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I

(Acts adopted under the EC Treaty/Euratom Treaty whose publication is obligatory)

REGULATIONS

REGULATION (EC) No 443/2009 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL**of 23 April 2009****setting emission performance standards for new passenger cars as part of the Community's integrated approach to reduce CO₂ emissions from light-duty vehicles****(Text with EEA relevance)**

THE EUROPEAN PARLIAMENT AND THE COUNCIL OF THE EUROPEAN UNION,

Having regard to the Treaty establishing the European Community, and in particular Article 175(1) thereof,

Having regard to the proposal from the Commission,

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 procedure laid down in Article 251 of the Treaty ⁽²⁾,

Whereas:

- (1) The objective of this Regulation is to set emission performance standards for new passenger cars registered in the Community, which forms part of the Community's integrated approach to reducing CO₂ emissions from light-duty vehicles while ensuring the proper functioning of the internal market.
- (2) The United Nations Framework Convention on Climate Change, which was approved on behalf of the European Community by Council Decision 94/69/EC of 15 December 1993 ⁽³⁾, requires all parties to formulate and implement national and, where appropriate, regional programmes containing measures to mitigate climate

change. In this respect, the Commission proposed in January 2007 that, in the context of international negotiations, the European Union should pursue the objective of a 30 % reduction of greenhouse gas emissions by developed countries by 2020 (compared to 1990 levels) and that the Union itself should make a firm independent commitment to achieve at least a 20 % reduction of greenhouse gas emissions by 2020 (compared to 1990 levels), irrespective of reductions achieved by other developed countries. This objective was endorsed by the European Parliament and the Council.

- (3) One of the implications of those commitments is that all Member States will need to reduce significantly emissions from passenger cars. Policies and measures should be implemented at Member State and Community level across all sectors of the Community economy, and not only within the industry and energy sectors, in order to generate the substantial reductions needed. Road transport is the second largest greenhouse-gas emitting sector in the Union and its emissions continue to rise. If the climate change impact of road transport continues to increase, it will significantly undermine reductions made by other sectors to combat climate change.
- (4) Community targets for new passenger cars provide manufacturers with more planning certainty and more flexibility to meet the CO₂ reduction requirements than would be provided by separate national reduction targets. In setting emission performance standards, it is important to take into account the implications for markets and for the competitiveness of manufacturers, the direct and indirect costs imposed on business and the benefits that accrue in terms of stimulating innovation and reducing energy consumption.

⁽¹⁾ OJ C 77, 31.3.2009, p. 1.

⁽²⁾ Opinion of the European Parliament of 17 December 2008 (not yet published in the Official Journal) and Council Decision of 6 April 2009.

⁽³⁾ OJ L 33, 7.2.1994, p. 11.

- (5) This Regulation builds on a well-established process of measuring and monitoring the CO₂ emissions of vehicles registered in the Community in accordance with Decision No 1753/2000/EC of the European Parliament and of the Council of 22 June 2000 establishing a scheme to monitor the average specific emissions of CO₂ from new passenger cars ⁽¹⁾. It is important that the setting of CO₂ emissions reduction requirements continues to provide Community-wide predictability and planning security for vehicle manufacturers across their new car fleet in the Community.
- (6) The Commission adopted a Community Strategy for reducing CO₂ emissions from cars in 1995. The strategy was based on three pillars: voluntary commitments from the car industry to cut emissions, improvements in consumer information and the promotion of fuel-efficient cars by means of fiscal measures.
- (7) In 1998, the European Automobile Manufacturers' Association (ACEA) adopted a commitment to reduce average emissions from new cars sold to 140 g CO₂/km by 2008 and, in 1999, the Japanese Automobile Manufacturers' Association (JAMA) and the Korean Automobile Manufacturers' Association (KAMA) adopted a commitment to reduce average emissions from new cars sold to 140 g CO₂/km by 2009. These commitments were recognised by Commission Recommendation 1999/125/EC of 5 February 1999 on the reduction of CO₂ emissions from passenger cars ⁽²⁾ (ACEA), Commission Recommendation 2000/303/EC of 13 April 2000 on the reduction of CO₂ emissions from passenger cars (KAMA) ⁽³⁾ and Commission Recommendation 2000/304/EC of 13 April 2000 on the reduction of CO₂ emissions from passenger cars (JAMA) ⁽⁴⁾.
- (8) On 7 February 2007, the Commission adopted two parallel Communications: a Communication setting out the results of the review of the Community Strategy to reduce CO₂ emissions from passenger cars and light-commercial vehicles and a Communication on a Competitive Automotive Regulatory Framework for the 21st Century (CARS21). The Communications underlined that progress had been made towards the target of 140 g CO₂/km by 2008/2009, but that the Community objective of 120 g CO₂/km would not be met by 2012 in the absence of additional measures.
- (9) The Communications proposed an integrated approach with a view to reaching the Community target of 120 g CO₂/km by 2012 and announced that the Commission would propose a legislative framework to achieve the Community objective by focusing on mandatory reductions of emissions of CO₂ to reach an objective of 130 g CO₂/km for the average new car fleet by means of improvements in vehicle motor technology. Consistent with the approach under the voluntary commitments adopted by manufacturers, this covers those elements that are taken into account in the measurement of the CO₂ emissions of passenger cars in accordance with Regulation (EC) No 715/2007 of the European Parliament and of the Council of 20 June 2007 on type approval of motor vehicles with respect to emissions from light passenger and commercial vehicles (Euro 5 and Euro 6) and on access to vehicle repair and maintenance information ⁽⁵⁾. A further reduction of 10 g CO₂/km, or equivalent if technically necessary, will be delivered by other technological improvements and by an increased use of sustainable biofuels.
- (10) The legislative framework for implementing the average new car fleet target should ensure competitively neutral, socially equitable and sustainable reduction targets which take account of the diversity of European automobile manufacturers and avoid any unjustified distortion of competition between them. The legislative framework should be compatible with the overall objective of reaching the Community's Kyoto targets and should be complemented by other more use-related instruments such as differentiated car and energy taxes.
- (11) Appropriate funding should be ensured in the general budget of the European Union to promote the development of technologies intended to reduce radically CO₂ emissions from road vehicles.
- (12) In order to maintain the diversity of the car market and its ability to cater for different consumer needs, CO₂ targets for passenger cars should be defined according to the utility of the cars on a linear basis. To describe this utility, mass is an appropriate parameter which provides a correlation with present emissions and therefore results in more realistic and competitively neutral targets. Moreover, data on mass is readily available. Data on alternative utility parameters such as footprint (track width times wheelbase) should be collected in order to facilitate longer-term evaluations of the utility-based approach. The Commission should, by 2014, review the availability of data and, if appropriate, submit a proposal to the European Parliament and to the Council to adapt the utility parameter.
- (13) The aim of this Regulation is to create incentives for the car industry to invest in new technologies. This Regulation actively promotes eco-innovation and takes into account future technological developments. The development of innovative propulsion technologies should particularly be promoted, as they result in significantly lower emissions than traditional passenger cars. In this way, the long-term competitiveness of the European industry is promoted and more high-quality jobs are created. The Commission should consider the possibility of including eco-innovation measures in the review of test procedures pursuant to Article 14(3) of Regulation (EC) No 715/2007, taking into consideration the technical and economic impacts of such inclusion.

