

Directive (EU) 2015/1513 of the European Parliament and of the Council of 9 September 2015 amending Directive 98/70/EC relating to the quality of petrol and diesel fuels and amending Directive 2009/28/EC on the promotion of the use of energy from renewable sources (Text with EEA relevance)

DIRECTIVE (EU) 2015/1513 OF THE EUROPEAN
PARLIAMENT AND OF THE COUNCIL

of 9 September 2015

amending Directive 98/70/EC relating to the quality of petrol
and diesel fuels and amending Directive 2009/28/EC on
the promotion of the use of energy from renewable sources

(Text with EEA relevance)

THE EUROPEAN PARLIAMENT AND THE COUNCIL OF THE EUROPEAN UNION,

Having regard to the Treaty on the Functioning of the European Union, and in particular Article 192(1) thereof, and Article 114 thereof in relation to Article 1(3) to (13) and Article 2(5) to (7) of this Directive,

Having regard to the proposal from the European Commission,

After transmission of the draft legislative act to the national parliaments,

Having regard to the opinion of the European Economic and Social Committee⁽¹⁾,

After consulting the Committee of the Regions,

Acting in accordance with the ordinary legislative procedure⁽²⁾,

Whereas:

- (1) Pursuant to Article 3(4) of Directive 2009/28/EC of the European Parliament and of the Council,⁽³⁾ each Member State is to ensure that the share of energy from renewable sources in all forms of transport in 2020 is at least 10 % of the final consumption of energy in transport in that Member State. The blending of biofuels is one of the methods available for Member States to meet this target, and is expected to be the main contributor. Directive 2009/28/EC also stresses the need for energy efficiency in the transport sector which is imperative because a mandatory percentage target for energy from renewable sources is likely to become increasingly difficult to achieve sustainably if overall demand for energy for transport continues to rise. Therefore, and due to the importance of energy efficiency also for greenhouse gas emission reduction, Member States and the Commission are encouraged to include more detailed information on energy efficiency measures in the transport sector in their reports to be submitted in accordance with Annex IV to Directive 2012/27/EU of the European Parliament and of the Council⁽⁴⁾ and other Union legislation with relevance⁽⁴⁾ for the promotion of energy efficiency in the transport sector.

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- (2) In view of the Union's objective to further reduce greenhouse gas emissions and the significant contribution that road transport fuels make to those emissions, Member States are, pursuant to Article 7a(2) of Directive 98/70/EC of the European Parliament and of the Council⁽⁵⁾, to require suppliers of fuel or energy to reduce by at least 6 % by 31 December 2020 the life cycle greenhouse gas emissions per unit of energy of fuels used in the Union by road vehicles, non-road mobile machinery, agricultural and forestry tractors and recreational craft when not at sea. The blending of biofuels is one of the methods available for fossil fuel suppliers to reduce the greenhouse gas intensity of the fossil fuels supplied.
- (3) Directive 2009/28/EC sets out sustainability criteria with which biofuels and bioliquids need to comply in order to be counted towards the targets in that Directive and to qualify for inclusion in public support schemes. The criteria include requirements on the minimum greenhouse gas emission savings that biofuels and bioliquids need to achieve compared to fossil fuels. Identical sustainability criteria for biofuels are set out in Directive 98/70/EC.
- (4) Where pasture or agricultural land previously destined for food and feed markets is diverted to biofuel production, the non-fuel demand will still need to be satisfied either through intensification of current production or by bringing non-agricultural land into production elsewhere. The latter case constitutes indirect land-use change and when it involves the conversion of land with high carbon stock it can lead to significant greenhouse gas emissions. Directives 98/70/EC and 2009/28/EC should therefore be amended to include provisions to address the impact of indirect land-use change given that current biofuels are mainly produced from crops grown on existing agricultural land. Those provisions should take due account of the need to protect investments already made.
- (5) Based on forecasts of biofuel demand provided by the Member States and estimates of indirect land-use change emissions for different biofuel feedstocks, it is likely that greenhouse gas emissions linked to indirect land-use change are significant, and could negate some or all of the greenhouse gas emission savings of individual biofuels. This is because almost the entire biofuel production in 2020 is expected to come from crops grown on land that could be used to satisfy food and feed markets. In order to reduce such emissions, it is appropriate to distinguish between crop groups such as oil crops, sugars and cereals and other starch-rich crops accordingly. Furthermore, it is necessary to encourage research in, and development of, new advanced biofuels that are not in competition with food crops, and to further study the impact of different crop groups on both direct and indirect land-use change.
- (6) With a view to avoiding the incentivisation of the deliberate increase in production of processing residues at the expense of the main product, the definition of processing residue should exclude residues resulting from a production process which has been deliberately modified for that purpose.
- (7) Liquid renewable fuels are likely to be required by the transport sector in order to reduce its greenhouse gas emissions. Advanced biofuels, such as those made from wastes and algae, provide high greenhouse gas emission savings with a low risk of

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causing indirect land-use change, and do not compete directly for agricultural land for the food and feed markets. It is appropriate, therefore, to encourage greater research in, and development and production of, such advanced biofuels as they are currently not commercially available in large quantities, in part due to competition for public subsidies with established food crop-based biofuel technologies.

- (8) It would be desirable to reach already by 2020 a significantly higher level of consumption of advanced biofuels in the Union compared to the current trajectories. Each Member State should promote the consumption of advanced biofuels and seek to attain a minimum level of consumption on their territory of advanced biofuels through setting a non-legally binding national target which it endeavours to achieve within the obligation of ensuring that the share of energy from renewable sources in all forms of transport in 2020 is at least 10 % of the final consumption of energy in transport in that Member State. Where available, Member States' plans for achieving their national targets should be published to increase transparency and predictability for the market.
- (9) It is also appropriate for Member States to report to the Commission on the levels of consumption on their territory of advanced biofuels when setting their national targets and on their achievements towards such national targets in 2020, a synthesis report of which should be published, in order to assess the effectiveness of the measures introduced by this Directive in reducing the risk of indirect land-use change greenhouse gas emissions through the promotion of advanced biofuels. Advanced biofuels with low indirect land-use change impacts and high overall greenhouse gas emission savings and their promotion are expected to continue to play an important role in the decarbonisation of transport and the development of low-carbon transport technologies beyond 2020.
- (10) In its conclusions of 23 and 24 October 2014, the European Council underlined the importance of reducing greenhouse gas emissions and risks related to fossil fuel dependency in the transport sector within the 2030 climate and energy framework, and invited the Commission to further examine instruments and measures for a comprehensive and technology-neutral approach for the promotion of emissions reduction and energy efficiency in transport, for electric transportation and for renewable energy sources in transport also beyond 2020.
- (11) It is also important that the Renewable Energy Roadmap for the post-2020 period, to be presented by the Commission in 2018 in accordance with Article 23(9) of Directive 2009/28/EC, including for the transport sector, be developed as part of a broader Union energy and climate-related technology and innovation strategy that is to be developed in line with the European Council conclusions of 20 March 2015. Therefore, it is appropriate to review the effectiveness of the incentives for development and deployment of advanced biofuel technologies in due time to ensure that the conclusions of that review are fully taken into account in developing the post-2020 Roadmap.
- (12) Distinctions in estimated indirect land-use change emissions arise from the different data inputs and key assumptions on agricultural developments such as trends in agricultural yields and productivity, co-product allocation and observed global land-use change and deforestation rates, which are not under the control of biofuel producers. While most biofuel feedstocks are produced in the Union, the estimated indirect land-

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use change emissions are mostly expected to take place outside the Union, in areas where the additional production is likely to be realised at the lowest cost. In particular, assumptions with regard to the conversion of tropical forests and peat land drainage outside the Union strongly influence the estimated indirect land-use change emissions associated with biodiesel production from oil crops, and as such it is most important to ensure that such data and assumptions are reviewed in line with the latest available information on land conversion and deforestation, including capturing any progress made in those areas through ongoing international programmes. The Commission should therefore submit a report to the European Parliament and to the Council in which it reviews, based on the best available scientific evidence, the effectiveness of the measures introduced by this Directive in limiting indirect land-use change greenhouse gas emissions associated with the production of biofuels and bioliquids, and reviews the possibilities for introducing adjusted estimated indirect land-use change emissions factors into the appropriate sustainability criteria.

- (13) In order to ensure the long-term competitiveness of bio-based industrial sectors, and in line with the Commission Communication of 13 February 2012 entitled ‘Innovating for Sustainable growth: A Bioeconomy for Europe’ and the Commission Communication of 20 September 2011 entitled ‘Roadmap to a Resource Efficient Europe’, promoting integrated and diversified biorefineries across Europe, enhanced incentives under Directive 2009/28/EC should be set in a way that gives preference to the use of biomass feedstocks that do not have a high economic value for uses other than biofuels.
- (14) A greater use of electricity from renewable sources is a means of addressing many of the challenges in the transport sector as well as in other energy sectors. It is therefore appropriate to provide additional incentives to stimulate the use of electricity from renewable sources in the transport sector and to increase the multiplication factors for the calculation of the contribution from electricity from renewable sources consumed by electrified rail transport and electric road vehicles so as to enhance their deployment and market penetration. Furthermore, it is appropriate to consider further measures to encourage energy efficiency and energy savings in the transport sector.
- (15) Directive 2008/98/EC of the European Parliament and of the Council⁽⁶⁾ helps move the Union closer to becoming a ‘recycling society’, by seeking to avoid waste generation and to use waste as a resource. The waste hierarchy generally lays down a priority order of what constitutes the best overall environmental option in relation to waste legislation and policy. Member States should support the use of recyclates in line with the waste hierarchy and with the aim of becoming a recycling society, and whenever possible not support the landfilling or incineration of such recyclates. Some of the feedstocks that pose low indirect land-use change risks can be considered to be wastes. However, they may still be used for other purposes that would represent a higher priority than energy recovery in the waste hierarchy as established in Article 4 of Directive 2008/98/EC. It is therefore appropriate for Member States to have due regard to the waste hierarchy principle in any incentive measures for the promotion of low indirect land-use change risk biofuels or any measures to minimise incentives for fraud in relation to the production of such biofuels, so that incentives to use such biofuel feedstocks do not counter efforts to reduce waste or increase recycling and the efficient and sustainable

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use of available resources. Member States may include measures they are taking in that respect in their reporting under Directive 2009/28/EC.

