

Republic of Latvia

Cabinet
Regulation No. 545
Adopted 5 July 2011

Regulations Regarding the Sustainability Criteria for Biofuels and Bioliqids, the Mechanism for Introducing Thereof, and the Procedure by Which They Shall Be Supervised and Monitored

*Issued pursuant to
Section 7, Paragraph one
of the Law On Conformity Assessment*

I. General Provisions

1. This Regulation prescribes the sustainability criteria for biofuels and bioliqids, the mechanism for introducing thereof, and the procedure by which they shall be supervised and monitored.

2. Terms used in this Regulation:

2.1. biofuel – liquid or gaseous fuel for transport produced from biomass;

2.2. bioliqid – liquid fuel for energy and thermal energy purposes other than for transport, produced from biomass;

2.3. biomass – the biodegradable fraction of products, waste and residues of biological origin from agriculture (including vegetal and animal substances), forestry and related industries (including products of biological origin from fisheries and aquaculture), as well as the biodegradable fraction of industrial and municipal waste;

2.4. production – all the work steps from the cultivation of the necessary biomass to the processing of the liquid or gaseous biomass;

2.5. actual value – the greenhouse gas emission saving for some or all of the steps of a specific biofuel production process calculated in accordance with the methodology specified in Paragraph 1 of Annex 1 to this Regulation;

2.6. typical value – an estimate of the representative greenhouse gas emission saving for a particular biofuel production pathway;

2.7. default value – a value derived from a typical value by the application of pre-determined factors and that may, in circumstances specified in this Regulation, be used in place of an actual value;

2.8. limited guarantee level – the reduction of incomplete information acquisition risk to the acceptable level (as a basis for the negative assessment of the auditor, for example, "based on the assessment carried out, no evidence of the data being incorrect exists");

2.9. sufficient level of guarantee – the reduction of incomplete information acquisition risk to the sufficiently low level (as a basis for the positive assessment, for example, "based on our assessment, the data do not contain sufficient inaccuracies");

2.10. first collector, processor or self-processor – a legal person purchasing, using the biomass for its further sale or using it in the production process;

2.11. voluntary scheme – a scheme approved by the European Commission (procedures, activities), within the framework of which the conformity of biofuels and bioliqids with the sustainability criteria is being certified;

2.12. national certification scheme – a system for conformity certification regarding the conformity with the sustainability criteria (in respect of the raw material cultivated in Latvia for production of biofuels and bioliquids, and in respect of the raw material and intermediate products brought or imported into Latvia for production of biofuels and bioliquids intended for production and consumption of the biofuels and bioliquids in Latvia, as well as in respect of biofuels or bioliquids brought or imported into Latvia); and

2.13. seller – a legal person releasing for free circulation biofuels or bioliquids for consumption in the Republic of Latvia, which are subject to the excise duty pursuant to the Law On Excise Duties or which, in cases when the excise duty cannot be imposed, are subject to the value added tax.

II. Sustainability Criteria

3. Biofuels and bioliquids shall conform to the sustainability criteria, if:

3.1. the requirements referred to in Paragraphs 5, 6, 7, 8 and 9 of this Regulation are complied with; and

3.2. they demonstrate potential for reduction of the greenhouse gas emission pursuant to Paragraph 10 of this Regulation.

4. Sub-paragraph 3.1 of this Regulation shall not apply to biofuels and bioliquids produced from waste or residues other than residues from agriculture, aquaculture, fishery and forestry.

5. Biofuels or bioliquids shall conform to the sustainability criteria, unless the raw material used for the production thereof has been obtained from land with high biodiversity value, namely land that had one of the following statuses in or after January 2008:

5.1. primary forest and other wooded land – forest and other wooded land of native species, where there is no clearly visible indication of human activity and the ecological processes are not significantly disturbed;

5.2. specially protected nature territories established by the *Saeima*¹ or the Cabinet – nature parks, strict nature reserves, national parks, nature reserves, protected landscape areas and nature monuments;

5.3. micro-reserves of specially protected species and biotopes; or

5.4. grassland with high biodiversity value included in the list of protected nature territories of European significance (Natura 2000), or areas declared for support in the sub-measure "Maintenance of Biological Diversity in Grasslands" of the measure "Agrovide [agri-environment] payments" pursuant to the regulatory enactments regarding the granting of the State and European Union development support for improving environmental and rural landscape.

6. Biomass from agriculture or forestry may be obtained from the land referred to in Sub-paragraphs 5.2 and 5.3 of this Regulation, if the obtaining thereof complies with the regulatory enactments regulating specially protected nature territories or micro-reserves. The Nature Protection Board shall, at the request of the Rural Support Service, provide the Rural Support Service with information regarding land located in the territories referred to in Sub-paragraphs 5.2 and 5.3 of this Regulation.

