

BIOGRACE

Harmonised Calculations of
Biofuel Greenhouse Gas Emissions in Europe

Policy developments on liquid biofuels

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Contents

1. Introduction
 2. Update of RED Annex V
 3. Current debate on “iLUC proposal”
 4. State aid guidelines
 5. 2030 Climate and Energy package
 6. Will FQD be leading?
 7. Future biofuel legislation in Germany
 8. Summary
- To take effect:**
- Before 2020
- Post 2020
- Before 2020

Introduction

- o BioGrace GHG calculation tool (or “BioGrace-I” tool) is on GHG calculations for biofuels
- o The has been recognised by the European Commission as a voluntary scheme
- o The BioGrace GHG calculation tool consists of:
 1. The BioGrace Excel tool
 2. The BioGrace calculation rules
 3. The BioGrace user manual
 4. The BioGrace additional standard values

Introduction

Recognised Voluntary Schemes

Since 19 July 2011, the EC has recognised voluntary schemes that applies directly in 27 EU Member States. Schemes include the Assessment report and the Commission Implementing Decision.

1. ISCC (International Sustainability and Carbon Certification)

- [Decision](#)
- [Scheme](#)  [5 MB]

2. Bonsucro EU

- [Decision](#)
- [Scheme](#)  [5 MB]

3. RTRS EU RED (Round Table on Responsible Soy EU RED)

- [Decision](#)
- [Scheme](#)  [3 MB]

4. RSB EU RED (Roundtable of Sustainable Biofuels EU RED)

- [Decision](#)
- [Scheme](#)  [2 MB]

5. 2BSvs (Biomass Biofuels voluntary scheme)

- [Decision](#)
- [Scheme](#)  [3 MB]

6. RBSA (Abengoa RED Bioenergy Sustainability Assurance)

- [Decision](#)
- [Scheme](#)  [2 MB]

7. Greenergy (Greenergy Brazilian Bioethanol verification programme)

- [Decision](#)
- [Scheme](#)  [2 MB]

8. Ensus voluntary scheme under RED for Ensus bioethanol production

- [Decision \(Q1 p. 42\)](#)
- [Scheme](#)  [235 KB]

9. Red Tractor (Red Tractor Farm Assurance Combinable Crops & Sugar Beet Scheme)

- [Decision](#)
- [Scheme](#)  [8 MB]

10. SQC (Scottish Quality Farm Assured Combinable Crops (SQC) scheme)

- [Decision](#)
- [Scheme](#)  [2 MB]

11. Red Cert

- [Decision](#)
- [Scheme](#)  [3 MB]

12. NTA 8080

- [Decision](#)
- [Scheme](#)  [2 MB]

13. RSPO RED (Roundtable on Sustainable Palm Oil RED)

- [Decision](#)
- [Scheme](#)  [2 MB]

14. Biograce GHG calculation tool

- [Decision](#)
- [Scheme](#)  [7 MB]

The BioGrace-II GHG calculation tool

Production of Ethanol from Sugarbeet (steam from NG boiler)

Version 4c for Compliance

Overview Results

All results in g CO _{2,eq} / MJ _{Ethanol}	Non- allocated results	Allocation factor	Allocated results	Total	Actual/Default	Default values RED Annex V.D
Cultivation e_{ec}				11,5	A	12
Cultivation of sugarbeet	16,08	71,3%	11,46			11,54
Processing e_p				26,3	A	26
Ethanol plant	36,82	71,3%	26,26			26,42
Transport e_{td}				2,3	A	2
Transport of sugarbeet	1,11	71,3%	0,79			0,84
Transport of ethanol to dep	0,60	100,0%	0,60			1,10
Transport to filling station	0,93	100,0%	0,93			0,44
Land use change e_l	0,0	71,3%	0,0	0,0		0
Bonus or e_{sca}	0,0	100,0%	0,0	0,0		0
e_{ccr} + e_{ccs}	0,0	100,0%	0,0	0,0		0
Totals	55,6			40,1		40

Allocation factors

Ethanol plant	71,3% to ethanol 28,7% to Sugar beet pulp
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Emission reduction

Fossil fuel reference (petrol)	83,8 g CO _{2,eq} /MJ
GHG emission reduction	52%

Calculations in this Excel sheet.....

- strictly follow the methodology as given in Directives 2009/28/EC and 2009/30/EC
 - follow JEC calculations by using GWP values 25 for CH₄ and 298 for N₂O
- AS explained in About under inconsistent use of GWP's"

Calculation per phase

Track changes: ON

When using this GHG calculation tool, the BioGrace calculation rules must be respected.

