

SRU **German Advisory Council on the Environment**

Limits to Growth: The case of biomass as a renewable energy

Key Messages of the SRU Special Report

EEAC Working Group Energy Workshop
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SRU **Structure**

1. Limits and efficiency of Biomass use as energy source
2. Effects on the environment
3. Recommendations

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SRU **Climate Protection**

Political targets for 2020 Germany

Main Target: reduction of 40% CO₂-Emissions until 2020

Bioenergy share of primary energy demand:

2006 5,3%

target 2020 20%

targets 2007

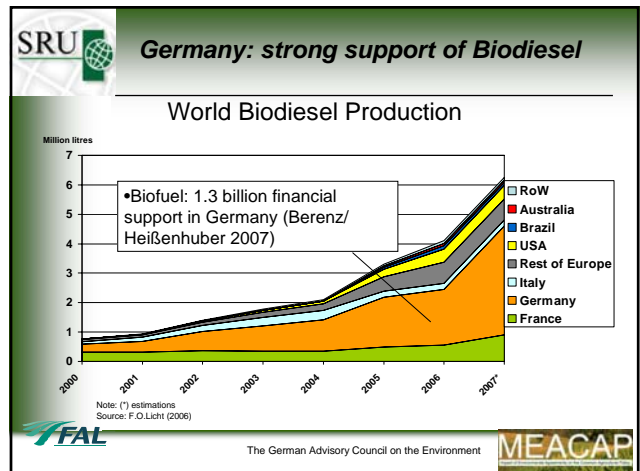
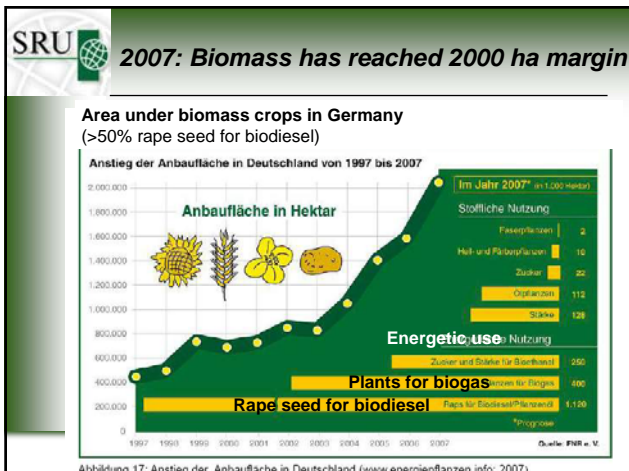
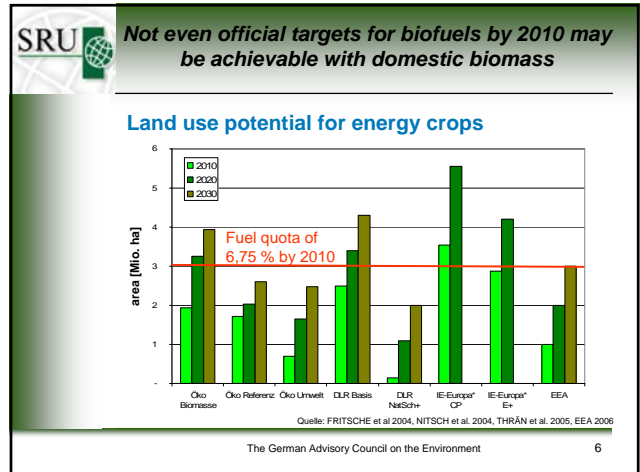
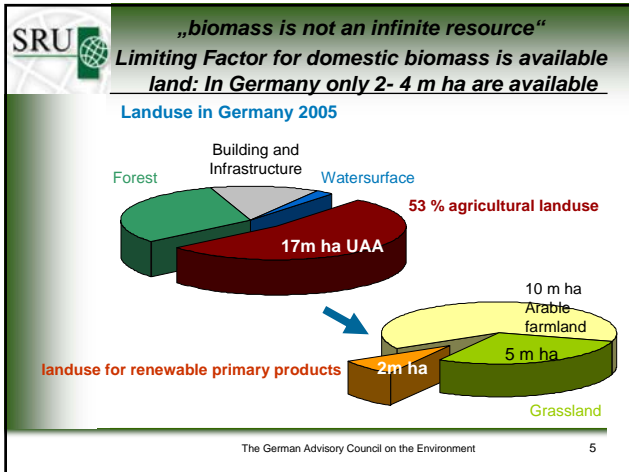
electricity	fuel	heat	biogas
25 - 30%	17% (20%vol.)	14%	6%