⁽¹⁾ OJ L 202, 10.8.2000, p. 1.

⁽²⁾ OJ L 40, 13.2.1999, p. 49.

⁽³⁾ OJ L 100, 20.4.2000, p. 55.

⁽⁴⁾ OJ L 100, 20.4.2000, p. 57.

⁽⁵⁾ OJ L 171, 29.6.2007, p. 1.

- (14) In recognition of the very high research and development and unit production costs of early generations of very low carbon vehicle technologies to be introduced into the marketplace following its entry into force, this Regulation seeks to accelerate and facilitate, on an interim basis, the process of introducing into the Community market ultra low carbon vehicles at their initial stages of commercialisation.
- (15) The use of certain alternative fuels can offer significant CO₂ reductions in well-to-wheel terms. This Regulation therefore incorporates specific provisions aimed at promoting further deployment of certain alternative-fuel vehicles in the Community market.
- (16) To provide consistency with the approach adopted under the Commission's CO₂ and cars strategy, in particular in relation to the voluntary commitments undertaken by the manufacturers associations, the target should be applied to new passenger cars which are registered in the Community for the first time and which, except for a limited period to avoid abuses, have not previously been registered outside the Community.
- (17) Directive 2007/46/EC of the European Parliament and of the Council of 5 September 2007 establishing a framework for the approval of motor vehicles and their trailers, and of systems, components and separate technical units intended for such vehicles ⁽¹⁾ establishes a harmonised framework containing the administrative provisions and general technical requirements for approval of all new vehicles within its scope. The entity responsible for complying with this Regulation should be the same as that responsible for all aspects of the type-approval process in accordance with that Directive and for ensuring conformity of production.
- (18) For the purposes of type-approval, specific requirements apply for special-purpose vehicles, as defined in Annex II of Directive 2007/46/EC, and they should therefore be excluded from the scope of this Regulation. Vehicles which are classified as category M₁ before the entry into force of this Regulation, which are built specifically for commercial purposes to accommodate wheelchair use inside the vehicle and which meet the definition of special-purpose vehicle in Annex II of Directive 2007/46/EC should also be excluded from the scope of this Regulation in line with Community policy to help people with disabilities.
- (19) Manufacturers should have flexibility to decide how to meet their targets under this Regulation and should be allowed to average emissions over their new car fleet rather than having to respect CO₂ targets for each individual car. Manufacturers should therefore be required to ensure that the average specific emission for all the new cars registered in the Community for which they are responsible does not exceed the average of the emissions targets for those cars. This requirement should be phased in between 2012 and 2015 in order to facilitate the transition.
- (20) It is not appropriate to use the same method to determine the emissions reduction targets for large-volume manufacturers as for small-volume manufacturers considered as independent on the basis of the criteria set out in this Regulation. Such small-volume manufacturers should have alternative emissions reduction targets relating to the technological potential of a given manufacturer's vehicles to reduce their specific emissions of CO₂ and consistent with the characteristics of the market segments concerned. This derogation should be covered by the review of the specific emissions targets in Annex I, to be completed by the beginning of 2013 at the latest.
- (21) Niche manufacturers should be allowed to benefit from an alternative target which is 25 % lower than their average specific emissions of CO₂ in 2007. An equivalent target should be determined where information on a manufacturer's average specific emissions does not exist for the year 2007. This derogation should be covered by the review of the specific emissions targets in Annex I, to be completed by the beginning of 2013 at the latest.
- (22) In determining the average specific emissions of CO₂ for all the new cars registered in the Community for which manufacturers are responsible, all cars should be taken into account irrespective of their mass or other characteristics. Although Regulation (EC) No 715/2007 does not cover passenger cars with a reference mass exceeding 2 610 kg and to which type approval is not extended in accordance with Article 2(2) of Regulation (EC) No 715/2007, the emissions for these cars should be measured in accordance with the same measurement procedure as specified for passenger cars in Regulation (EC) No 692/2008 ⁽²⁾. The resulting CO₂ emission values should be entered in the certificate of conformity of the vehicle in order to enable their inclusion in the monitoring scheme.
- (23) In order to provide for flexibility for the purposes of meeting their targets under this Regulation, manufacturers may agree to form a pool on an open, transparent and non-discriminatory basis. An agreement to form a pool should not exceed five years but may be renewed. Where manufacturers form a pool, they should be deemed to have met their targets under this Regulation provided that the average emissions of the pool as a whole do not exceed the target emissions for the pool.