7. Biofuels or bioliquids shall conform to the sustainability criteria, unless the biomass from agriculture or forestry used for the production thereof has been obtained from land with high carbon stock, namely land that had one of the following statuses before January 2008 and which no longer has that status:

¹ The Parliament of the Republic of Latvia.

7.1. continuously forested areas – land spanning more than one hectare with trees higher than five metres and a canopy cover of more than 30%, or trees able to reach those thresholds *in situ*; or

7.2. land spanning more than one hectare with trees higher than five metres and a canopy cover of between 10% and 30%, or trees able to reach those thresholds *in situ*, unless the carbon stock of the area before and after conversion is such that, when the methodology referred to in Annex 1 to this Regulation is applied, the conditions specified in Paragraph 11 of this Regulation would be fulfilled.

8. The provisions of Paragraph 7 of this Regulation shall not apply if, at the time the biomass from agriculture or forestry was obtained, the land had the same status as it had in January 2008.

9. Biomass from agriculture, which has been obtained in the territory of the Republic of Latvia and used for production of biofuels and bioliquids, shall be obtained from land used in agriculture for which one is entitled to receive a single area payment and for which an application regarding the single area payment has been submitted in the current year by using the electronic application system.

10. The greenhouse gas emission saving from the use of biofuels and bioliquids shall be at least 35%. With effect from 1 January 2017, the greenhouse gas emission saving from the use of biofuels and bioliquids shall be at least 50%. From 1 January 2018 that greenhouse gas emission saving shall be at least 60% for biofuels and bioliquids produced in installations in which production started on or after 1 January 2017.

11. The actual value of the greenhouse gas emission and the greenhouse gas emission saving from the use of biofuels and bioliquids shall be calculated in accordance with Annex 1, 2, 3, 4 and 5 to this Regulation.

III. Conformity Certification

12. Biofuels and bioliquids produced in Latvia or brought for consumption in the Republic of Latvia from the European Union Member States or imported from third countries, shall be considered to be in conformity with the sustainability criteria, if such conformity is certified:

12.1. within the framework of a bilateral or multilateral agreement, which has been concluded by the European Union with a third country and which contains conditions regarding the sustainability criteria for biofuels and bioliquids;

12.2. within the framework of a voluntary scheme approved by the European Commission;

12.3. within the framework of a national certification system; or

12.4. within the framework of the national certification scheme of Latvia.

13. Conformity to sustainability criteria of raw material used for production of biofuels and bioliquids brought or imported into Latvia and of raw material and intermediate products used for production of biofuels and bioliquids brought or imported into Latvia, which are intended for production of biofuels or bioliquids, shall be certified in compliance with the certification types referred to in Sub-paragraphs 12.1, 12.2 and 12.3 of this Regulation.

IV. National Certification Scheme of Latvia

14. Persons wishing to engage in activities within the framework of the national certification scheme, a cultivator of raw material, first collector, processor, self-processor or seller shall

register with the customer register of the Rural Support Service and conclude an agreement with the Rural Support Service regarding the use of the electronic application system (hereinafter - EAS).

15. The Rural Support Service shall issue to a cultivator of raw material a certification regarding the conformity of the biomass from agriculture or forestry obtained in the territory of the Republic of Latvia with the sustainability criteria, namely the certification that the raw material has not been obtained from land with high biodiversity value and land with high carbon stock.

16. The certification referred to in Paragraph 15 of this Regulation may be received by a cultivator of raw material (biomass), which has been filing the submission specified in Annex 6 to this Regulation annually by 15 May, by using EAS.

17. The Rural Support Service shall, annually by 15 July:

17.1. evaluate the submissions referred to in Paragraph 16 of this Regulation that have been filed and determine the maximum total amount of raw material (biomass) for each cultivator according to the reference crops specified in Table 1 of Annex 7 to this Regulation;

17.2. issue to a cultivator of raw material (biomass) a certification where the compliance of the land used for cultivation of the raw material (biomass) with the requirements referred to in Paragraphs 5, 6, 7, 8 and 9 of this Regulation and the maximum total amount (tonnes) of the raw material (biomass) available for the sustainability criteria shall be indicated; and

17.3. place the information referred to in Sub-paragraphs 17.1 and 17.2 of this Regulation, as well as information regarding the maximum possible total amount of biofuel production according to the amount of the reference production specified in Table 2 of Annex 7 to this Regulation, in EAS.