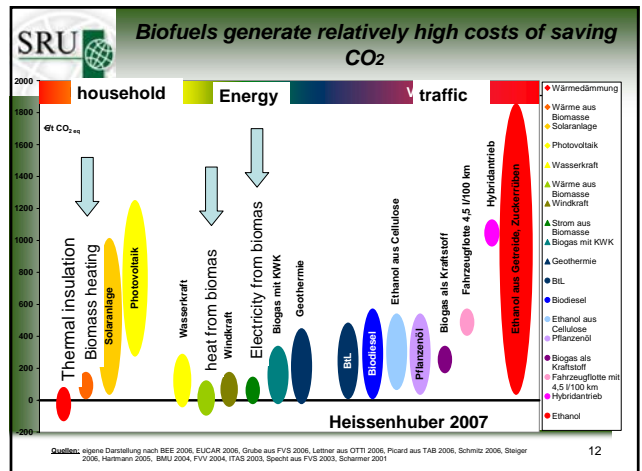
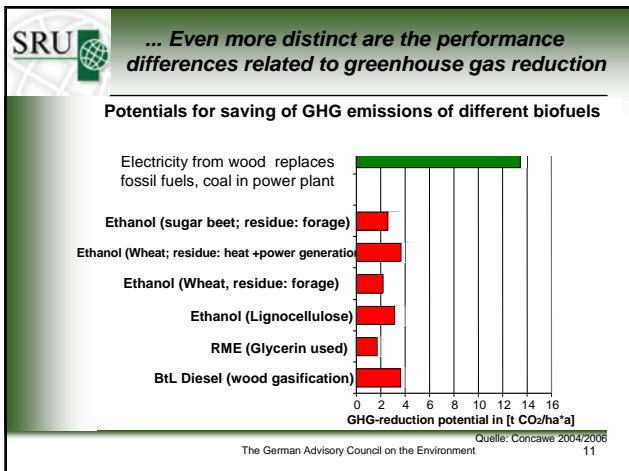
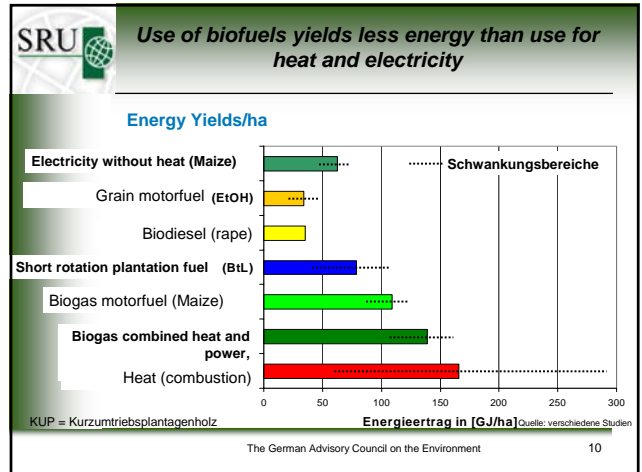
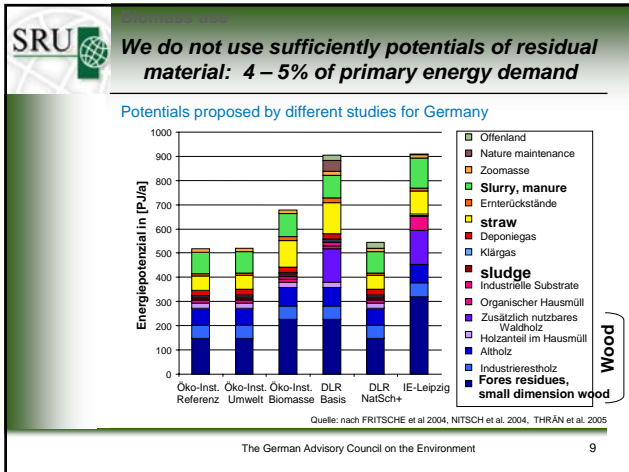
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SRU **Targets EU for renewable energy and climate change 23.1.08**