⁽¹⁾ OJ L 263, 9.10.2007, p. 1.

⁽²⁾ Commission Regulation (EC) No 692/2008 of 18 July 2008 implementing and amending Regulation (EC) No 715/2007 of the European Parliament and of the Council on type-approval of motor vehicles with respect to emissions from light passenger and commercial vehicles (Euro 5 and Euro 6) and on access to vehicle repair and maintenance information (OJ L 199, 28.7.2008, p. 1).

- (24) A robust compliance mechanism is necessary in order to ensure that the targets under this Regulation are met.
- (25) The specific emissions of CO₂ from new passenger cars are measured on a harmonised basis in the Community according to the methodology laid down in Regulation (EC) No 715/2007. To minimise the administrative burden of this Regulation, compliance should be measured by reference to data on registrations of new cars in the Community collected by Member States and reported to the Commission. To ensure the consistency of the data used to assess compliance, the rules for the collection and reporting of this data should be harmonised as far as possible.
- (26) Directive 2007/46/EC provides that manufacturers are to issue a certificate of conformity which must accompany each new passenger car and that Member States are to permit the registration and entry into service of a new passenger car only if it is accompanied by a valid certificate of conformity. Data collected by Member States should be consistent with the certificate of conformity issued by the manufacturer for the passenger car and should be based on this reference only. Should Member States, for justified reasons, not use the certificate of conformity to complete the process of registration and entry into service of a new passenger car, they should put the necessary measures in place to ensure adequate accuracy in the monitoring procedure. There should be a Community standard database for certificate of conformity data. It should be used as a single reference to enable Member States to more easily maintain their registration data when vehicles are newly registered.
- (27) Manufacturers' compliance with the targets under this Regulation should be assessed at Community level. Manufacturers whose average specific emissions of CO₂ exceed those permitted under this Regulation should pay an excess emissions premium in respect of each calendar year from 2012 onwards. The premium should be adjusted according to the extent to which manufacturers fail to comply with their target. It should increase over time. In order to provide a sufficient incentive to take measures to reduce specific emissions of CO₂ from passenger cars, the premium should reflect technological costs. The amounts of the excess emissions premium should be considered as revenue for the general budget of the European Union.
- (28) Any national measure that Member States may maintain or introduce in accordance with Article 176 of the Treaty should not, in consideration of the purpose of and procedures established by this Regulation, impose additional or more stringent penalties on manufacturers who fail to meet their targets under this Regulation.
- (29) This Regulation should be without prejudice to the full application of Community competition rules.
- (30) The Commission should consider new modalities for reaching the long-term target, in particular the slope of the curve, the utility parameter and the excess emissions premium scheme.
- (31) The measures necessary for the implementation of this Regulation should be adopted in accordance with Council Decision 1999/468/EC of 28 June 1999 laying down the procedures for the exercise of implementing powers conferred on the Commission ⁽¹⁾.
- (32) In particular, the Commission should be empowered to amend the monitoring and reporting requirements in the light of the experience of the application of this Regulation, to establish methods for the collection of excess emissions premiums, to adopt detailed provisions concerning the derogation for certain manufacturers, and to adapt Annex I to take account of the evolution of the mass of new passenger cars registered in the Community and to reflect any change in the regulatory test procedure for the measurement of specific emissions of CO₂. Since those measures are of general scope and are designed to amend non-essential elements of this Regulation, *inter alia*, by supplementing it with new non-essential elements, they must be adopted in accordance with the regulatory procedure with scrutiny provided for in Article 5a of Decision 1999/468/EC.
- (33) Decision No 1753/2000/EC should be repealed for reasons of simplification and legal clarity.
- (34) Since the objective of this Regulation, namely establishing CO₂ emissions performance requirements for new passenger cars in order to ensure the proper functioning of the internal market and to achieve the Union's overall objective of reducing emissions of greenhouse gases, cannot be sufficiently achieved by the Member States and can therefore, by reason of the scale and effects of the proposed action, be better achieved at Community level, the Community may adopt measures, in accordance with the principle of subsidiarity as set out in Article 5 of the Treaty. In accordance with the principle of proportionality, as set out in that Article, this Regulation does not go beyond what is necessary in order to achieve that objective,

HAVE ADOPTED THIS REGULATION:

Article 1

Subject matter and objectives

This Regulation establishes CO₂ emissions performance requirements for new passenger cars in order to ensure the proper functioning of the internal market and to achieve

⁽¹⁾ OJ L 184, 17.7.1999, p. 23.

the overall objective of the European Community of 120 g CO₂/km as average emissions for the new car fleet. This Regulation sets the average CO₂ emissions for new passenger cars at 130 g CO₂/km, by means of improvement in vehicle motor technology, as measured in accordance with Regulation (EC) No 715/2007 and its implementing measures and innovative technologies.

From 2020 onwards, this Regulation sets a target of 95 g CO₂/km as average emissions for the new car fleet, in accordance with Article 13(5).

This Regulation will be complemented by additional measures corresponding to a reduction of 10 g CO₂/km as part of the Community's integrated approach.

Article 2

Scope

1. This Regulation shall apply to motor vehicles of category M₁ as defined in Annex II to Directive 2007/46/EC ('passenger cars') which are registered in the Community for the first time and which have not previously been registered outside the Community ('new passenger cars').

2. A previous registration outside the Community made less than three months before registration in the Community shall not be taken into account.

3. This Regulation does not apply to special-purpose vehicles as defined in point 5 of Part A of Annex II to Directive 2007/46/EC.