- (16) The minimum greenhouse gas emission savings threshold for biofuels and bioliquids produced in new installations should be increased in order to improve their overall greenhouse gas balance as well as to discourage further investments in installations with a low greenhouse gas emission savings performance. This increase provides investment safeguards for biofuels and bioliquids production capacities in conformity with the second subparagraph of Article 19(6) of Directive 2009/28/EC.
- (17) To prepare for the transition towards advanced biofuels and minimise the overall indirect land-use change impacts, it is appropriate to limit the amount of biofuels and bioliquids produced from cereal and other starch-rich crops, sugars and oil crops and from crops grown as main crops primarily for energy purposes on agricultural land that can be counted towards targets set out in Directive 2009/28/EC, without restricting the overall use of such biofuels and bioliquids. In accordance with Article 193 of the Treaty on the Functioning of the European Union (TFEU), the establishment of a limit at Union level is without prejudice to the possibility for Member States to provide for lower limits on the amount of biofuels and bioliquids produced from cereal and other starch-rich crops, sugars and oil crops and from crops grown as main crops primarily for energy purposes on agricultural land that can be counted at national level towards targets set out in Directive 2009/28/EC.
- (18) Member States should have the possibility of choosing to apply this limit on the amount of biofuels produced from cereal and other starch-rich crops, sugars and oil crops and from crops grown as main crops primarily for energy purposes on agricultural land that can be counted towards achieving the target set out in Article 7a of Directive 98/70/EC.
- (19) In line with the need to limit the amount of biofuels and bioliquids produced from cereal and other starch-rich crops, sugars and oil crops and from crops grown as main crops primarily for energy purposes on agricultural land, Member States should aim to phase out support for consumption of such biofuels and bioliquids at levels which exceed that limit.
- (20) Limiting the amount of biofuels and bioliquids produced from cereal and other starch-rich crops, sugars and oil crops and from crops grown as main crops primarily for energy purposes on agricultural land that can be counted towards targets set out in Directive 2009/28/EC does not affect the Member States' freedom to arrange their own trajectory as to compliance with the prescribed share of conventional biofuels within the overall 10 % target. As a consequence, the access to the market of the biofuels produced by the installations in operation before the end of 2013 remains fully open. Therefore this Directive does not affect the legitimate expectations of the operators of such installations.
- (21) The provisional mean values of estimated indirect land-use change emissions should be included in the reporting by fuel suppliers and the Commission of greenhouse gas emissions from biofuels under Directive 98/70/EC, as well as in the reporting by the Commission of greenhouse gas emissions from biofuels and bioliquids under Directive

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- 2009/28/EC. Biofuels made from feedstocks that do not lead to additional demand for land, such as those from waste feedstocks, should be assigned a zero emissions factor.
- (22) Indirect land-use change risks can occur if dedicated non-food crops, grown primarily for energy purposes, are grown on existing agricultural land which is used for the production of food and feed. Nonetheless, compared to food and feed crops, such dedicated crops grown primarily for energy purposes can have higher yields and the potential to contribute to the restoration of severely degraded and heavily contaminated land. However, information on the production of biofuels and bioliquids from such dedicated crops and their actual land-use change impact is limited. Therefore, the Commission should also monitor and regularly report on the state of production and consumption in the Union of biofuels and bioliquids produced from such dedicated crops as well as monitor and report on the associated impacts. Existing projects in the Union should be identified and used for improvement of the information basis for a more in-depth analysis of both risks and benefits related to environmental sustainability.
- (23) Yield increases in agricultural sectors through intensified research, technological development and knowledge transfer beyond levels which would have prevailed in the absence of productivity-promoting schemes for food and feed crop-based biofuels, as well as the cultivation of a second annual crop on areas which were previously not used for growing a second annual crop, can contribute to mitigating indirect land-use change. To the extent that the resulting indirect land-use change mitigation effect at national or project level can be quantified, measures introduced by this Directive could reflect such productivity improvements both in terms of reduced estimated indirect land-use change emission values and the contribution of food and feed crop-based biofuels towards the share of energy from renewable sources in transport to be achieved in 2020.
- (24) Voluntary schemes play an increasingly important role in providing evidence of compliance with the sustainability requirements laid down in Directives 98/70/EC and 2009/28/EC. It is therefore appropriate to mandate the Commission to require voluntary schemes, including those already recognised by the Commission in accordance with Article 7c(6) of Directive 98/70/EC and Article 18(6) of Directive 2009/28/EC, to report regularly on their activity. Such reports should be made public in order to increase transparency and to improve oversight by the Commission. Furthermore, such reporting would provide the necessary information for the Commission to report on the operation of the voluntary schemes with a view to identifying best practice and submitting, if appropriate, a proposal to further promote such best practice.
- (25) In order to facilitate the smooth functioning of the internal market, it is appropriate to clarify the conditions under which the mutual recognition principle applies as between all schemes for verification of compliance with the sustainability criteria for biofuels and bioliquids established in accordance with Directives 98/70/EC and 2009/28/EC.
- (26) Good governance and a rights-based approach, encompassing all human rights, in addressing food and nutrition security, at all levels, are essential, and coherence between different policies should be pursued in cases of negative effects on food and nutrition security. In this context, the governance and security of land tenure and land-use rights are of particular importance. Therefore, Member States should respect the Principles for

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Responsible Investment in Agriculture and Food Systems, approved by the Food and Agricultural Organisation Committee on World Food Security (CFS) in October 2014. Member States are also encouraged to support the implementation of the Voluntary Guidelines on the Responsible Governance of Tenure of Land, Fisheries and Forests in the Context of National Food Security, adopted by the CFS in October 2013.

- (27) Although food and feed crop-based biofuels are generally associated with indirect land-use change risks, there are also exceptions. Member States and the Commission should encourage the development and use of schemes which can reliably prove that a given amount of biofuel feedstock produced in a given project did not displace production for other purposes. This may be the case, for example, where the biofuel production equals the amount of additional production achieved through investments in improved productivity above levels which would have otherwise been achieved, in the absence of such productivity-promoting schemes, or where biofuel production takes place on land where direct land-use change occurred without significant negative impacts on pre-existing ecosystem services delivered by that land, including protection of carbon stocks and biodiversity. Member States and the Commission should explore the possibility of setting out criteria for the identification and certification of such schemes which can reliably prove that a given amount of biofuel feedstock produced in a given project did not displace production for purposes other than for making biofuels and that such biofuel feedstock was produced in accordance with the Union sustainability criteria for biofuels. Only the amount of feedstock which corresponds to the actual reduction in displacement achieved through the scheme may be considered.
- (28) It is appropriate to align the rules for using default values to ensure equal treatment for producers regardless of where the production takes place. While third countries are allowed to use default values, Union producers are required to use actual values where they are higher than the default values, or a report has not been submitted by the Member State, thereby increasing their administrative burden. Therefore, current rules should be simplified so that the use of default values is not limited to areas within the Union included in the lists referred to in Article 19(2) of Directive 2009/28/EC and Article 7d(2) of Directive 98/70/EC.
- (29) As a consequence of the entry into force of the TFEU, the powers conferred under Directives 2009/28/EC and 98/70/EC upon the Commission need to be aligned to Articles 290 and 291 TFEU.
- (30) In order to ensure uniform conditions for the implementation of Directives 98/70/EC and 2009/28/EC, implementing powers should be conferred on the Commission. Those powers should be exercised in accordance with Regulation (EU) No 182/2011 of the European Parliament and of the Council⁽⁷⁾.
- (31) In order to permit adaptation to the technical and scientific progress of Directive 98/70/EC, the power to adopt acts in accordance with Article 290 TFEU should be delegated to the Commission in respect of the addition of estimated typical and default values for biofuel pathways and the adaptation of the permitted analytical methods, relating to the fuel specifications, and of the vapour pressure waiver permitted for petrol containing bioethanol, as well as the establishment of greenhouse gas emission default values,

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as regards renewable liquid and gaseous transport fuels of non-biological origin and carbon capture and utilisation for transport purposes.