18. The first collector, processor, self-processor or seller shall ensure concurrently with a transaction that the following information regarding transactions with biomass, intermediate products of biofuels and bioliquids, biofuels and bioliquids is entered into EAS:

18.1. information regarding the transaction, indicating the date and number of the corroborative document, amount of the transaction (tonnes), transaction partner and taxpayer registration code thereof;

18.2. the amount (tonnes) of the biomass, intermediate products of biofuels and bioliquids, biofuels and bioliquids purchased in Latvia or outside Latvia;

18.3. the amount (tonnes) of the biomass, intermediate products of biofuels and bioliquids, biofuels and bioliquids marketed in Latvia or outside Latvia;

18.4. information regarding the compliance of the biomass from agriculture and forestry with the requirements specified in Paragraphs 5, 6, 7, 8 and 9 of this Regulation, which has been certified according to Sub-paragraphs 12.1, 12.2, 12.3 or 12.4 of this Regulation;

18.5. data regarding the actual (calculated) values or standard (accepted) values of the biomass greenhouse gas emission;

18.6. information regarding the amount of the biomass processed or intermediate products of biofuel and bioliquid production and the amount of the biofuel marketed according to the reference production amounts specified in Table 2 of Annex 7 to this Regulation;

18.7. information regarding the amounts of the biofuels or bioliquids released for free circulation for consumption in the Republic of Latvia, and the compliance thereof with the requirements referred to in Paragraphs 5, 6, 7, 8 and 9 of this Regulation, if the biofuels or

bioliquids have been produced from biomass from agriculture and forestry, as well as the compliance with the requirements referred to in Paragraph 10 of this Regulation; and

18.8. information regarding the export of the biomass, intermediate products of biofuel and bioliquid production, biofuels and bioliquids.

19. The first collector, processor, self-processor or seller shall be liable for the veracity of the information provided according to Paragraph 18 of this Regulation.

20. The Rural Support Service shall, annually by 1 February, summarise the information referred to in Paragraph 18 of this Regulation regarding the previous year and publish the information summary on the web site www.lad.gov.lv.

21. In order to update information, the Rural Support Service shall be entitled to request additional information from the cultivators of raw material or the persons authorised thereof, who have received the certification referred to in Paragraph 15 of this Regulation.

22. If a batch of biofuels or bioliquids comprises biofuels or bioliquids having different sustainability characteristics, the total batch of the biofuels or bioliquids shall conform to the sustainability criteria. If a batch of biomass or intermediate products of biofuel and bioliquid production comprises biomass or intermediate products of biofuel and bioliquid production having different sustainability characteristics, the total batch of the biomass or intermediate products of biofuel and bioliquid production shall conform to the sustainability criteria.

23. If the Rural Support Service has determined violation of the conditions referred to in Paragraphs 5, 6, 7, 8 and 9 of this Regulation, it shall cancel:

23.1. the land non-complying with the requirements referred to; and

23.2. the certification issued, if the non-compliance exceeds 10% of the land applied for the certification.

V. Auditing

24. A seller shall, once a year by 1 April, carry out independent auditing in respect of the information referred to in Paragraph 18 of this Regulation regarding the previous year.

25. A performer of the auditing referred to in Paragraph 24 of this Regulation must be accredited at the Latvian National Accreditation Bureau and comply with the accreditation requirements, taking into account the standard LVS EN 45011 "General requirements for bodies operating product certification systems" (ISO/IEC Guide 65).

26. When carrying out auditing, an auditor shall:

26.1. determine activities carried out by the legal person, which concern the sustainability criteria of biofuels or bioliquids;

26.2. identify the systems of the relevant legal person and their general structure as concerns the sustainability criteria and check the effectiveness of the relevant monitoring system implementation;

26.3. determine at least the limited guarantee level, taking into account the essence and complexity of the legal person's activities;

26.4. based on professional competence of the auditor and information provided by the legal person, analyse risk factors that can potentially cause substantial irregularities;

26.5. formulate the verification plan complying with the risk analysis and legal person's field of activities and their complexity, and where the sampling methodology has been defined, which can be used in relation to the relevant legal person's activities;

26.6. implement the verification plan, summarising the data according to the sampling methodology defined, as well as all the additional information necessary for preparing conclusions; and

26.7. request from the legal person to provide any data necessary for auditing, explain deviations or revise notifications or calculations prior to formulating the final verification opinion.