Article 3

Definitions

1. For the purposes of this Regulation, the following definitions shall apply:

- (a) 'average specific emissions of CO₂' means, in relation to a manufacturer, the average of the specific emissions of CO₂ of all new passenger cars of which it is the manufacturer;
- (b) 'certificate of conformity' means the certificate referred to in Article 18 of Directive 2007/46/EC;
- (c) 'manufacturer' means the person or body responsible to the approval authority for all aspects of the EC type-approval procedure in accordance with Directive 2007/46/EC and for ensuring conformity of production;
- (d) 'mass' means the mass of the car with bodywork in running order as stated in the certificate of conformity and defined in section 2.6 of Annex I to Directive 2007/46/EC;
- (e) 'footprint' means the track width multiplied by the wheelbase as stated in the certificate of conformity and defined in sections 2.1 and 2.3 of Annex I to Directive 2007/46/EC;

(f) 'specific emissions of CO₂' means the CO₂ emissions of a passenger car measured in accordance with Regulation (EC) No 715/2007 and specified as the CO₂ mass emissions (combined) in the certificate of conformity. For passenger cars which are not type-approved in accordance with Regulation (EC) No 715/2007, 'specific emissions of CO₂' means the CO₂ emissions measured in accordance with the same measurement procedure as specified for passenger cars in Regulation (EC) No 692/2008, or in accordance with procedures adopted by the Commission to establish the CO₂ emissions for such passenger cars;

(g) 'specific emissions target' means, in relation to a manufacturer, the average of the specific emissions of CO₂ permitted in accordance with Annex I in respect of each new passenger car of which it is the manufacturer or, where the manufacturer is granted a derogation under Article 11, the specific emissions target determined in accordance with that derogation.

2. For the purposes of this Regulation 'a group of connected manufacturers' means a manufacturer and its connected undertakings. In relation to a manufacturer, 'connected undertakings' means:

- (a) undertakings in which the manufacturer has, directly or indirectly:
 - the power to exercise more than half the voting rights;
 - the power to appoint more than half the members of the supervisory board, board of management or bodies legally representing the undertaking; or
 - the right to manage the undertaking's affairs;
- (b) undertakings which directly or indirectly have, over the manufacturer, the rights or powers listed in point (a);
- (c) undertakings in which an undertaking referred to in point (b) has, directly or indirectly, the rights or powers listed in point (a);
- (d) undertakings in which the manufacturer together with one or more of the undertakings referred to in points (a), (b) or (c), or in which two or more of the latter undertakings, jointly have the rights or powers listed in point (a);
- (e) undertakings in which the rights or the powers listed in (a) are jointly held by the manufacturer or one or more of its connected undertakings referred to in points (a) to (d) and one or more third parties.

Article 4

Specific emissions targets

For the calendar year commencing 1 January 2012 and each subsequent calendar year, each manufacturer of passenger cars shall ensure that its average specific emissions of CO₂ do not exceed its specific emissions target determined in accordance with Annex I

or, where a manufacturer is granted a derogation under Article 11, in accordance with that derogation.

For the purposes of determining each manufacturer's average specific emissions of CO₂, the following percentages of each manufacturer's new passenger cars registered in the relevant year shall be taken into account:

- 65 % in 2012,
- 75 % in 2013,
- 80 % in 2014,
- 100 % from 2015 onwards.

Article 5

Super-credits

In calculating the average specific emissions of CO₂, each new passenger car with specific emissions of CO₂ of less than 50 g CO₂/km shall be counted as:

- 3,5 cars in 2012,
- 3,5 cars in 2013,
- 2,5 cars in 2014,
- 1,5 cars in 2015,
- 1 car from 2016.

Article 6

Specific emissions target for alternative-fuel vehicles

For the purpose of determining compliance by a manufacturer with its specific emissions target referred to in Article 4, the specific emissions of CO₂ of each vehicle designed to be capable of running on a mixture of petrol with 85 % ethanol ('E85') which meets relevant Community legislation or European technical standards, shall be reduced by 5 % until 31 December 2015 in recognition of the greater technological and emissions reduction capability when running on biofuels. This reduction shall apply only where at least 30 % of the filling stations in the Member State in which the vehicle is registered provide this type of alternative fuel complying with the sustainability criteria for biofuels set out in relevant Community legislation.

Article 7

Pooling

1. Manufacturers, other than manufacturers which have been granted a derogation under Article 11, may form a pool for the purposes of meeting their obligations under Article 4.

2. An agreement to form a pool may relate to one or more calendar years, provided that the overall duration of each agreement does not exceed five calendar years, and must be entered into on or before 31 December in the first calendar year for which emissions are to be pooled. Manufacturers which form a pool shall file the following information with the Commission:

- (a) the manufacturers who will be included in the pool;
- (b) the manufacturer nominated as the pool manager who will be the contact point for the pool and will be responsible for paying any excess emissions premium imposed on the pool in accordance with Article 9; and
- (c) evidence that the pool manager will be able to fulfil the obligations under point (b).

3. Where the proposed pool manager fails to meet the requirement to pay any excess emissions premium imposed on the pool in accordance with Article 9, the Commission shall notify the manufacturers.

4. Manufacturers included in a pool shall jointly inform the Commission of any change of pool manager or its financial status, in so far as this may affect its ability to meet the requirement to pay any excess emissions premium imposed on the pool in accordance with Article 9 and of any changes to the membership of the pool or the dissolution of the pool.

5. Manufacturers may enter into pooling arrangements provided that their agreements are in compliance with Articles 81 and 82 of the Treaty and that they allow open, transparent and non-discriminatory participation on commercially reasonable terms by any manufacturer requesting membership of the pool. Without prejudice to the general applicability of Community competition rules to such pools, all members of a pool shall in particular ensure that neither data sharing nor information exchange may occur in the context of their pooling arrangement, except in respect of the following information:

- (a) the average specific emissions of CO₂;
- (b) the specific emissions target;
- (c) the total number of vehicles registered.

6. Paragraph 5 shall not apply where all the manufacturers included in the pool are part of the same group of connected manufacturers.

7. Except where notification is given under paragraph 3, the manufacturers in a pool in respect of which information is filed with the Commission shall be considered as one manufacturer for the purposes of meeting their obligations under Article 4. Monitoring and reporting information in respect of individual manufacturers as well as any pools will be recorded, reported and available in the central register referred to in Article 8(4).