- (32) In order to permit adaptation to the technical and scientific progress of Directive 2009/28/EC, the power to adopt acts in accordance with Article 290 TFEU should be delegated to the Commission in respect of possible additions to the list of biofuel feedstocks and fuels, the contribution of which towards the target in Article 3(4) of that Directive should be considered to be twice their energy content, and also in respect of the addition of estimated typical and default values for biofuel and bioliquid pathways, as well as the adaptation of the energy content of transport fuels, as set out in Annex III to Directive 2009/28/EC, to scientific and technical progress.
- (33) It is of particular importance that the Commission in the application of Directives 98/70/EC and 2009/28/EC carry out appropriate consultations during its preparatory work, including at expert level. The Commission, when preparing and drawing up delegated acts, should ensure a simultaneous, timely and appropriate transmission of relevant documents to the European Parliament and to the Council.
- (34) The Commission should review the effectiveness of the measures introduced by this Directive, based on the best and latest available scientific evidence, in limiting the impact of indirect land-use change greenhouse gas emissions and addressing ways to further minimise that impact.
- (35) It is important that the Commission present without delay a comprehensive proposal for a cost-effective and technology-neutral post-2020 policy, in order to create a long-term perspective for investment in sustainable biofuels with a low risk of causing indirect land-use change and in other means of decarbonising the transport sector.
- (36) In accordance with the Joint Political Declaration of Member States and the Commission on explanatory documents of 28 September 2011⁽⁸⁾, Member States have undertaken to accompany, in justified cases, the notification of their transposition measures with one or more documents explaining the relationship between the components of a directive and the corresponding parts of national transposition instruments. With regard to this Directive, the legislator considers the transmission of such documents to be justified.
- (37) Since the objectives of this Directive, namely to ensure a single market for fuel for road transport and non-road mobile machinery and ensure respect for minimum levels of environmental protection in the use of that fuel, cannot be sufficiently achieved by the Member States but can rather, by reason of their scale and effects, be better achieved at Union level, the Union may adopt measures, in accordance with the principle of subsidiarity as set out in Article 5 of the Treaty on European Union. In accordance with the principle of proportionality, as set out in that Article, this Directive does not go beyond what is necessary in order to achieve those objectives.
- (38) Directives 98/70/EC and 2009/28/EC should therefore be amended accordingly,

HAVE ADOPTED THIS DIRECTIVE:

Article 1

Amendments to Directive 98/70/EC

Directive 98/70/EC is amended as follows:

- (1) In Article 2, the following points are added:
10. “renewable liquid and gaseous transport fuels of non-biological origin” means liquid or gaseous fuels other than biofuels whose energy content comes from renewable energy sources other than biomass, and which are used in transport;
 11. “starch-rich crops” means crops comprising mainly cereals (regardless of whether only the grains are used or the whole plant, such as in the case of green maize, is used), tubers and root crops (such as potatoes, Jerusalem artichokes, sweet potatoes, cassava and yams), and corm crops (such as taro and cocoyam);
 12. “low indirect land-use change-risk biofuels” means biofuels, the feedstocks of which were produced within schemes which reduce the displacement of production for purposes other than for making biofuels and which were produced in accordance with the sustainability criteria for biofuels set out in Article 7b;
 13. “processing residue” means a substance that is not the end product(s) that a production process directly seeks to produce; it is not a primary aim of the production process and the process has not been deliberately modified to produce it;
 14. “agricultural, aquaculture, fisheries and forestry residues” means residues that are directly generated by agriculture, aquaculture, fisheries and forestry; they do not include residues from related industries or processing..
- (2) Article 7a is amended as follows:
- (a) in paragraph 1, the following subparagraph is inserted after the first subparagraph:

In the case of suppliers of biofuels for use in aviation, Member States may permit such suppliers to choose to become contributors to the reduction obligation laid down in paragraph 2 of this Article provided that those biofuels comply with the sustainability criteria set out in Article 7b.;
 - (b) in paragraph 2, the following subparagraph is added:

Member States may provide that the maximum contribution of biofuels produced from cereal and other starch-rich crops, sugars and oil crops and from crops grown as main crops primarily for energy purposes on agricultural land for the purpose of compliance with the target referred to in the first subparagraph of this paragraph shall not exceed the maximum contribution established in point (d) of the second subparagraph of Article 3(4) of Directive 2009/28/EC.;
 - (c) paragraph 5 is replaced by the following:

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5. The Commission shall adopt implementing acts in accordance with the examination procedure referred to in Article 11(3) to set out detailed rules for the uniform implementation, by Member States, of paragraph 4 of this Article.;

(d) the following paragraphs are added:

6. The Commission shall be empowered to adopt no later than 31 December 2017 delegated acts in order to establish greenhouse gas emission default values, where such values have not already been established prior to 5 October 2015, as regards:

- a renewable liquid and gaseous transport fuels of non-biological origin;
- b carbon capture and utilisation for transport purposes.

7 As part of the reporting under paragraph 1, Member States shall ensure that fuel suppliers report annually to the authority designated by the Member State, on the biofuel production pathways, volumes of biofuels derived from the feedstocks as categorised in Part A of Annex V, and the life cycle greenhouse gas emissions per unit of energy, including the provisional mean values of the estimated indirect land-use change emissions from biofuels. Member States shall report those data to the Commission..

(3) Article 7b is amended as follows:

(a) paragraph 2 is replaced by the following:

2. The greenhouse gas emission saving from the use of biofuels taken into account for the purposes referred to in paragraph 1 shall be at least 60 % for biofuels produced in installations starting operation after 5 October 2015. An installation shall be considered to be in operation if the physical production of biofuels has taken place.

In the case of installations that were in operation on or before 5 October 2015, for the purposes referred to in paragraph 1, biofuels shall achieve a greenhouse gas emission saving of at least 35 % until 31 December 2017 and at least 50 % from 1 January 2018.

The greenhouse gas emission saving from the use of biofuels shall be calculated in accordance with Article 7d(1).;

(b) in paragraph 3, the second subparagraph is deleted.

(4) Article 7c is amended as follows:

(a) in paragraph 3, the third subparagraph is replaced by the following:

The Commission shall adopt implementing acts in accordance with the examination procedure referred to in Article 11(3), to establish the list of appropriate and relevant information referred to in the first two subparagraphs of this paragraph. The Commission shall ensure, in particular, that the provision of that information does not represent an excessive administrative burden for operators in general or for smallholder farmers, producer organisations and cooperatives in particular.;

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- (b) in paragraph 5, the following subparagraphs are added:

The voluntary schemes referred to in paragraph 4 (“the voluntary schemes”) shall regularly, and at least once per year, publish a list of their certification bodies used for independent auditing, indicating for each certification body by which entity or national public authority it was recognised and which entity or national public authority is monitoring it.

In order in particular to prevent fraud, the Commission may, on the basis of a risk analysis or the reports referred to in the second subparagraph of paragraph 6 of this Article, specify the standards of independent auditing and require all voluntary schemes to apply those standards. This shall be done by means of implementing acts adopted in accordance with the examination procedure referred to in Article 11(3). Such acts shall set a time frame by which voluntary schemes need to implement the standards. The Commission may repeal decisions recognising voluntary schemes in the event that those schemes fail to implement such standards in the time frame provided for.;

- (c) paragraph 6 is replaced by the following:

6. Decisions under paragraph 4 of this Article shall be adopted in accordance with the examination procedure referred to in Article 11(3). Such decisions shall be valid for a period of no more than five years.

The Commission shall require that each voluntary scheme, on which a decision has been adopted under paragraph 4, submit by 6 October 2016 and annually thereafter by 30 April, a report to the Commission covering each of the points set out in the third subparagraph of this paragraph. Generally, the report shall cover the preceding calendar year. The first report shall cover at least six months from 9 September 2015. The requirement to submit a report shall apply only to voluntary schemes that have operated for at least 12 months.

By 6 April 2017, the Commission shall submit a report to the European Parliament and to the Council analysing the reports referred to in the second subparagraph of this paragraph, reviewing the operation of the agreements referred to in paragraph 4 or voluntary schemes in respect of which a decision has been adopted in accordance with this Article, and identifying best practices. The report shall be based on the best information available, including following consultations with stakeholders, and on practical experience in the application of the agreements or schemes concerned. The report shall analyse the following:

in general:

- (a) the independence, modality and frequency of audits, both in relation to what is stated on those aspects in the scheme documentation, at the time the scheme concerned was approved by the Commission, and in relation to industry best practice;
- (b) the availability of, and experience and transparency in the application of, methods for identifying and dealing with non-compliance, with particular regard to dealing

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with situations or allegations of serious wrongdoing on the part of members of the scheme;

- (c) transparency, particularly in relation to the accessibility of the scheme, the availability of translations in the applicable languages of the countries and regions from which raw materials originate, the accessibility of a list of certified operators and relevant certificates, and the accessibility of auditor reports;
- (d) stakeholder involvement, particularly as regards the consultation of indigenous and local communities prior to decision making during the drafting and reviewing of the scheme as well as during audits and the response given to their contributions;
- (e) the overall robustness of the scheme, particularly in light of rules on the accreditation, qualification and independence of auditors and relevant scheme bodies;
- (f) market updates of the scheme, the amount of feedstocks and biofuels certified, by country of origin and type, the number of participants;
- (g) the ease and effectiveness of implementing a system that tracks the proofs of conformity with the sustainability criteria that the scheme gives to its member(s), such a system intended to serve as a means of preventing fraudulent activity with a view, in particular, to the detection, treatment and follow-up of suspected fraud and other irregularities and where appropriate, the number of cases of fraud or irregularities detected;

and in particular:

- (h) options for entities to be authorised to recognise and monitor certification bodies;
- (i) criteria for the recognition or accreditation of certification bodies;
- (j) rules on how the monitoring of the certification bodies is to be conducted;
- (k) ways to facilitate or improve the promotion of best practice.

A Member State may notify its national scheme to the Commission. The Commission shall give priority to the assessment of such a scheme. A decision on the compliance of such a notified national scheme with the conditions set out in this Directive shall be adopted in accordance with the examination procedure referred to in Article 11(3), in order to facilitate mutual bilateral and multilateral recognition of schemes for verification of compliance with the sustainability criteria for biofuels. Where the decision is positive, schemes established in accordance with this Article shall not refuse mutual recognition with that Member State's scheme as regards the

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verification of compliance with the sustainability criteria set out in Article 7b(2) to (5).;

(d) paragraph 8 is replaced by the following:

8. At the request of a Member State or on its own initiative, the Commission shall examine the application of Article 7b in relation to a source of biofuel and, within six months of receipt of a request decide, in accordance with the examination procedure referred to in Article 11(3), whether the Member State concerned may take biofuel from that source into account for the purposes of Article 7a..

(5) Article 7d is amended as follows:

(a) paragraphs 3, 4 and 5 are replaced by the following:

3. The typical greenhouse gas emissions from cultivation of agricultural raw materials included in the reports referred to in paragraph 2 in the case of Member States, and, in the case of territories outside the Union, in reports equivalent to those referred to in paragraph 2 and drawn up by competent bodies, may be reported to the Commission.

4 The Commission may decide, by means of an implementing act adopted in accordance with the examination procedure referred to in Article 11(3), that the reports referred to in paragraph 3 of this Article contain accurate data for the purposes of measuring the greenhouse gas emissions associated with the cultivation of biofuel feedstocks typically produced in those areas for the purposes of Article 7b(2).