27. An audit report shall comprise the following:

27.1. information regarding whether the biofuels or bioliquids are certified or approved according to the voluntary scheme;

27.2. indication regarding the title of the voluntary scheme in cases if the biofuels or bioliquids are certified or approved according to Sub-paragraph 27.1 of this Regulation;

27.3. additional indication (except for biofuels and bioliquids produced from waste and residues) regarding whether in respect of the particular consignment the following has been done in the calculations of greenhouse gas referred to in Paragraph 3 of Annex 1 to this Regulation:

27.3.1. the bonus referred to in Paragraphs 9 and 10 of Annex 1 to this Regulation has been used; or

27.3.2. the emission saving from soil carbon accumulation via improved agricultural management referred to in Paragraph 3 of Annex 1 to this Regulation has been used.

28. A seller shall, once a year by 1 May, submit to the Ministry of Economics an external independent auditing report regarding the conformity of the biofuels and bioliquids produced during the previous year to the sustainability criteria.

VI. Final Provisions

29. In respect of biofuels or bioliquids released for free circulation for consumption in the Republic of Latvia in 2011 and the conformity of which to the sustainability criteria has not been certified via the information provided according to Paragraph 18 of this Regulation, the sellers shall, by 1 April 2012, carry out an external independent auditing based on the information at the disposal of the sellers regarding the origin of the biofuels and bioliquids.

30. In respect of the biofuels and bioliquids produced in installations that were put in operation until 23 January 2008, the requirements referred to in Paragraph 10 of this Regulation shall be applied starting from 1 April 2013.

31. The submission referred to in Paragraph 16 of this Regulation regarding crops of 2011 shall be filed to the Rural Support Service by 15 September 2011.

32. The Rural Support Service shall issue the certification referred to in Paragraph 15 of this Regulation regarding the crops of 2011 by 15 October 2011.

33. From 2012, the submission referred to in Paragraph 16 of this Regulation shall be filed in only electronically.

34. In 2011, the persons referred to in Paragraph 14 of this Regulation shall register with the customer register of the Rural Support Service and conclude an agreement with the Rural Support Service regarding the use of EAS after 1 September 2011.

Informative Reference to European Union Directives

This Regulation contains legal norms arising from:

1) Directive 2009/28/EC of the European Parliament and of the Council of 23 April 2009 on the promotion of the use of energy from renewable sources and amending and subsequently repealing Directives 2001/77/EC and 2003/30/EC;

2) Directive 2009/30/EC of the European Parliament and of the Council of 23 April 2009 amending Directive 98/70/EC as regards the specification of petrol, diesel and gas-oil and introducing a mechanism to monitor and reduce greenhouse gas emissions and amending Council Directive 1999/32/EC as regards the specification of fuel used by inland waterway vessels and repealing Directive 93/12/EEC; and

3) Commission Decision 2011/13/EU of 12 January 2011 on certain types of information about biofuels and bioliquids to be submitted by economic operators to Member States.

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Calculation of greenhouse gas emission saving from biofuels and bioliquids

I. Calculation methodology

1. Greenhouse gas emission saving from biofuels and bioliquids shall be calculated as:

$$\text{Saving} = (E_F - E_B) / E_F, \text{ where}$$

E_F – total emissions from the fossil fuel comparator; and

E_B – total emissions from the biofuel or bioliquid.

2. For the purposes of the calculation referred to in Paragraph 1 of this Annex, the fossil fuel comparator E_F shall be:

2.1. for bioliquids used for electricity production – 91 gCO₂eq/MJ;

2.2. for bioliquids used for heat production – 77 gCO₂eq/MJ;

2.3. for bioliquids used for cogeneration – 85 gCO₂eq/MJ; and

2.4. for biofuels – the latest available actual average emissions from the fossil part of petrol and diesel consumed in the European Union as reported under Directive 98/70/EC of the European Parliament and of the Council of 13 October 1998 relating to the quality of petrol and diesel fuels and amending Directive 93/12/EEC of the Council. If no such data are available, the value used shall be 83,8 gCO₂eq/MJ.

3. Greenhouse gas emissions from the production and use of transport fuels, biofuels and bioliquids shall be calculated as:

$$E = e_{ec} + e_l + e_p + e_{td} + e_u - e_{sca} - e_{ccs} - e_{ccr} - e_{ee}, \text{ where}$$

E – total emissions from the use of the fuel (greenhouse gas emissions from fuels, E , shall be expressed gCO₂eq/MJ (in terms of grams of CO₂ equivalent per MJ of fuel));

e_{ec} – emissions from the extraction or cultivation of raw materials;

e_l – annualised emissions from carbon stock changes caused by land-use change;

e_p – emissions from processing;

e_{td} – emissions from transport and distribution;

e_u – emissions from the fuel in use;

e_{sca} – emission saving from soil carbon accumulation via improved agricultural management;

e_{ccs} – emission saving from carbon capture and geological storage;

e_{ccr} – emission saving from carbon capture and replacement; and

e_{ee} – emission saving from excess electricity from cogeneration.