Article 8

Monitoring and reporting of average emissions

1. For the calendar year commencing 1 January 2010 and each subsequent calendar year, each Member State shall record information for each new passenger car registered in its territory in accordance with Part A of Annex II. This information shall be made available to the manufacturers and their designated importers or representatives in each Member State. Member States shall make every effort to ensure that reporting bodies operate in a transparent manner. Each Member State shall ensure that the specific emissions of CO₂ of passenger cars which are not type-approved in accordance with Regulation (EC) No 715/2007 are measured and recorded in the certificate of conformity.

2. By 28 February of each year, commencing in 2011, each Member State shall determine and transmit to the Commission the information listed in Part B of Annex II in respect of the preceding calendar year. The data shall be transmitted in accordance with the format specified in Part C of Annex II.

3. On request from the Commission, a Member State shall also transmit the full set of data collected pursuant to paragraph 1.

4. The Commission shall keep a central register of the data reported by Member States under this Article and by 30 June of each year, commencing in 2011, shall provisionally calculate the following for each manufacturer:

- (a) the average specific emissions of CO₂ in the preceding calendar year;
- (b) the specific emissions target in the preceding calendar year; and
- (c) the difference between its average specific emissions of CO₂ in the preceding calendar year and its specific emissions target for that year.

The Commission shall notify each manufacturer of its provisional calculation for that manufacturer. The notification shall include data for each Member State on the number of new passenger cars registered and their specific emissions of CO₂.

The register shall be publicly available.

5. Manufacturers may, within three months of being notified of the provisional calculation under paragraph 4, notify the Commission of any errors in the data, specifying the Member State in which it considers that the error occurred.

The Commission shall consider any notifications from manufacturers and shall, by 31 October, either confirm or amend the provisional calculations under paragraph 4.

6. Where, on the basis of the calculations under paragraph 5, in relation to the calendar year 2010 or 2011, it appears to the Commission that a manufacturer's average specific emissions of CO₂ in that year exceeded its specific emissions target for that year, the Commission shall notify the manufacturer.

7. Member States shall designate a competent authority for the collection and communication of the monitoring data in accordance with this Regulation and shall inform the Commission of the competent authority designated no later than 8 December 2009. The Commission shall subsequently inform the European Parliament and the Council thereof.

8. For each calendar year in which Article 6 applies, Member States shall provide information to the Commission regarding the proportion of filling stations and the sustainability criteria in relation to E85 as referred to in that Article.

9. The Commission may adopt detailed rules on the monitoring and reporting of data under this Article and on the application of Annex II in accordance with the regulatory procedure referred to in Article 14(2).

The Commission may amend Annex II in the light of the experience of the application of this Regulation. Those measures designed to amend non-essential elements of this Regulation shall be adopted in accordance with the regulatory procedure with scrutiny referred to in Article 14(3).

Article 9

Excess emissions premium

1. In respect of each calendar year from 2012 onwards for which a manufacturer's average specific emissions of CO₂ exceed its specific emissions target in that year, the Commission shall impose an excess emissions premium on the manufacturer or, in the case of a pool, the pool manager.

2. The excess emissions premium under paragraph 1 shall be calculated using the following formulae:

(a) From 2012 until 2018:

- (i) Where the manufacturer's average specific emissions of CO₂ exceed its specific emissions target by more than 3 g CO₂/km:

$$((\text{Excess emissions} - 3 \text{ g CO}_2/\text{km}) \times 95 \text{ €/g CO}_2/\text{km} + 1 \text{ g CO}_2/\text{km} \times 25 \text{ €/g CO}_2/\text{km} + 1 \text{ g CO}_2/\text{km} \times 15 \text{ €/g CO}_2/\text{km} + 1 \text{ g CO}_2/\text{km} \times 5 \text{ €/g CO}_2/\text{km}) \times \text{number of new passenger cars.}$$

- (ii) Where the manufacturer's average specific emissions of CO₂ exceed its specific emissions target by more than 2 g CO₂/km but no more than 3 g CO₂/km:

$$((\text{Excess emissions} - 2 \text{ g CO}_2/\text{km}) \times 25 \text{ €/g CO}_2/\text{km} + 1 \text{ g CO}_2/\text{km} \times 15 \text{ €/g CO}_2/\text{km} + 1 \text{ g CO}_2/\text{km} \times 5 \text{ €/g CO}_2/\text{km}) \times \text{number of new passenger cars.}$$

- (iii) Where the manufacturer's average specific emissions of CO₂ exceed its specific emissions target by more than 1 but no more than 2 g CO₂/km:

$$((\text{Excess emissions} - 1 \text{ g CO}_2/\text{km}) \times 15 \text{ €/g CO}_2/\text{km} + 1 \text{ g CO}_2/\text{km} \times 5 \text{ €/g CO}_2/\text{km}) \times \text{number of new passenger cars.}$$

- (iv) Where the manufacturer's average specific emissions of CO₂ exceed its specific emissions target by no more than 1 g CO₂/km:

$$(\text{Excess emissions} \times 5 \text{ €/g CO}_2/\text{km}) \times \text{number of new passenger cars.}$$

- (b) From 2019:

$$(\text{Excess emissions} \times 95 \text{ €/g CO}_2/\text{km}) \times \text{number of new passenger cars.}$$

For the purposes of this Article, 'excess emissions', determined as set out in Article 4, means the positive number of grams per kilometre by which the manufacturer's average specific emissions — taking into account CO₂ emissions reductions due to approved innovative technologies — exceeded its specific emissions target in the calendar year rounded to the nearest three decimal places; and 'number of new passenger cars' means the number of new passenger cars of which it is the manufacturer and which were registered in that year according to the phase-in criteria set out in Article 4.