5 By 31 December 2012 at the latest and every two years thereafter, the Commission shall draw up and publish a report on the estimated typical and default values in Parts B and E of Annex IV, paying special attention to greenhouse gas emissions from transport and processing.

In the event that the reports referred to in the first subparagraph indicate that the estimated typical and default values in Parts B and E of Annex IV might need to be adjusted on the basis of the latest scientific evidence, the Commission shall, as appropriate, submit a legislative proposal to the European Parliament and to the Council.;

(b) paragraph 6 is deleted;

(c) in paragraph 7, the first, second and third subparagraphs are replaced by the following:

7. The Commission shall keep Annex IV under review, with a view, where justified, to the addition of values for further biofuel production pathways for the same or for other raw materials. That review shall also consider the modification of the methodology laid down in Part C of Annex IV, particularly with regard to:

- the method of accounting for wastes and residues;
- the method of accounting for co-products;
- the method of accounting for cogeneration; and
- the status given to agricultural crop residues as co-products.

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The default values for waste vegetable or animal oil biodiesel shall be reviewed as soon as possible. In the event that the Commission's review concludes that additions to Annex IV should be made, the Commission shall be empowered to adopt delegated acts pursuant to Article 10a to add, but not to remove or amend, estimated typical and default values in Parts A, B, D and E of Annex IV for biofuel pathways for which specific values are not yet included in that Annex.;

(d) paragraph 8 is replaced by the following:

8. Where necessary in order to ensure the uniform application of point 9 of Part C of Annex IV, the Commission may adopt implementing acts setting out detailed technical specifications and definitions. Those implementing acts shall be adopted in accordance with the examination procedure referred to in Article 11(3)..

(6) In Article 7e, paragraph 2 is replaced by the following:

2. The reports by the Commission to the European Parliament and to the Council referred to in Article 7b(7), Article 7c(2), Article 7c(9) and Article 7d(4) and (5), as well as the reports and information submitted pursuant to the first and fifth subparagraphs of Article 7c(3) and Article 7d(2), shall be prepared and transmitted for the purposes of both Directive 2009/28/EC and this Directive..

(7) Article 8 is amended as follows:

(a) paragraph 1 is replaced by the following:

1. Member States shall monitor compliance with the requirements of Articles 3 and 4, in respect of petrol and diesel fuels, on the basis of the analytical methods referred to in Annexes I and II respectively.;

(b) paragraph 3 is replaced by the following:

3. Each year by 31 August, the Member States shall submit a report on national fuel quality data for the preceding calendar year. The Commission shall establish a common format for the submission of a summary of national fuel quality data by means of an implementing act adopted in accordance with the examination procedure referred to in Article 11(3). The first report shall be submitted by 30 June 2002. From 1 January 2004, the format for this report shall be consistent with that described in the relevant European standard. In addition, Member States shall report the total volumes of petrol and diesel fuels marketed in their territories and the volumes of unleaded petrol and diesel fuels marketed with a maximum sulphur content of 10 mg/kg. Furthermore, Member States shall report annually on the availability, on an appropriately balanced geographical basis, of petrol and diesel fuels with a maximum sulphur content of 10 mg/kg that are marketed within their territory..

(8) In Article 8a, paragraph 3 is replaced by the following:

3. In light of the assessment carried out using the test methodology referred to in paragraph 1, the European Parliament and the Council may revise the limit for the MMT content of fuel specified in paragraph 2, on the basis of a legislative proposal from the Commission..

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- (9) In Article 9(1), the following point is added:
- (k) the production pathways, volumes and the life cycle greenhouse gas emissions per unit of energy, including the provisional mean values of the estimated indirect land-use change emissions and the associated range derived from the sensitivity analysis as set out in Annex V, of the biofuels consumed in the Union. The Commission shall make data on the provisional mean values of the estimated indirect land-use change emissions and the associated range derived from the sensitivity analysis publicly available..
- (10) Article 10 is amended as follows:
- (a) the title is replaced by the following:
- Procedure for adaptation of permitted analytical methods and permitted vapour pressure waivers;
- (b) paragraph 1 is replaced by the following:
1. The Commission shall be empowered to adopt delegated acts pursuant to Article 10a to the extent necessary to adapt the permitted analytical methods in order to ensure consistency with any revision of the European standards referred to in Annex I or II. The Commission shall also be empowered to adopt delegated acts in accordance with Article 10a to adapt the permitted vapour pressure waivers in kPa for the ethanol content of petrol set out in Annex III within the limit set in the first subparagraph of Article 3(4). Such delegated acts shall be without prejudice to waivers granted pursuant to Article 3(4)..
- (11) The following Article is inserted:

Article 10a

Exercise of the delegation

- 1 The power to adopt delegated acts is conferred on the Commission subject to the conditions laid down in this Article.
- 2 The power to adopt delegated acts referred to in Articles 7a(6), 7d(7) and 10(1) shall be conferred on the Commission for a period of five years from 5 October 2015.
- 3 The delegation of power referred to in Articles 7a(6), 7d(7) and 10(1) may be revoked at any time by the European Parliament or by the Council. A decision to revoke shall put an end to the delegation of the power specified in that decision. It shall take effect the day following the publication of the decision in the *Official Journal of the European Union* or at a later date specified therein. It shall not affect the validity of any delegated acts already in force.
- 4 As soon as it adopts a delegated act, the Commission shall notify it simultaneously to the European Parliament and to the Council.
- 5 A delegated act adopted pursuant to Articles 7a(6), 7d(7) and 10(1) shall enter into force only if no objection has been expressed either by the European Parliament or the Council within a period of two months of notification of that act to the European Parliament and the Council or if, before the expiry of that period, the

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European Parliament and the Council have both informed the Commission that they will not object. That period shall be extended by two months at the initiative of the European Parliament or the Council..

- (12) Article 11 is replaced by the following:

Article 11

Committee procedure

1 Except in the cases referred to in paragraph 2, the Commission shall be assisted by the Committee on Fuel Quality. That committee shall be a committee within the meaning of Regulation (EU) No 182/2011 of the European Parliament and of the Council⁽⁹⁾.

2 For matters relating to the sustainability of biofuels under Articles 7b, 7c and 7d, the Commission shall be assisted by the Committee on the Sustainability of Biofuels and Bioliquids referred to in Article 25(2) of Directive 2009/28/EC. That committee shall be a committee within the meaning of Regulation (EU) No 182/2011.

3 Where reference is made to this paragraph, Article 5 of Regulation (EU) No 182/2011 shall apply.

Where the Committees deliver no opinion, the Commission shall not adopt the draft implementing act and the third subparagraph of Article 5(4) of Regulation (EU) No 182/2011 shall apply..

- (13) Annex IV is amended and Annex V is added in accordance with Annex I to this Directive.

Article 2

Amendments to Directive 2009/28/EC

Directive 2009/28/EC is amended as follows:

- (1) In Article 2, the following points are added to the second paragraph:
- (p) “waste” shall be defined as in Article 3(1) of Directive 2008/98/EC of the European Parliament and of the Council⁽¹⁰⁾; substances that have been intentionally modified or contaminated to meet that definition are not covered by this definition;
 - (q) “starch-rich crops” means crops comprising mainly cereals (regardless of whether only the grains are used, or the whole plant, such as in the case of green maize, is used), tubers and root crops (such as potatoes, Jerusalem artichokes, sweet potatoes, cassava and yams), and corm crops (such as taro and cocoyam);
 - (r) “ligno-cellulosic material” means material composed of lignin, cellulose and hemicellulose such as biomass sourced from forests, woody energy crops and forest-based industries' residues and wastes;
 - (s) “non-food cellulosic material” means feedstocks mainly composed of cellulose and hemicellulose, and having a lower lignin content than ligno-

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cellulosic material; it includes food and feed crop residues (such as straw, stover, husks and shells), grassy energy crops with a low starch content (such as ryegrass, switchgrass, miscanthus, giant cane and cover crops before and after main crops), industrial residues (including from food and feed crops after vegetal oils, sugars, starches and protein have been extracted), and material from biowaste;

- (t) “processing residue” means a substance that is not the end product(s) that a production process directly seeks to produce; it is not a primary aim of the production process and the process has not been deliberately modified to produce it;
- (u) “renewable liquid and gaseous transport fuels of non-biological origin” means liquid or gaseous fuels other than biofuels whose energy content comes from renewable energy sources other than biomass, and which are used in transport;
- (v) “agricultural, aquaculture, fisheries and forestry residues” means residues that are directly generated by agriculture, aquaculture, fisheries and forestry; they do not include residues from related industries or processing;
- (w) “low indirect land-use change-risk biofuels and bioliquids” means biofuels and bioliquids, the feedstocks of which were produced within schemes which reduce the displacement of production for purposes other than for making biofuels and bioliquids and which were produced in accordance with the sustainability criteria for biofuels and bioliquids set out in Article 17..

