



European Commission

JRC - Institute for Energy

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## Sustainability criteria for biofuels

### *GHG saving of at least 35%*

- 50% from 2017
- 60% for new installations from 2018
- default values and calculation method for actual values included (Annex V)

### *No raw material from converted land with:*

- high biodiversity value  
Primary forest, protected areas, biodiverse grassland
- high carbon stock  
Forests, peatland, wetlands

# The New Renewables Directive

- Calculation of GHG Impact

## *Article 19 (1)*

*Defines the method for calculation, using the methodology given in Annex V.C. Typical and default values for GHG emissions for "cultivation", "transport" and "processing" steps are given in Annex V.D & E*

*Here, the clear difference between the GHGs for biofuels produced from energy crops and those produced from wastes/residues are clearly seen*

## Some GHG Savings in the RED

- Default GHG savings compared with fossil petrol/diesel  
(Annex V.A)

<i>Biogas* from municipal organic waste</i>	<i>73%</i>
<i>Biogas* from wet manure</i>	<i>81%</i>
<i>Biogas* from dry manure</i>	<i>82%</i>
<i>Rapeseed biodiesel</i>	<i>38%</i>
<i>Palm oil biodiesel (process not specified)</i>	<i>19%</i>
<i>Palm oil biodiesel (CH<sub>4</sub> capture at mill)</i>	<i>56%</i>
<i>Sugar beet ethanol</i>	<i>52%</i>
<i>Sugar cane ethanol</i>	<i>71%</i>

( \* in the form of compressed biomethane compatible with natural gas)

## Revision of Default Values for Biofuels

### Proposals made in 2012 (Impact Assessment)

revision of default values for existing  
pathways  
amendment of biogas pathways  
including use of energy crops

Note: 60% GHG saving can currently be interpreted from data in renewables directive



## Still to Come for Cultivated Crops !!!

Land Use Change component still to be added to calculation of GHG Impact (*Article 19 (6)*)

On 17 October 2012, the Commission published a proposal to limit global land conversion for biofuel production, and raise the climate benefits of biofuels used in the EU. The use of food-based biofuels to meet the 10% renewable energy target of the Renewable Energy Directive will be limited to 5%.



# EU White Paper Roadmap to a Single Transport Area

COM (2011) 144

- focus on “growing out of oil” with new technological solutions (new engines, materials and design; new fuels and propulsion systems), health benefits from clean vehicles (43 + 44)
- strategy for transport in close cooperation with the SET-Plan (Energy) (45)
- standardisation to avoid fragmentation (47)
- elimination of tax distortions (59)

Transition fuels versus ready-made fuels for use far into the future !!!!!!! Methane



# Biomethane as a Transport Fuel

## Future Transport Fuels Report (01-2011)

### *Conclusions:*

- NG engine technology already well established
- Emissions with NG/biomethane reach EURO 6
- Emissions: low-NO<sub>x</sub>, up to 24% lower CO<sub>2</sub> than petrol, particulates close to zero
- Dual-fuel at 75-85% NG with diesel possible - engine can run on 100% diesel (=good transition technology)
- Harmonised standards for gas grid injection and building of extensive refuelling infrastructure highest priority
- Biomethane could be readily available as CNG or LNG
- Double yield / hectare for biomethane versus bioethanol



## Market Support

- **European Standards for Biomethane - CEN/TC408**

DG ENER mandate (M475) to CEN\* to formulate new standards supporting the exploitation of biomethane.

Specific targeted standards:

- composition of biogas for injection into natural gas pipelines
- fuel quality standard for biomethane use in transport applications

France is the Secretary

\* The European Standards Organisation

Kicked-off in 09-2011: Technical Specifications expected early in 2013



## Other Relevant Legislation

**Waste Framework Directive (WFD) 2008/98/EC (22.11.2008)** - with impacts on treatment of biowaste and digestate/compost

End-of-waste criteria for "Biodegradable Waste Subject to Biological Treatment", Technical Working Group operational since March 2011 (3<sup>rd</sup> draft report in August 2012) <http://susproc.jrc.ec.europa.eu/activities/waste/index.html>

**New Industrial Emissions Directive (IED) 2010/75/EU (24.11.2010)** - "recast" IPPC directive and now the guiding directive for BREFs



## Relevant References and Contact Details

*Energy and Climate Change website:*

[http://ec.europa.eu/energy/strategies/2008/2008\\_01\\_climate\\_change\\_en.htm](http://ec.europa.eu/energy/strategies/2008/2008_01_climate_change_en.htm)

*Bioenergy and Sustainability*

[http://ec.europa.eu/energy/renewables/bioenergy/sustainability\\_criteria\\_en.htm](http://ec.europa.eu/energy/renewables/bioenergy/sustainability_criteria_en.htm)

*Europa – Biomass/Biogas/Biofuels:*

[http://ec.europa.eu/energy/res/sectors/bioenergy\\_en.htm](http://ec.europa.eu/energy/res/sectors/bioenergy_en.htm)

*Waste Framework Directive:*

<http://eur-lex.europa.eu/JOHtml.do?uri=OJ:L:2008:312:SOM:EN:HTML>

*Industrial Emissions/BREFS:* <http://eippcb.jrc.es/reference/>

- **Contact Point for Waste and Biomass Related Activities at JRC-Institute for Energy:** <http://ie.jrc.ec.europa.eu/>

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