3. The Commission shall establish methods for the collection of excess emissions premiums under paragraph 1.

Those measures designed to amend non-essential elements of this Regulation, by supplementing it, shall be adopted in accordance with the regulatory procedure with scrutiny referred to in Article 14(3).

4. The amounts of the excess emissions premium shall be considered as revenue for the general budget of the European Union.

Article 10

Publication of performance of manufacturers

1. By 31 October of each year, commencing in 2011, the Commission shall publish a list indicating for each manufacturer:

- (a) its specific emissions target for the preceding calendar year;

- (b) its average specific emissions of CO₂ in the preceding calendar year;

- (c) the difference between its average specific emissions of CO₂ in the preceding calendar year and its specific emissions target in that year;

- (d) the average specific emissions of CO₂ for all new passenger cars in the Community in the previous calendar year; and

- (e) the average mass for all new passenger cars in the Community in the preceding calendar year.

2. From the 31 October 2013, the list published under paragraph 1 shall also indicate whether or not the manufacturer has complied with the requirements of Article 4 in respect of the preceding calendar year.

Article 11

Derogations for certain manufacturers

1. An application for a derogation from the specific emissions target calculated in accordance with Annex I may be made by a manufacturer which is responsible for fewer than 10 000 new passenger cars registered in the Community per calendar year and:

- (a) is not part of a group of connected manufacturers; or
- (b) is part of a group of connected manufacturers that is responsible in total for fewer than 10 000 new passenger cars registered in the Community per calendar year; or
- (c) is part of a group of connected manufacturers but operates its own production facilities and design centre.

2. A derogation applied for under paragraph 1 may be granted for a maximum period of five calendar years. An application shall be made to the Commission and shall include:

- (a) the name of, and contact person for, the manufacturer;
- (b) evidence that the manufacturer is eligible for a derogation under paragraph 1;
- (c) details of the passenger cars which it manufactures including the mass and specific emissions of CO₂ of those passenger cars; and
- (d) a specific emissions target consistent with its reduction potential, including the economic and technological potential to reduce its specific emissions of CO₂ and taking into account the characteristics of the market for the type of car manufactured.

3. Where the Commission considers that the manufacturer is eligible for a derogation applied for under paragraph 1 and is satisfied that the specific emissions target proposed by the manufacturer is consistent with its reduction potential, including the economic and technological potential to reduce its specific emissions of CO₂, and taking into account the characteristics of the market for the type of car manufactured, the Commission shall grant a derogation to the manufacturer. The derogation shall apply from 1 January of the year following the date of granting of the derogation.

4. An application for a derogation from the specific emissions target calculated in accordance with Annex I may be made by a manufacturer which is responsible, together with all of its connected undertakings, for between 10 000 and 300 000 new passenger cars registered in the Community per calendar year.

Such application may be made by a manufacturer in respect of itself or in respect of itself together with any of its connected undertakings. An application shall be made to the Commission and shall include:

- (a) all of the information referred to in paragraphs 2(a) and (c) including, where relevant, information about any connected undertakings.
- (b) a target which is a 25 % reduction on the average specific emissions of CO₂ in 2007 or, where a single application is made in respect of a number of connected undertakings, a 25 % reduction on the average of those undertakings' average specific emissions of CO₂ in 2007.

Where information on a manufacturer's average specific emissions of CO₂ does not exist for the year 2007, the Commission shall determine an equivalent reduction target based upon the best available CO₂ emissions reduction technologies deployed in passenger cars of comparable mass and taking into account the characteristics of the market for the type of car manufactured. This target shall be used by the applicant for the purposes of point (b).

The Commission shall grant a derogation to the manufacturer where it is demonstrated that the criteria for the derogation referred to in this paragraph have been met.

5. A manufacturer which is subject to a derogation in accordance with this Article shall notify the Commission immediately of any change which affects or may affect its eligibility for a derogation.

6. Where the Commission considers, whether on the basis of a notification under paragraph 5 or otherwise, that a manufacturer is no longer eligible for the derogation, it shall revoke the derogation with effect from 1 January of the next calendar year and shall notify the manufacturer thereof.

7. Where the manufacturer does not attain its specific emissions target, the Commission shall impose the excess emissions premium on the manufacturer, as set out in Article 9.

8. The Commission may adopt detailed provisions for the implementation of paragraphs 1 to 7, *inter alia*, on the interpretation of the eligibility criteria for derogations, on the content of applications, and on the content and assessment of programmes for the reduction of specific emissions of CO₂.

Those measures, designed to amend non-essential elements of this Regulation, by supplementing it, shall be adopted in accordance with the regulatory procedure with scrutiny referred to in Article 14(3).

9. Applications for a derogation, including the information supporting it, notifications under paragraph 5, revocations under paragraph 6 and any imposition of an excess emissions premium under paragraph 7 and measures adopted pursuant to paragraph 8, shall be made publicly available, subject to Regulation (EC) No 1049/2001 of the European Parliament and of the Council of 30 May 2001 regarding public access to European Parliament, Council and Commission documents ⁽¹⁾.

Article 12

Eco-innovation

1. Upon application by a supplier or a manufacturer, CO₂ savings achieved through the use of innovative technologies shall be considered. The total contribution of those technologies to reducing the specific emissions target of a manufacturer may be up to 7 g CO₂/km.

2. The Commission shall, by 2010, adopt detailed provisions for a procedure to approve such innovative technologies in accordance with the regulatory procedure referred to in Article 14(2). Those detailed provisions shall be based on the following criteria for innovative technologies:

- (a) the supplier or manufacturer must be accountable for the CO₂ savings achieved through the use of the innovative technologies;
- (b) the innovative technologies must make a verified contribution to CO₂ reduction;
- (c) the innovative technologies must not be covered by the standard test cycle CO₂ measurement or by mandatory provisions due to complementary additional measures complying with the 10 g CO₂/km reduction referred to in Article 1 or be mandatory under other provisions of Community law.