II. Emissions from the extraction or cultivation of raw materials

4. In respect of the raw materials of biofuels and bioliquids extracted in the territory of the Republic of Latvia, actual emissions from the raw material extraction or cultivation shall be used in the calculations.

5. The default values for biofuels specified in Annex 2 and disaggregated default values for cultivation for biofuels and bioliquids specified in Annex 3 to the Cabinet Regulation No. 545 of 5 July 2011, Regulations Regarding the Sustainability Criteria for Biofuels and Bioliquids, the Mechanism for Introducing Thereof, and the Procedure by Which They Shall Be Supervised and Monitored, may be used only when their raw materials are:

5.1. cultivated outside the European Union;

5.2. cultivated in areas of the European Union, where the typical greenhouse gas emissions from cultivation of agricultural raw materials can be expected to be lower than or equal to the emissions referred to in Annex 2 to this Regulation; or

5.3. waste or residues other than agricultural, aquaculture and fisheries residues.

6. For biofuels and bioliquids not falling under Sub-paragraphs 5.1., 5.2. and 5.3. of this Annex, the actual values for cultivation shall be used.

7. When calculating the emissions from raw material extraction or cultivation referred to in Paragraph 4 of this Annex, the greenhouse gases CO₂, N₂O un CH₄ shall be taken into account. For the purpose of calculating CO₂ equivalence, those gases shall be valued as follows:

7.1. CO₂ : 1;

7.2. N₂O : 296;

7.3. CH₄ : 23.

8. Emissions from the extraction or cultivation of raw materials (e_{ec}) shall include emissions from the extraction or cultivation process itself, from the collection of raw materials, from waste and leakages, and from the production of chemicals or products used in extraction or cultivation. Capture of CO₂ in the cultivation of raw materials shall be excluded.

9. Estimates of emissions from cultivation may be derived from the use of averages calculated for smaller geographical areas than those used in the calculation of the default values, as an alternative to using actual values.

III. Annualised emissions from carbon stock changes caused by land-use change

10. Annualised emissions from carbon stock changes caused by land-use change (e_l) shall be calculated by dividing total emissions equally over 20 years. For the calculation of those emissions the following rule shall be applied:

$$e_l = (CS_R - CS_A) \times 3,664 \times 1/20 \times 1/P - e_B, \text{ where}$$

e_l – annualised greenhouse gas emissions from carbon stock change due to land-use change (measured as mass of CO₂-equivalent per unit biofuel energy);

CS_R – the carbon stock per unit area associated with the reference land use (measured as mass of carbon per unit area, including both soil and vegetation). The reference land use shall be the land use in January 2008 or 20 years before the raw material was obtained, whichever was the later;

CS_A – the carbon stock per unit area associated with the actual land use (measured as mass of carbon per unit area, including both soil and vegetation). In cases where the carbon stock accumulates over more than one year, the value attributed to CS_A shall be the estimated stock per unit area after 20 years or when the crop reaches maturity, whichever the earlier;

P – the productivity of the crop (measured as biofuel or bioliquid energy per unit area per year); and

e_B – bonus of 29 gCO_{2eq}/MJ biofuel or bioliquid if biomass is obtained from restored degraded land under the conditions provided for in Paragraph 11 of this Annex.

11. The bonus of 29 gCO_{2eq}/MJ shall be attributed if evidence is provided that the land conforms to the following conditions:

11.1. it was not in use for agriculture or any other activity in January 2008; and

11.2. it falls into one of the following categories:

11.2.1. severely degraded land, including such land that was formerly in agricultural use;

11.2.2. heavily contaminated land.

12. The bonus referred to in Sub-paragraph 11.2. of this Annex shall apply for a period of up to 10 years from the date of conversion of the land to agricultural use, provided that a steady increase in carbon stocks as well as a sizable reduction in erosion phenomena for land falling under Sub-paragraph 11.2.1. of this Annex are ensured and that soil contamination for land falling under Sub-paragraph 11.2.2. of this Annex is reduced.

13. The categories referred to in Sub-paragraph 11.2. of this Annex are defined as follows:

13.1. severely degraded land – land that, for a significant period of time, has either been significantly salinated or presented significantly low organic matter content and has been severely eroded;

13.2. heavily contaminated land – land that is unfit for the cultivation of food and feed due to soil contamination.