(2) Article 3 is amended as follows:

(a) in paragraph 1, the following subparagraph is added:

For the purpose of compliance with the targets referred to in the first subparagraph of this paragraph, the maximum joint contribution from biofuels and bioliquids produced from cereal and other starch-rich crops, sugars and oil crops and from crops grown as main crops primarily for energy purposes on agricultural land shall be no more than the energy quantity corresponding to the maximum contribution as set out in paragraph 4(d).;

(b) in paragraph 4, the second subparagraph is amended as follows:

(i) point (a) is replaced by the following:

(a) for the calculation of the denominator, that is the total amount of energy consumed in transport for the purposes of the first subparagraph, only petrol, diesel, biofuels consumed in road and rail transport, and electricity, including electricity used for the production of renewable liquid and gaseous transport fuels of non-biological origin, shall be taken into account;

(ii) in point (b), the following sentence is added:

This point shall be without prejudice to point (d) of this paragraph and Article 17(1)(a);

(iii) point (c) is replaced by the following:

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- (c) for the calculation of the contribution from electricity produced from renewable sources and consumed in all types of electric vehicles and for the production of renewable liquid and gaseous transport fuels of non-biological origin for the purpose of points (a) and (b), Member States may choose to use either the average share of electricity from renewable energy sources in the Union or the share of electricity from renewable energy sources in their own country as measured two years before the year in question. Furthermore, for the calculation of the electricity from renewable energy sources consumed by electrified rail transport, that consumption shall be considered to be 2,5 times the energy content of the input of electricity from renewable energy sources. For the calculation of the electricity from renewable energy sources consumed by electric road vehicles in point (b), that consumption shall be considered to be five times the energy content of the input of electricity from renewable energy sources.
- (iv) the following points are added:
- (d) for the calculation of biofuels in the numerator, the share of energy from biofuels produced from cereal and other starch-rich crops, sugars and oil crops and from crops grown as main crops primarily for energy purposes on agricultural land shall be no more than 7 % of the final consumption of energy in transport in the Member States in 2020.
- Biofuels produced from feedstocks listed in Annex IX shall not count towards the limit set out in the first subparagraph of this point.
- Member States may decide that the share of energy from biofuels produced from crops grown as main crops primarily for energy purposes on agricultural land, other than cereal and other starch-rich crops, sugars and oil crops, does not count towards the limit set out in the first subparagraph of this point, provided that:
- (i) verification of compliance with the sustainability criteria set out in Article 17(2) to (5) was carried out in accordance with Article 18; and
- (ii) those crops were grown on land that falls under point 8 of part C of Annex V and the corresponding bonus “e_B” set out in point 7 of part C of Annex V was included in the calculation of greenhouse gas emissions, for the purposes of showing compliance with Article 17(2).

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- (e) each Member State shall seek to achieve the objective of there being a minimum level of consumption on their territory of biofuels produced from feedstocks and of other fuels, listed in part A of Annex IX. To that effect, by 6 April 2017, each Member State shall set a national target, which it shall endeavour to achieve. A reference value for this target is 0,5 percentage points in energy content of the share of energy from renewable sources in all forms of transport in 2020 referred to in the first subparagraph, to be met with biofuels produced from feedstocks and with other fuels, listed in part A of Annex IX. In addition, biofuels made from feedstocks not listed in Annex IX that were determined to be wastes, residues, non-food cellulosic material or ligno-cellulosic material by the competent national authorities and are used in existing installations prior to the adoption of Directive (EU) 2015/1513 of the European Parliament and of the Council⁽¹¹⁾, may be counted towards the national target.

Member States may set a national target lower than the reference value of 0,5 percentage points, based on one or more of the following grounds:

- (i) objective factors such as the limited potential for the sustainable production of biofuels produced from feedstocks and of other fuels, listed in part A of Annex IX, or the limited availability of such biofuels at cost-efficient prices on the market;
- (ii) the specific technical or climatic characteristics of the national market for transport fuels, such as the composition and condition of the road vehicle fleet; or
- (iii) national policies allocating commensurate financial resources to incentivising energy efficiency and the use of electricity from renewable energy sources in transport.

When setting their national targets, Member States shall provide available information on the quantities of biofuels consumed from feedstocks and other fuels, listed in part A of Annex IX.

When setting policies for the promotion of the production of fuels from feedstocks listed in Annex IX, Member States shall have due regard to the waste hierarchy as established in Article 4 of Directive 2008/98/EC, including its provisions regarding life-cycle thinking on the overall impacts of the generation and management of different waste streams.

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The Commission shall publish in accordance with Article 24 of this Directive:

- the national targets of the Member States,
- where available, the Member States' plans for achieving the national targets,
- where applicable, the grounds for differentiation of the national targets of the Member States as compared to the reference value, notified in accordance with Article 4(2) of Directive (EU) 2015/1513; and
- a synthesis report on Member States' achievements towards their national targets;

- (f) biofuels produced from feedstocks listed in Annex IX shall be considered to be twice their energy content for the purpose of complying with the target set out in the first subparagraph.;

- (c) in paragraph 4, the third subparagraph is replaced by the following:

By 31 December 2017, the Commission shall present, if appropriate, a proposal permitting, subject to certain conditions, the whole amount of the electricity originating from renewable sources used to power all types of electric vehicles, and for the production of renewable liquid and gaseous transport fuels of non-biological origin to be considered.;

- (d) the following paragraph is added:

5. With a view to minimising the risk of single consignments being claimed more than once in the Union, Member States and the Commission shall endeavour to strengthen cooperation among national systems and between national systems and voluntary schemes established pursuant to Article 18, including where appropriate the exchange of data. To prevent materials from being intentionally modified or discarded in order to fall under Annex IX, Member States shall encourage the development and use of systems which track and trace feedstocks and the resulting biofuels over the whole value chain. Member States shall ensure that when fraud is detected, appropriate action is taken. Member States shall by 31 December 2017, and every two years thereafter, report on the measures they have taken if they have not provided equivalent information on reliability and protection against fraud in their reports on progress in the promotion and use of energy from renewable sources drawn up in accordance with Article 22(1)(d).

The Commission shall be empowered to adopt delegated acts in accordance with Article 25a to amend the list of feedstocks in part A of Annex IX in order to add feedstocks, but not to remove them. The Commission shall adopt a separate delegated act in respect of each feedstock to be added to the list in part A of Annex IX. Each delegated act shall be based on an analysis of the latest scientific and technical progress, taking due account of the principles of the waste hierarchy established in Directive 2008/98/EC, and supporting the conclusion that the feedstock in question does not create an additional demand for land or cause significant distortive effects on markets for (by-)products, wastes or residues, that it delivers substantial

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greenhouse gas emission savings compared to fossil fuels, and that it does not risk creating negative impacts on the environment and biodiversity..

- (3) In Article 5, paragraph 5 is replaced by the following:
5. The Commission shall be empowered to adopt delegated acts in accordance with Article 25a concerning the adaptation of the energy content of transport fuels, as set out in Annex III, to scientific and technical progress..
- (4) In Article 6, paragraphs 1 and 2 are replaced by the following:
1. Member States may agree on and may make arrangements for the statistical transfer of a specified amount of energy from renewable sources from one Member State to another Member State. The transferred quantity shall be:
- a deducted from the amount of energy from renewable sources that is taken into account in measuring compliance by the Member State making the transfer with the requirements of Article 3(1), (2) and (4); and
 - b added to the amount of energy from renewable sources that is taken into account in measuring compliance by another Member State accepting the transfer with the requirements of Article 3(1), (2) and (4).
2. The arrangements referred to in paragraph 1 of this Article in respect of Article 3(1), (2) and (4) may have a duration of one or more years. They shall be notified to the Commission not later than three months after the end of each year in which they have effect. The information sent to the Commission shall include the quantity and price of the energy involved..
- (5) Article 17 is amended as follows:
- (a) paragraph 2 is replaced by the following:
2. The greenhouse gas emission saving from the use of biofuels and bioliquids taken into account for the purposes referred to in paragraph 1 shall be at least 60 % for biofuels and bioliquids produced in installations starting operation after 5 October 2015. An installation shall be considered to be in operation if the physical production of biofuels or bioliquids has taken place.
- In the case of installations that were in operation on or before 5 October 2015, for the purposes referred to in paragraph 1, biofuels and bioliquids shall achieve a greenhouse gas emission saving of at least 35 % until 31 December 2017 and at least 50 % from 1 January 2018.
- The greenhouse gas emission saving from the use of biofuels and bioliquids shall be calculated in accordance with Article 19(1).;
- (b) in paragraph 3, the second subparagraph is deleted.
- (6) Article 18 is amended as follows:
- (a) in paragraph 3, the third subparagraph is replaced by the following:
- The Commission shall adopt implementing acts in accordance with the examination procedure referred to in Article 25(3), to establish the list of appropriate and relevant information referred to in the first two subparagraphs of this paragraph. The Commission shall ensure, in particular, that the provision of that information does not represent an excessive administrative burden for operators in general

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or for smallholder farmers, producer organisations and cooperatives in particular.;

- (b) in paragraph 4, the second subparagraph is replaced by the following:

The Commission may decide that voluntary national or international schemes setting standards for the production of biomass products contain accurate data for the purposes of Article 17(2), and/or demonstrate that consignments of biofuel or bioliquid comply with the sustainability criteria set out in Article 17(3), (4) and (5), and/or that no materials have been intentionally modified or discarded so that the consignment or part thereof would fall under Annex IX. The Commission may decide that those schemes contain accurate data for the purposes of information on measures taken for the conservation of areas that provide, in critical situations, basic ecosystem services (such as watershed protection and erosion control), for soil, water and air protection, the restoration of degraded land, the avoidance of excessive water consumption in areas where water is scarce and on the issues referred to in the second subparagraph of Article 17(7). The Commission may also recognise areas for the protection of rare, threatened or endangered ecosystems or species recognised by international agreements or included in lists drawn up by intergovernmental organisations or the International Union for the Conservation of Nature for the purposes of Article 17(3)(b)(ii).;

- (c) in paragraph 5, the following subparagraphs are added:

The voluntary schemes referred to in paragraph 4 (“the voluntary schemes”) shall regularly, and at least once per year, publish a list of their certification bodies used for independent auditing, indicating for each certification body by which entity or national public authority it was recognised and which entity or national public authority is monitoring it.

In order in particular to prevent fraud, the Commission may, on the basis of a risk analysis or the reports referred to in the second subparagraph of paragraph 6 of this Article, specify the standards of independent auditing and require all voluntary schemes to apply those standards. This shall be done by means of implementing acts adopted in accordance with the examination procedure referred to in Article 25(3). Such acts shall set a time frame by which voluntary schemes need to implement the standards. The Commission may repeal decisions recognising voluntary schemes in the event that those schemes fail to implement such standards in the time frame provided for.;

- (d) paragraph 6 is replaced by the following:

6. Decisions under paragraph 4 of this Article shall be adopted in accordance with the examination procedure referred to in Article 25(3). Such decisions shall be valid for a period of no more than five years.