3. A supplier or a manufacturer who applies for a measure to be approved as an innovative technology shall submit a report, including a verification report undertaken by an independent and certified body, to the Commission. In the event of a possible interaction of the measure with another innovative technology already approved, the report shall mention that interaction and the verification report shall evaluate to what extent that interaction modifies the reduction achieved by each measure.

⁽¹⁾ OJ L 145, 31.5.2001, p. 43.

4. The Commission shall attest the reduction achieved on the basis of the criteria set out in paragraph 2.

Article 13

Review and report

1. In 2010, the Commission shall submit a report to the European Parliament and to the Council reviewing the progress made towards implementation of the Community's integrated approach to reducing CO₂ emissions from light-duty vehicles.

2. By 31 October 2014, and every three years thereafter, measures shall be adopted to amend Annex I to adjust the figure M₀, referred to therein, to the average mass of new passenger cars in the previous three calendar years.

Those measures shall take effect for the first time on 1 January 2016 and every three years thereafter.

Those measures, designed to amend non-essential elements of this Regulation, shall be adopted in accordance with the regulatory procedure with scrutiny referred to in Article 14(3).

3. From 2012, the Commission shall carry out an impact assessment in order to review by 2014, as provided for in Article 14(3) of Regulation (EC) No 715/2007, the procedures for measuring CO₂ emissions as set out under that Regulation. The Commission shall, in particular, make appropriate proposals to adapt those procedures to reflect adequately the real CO₂ emissions behaviour of cars and to include the approved innovative technologies as defined in Article 12 that could be reflected in the test cycle. The Commission shall ensure that those procedures are subsequently reviewed on a regular basis.

From the date of application of the revised procedure for the measuring of CO₂ emissions, innovative technologies shall no longer be approved under the procedure set out in Article 12.

4. By 2010, the Commission shall review Directive 2007/46/EC so that each type/variant/version corresponds to a unique set of innovative technologies.

5. By 1 January 2013, the Commission shall complete a review of the specific emissions targets in Annex I and of the derogations in Article 11, with the aim of defining:

- the modalities for reaching, by the year 2020, a long-term target of 95 g CO₂/km in a cost-effective manner; and
- the aspects of the implementation of that target, including the excess emissions premium.

On the basis of such a review and its impact assessment, which includes an overall assessment of the impact on the car industry and its dependent industries, the Commission shall, if appropriate, make a proposal to amend this Regulation in a way which is as neutral as possible from the point of view of competition, and which is socially equitable and sustainable.

6. The Commission shall by 2014, following an impact assessment, publish a report on the availability of data on footprint and its use as a utility parameter for determining specific emissions targets and, if appropriate, submit a proposal to the European Parliament and to the Council to amend Annex I.

7. Measures shall be adopted to provide for the necessary adaptation to the formulae of Annex I in order to reflect any change in the regulatory test procedure for the measurement of specific CO₂ emissions.

Those measures, designed to amend non-essential elements of this Regulation, shall be adopted in accordance with the regulatory procedure with scrutiny referred to in Article 14(3).

Article 14

Committee procedure

1. The Commission shall be assisted by the committee established by Article 9 of Decision No 280/2004/EC ⁽¹⁾.

2. Where reference is made to this paragraph, Articles 5 and 7 of Decision 1999/468/EC shall apply, having regard to Article 8 thereof.

The period laid down in Article 5(6) of Decision 1999/468/EC shall be set at three months.

3. Where reference is made to this paragraph, Article 5a(1) to (4) and Article 7 of Decision 1999/468/EC shall apply, having regard to the provisions of Article 8 thereof.

Article 15

Repeal

Decision No 1753/2000/EC shall be repealed with effect from 1 January 2010.

However, Articles 4, 9 and 10 of that Decision shall continue to apply until the Commission has submitted a report on monitoring data for the calendar year 2009 to the European Parliament.

⁽¹⁾ Decision No 280/2004/EC of the European Parliament and of the Council of 11 February 2004 concerning a mechanism for monitoring Community greenhouse gas emissions and for implementing the Kyoto Protocol (OJ L 49, 19.2.2004, p. 1).

*Article 16***Entry into force**

This Regulation shall enter into force on the third day following its publication in the *Official Journal of the European Union*.

This Regulation shall be binding in its entirety and directly applicable in all Member States.

Done at Strasbourg, 23 April 2009.

For the European Parliament
The President
H.-G. PÖTTERING

For the Council
The President
P. NEČAS

ANNEX I

SPECIFIC EMISSIONS TARGETS

1. The specific emissions of CO₂ for each new passenger car, measured in grams per kilometre, shall, for the purposes of the calculations in this Annex, be determined in accordance with the following formulae:

- (a) From 2012 to 2015:

$$\text{Specific emissions of CO}_2 = 130 + a \times (M - M_0)$$

Where:

M = mass of the vehicle in kilograms (kg)

M₀ = 1 372,0

a = 0,0457

- (b) From 2016:

$$\text{Specific emission of CO}_2 = 130 + a \times (M - M_0)$$

Where:

M = mass of the vehicle in kilograms (kg)

M₀ = the value adopted pursuant to Article 13(2)

a = 0,0457

2. The specific emissions target for a manufacturer in a calendar year shall be calculated as the average of the specific emissions of CO₂ of each new passenger car registered in that calendar year of which it is the manufacturer.