The rules are included in the zip file in which you downloaded this tool. The rules are also available at www.BioGrace.net

Cultivation of sugarbeet	Quantity of product	Calculated emissions				Info	
	Yield	Emissions per MJ ethanol				per kg sugarbeet	per ha, year
		g CO ₂	g CH ₄	g N ₂ O	g CO _{2, eq}	g CO _{2, eq}	kg CO _{2, eq}
Yield	280.605 MJ _{Sugar beet} ha ⁻¹ year ⁻¹						
Sugar beet	68.860 kg ha ⁻¹ year ⁻¹						
Moisture content	75,0%						
Energy consumption							
Diesel	6.331 MJ ha ⁻¹ year ⁻¹	3,64	0,00	0,00	3,64	8,06	554,8
Agro chemicals							
N-fertiliser (kg N)	119,7 kg N ha ⁻¹ year ⁻¹	2,22	0,01	0,01	4,61	10,22	703,6

Update of RED Annex V

- o Commission is preparing update of RED Annex V (based on RED article 19.7)
- o DG ENER is in the lead (with JRC giving input)
- o Update will include:
 - new pathways
 - updated input values
 - updated emission factors (for instance for natural gas, diesel etc.)
 - updated fossil fuel references
- o As a result, default values will change
- o Commission cannot tell when update is to be expected

Current debate on “iLUC proposal”

- o EC proposal to minimise climate impact of biofuels (Oct 2012):
 - Cap of 5%
 - Double and quadruple counting
 - Threshold of 60% for all new installations
- o After discussions, in Dec. ‘13 negative vote in Council on proposal (incl. cap of 7%) by Lithuanian Presidency
- o Part of discussions is also on (1) a subtarget for advanced biofuels and (2) include iLUC factors in FQD
- o In June new vote in Council (7% cap., 0,5% quatum advanced)
- o Due to elections of EU parliament, discussions retarded (no decision until end of 2014)

State aid guidelines

- o Recently published, DG Competition has been in the lead
- o State aid guidelines have implications for biofuels, in two ways:
 1. Investment aid:
 - No investment aid for food-based production capacity (this is because of iLUC)
 - Exceptions can be made for investments to convert food-based plants to advanced biofuel plants
 2. Operation aid
 - For food based biofuels operating aid can only be granted until 2020 and only to plants that started operation before 31-12-2013
 - No aid for biofuels that are subject to a supply or blending obligation, unless limited to biofuels that are too expensive to come on the market with a supply or blending obligation only

2030 Climate and Energy package

- o “General idea: continue pathway chosen for 2020”
- o First EC proposal:
 - 40% target on CO₂
 - 27% target on RE, not broken down to MS level
 - proposal for energy efficiency will come later this year
(first wait for outcome of review of Energy Efficiency Directive)
- o No subtargets for subsectors including transport
- o *“After 2020 there will be no support for food-based biofuels because of indirect land use change. We should focus on other ways to decarbonise transport sector, (electricity, second, third generation biofuels, other alternatives)”*
- o October: legal proposal
- o After October: discussions between Council and Parliament

Will FQD be leading?

- o Some MS are in favour of continuing the FQD after 2020
- o Will be important discussion in 2014 and 2015
- o Most relevant: Germany will introduce GHG-based obligation for transport fuels per 1-1-2015.
- o Other MS do only consider doing so (in NL strong lobby to follow German example)

Future biofuel legislation in Germany

- Up to now mandatory quantitative quota:
 - 4.4 % biodiesel and 2.8 % bioethanol have to be added to fossil transport fuels or
 - 6.25 % biofuels in total
- From 2015 change into a greenhouse gas quota
 - Greenhouse gas emissions from transport fuels have to be reduced compared to a reference value
 - Emissions include emissions from shares of fossil fuel and biofuel
 - Only biofuels complying with RED criteria are eligible

Future biofuel legislation in Germany

- Mandatory emission reductions:
 - 2015: 3%
 - 2017: 4.5 %
 - 2020: 7 %
- Consequences: the lower the emission value from biofuel the less has to be added to reach the objective
 - ➔ Use of low emission biofuels (e.g. palm oil)
 - ➔ Incentive for actual calculations to prove lower emissions
 - ➔ Pressure on methodology; risk of increased cherry picking

Summary

- o At the moment, European biofuel policy is dominated by uncertainty
- o Clear position of Commission: move away from food-based biofuels
- o Tendency to move to GHG-based biofuel targets
- o Decisions in 2014 and 2015
- o No investments before decisions have been taken
- o Actual GHG calculations will become more important



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Thank you for your attention

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