The Commission shall require that each voluntary scheme on which a decision has been adopted under paragraph 4 submit by 6 October 2016 and annually thereafter by 30 April, a report to the Commission covering each of the points set out in the third subparagraph of this paragraph. Generally, the report shall cover the preceding calendar year. The first report shall cover at least six months from 9 September 2015. The requirement to submit a

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report shall apply only to voluntary schemes that have operated for at least 12 months.

By 6 April 2017, and thereafter within its reports in accordance with Article 23(3), the Commission shall submit a report to the European Parliament and to the Council analysing the reports referred to in the second subparagraph of this paragraph, reviewing the operation of the agreements referred to in paragraph 4 or voluntary schemes in respect of which a decision has been adopted in accordance with this Article, and identifying best practices. The report shall be based on the best information available, including following consultations with stakeholders, and on practical experience in the application of the agreements or schemes concerned. The report shall analyse the following:

in general:

- (a) the independence, modality and frequency of audits, both in relation to what is stated on those aspects in the scheme documentation, at the time the scheme concerned was approved by the Commission, and in relation to industry best practice;
- (b) the availability of, and experience and transparency in the application of, methods for identifying and dealing with non-compliance, with particular regard to dealing with situations or allegations of serious wrongdoing on the part of members of the scheme;
- (c) transparency, particularly in relation to the accessibility of the scheme, the availability of translations in the applicable languages of the countries and regions from which raw materials originate, the accessibility of a list of certified operators and relevant certificates, and the accessibility of auditor reports;
- (d) stakeholder involvement, particularly as regards the consultation of indigenous and local communities prior to decision making during the drafting and reviewing of the scheme as well as during audits and the response to their contributions;
- (e) the overall robustness of the scheme, particularly in light of rules on the accreditation, qualification and independence of auditors and relevant scheme bodies;
- (f) market updates of the scheme, the amount of feedstocks and biofuels certified, by country of origin and type, the number of participants;
- (g) the ease and effectiveness of implementing a system that tracks the proofs of conformity with the sustainability criteria that the scheme gives to its member(s), such a system intended to serve as a means of preventing fraudulent activity with a view, in particular, to the detection, treatment and follow-up of suspected fraud

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and other irregularities and where appropriate, number of cases of fraud or irregularities detected;

and in particular:

- (h) options for entities to be authorised to recognise and monitor certification bodies;
- (i) criteria for the recognition or accreditation of certification bodies;
- (j) rules on how the monitoring of the certification bodies is to be conducted;
- (k) ways to facilitate or improve the promotion of best practice.

The Commission shall make the reports drawn up by the voluntary schemes available, in an aggregated form or in full if appropriate, on the transparency platform referred to in Article 24.

A Member State may notify its national scheme to the Commission. The Commission shall give priority to the assessment of such a scheme. A decision on the compliance of such a notified national scheme with the conditions set out in this Directive shall be adopted in accordance with the examination procedure referred to in Article 25(3), in order to facilitate mutual bilateral and multilateral recognition of schemes for verification of compliance with the sustainability criteria for biofuels and bioliquids. Where the decision is positive, schemes established in accordance with this Article shall not refuse mutual recognition with that Member State's scheme, as regards the verification of compliance with the sustainability criteria set out in Article 17(2) to (5).;

- (e) paragraph 8 is replaced by the following:

8. At the request of a Member State or on its own initiative, the Commission shall examine the application of Article 17 in relation to a source of biofuel and, within six months of receipt of a request decide, in accordance with the examination procedure referred to in Article 25(3), whether the Member State concerned may take biofuel from that source into account for the purposes of Article 17(1)..

- (7) Article 19 is amended as follows:

- (a) paragraphs 3, 4 and 5 are replaced by the following:

3. The typical greenhouse gas emissions from cultivation of agricultural raw materials included in the reports referred to in paragraph 2 in the case of Member States, and, in the case of territories outside the Union, in reports equivalent to those referred to in paragraph 2 and drawn up by competent bodies, may be reported to the Commission.

4. The Commission may decide, by means of an implementing act adopted in accordance with the examination procedure referred to in Article 25(3), that the reports referred to in paragraph 3 of this Article contain accurate data for the purposes of measuring the greenhouse gas emissions associated with the cultivation of biofuel and bioliquid feedstocks typically produced in those areas for the purposes of Article 17(2).

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5 By 31 December 2012 at the latest and every two years thereafter, the Commission shall draw up and publish a report on the estimated typical and default values in parts B and E of Annex V, paying special attention to greenhouse gas emissions from transport and processing.

In the event that the reports referred to in the first subparagraph indicate that the estimated typical and default values in parts B and E of Annex V might need to be adjusted on the basis of the latest scientific evidence, the Commission shall, as appropriate, submit a legislative proposal to the European Parliament and to the Council.;

- (b) paragraph 6 is deleted;
- (c) in paragraph 7, the first, second and third subparagraphs are replaced by the following:

7. The Commission shall keep Annex V under review, with a view, where justified, to the addition of values for further biofuel production pathways for the same or for other raw materials. That review shall also consider the modification of the methodology laid down in part C of Annex V, particularly with regard to:

- the method of accounting for wastes and residues;
- the method of accounting for co-products;
- the method of accounting for cogeneration; and
- the status given to agricultural crop residues as co-products.

The default values for waste vegetable or animal oil biodiesel shall be reviewed as soon as possible. In the event that the Commission's review concludes that additions to Annex V should be made, the Commission shall be empowered to adopt delegated acts pursuant to Article 25a to add, but not to remove or amend, estimated typical and default values in parts A, B, D and E of Annex V for biofuel and bioliquid pathways for which specific values are not yet included in that Annex.;

- (d) paragraph 8 is replaced by the following:

8. Where necessary in order to ensure the uniform application of point 9 of Part C of Annex V, the Commission may adopt implementing acts setting out detailed technical specifications and definitions. Those implementing acts shall be adopted in accordance with the examination procedure referred to in Article 25(3)..

- (8) Article 21 is deleted.

- (9) In Article 22(1), the second subparagraph is amended as follows:

- (a) point (i) is replaced by the following:

- (i) the development and share of biofuels made from feedstocks listed in Annex IX including a resource assessment focusing on the sustainability aspects relating to the effect of the replacement of food and feed products for biofuel production, taking due account of the principles of the waste hierarchy established in Directive 2008/98/EC and the biomass cascading principle, taking into consideration the regional and local economic and technological

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circumstances, the maintenance of the necessary carbon stock in the soil and the quality of the soil and the ecosystems;;

- (b) the following point is added:
 - (o) the amounts of biofuels and bioliquids in energy units corresponding to each category of feedstock group listed in part A of Annex VIII taken into account by that Member State for the purpose of complying with the targets set out in Article 3(1) and (2), and in the first subparagraph of Article 3(4)..

(10) Article 23 is amended as follows:

- (a) the last sentence in paragraph 1 is deleted;
- (b) paragraph 4 is replaced by the following:

4. In reporting on greenhouse gas emission savings from the use of biofuels and bioliquids, the Commission shall use the amounts reported by Member States in accordance with point (o) of Article 22(1), including the provisional mean values of the estimated indirect land-use change emissions and the associated range derived from the sensitivity analysis as set out in Annex VIII. The Commission shall make data on the provisional mean values of the estimated indirect land-use change emissions and the associated range derived from the sensitivity analysis publicly available. In addition, the Commission shall evaluate whether and how the estimate for direct emission savings would change if co-products were accounted for using the substitution approach.;
- (c) in paragraph 5, points (e) and (f) are replaced by the following:
 - (e) the availability and sustainability of biofuels made from feedstocks listed in Annex IX, including an assessment of the effect of the replacement of food and feed products for biofuel production, taking due account of the principles of the waste hierarchy established in Directive 2008/98/EC and the biomass cascading principle, taking into consideration the regional and local economic and technological circumstances, the maintenance of the necessary carbon stock in the soil and the quality of soil and ecosystems;
 - (f) information on, and analysis of, the available scientific research results regarding indirect land-use change in relation to all production pathways, accompanied by an assessment of whether the range of uncertainty identified in the analysis underlying the estimations of indirect land-use change emissions can be narrowed and the possible impact of Union policies, such as environment, climate and agricultural policies, can be factored in; and
 - (g) technological developments and availability of data on the use, economic and environmental impacts of biofuels and bioliquids produced in the Union from dedicated non-food crops grown primarily for energy purposes.;
- (d) in paragraph 8, point (b) of the first subparagraph is replaced by the following:

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- (b) with respect to the targets referred to in Article 3(4), a review of:
 - (i) the cost-efficiency of the measures to be implemented to achieve the targets;
 - (ii) an assessment of the feasibility of reaching the targets whilst ensuring the sustainability of biofuels production in the Union and in third countries, and considering economic, environmental and social impacts, including indirect effects and impacts on biodiversity, as well as the commercial availability of second-generation biofuels;
 - (iii) the impact of the implementation of the targets on the availability of foodstuffs at affordable prices;
 - (iv) the commercial availability of electric, hybrid and hydrogen-powered vehicles, as well as the methodology chosen to calculate the share of energy from renewable sources consumed in the transport sector;
 - (v) the evaluation of specific market conditions, considering, in particular, markets in which transport fuels represent more than half of the final energy consumption, and markets which are fully dependent on imported biofuels;.
- (11) Article 25 is replaced by the following:

Article 25

Committee procedure

1 Except in the cases referred to in paragraph 2, the Commission shall be assisted by the Committee on Renewable Energy Sources. That committee shall be a committee within the meaning of Regulation (EU) No 182/2011 of the European Parliament and of the Council⁽¹²⁾.