14. The Commission may decide that land that falls within the scope of a national or regional recovery programme aimed at improving severely degraded or heavily contaminated land fulfils the criteria referred to in Paragraph 11 of this Annex.

IV. Emissions from processing

15. Emissions from processing, (e_p), shall include emissions from the processing itself, from waste and leakages and from the production of chemicals or products used in processing.

16. In accounting for the consumption of electricity not produced within the fuel production plant, the greenhouse gas emission intensity of the production and distribution of that electricity shall be assumed to be equal to the average emission intensity of the production and distribution of electricity in a defined region. By derogation from this rule, producers may use an average value for an individual electricity production plant for electricity produced by that plant, if that plant is not connected to the electricity grid.

17. The disaggregated default values for processing referred to in Annex 4 to this Regulation may be accepted if excess electricity equals zero.

V. Emissions from transport and distribution

18. Emissions from transport and distribution, e_{td} , shall include emissions from the transport and storage of raw and semi-finished materials and from the storage and distribution of finished materials. Emissions from transport and distribution to be taken into account under Paragraphs 9 and 10 of this Annex shall not be covered by this Paragraph.

19. The disaggregated default values for transport and distribution referred to in Annex 5 to this Regulation may be accepted in calculations.

VI. Emissions from the use of the fuel

20. Emissions from the fuel in use, e_u , shall be taken to be zero for biofuels or bioliquids.

VII. Emission saving from carbon capture and geological storage

21. Emission saving from carbon capture and geological storage e_{ccs} , that have not already been accounted for in e_p , shall be limited to emissions avoided through the capture and sequestration of emitted CO₂ directly related to the extraction, transport, processing and distribution of fuel.

VIII. Emission saving from carbon capture and replacement

22. Emission saving from carbon capture and replacement, e_{ccr} , shall be limited to emissions avoided through the capture of CO₂ of which the carbon originates from biomass and which is used to replace fossil-derived CO₂ used in commercial products and services.

IX. Emission saving from excess electricity from cogeneration

23. Emission saving from excess electricity from cogeneration, e_{ee} , shall be taken into account in relation to the excess electricity produced by fuel production systems that use cogeneration.

24. The saving shall not be taken into account if the fuel used for the cogeneration is a co-product other than an agricultural crop residue.

25. In accounting for that excess electricity, the size of the cogeneration unit shall be assumed to be the minimum necessary for the cogeneration unit to supply the heat that is needed to produce the fuel.

26. The greenhouse gas emission saving associated with that excess electricity shall be taken to be equal to the amount of greenhouse gas that would be emitted when an equal amount of electricity was generated in a power plant using the same fuel as the cogeneration unit.

27. Where a fuel production process produces, in combination, the fuel for which emissions are being calculated and one or more other products (co-products), greenhouse gas emissions shall be divided between the fuel or its intermediate product and the co-products in proportion to their energy content (determined by lower heating value in the case of co-products other than electricity).

28. In the case of biofuels and bioliquids, all co-products (including electricity) that do not fall under the scope of Paragraphs 23, 24 and 25 of this Annex shall be taken into account for the purposes of that calculation (except for agricultural crop residues, including straw, bagasse, husks, cobs and nut shells). Co-products that have a negative energy content shall be considered to have an energy content of zero for the purpose of the calculation. Wastes, agricultural crop residues (including straw, bagasse, husks, cobs and nut shells) and residues from processing (including crude glycerine (glycerine that is not refined)) shall be considered to have zero life-cycle greenhouse gas emissions up to the process of collection of those materials.

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Typical and default values for biofuels, if the biofuels are produced with no net carbon emissions from land-use change

No.	Biofuel production pathway	Typical greenhouse gas emission saving	Default greenhouse gas emission saving
1.	Sugar beet ethanol	61%	52%
2.	Wheat ethanol (process fuel not specified)	32%	16%
3.	Wheat ethanol (lignite as process fuel in CHP plant)	32%	16%
4.	Wheat ethanol (natural gas as process fuel in conventional boiler)	45%	34%
5.	Wheat ethanol (natural gas as process fuel in CHP plant)	53%	47%
6.	Wheat ethanol (straw as process fuel in CHP plant)	69%	69%
7.	Corn (maize) ethanol, Union produced (natural gas as process fuel in CHP plant)	56%	49%
8.	Sugar cane ethanol	71%	71%
9.	The part from renewable sources of ethyl-tertio-butyl-ether (ETBE)	Equal to that of the ethanol production pathway used	
10.	The part from renewable sources of tertiary-amyl-ethyl-ether (TAAEE)	Equal to that of the ethanol production pathway used	
11.	Rape seed biodiesel	45%	38%
12.	Sunflower biodiesel	58%	51%
13.	Soybean biodiesel	40%	31%
14.	Palm oil biodiesel (process not specified)	36%	19%
15.	Palm oil biodiesel (process with methane capture at oil mill)	62%	56%
16.	Waste vegetable or animal * oil biodiesel	88%	83%
17.	Hydrotreated vegetable oil from rape seed	51%	47%
18.	Hydrotreated vegetable oil from sunflower	65%	62%
19.	Hydrotreated vegetable oil from palm oil (process not specified)	40%	26%
20.	Hydrotreated vegetable oil from palm oil (process with methane capture at oil mill)	68%	65%
21.	Pure vegetable oil from rape seed	58%	57%
22.	Biogas from municipal organic waste as compressed natural gas	80%	73%
23.	Biogas from wet manure as compressed natural gas	84%	81%
24.	Biogas from dry manure as compressed natural gas	86%	82%