- 20% reduction GHG
- 20% renewables share in energy demand
- 10% renewables share in fuels

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- **Limited area/biomass potential: need to optimise the CO₂ reduction effect**
- **Biofuels quota – inefficiently - diverts a large proportion of potential into transport sector → EU and German quota in need of downward correction**
- **In Europe heat and power generation would be more “climate” and cost efficient**

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SRU **Structure**

1. Energy and Biomass
2. Impact on the environment
3. Recommendations

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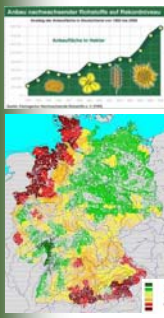
SRU **Additional measures are needed to manage conflicts between bioenergy and biodiversity**

Current land use changes:

- ⇒ Increased rapeseed (2000 – 2007: ~ 600 000ha) and maize cultures

risks:


- ⇒ Soil erosion
- ⇒ Increased use of pesticides (gfp not implemented)
- ⇒ N-surplus in soil and water; increased N₂O emissions
- ⇒ Irrigation? (energy +water)



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SRU **... This applies especially to grassland conversion, which also is a source for greenhouse gases**

- ⇒ Increased grassland conversion even in Natura 2000 habitats or on peat land
- ⇒ Biodiversity loss, ground water pollution
- ⇒ GHG emission potential
 - ⇒ on fens in case of tillage of grassland: 5000kg CO₂/ha/a;
 - ⇒ Carbon stock of grassland by more than one third higher than in case of cropland






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SRU **Loss of Grassland in D 2003-2007**




Bundesland	loss 2003-07	since 2006
Baden-Württemberg	-1,2%	-1,1%
Bayern	-0,7%	-0,4%
Brandenburg & Berlin	-2,6%	-0,3%
Hessen	+1,7%	+0,3%
Mecklenburg-Vorpommern	-4,8%	-1,0%
Niedersachsen & Bremen	-3,5%	<u>-1,8%</u>
Nordrhein-Westfalen	-4,2%	-0,5%
Rheinland-Pfalz	-3,2%	-0,8%
Saarland	-1,1%*	k.A.
Sachsen	-1,1%	-0,3%
Sachsen-Anhalt	-3,2%	-0,6%
Schleswig-Holstein & Hamburg	<u>-4,6%</u>	<u>-2,1%</u>
Thüringen	-0,8%	+0,2%

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SRU **Principles of a support scheme**
Aim: Efficient greenhouse gas reduction by biomass

- Prioritize climate protection over energy security and agriculture support/ rural development
 ⇨ Transition from technology orientation to emission trading
- 1. interim funding phase to assist market entry of broad range of technologies 
- 2. in the longer term: fundamental reform of the emission trading system at primary trade level
 - second best: Long-term certificate price for CO₂ as benchmark for level of support, 
- charges for methane and N₂O-emissions from agriculture 

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SRU **Complementary measures to reduce environmental impacts**

1. Adaptation of CC and national legislation about good farming practice (crop rotation, ban on grassland tillage) 
2. Spatial and land use planning 
3. Promotion of synergies with nature conservation 
4. Certification systems: International and EU (require reliable standards, effective inspection; gfp and CC is not sufficient)

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Many thanks for your attention!