2 For matters relating to the sustainability of biofuels and bioliquids, the Commission shall be assisted by the Committee on the Sustainability of Biofuels and Bioliquids. That committee shall be a committee within the meaning of Regulation (EU) No 182/2011.

3 Where reference is made to this paragraph, Article 5 of Regulation (EU) No 182/2011 shall apply.

Where the Committees deliver no opinion, the Commission shall not adopt the draft implementing act and the third subparagraph of Article 5(4) of Regulation (EU) No 182/2011 shall apply..

(12) The following Article is inserted:

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Article 25a

Exercise of the delegation

- 1 The power to adopt delegated acts is conferred on the Commission subject to the conditions laid down in this Article.
 - 2 The power to adopt delegated acts referred to in Articles 3(5), 5(5) and 19(7) shall be conferred on the Commission for a period of five years from 5 October 2015.
 - 3 The delegation of power referred to in Articles 3(5), 5(5) and 19(7) may be revoked at any time by the European Parliament or by the Council. A decision of revocation shall put an end to the delegation of the power specified in that decision. It shall take effect the day following the publication of the decision in the *Official Journal of the European Union* or at a later date specified therein. It shall not affect the validity of any delegated acts already in force.
 - 4 As soon as it adopts a delegated act, the Commission shall notify it simultaneously to the European Parliament and to the Council.
 - 5 A delegated act adopted pursuant to Articles 3(5), 5(5) and 19(7) shall enter into force only if no objection has been expressed either by the European Parliament or the Council within a period of two months of notification of that act to the European Parliament and the Council or if, before the expiry of that period, the European Parliament and the Council have both informed the Commission that they will not object. That period shall be extended by two months at the initiative of the European Parliament or the Council..
- (13) Annex V is amended and Annexes VIII and IX are added in accordance with Annex II to this Directive.

Article 3

Review

- 1 The Commission shall at the latest by 31 December 2016, submit a report to the European Parliament and to the Council including an assessment of the availability of the necessary quantities of cost-efficient biofuels on the Union market from non-land using feedstocks and non-food crops by 2020 and of their environmental, economic and social impacts, including the need for additional criteria to ensure their sustainability, and of the best available scientific evidence on indirect land-use change greenhouse gas emissions associated with the production of biofuels and bioliquids. The report shall, if appropriate, be accompanied by proposals for further measures, taking into account economic, social and environmental considerations.
- 2 The Commission shall, by 31 December 2017, submit a report to the European Parliament and to the Council reviewing, on the basis of the best latest available scientific evidence:
 - a the effectiveness of the measures introduced by this Directive in limiting indirect land-use change greenhouse gas emissions associated with the production of biofuels and bioliquids. In this respect, the report shall also include the latest available information with regard to the key assumptions influencing the results from the modelling of the indirect land-use change greenhouse gas emissions associated with

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- the production of biofuels and bioliquids, including measured trends in agricultural yields and productivity, co-product allocation and observed global land-use change and deforestation rates, and the possible impact of Union policies, such as environment, climate and agricultural policies, involving stakeholders in such review process;
- b the effectiveness of the incentives provided for biofuels from non-land-using feedstocks and non-food crops under Article 3(4) of Directive 2009/28/EC including whether the Union as a whole is expected to use 0,5 percentage points in energy content of the share of energy from renewable sources in all forms of transport in 2020 from biofuels produced from feedstocks and from other fuels listed in part A of Annex IX;
 - c the impact of increased demand for biomass on biomass-using sectors;
 - d the possibility of setting out criteria for the identification and certification of low indirect land-use change-risk biofuels and bioliquids that are produced in accordance with the sustainability criteria set out in Directives 98/70/EC and 2009/28/EC, with a view to updating Annex V to Directive 98/70/EC and Annex VIII to Directive 2009/28/EC, if appropriate;
 - e the potential economic and environmental benefits and risks of increased production and use of dedicated non-food crops grown primarily for energy purposes, also by using data related to existing projects;
 - f the relative share of bioethanol and biodiesel on the Union market and the share of energy from renewable sources in petrol. The Commission shall also assess the drivers that affect the share of energy from renewable sources in petrol, as well as any barriers to deployment. The assessment shall include costs, fuel standards, infrastructure and climatic conditions. If appropriate, the Commission may make recommendations on how to overcome any barriers identified; and
 - g determining which Member States have chosen to apply the limit on the amount of biofuels produced from cereal and other starch-rich crops, sugars and oil crops and from crops grown as main crops primarily for energy purposes on agricultural land towards achieving the target set out in Article 7a of Directive 98/70/EC, and whether issues with implementation or achievement of the target set out in Article 7a of Directive 98/70/EC have arisen. The Commission shall also assess the extent to which biofuels produced from cereal and other starch-rich crops, sugars and oil crops and from crops grown as main crops primarily for energy purposes on agricultural land are being supplied to meet the target set out in Article 7a of Directive 98/70/EC above the levels that can contribute to the targets in Directive 2009/28/EC. The assessment shall include an evaluation of the indirect land-use change impact and of the cost-effectiveness of the approach taken by the Member States.

The report shall, if appropriate, also provide information on availability of financing and other measures to support progress towards achieving the share of 0,5 percentage points in energy content of biofuels produced from feedstocks and of other fuels listed in part A of Annex IX, in the share of energy from renewable sources in all forms of transport in the Union as soon as possible, if technically feasible and economically viable.

The report referred to in the first subparagraph shall, if appropriate, be accompanied by legislative proposals, based on the best available scientific evidence, for:

- a introducing adjusted estimated indirect land-use change emissions factors into the appropriate sustainability criteria set out in Directives 98/70/EC and 2009/28/EC;
- b introducing further measures taken to prevent and fight fraud, including additional measures to be taken at Union level;
- c promoting sustainable biofuels after 2020 in a technology-neutral manner, in the context of the 2030 framework for climate and energy policies.

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3 The Commission shall, if appropriate in light of the reports by the voluntary schemes in accordance with the second subparagraph of Article 7c(6) of Directive 98/70/EC and the second subparagraph of Article 18(6) of Directive 2009/28/EC, submit a proposal to the European Parliament and to the Council for amending the provisions of those Directives relating to voluntary schemes with a view to promoting best practice.

Article 4

Transposition

1 Member States shall bring into force the laws, regulations and administrative provisions necessary to comply with this Directive by 10 September 2017. They shall immediately inform the Commission thereof.

When Member States adopt those measures, they shall contain a reference to this Directive or shall be accompanied by such a reference on the occasion of their official publication. The methods of making such reference shall be laid down by Member States.

2 Member States shall communicate to the Commission the text of the main measures of national law which they adopt in the field covered by this Directive. On that occasion, Member States shall inform the Commission of their national targets set in accordance with point (e) of Article 3(4) of Directive 2009/28/EC and, where appropriate, of a differentiation of their national target as compared to the reference value referred to therein, and the grounds therefor.

In 2020, Member States shall report to the Commission on their respective achievements towards their national targets set in accordance with point (e) of Article 3(4) of Directive 2009/28/EC, specifying the reasons for any shortfall.

Article 5

Entry into force

This Directive shall enter into force on the twentieth day following that of its publication in the *Official Journal of the European Union*.

Article 6

Addressees

This Directive is addressed to the Member States.

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Done at Strasbourg, 9 September 2015.

For the European Parliament

The President

M. SCHULZ

For the Council

The President

N. SCHMIT

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ANNEX I

The Annexes to Directive 98/70/EC are amended as follows:

(1) Point 7 of Part C of Annex IV, is replaced by the following:

7. 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:

$$e_l = (CS_R - CS_A) \times 3,664 \times 1/20 \times 1/P - e_B^{(13)}$$

where

- e_l = annualised greenhouse gas emissions from carbon stock change due to land-use change (measured as mass (grams) of CO₂-equivalent per unit biofuel energy (megajoules)). “Cropland”⁽¹⁴⁾ and “perennial cropland”⁽¹⁵⁾ shall be regarded as one land use;
- CS_R = the carbon stock per unit area associated with the reference land-use (measured as mass (tonnes) 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 (tonnes) 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 is the earlier;
- P = the productivity of the crop (measured as biofuel energy per unit area per year) and
- e_B = bonus of 29 gCO_{2eq}/MJ biofuel if biomass is obtained from restored degraded land under the conditions provided for in point 8..

(2) The following Annex is added:

‘ANNEX Part A. Provisional estimated indirect land-use change emissions from
V biofuels (gCO_{2eq}/MJ)

Feedstock group	Mean ^a	Interpercentile range derived from the sensitivity analysis ^b
a	The mean values included here represent a weighted average of the individually modelled feedstock values.	
b	The range included here reflects 90 % of the results using the fifth and ninety-fifth percentile values resulting from the analysis. The fifth percentile suggests a value below which 5 % of the observations were found (i.e. 5 % of total data used showed results below 8, 4, and 33 gCO _{2eq} /MJ). The ninety-fifth percentile suggests a value below which 95 % of the observations were found (i.e. 5 % of total data used showed results above 16, 17, and 66 gCO _{2eq} /MJ).	

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Cereals and other starch-rich crops	12	8 to 16
Sugars	13	4 to 17
Oil crops	55	33 to 66
a	The mean values included here represent a weighted average of the individually modelled feedstock values.	
b	The range included here reflects 90 % of the results using the fifth and ninety-fifth percentile values resulting from the analysis. The fifth percentile suggests a value below which 5 % of the observations were found (i.e. 5 % of total data used showed results below 8, 4, and 33 gCO _{2eq} /MJ). The ninety-fifth percentile suggests a value below which 95 % of the observations were found (i.e. 5 % of total data used showed results above 16, 17, and 66 gCO _{2eq} /MJ).	