25.	Wheat straw ethanol	87%	85%
26.	Waste wood ethanol	80%	74%
27.	Farmed wood ethanol	76%	70%
28.	Waste wood Fischer-Tropsch diesel	95%	95%
29.	Farmed wood Fischer-Tropsch diesel	93%	93%
30.	Waste wood dimethylether (DME)	95%	95%
31.	Farmed wood DME	92%	92%
32.	Waste wood methanol	94%	94%
33.	Farmed wood methanol	91%	91%
34.	The part from renewable sources of methyl-tertio-butyl-ether (MTBE)	Equal to that of the methanol production pathway used	

Note. * Not including animal oil produced from animal by-products classified as category 3 material in accordance with Regulation (EC) No 1774/2002 of the European Parliament and of the Council of 3 October 2002 laying down health rules on animal by-products not intended for human consumption.

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Disaggregated default values for cultivation: e_{ec}

No.	Biofuel or bioliquid production pathway	Typical greenhouse gas emissions (gCO _{2eq} /MJ)	Default greenhouse gas emissions (gCO _{2eq} /MJ)
1.	Sugar beet ethanol	12	12
2.	Wheat ethanol	23	23
3.	Corn (maize) ethanol, Union produced	20	20
4.	Sugar cane ethanol	14	14
5.	The part from renewable sources of ETBE	Equal to that of the ethanol production pathway used	
6.	The part from renewable sources of TAEF	Equal to that of the ethanol production pathway used	
7.	Rape seed biodiesel	29	29
8.	Sunflower biodiesel	18	18
9.	Soybean biodiesel	19	19
10.	Palm oil biodiesel	14	14
11.	Waste vegetable or animal * oil biodiesel	0	0
12.	Hydrotreated vegetable oil from rape seed	30	30
13.	Hydrotreated vegetable oil from sunflower	18	18
14.	Hydrotreated vegetable oil from palm oil	15	15
15.	Pure vegetable oil from rape seed	30	30
16.	Biogas from municipal organic waste as compressed natural gas	0	0
17.	Biogas from wet manure as compressed natural gas	0	0
18.	Biogas from dry manure as compressed natural gas	0	0
19.	Wheat straw ethanol	3	3
20.	Waste wood ethanol	1	1
21.	Farmed wood ethanol	6	6
22.	Waste wood Fischer-Tropsch diesel	1	1
23.	Farmed wood Fischer-Tropsch diesel	4	4
24.	Waste wood dimethylether (DME)	1	1
25.	Farmed wood DME	5	5
26.	Waste wood methanol	1	1
27.	Farmed wood methanol	5	5
28.	The part from renewable sources of MTBE	Equal to that of the methanol production pathway used	

Note. * Not including animal oil produced from animal by-products classified as category 3 material in accordance with Regulation (EC) No 1774/2002 of the European Parliament and of the Council of 3 October 2002 laying down health rules on animal by-products not intended for human consumption.

Acting for the Minister for Economics,
Minister for Agriculture

J.Dūklavs

Disaggregated default emission values for processing (including excess electricity): $e_p - e_{ee}$

