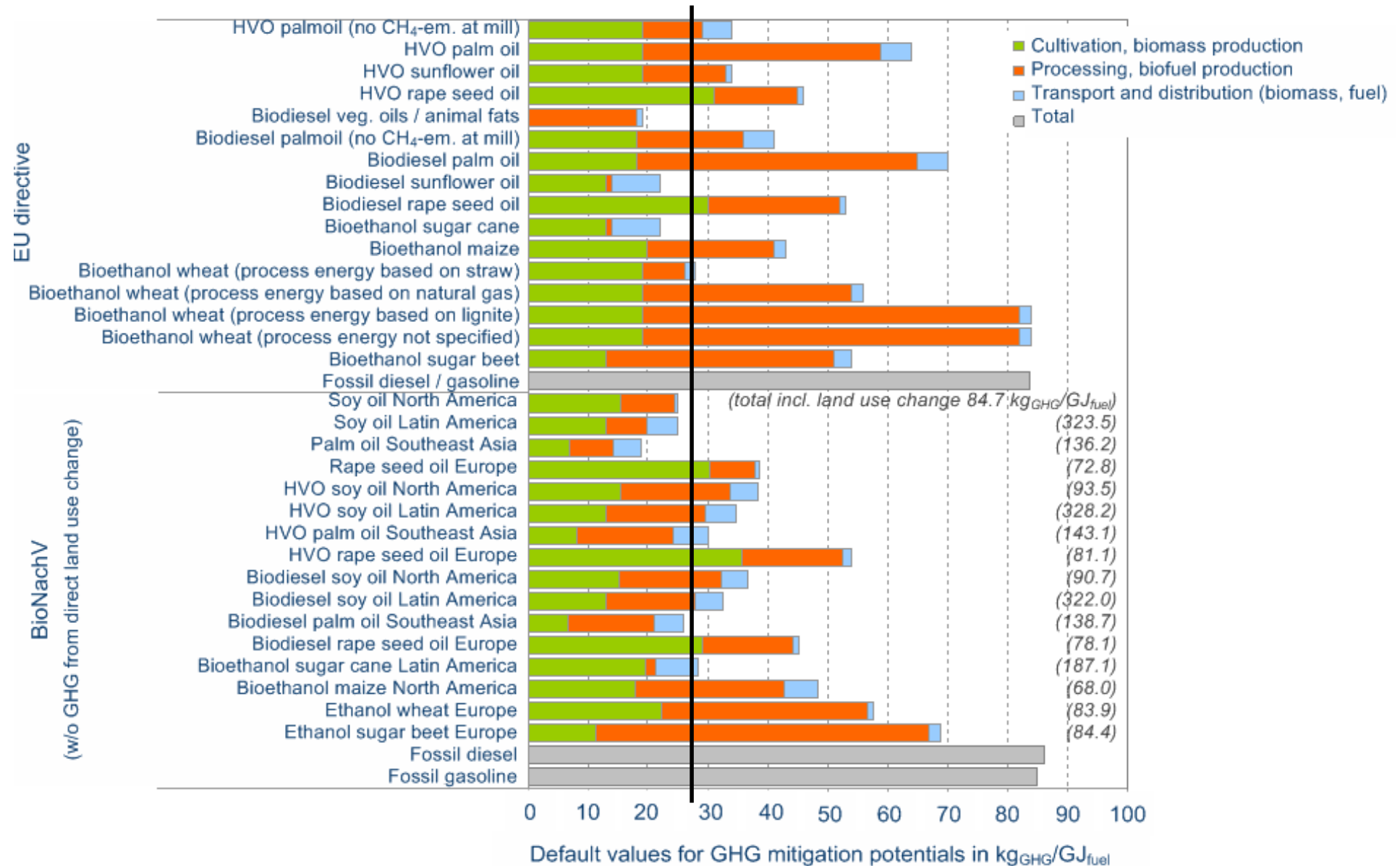


Policy instruments

Requirements on biomass for bioenergy production

	EU DIRECTIVE (PROPOSAL)	BIOMASS SUSTAINABILITY DECREE (PROPOSAL), (GER)
Requirements on the production of the biomass used	<ul style="list-style-type: none"> ▪ Biofuels shall not be made from raw material obtained from land that had one of the following statuses in January 2008: <ul style="list-style-type: none"> a) Wetlands including peatland; b) forest, c) permanent grassland 	<ul style="list-style-type: none"> ▪ Sustainable cultivation of agricultural areas (e.g. cross compliance) ▪ Requirements to safeguard natural habitats
Requirements on the minimum GHG mitigation potential	35% from 2009	30% from 2009, 40% from 2011

Environmental aspects GHG emissions – default values under discussion



Thank you for your attention

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