Part B. Biofuels for which the estimated indirect land-use change emissions are considered to be zero

Biofuels produced from the following feedstock categories will be considered to have estimated indirect land-use change emissions of zero:

- (1) feedstocks which are not listed under Part A of this Annex.
- (2) feedstocks, the production of which has led to direct land-use change, i.e. a change from one of the following IPCC land cover categories; forest land, grassland, wetlands, settlements, or other land, to cropland or perennial cropland⁽¹⁷⁾. In such a case a direct land-use change emission value (e_i) should have been calculated in accordance with paragraph 7 of Part C of Annex IV.

ANNEX II

The Annexes to Directive 2009/28/EC are amended as follows:

- (1) Point 7 of part C of Annex V, is replaced by the following:
 7. Annualised emissions from carbon stock changes caused by land-use change, e_i , shall be calculated by dividing total emissions equally over 20 years. For the calculation of those emissions, the following rule shall be applied:

$$e_i = (CS_R - CS_A) \times 3,664 \times 1/20 \times 1/P - e_B,^{(18)}$$

where

- | | | |
|--------|---|--|
| e_i | = | annualised greenhouse gas emissions from carbon stock change due to land-use change (measured as mass (grams) of CO ₂ -equivalent per unit of biofuel or bioliquid energy (megajoules)). “Cropland” ⁽¹⁹⁾ and “perennial cropland” ⁽²⁰⁾ shall be regarded as one land use; |
| CS_R | = | the carbon stock per unit area associated with the reference land-use (measured as mass (tonnes) of carbon per unit area, including both soil and |

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		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 (tonnes) 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 point 8..

(2) The following Annex is added:

‘ANNEX Part A. Provisional estimated indirect land-use change emissions from VIII biofuel and bioliquid feedstocks (gCO_{2eq}/MJ)

Feedstock group	Mean ^a	Interpercentile range derived from the sensitivity analysis ^b
Cereals and other starch-rich crops	12	8 to 16
Sugars	13	4 to 17
Oil crops	55	33 to 66

a The mean values included here represent a weighted average of the individually modelled feedstock values.

b The range included here reflects 90 % of the results using the fifth and ninety-fifth percentile values resulting from the analysis. The fifth percentile suggests a value below which 5 % of the observations were found (i.e. 5 % of total data used showed results below 8, 4, and 33 gCO_{2eq}/MJ). The ninety-fifth percentile suggests a value below which 95 % of the observations were found (i.e. 5 % of total data used showed results above 16, 17, and 66 gCO_{2eq}/MJ).

Part B. Biofuels and bioliquids for which the estimated indirect land-use change emissions are considered to be zero

Biofuels and bioliquids produced from the following feedstock categories will be considered to have estimated indirect land-use change emissions of zero:

- (1) feedstocks which are not listed under part A of this Annex.
- (2) feedstocks, the production of which has led to direct land-use change, i.e. a change from one of the following IPCC land cover categories: forest land, grassland, wetlands, settlements, or other land, to cropland or perennial cropland⁽²²⁾. In such a case a direct land-use change emission value (e_i) should have been calculated in accordance with point 7 of part C of Annex V.

(3) The following Annex is added:

‘ANNEXPart A. Feedstocks and fuels, the contribution of which towards the target referred to in the first subparagraph of Article 3(4) shall be considered to be twice their energy content:

- (a) Algae if cultivated on land in ponds or photobioreactors.
- (b) Biomass fraction of mixed municipal waste, but not separated household waste subject to recycling targets under point (a) of Article 11(2) of Directive 2008/98/EC.
- (c) Bio-waste as defined in Article 3(4) of Directive 2008/98/EC from private households subject to separate collection as defined in Article 3(11) of that Directive.
- (d) Biomass fraction of industrial waste not fit for use in the food or feed chain, including material from retail and wholesale and the agro-food and fish and aquaculture industry, and excluding feedstocks listed in part B of this Annex.
- (e) Straw.
- (f) Animal manure and sewage sludge.
- (g) Palm oil mill effluent and empty palm fruit bunches.
- (h) Tall oil pitch.
- (i) Crude glycerine.
- (j) Bagasse.
- (k) Grape marcs and wine lees.
- (l) Nut shells.
- (m) Husks.
- (n) Cobs cleaned of kernels of corn.
- (o) Biomass fraction of wastes and residues from forestry and forest-based industries, i.e. bark, branches, pre-commercial thinnings, leaves, needles, tree tops, saw dust, cutter shavings, black liquor, brown liquor, fibre sludge, lignin and tall oil.
- (p) Other non-food cellulosic material as defined in point (s) of the second paragraph of Article 2.
- (q) Other ligno-cellulosic material as defined in point (r) of the second paragraph of Article 2 except saw logs and veneer logs.
- (r) Renewable liquid and gaseous transport fuels of non-biological origin.
- (s) Carbon capture and utilisation for transport purposes, if the energy source is renewable in accordance with point (a) of the second paragraph of Article 2.
- (t) Bacteria, if the energy source is renewable in accordance with point (a) of the second paragraph of Article 2.

Part B. Feedstocks, the contribution of which towards the target referred to in the first subparagraph of Article 3(4) shall be considered to be twice their energy content:

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- (a) Used cooking oil.
- (b) Animal fats classified as categories 1 and 2 in accordance with Regulation (EC) No 1069/2009 of the European Parliament and of the Council⁽²³⁾

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- (1) [OJ C 198, 10.7.2013, p. 56.](#)
- (2) Position of the European Parliament of 11 September 2013 (not yet published in the Official Journal) and Position of the Council at first reading of 9 December 2014 ([OJ C 50, 12.2.2015, p. 1.](#)) Position of the European Parliament of 28 April 2015 (not yet published in the Official Journal) and decision of the Council of 13 July 2015.
- (3) 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 energy sources and amending and subsequently repealing Directives 2001/77/EC and 2003/30/EC ([OJ L 140, 5.6.2009, p. 16.](#))
- (4) Directive 2012/27/EU of the European Parliament and of the Council of 25 October 2012 on energy efficiency, amending Directives 2009/125/EC and 2010/30/EU and repealing Directives 2004/8/EC and 2006/32/EC ([OJ L 315, 14.11.2012, p. 1.](#))
- (5) 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 Council Directive 93/12/EEC ([OJ L 350, 28.12.1998, p. 58.](#))
- (6) Directive 2008/98/EC of the European Parliament and of the Council of 19 November 2008 on waste and repealing certain Directives ([OJ L 312, 22.11.2008, p. 3.](#))
- (7) Regulation (EU) No 182/2011 of the European Parliament and of the Council of 16 February 2011 laying down the rules and general principles concerning mechanisms for control by Member States of the Commission's exercise of implementing powers ([OJ L 55, 28.2.2011, p. 13.](#))
- (8) [OJ C 369, 17.12.2011, p. 14.](#)
- (9) Regulation (EU) No 182/2011 of the European Parliament and of the Council of 16 February 2011 laying down the rules and general principles concerning mechanisms for control by Member States of the Commission's exercise of implementing powers ([OJ L 55, 28.2.2011, p. 13.](#))[?]
- (10) Directive 2008/98/EC of the European Parliament and of the Council of 19 November 2008 on waste and repealing certain Directives ([OJ L 312, 22.11.2008, p. 3.](#))[?]
- (11) Directive (EU) 2015/1513 of the European Parliament and of the Council of 9 September 2015 amending Directive 98/70/EC relating to the quality of petrol and diesel fuels and amending Directive 2009/28/EC on the promotion of the use of energy from renewable sources ([OJ L 239, 15.9.2015, p. 1.](#))[?];
- (12) Regulation (EU) No 182/2011 of the European Parliament and of the Council of 16 February 2011 laying down the rules and general principles concerning mechanisms for control by Member States of the Commission's exercise of implementing powers ([OJ L 55, 28.2.2011, p. 13.](#))[?]
- (13) The quotient obtained by dividing the molecular weight of CO₂ (44,010 g/mol) by the molecular weight of carbon (12,011 g/mol) is equal to 3,664.
- (14) Cropland as defined by IPCC.
- (15) Perennial crops are defined as multi-annual crops, the stem of which is usually not annually harvested such as short rotation coppice and oil palm.[?]
- (16) ⁽⁺⁾ The mean values reported here represent a weighted average of the individually modelled feedstock values. The magnitude of the values in the Annex is sensitive to the range of assumptions (such as treatment of co-products, yield developments, carbon stocks and displacement of other commodities) used in the economic models developed for their estimation. Although it is therefore not possible to fully characterise the uncertainty range associated with such estimates, a sensitivity analysis conducted on the results based on a random variation of key parameters, a so-called Monte Carlo analysis, was conducted.
- (17) ⁽⁺⁺⁾ Perennial crops are defined as multi-annual crops, the stem of which is usually not annually harvested such as short rotation coppice and oil palm.[?]
- (18) The quotient obtained by dividing the molecular weight of CO₂ (44,010 g/mol) by the molecular weight of carbon (12,011 g/mol) is equal to 3,664.
- (19) Cropland as defined by IPCC.

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- (20) Perennial crops are defined as multi-annual crops, the stem of which is usually not annually harvested such as short rotation coppice and oil palm.’
- (21) ⁽⁺⁾ The mean values reported here represent a weighted average of the individually modelled feedstock values. The magnitude of the values in the Annex is sensitive to the range of assumptions (such as treatment of co-products, yield developments, carbon stocks and displacement of other commodities) used in the economic models developed for their estimation. Although it is therefore not possible to fully characterise the uncertainty range associated with such estimates, a sensitivity analysis conducted on the results based on a random variation of key parameters, a so-called Monte Carlo analysis, was conducted.
- (22) ⁽⁺⁺⁾ Perennial crops are defined as multi-annual crops, the stem of which is usually not annually harvested such as short rotation coppice and oil palm.’
- (23) Regulation (EC) No 1069/2009 of the European Parliament and of the Council of 21 October 2009 laying down health rules as regards animal by-products and derived products not intended for human consumption and repealing Regulation (EC) No 1774/2002 (Animal by-products Regulation) (OJ L 300, 14.11.2009, p. 1).’