



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 (CH₄ 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_x, up to 24% lower CO₂ 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 (3rd 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

Bioenergy and Sustainability

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

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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