No.	Biofuel or bioliquid production pathway	Typical greenhouse gas emissions (gCO _{2eq} /MJ)	Default greenhouse gas emissions (gCO _{2eq} /MJ)
1.	Sugar beet ethanol	19	26
2.	Wheat ethanol (process fuel not specified)	32	45
3.	Wheat ethanol (lignite as process fuel in CHP plant)	32	45
4.	Wheat ethanol (natural gas as process fuel in conventional boiler)	21	30
5.	Wheat ethanol (natural gas as process fuel in CHP plant)	14	19
6.	Wheat ethanol (straw as process fuel in CHP plant)	1	1
7.	Corn (maize) ethanol, Union produced (natural gas as process fuel in CHP plant)	15	21
8.	Sugar cane ethanol	1	1
9.	The part from renewable sources of ETBE	Equal to that of the ethanol production pathway used	
10.	The part from renewable sources of TAEE	Equal to that of the ethanol production pathway used	
11.	Rape seed biodiesel	16	22
12.	Sunflower biodiesel	16	22
13.	Soybean biodiesel	18	26
14.	Palm oil biodiesel (process not specified)	35	49
15.	Palm oil biodiesel (process with methane capture at oil mill)	13	18
16.	Waste vegetable or animal oil biodiesel	9	13
17.	Hydrotreated vegetable oil from rape seed	10	13
18.	Hydrotreated vegetable oil from sunflower	10	13
19.	Hydrotreated vegetable oil from palm oil (process not specified)	30	42
20.	Hydrotreated vegetable oil from palm oil (process with methane capture at oil mill)	7	9
21.	Pure vegetable oil from rape seed	4	5
22.	Biogas from municipal organic waste as compressed natural gas	14	20
23.	Biogas from wet manure as compressed natural gas	8	11
24.	Biogas from dry manure as compressed natural gas	8	11
25.	Wheat straw ethanol	5	7
26.	Wood ethanol	12	17
27.	Wood Fischer-Tropsch diesel	0	0
28.	Wood DME	0	0
29.	Wood methanol	0	0

30.	The part from renewable sources of MTBE	Equal to that of the methanol production pathway used
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Disaggregated default emission values for transport and distribution: e_{td}

No.	Biofuel or bioliquid production pathway	Typical greenhouse gas emissions (gCO _{2eq} /MJ)	Default greenhouse gas emissions (gCO _{2eq} /MJ)
1.	Sugar beet ethanol	2	2
2.	Wheat ethanol	2	2
3.	Corn (maize) ethanol, Union produced	2	2
4.	Sugar cane ethanol	9	9
5.	The part from renewable sources of ETBE	Equal to that of the ethanol production pathway used	
6.	The part from renewable sources of TAEE	Equal to that of the ethanol production pathway used	
7.	Rape seed biodiesel	1	1
8.	Sunflower biodiesel	1	1
9.	Soybean biodiesel	13	13
10.	Palm oil biodiesel	5	5
11.	Waste vegetable or animal oil biodiesel	1	1
12.	Hydrotreated vegetable oil from rape seed	1	1
13.	Hydrotreated vegetable oil from sunflower	1	1
14.	Hydrotreated vegetable oil from palm oil	5	5
15.	Pure vegetable oil from rape seed	1	1
16.	Biogas from municipal organic waste as compressed natural gas	3	3
17.	Biogas from wet manure as compressed natural gas	5	5
18.	Biogas from dry manure as compressed natural gas	4	4
19.	Wheat straw ethanol	2	2
20.	Waste wood ethanol	4	4
21.	Farmed wood ethanol	2	2
22.	Waste wood Fischer-Tropsch diesel	3	3
23.	Farmed wood Fischer-Tropsch diesel	2	2
24.	Waste wood dimethylether (DME)	4	4
25.	Farmed wood DME	2	2
26.	Waste wood methanol	4	4
27.	Farmed wood methanol	2	2
28.	The part from renewable sources of methyl-tertio-butyl-ether (MTBE)	Equal to that of the methanol production pathway used	

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2. **Shall not be completed if the electronic document has been drawn up in conformity with the regulatory enactments regarding drawing up of electronic documents.

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Reference Crops of Biofuel Production Raw Materials (Agricultural Crops) and the Necessary Amounts of Raw Materials for Producing One Litre of Biofuel

Table 1

Reference crops for 2011

No.	Agricultural crops used for obtaining biofuel	Maximum productivity (t/ha)
1.	Winter crops:	
1.1.	wheat	9.4
1.2.	rye	7.0
1.3.	rape	5.0
1.4.	triticale	7.0
2.	Spring crops:	
2.1.	wheat	7.0
2.2.	rape	3.5
2.3.	oats	5.0

Table 2

Maximum possible biofuel production amount

No.	Raw materials of biofuel	Amount of raw materials necessary for producing 1 litre of biofuel
1.	Wheat	3.2 kg
2.	Rye	3.2 kg
3.	Rape	3.2 kg
4.	Triticale	3.2 kg
5.	Oats	5.2 kg
6.	Rape (for producing 1 litre of rape seed oil)	3.0 kg
7.	Rape seed oil (for producing 1 litre of biodiesel)	1.11 litres

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