ANNEX II

MONITORING AND REPORTING EMISSIONS**PART A — Collection of data on new passenger cars and determination of CO₂ monitoring information**

1. For the calendar year commencing 1 January 2010 and each subsequent calendar year, Member States shall record the following details for each new passenger car registered in its territory:
 - (a) the manufacturer;
 - (b) its type, variant and version;
 - (c) its specific emissions of CO₂ (g/km);
 - (d) its mass (kg);
 - (e) its wheel base (mm); and
 - (f) its track width (mm).
2. The details referred to in point 1 shall be taken from the certificate of conformity for the relevant passenger car. Where the certificate of conformity specifies both a minimum and a maximum mass for a passenger car, Member States shall use only the maximum figure for the purposes of this Regulation. In the case of bi-fuelled vehicles (petrol/gas) the certificates of conformity of which bear specific CO₂ emission figures for both types of fuel, Member States shall use only the figure measured for gas.
3. For the calendar year commencing 1 January 2010 and each subsequent calendar year, each Member State shall determine, in accordance with the methods described in Part B, for each manufacturer:
 - (a) the total number of new passenger cars registered in its territory;
 - (b) the average specific emissions of CO₂, as specified in point 2 of Part B of this Annex;
 - (c) the average mass, as specified in point 3 of Part B of this Annex;
 - (d) for each version of each variant of each type of new passenger car:
 - (i) the total number of new passenger cars registered in its territory, as specified in point 1 of Part B of this Annex;
 - (ii) the specific emissions of CO₂ and the share of emissions reduction as a result of innovative technologies in accordance with Article 12 or alternative-fuel vehicles in accordance with Article 6;
 - (iii) the mass;
 - (iv) the footprint of the car, as specified in point 5 of Part B of this Annex.

PART B — Methodology for determining CO₂ monitoring information for new passenger cars

Monitoring information which Member States are required to determine in accordance with point 3 of Part A shall be determined in accordance with the methodology in this Part.

1. Number of new passenger cars registered (N)

Member States shall determine the number of new passenger cars registered within their territory in the respective monitoring year (N).

2. Average specific emissions of CO₂ of new passenger cars (S_{ave})

The average specific emissions of CO₂ of all new passenger cars newly registered in a Member State's territory in the monitoring year (S_{ave}) is calculated by dividing the sum of the specific emissions of CO₂ of each individual new passenger car (S) by the number of new passenger cars (N).

$$S_{ave} = (1/N) \times \Sigma S$$

3. Average mass of new passenger cars

The average mass of all new passenger cars registered in a Member State's territory in the monitoring year (M_{ave}) is calculated by dividing the sum of the mass of each individual new passenger car (M) by the number of new passenger cars (N).

$$M_{ave} = (1/N) \times \Sigma M$$

4. The distribution by version of new passenger cars

For each version of each variant of each type of new passenger car, the number of newly registered passenger cars, the mass of the vehicles, the specific emissions of CO₂ and the footprint of the car are to be recorded.

5. Footprint

The footprint of the car shall be calculated by multiplying the wheelbase of the car by the track width of the car.

PART C — Format for the transmission of data

For each year, Member States shall report the data described in point 3 of Part A for each manufacturer in the following formats:

Aggregated data:

Year:				
Manufacturer	Total number of new passenger cars registered	Average specific emissions of CO ₂ (g/km)	Average mass (kg)	Average footprint (m ²)
(Manufacturer 1)
(Manufacturer 2)
...
Total all manufacturers

Detailed data at manufacturer level:

Year	Manufacturer	Type of car	Variant	Version	Innovative technology (*) or group of innovative technologies, or alternative-fuel vehicle (**)	Make	Commercial name	Total new registrations	Specific emissions of CO ₂ (g/km)	Mass (kg)	Foot-print (m ²)	Emissions reduction through innovative technologies (*) or alternative-fuel capability (**)
Year 1	(Name of manufacturer 1)	(name of type 1)	(name of variant 1)	(name of version 1)		...	...	...	...	...	...	...
Year 1	(Name of manufacturer 1)	(name of type 1)	(name of variant 1)	(name of version 2)		...	...	...	...	...	...	...
Year 1	(Name of manufacturer 1)	(name of type 1)	(name of variant 2)	(name of version 1)		...	...	...	...	...	...	...
Year 1	(Name of manufacturer 1)	(name of type 1)	(name of variant 2)	(name of version 2)		...	...	...	...	...	...	...
Year 1	(Name of manufacturer 1)	(name of type 2)	(name of variant 1)	(name of version 1)		...	...	...	...	...	...	...
Year 1	(Name of manufacturer 1)	(name of type 2)	(name of variant 1)	(name of version 2)		...	...	...	...	...	...	...
Year 1	(Name of manufacturer 1)	(name of type 2)	(name of variant 2)	(name of version 1)		...	...	...	...	...	...	...
Year 1	(Name of manufacturer 1)	(name of type 2)	(name of variant 2)	(name of version 2)		...	...	...	...	...	...	...
Year 1	(Name of manufacturer 1)	...	...	...		...	...	...	...	...	...	...
Year 1	(Name of manufacturer 1)			...		...	...	...	...	...	...	...
Year 1	(Name of manufacturer 1)		...	...		...	...	...	...	...	...	...
Year 1	(Name of manufacturer 1)		...	...		...	...	...	...	...	...	...
Year 1	(Name of manufacturer 1)	...	...	...		...	...	...	...	...	...	...

(*) In accordance with Article 12.

(**) In accordance with Article 6.

DIRECTIVES

DIRECTIVE 2009/28/EC OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL

of 23 April 2009

on the promotion of the use of energy from renewable sources and amending and subsequently repealing Directives 2001/77/EC and 2003/30/EC

(Text with EEA relevance)

THE EUROPEAN PARLIAMENT AND THE COUNCIL OF THE EUROPEAN UNION,

Having regard to the Treaty establishing the European Community, and in particular Article 175(1) thereof, and Article 95 thereof in relation to Articles 17, 18 and 19 of this Directive,

Having regard to the proposal from the Commission,

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

Having regard to the opinion of the Committee of the Regions ⁽²⁾,

Acting in accordance with the procedure laid down in Article 251 of the Treaty ⁽³⁾,

Whereas:

- (1) The control of European energy consumption and the increased use of energy from renewable sources, together with energy savings and increased energy efficiency, constitute important parts of the package of measures needed to reduce greenhouse gas emissions and comply with the Kyoto Protocol to the United Nations Framework Convention on Climate Change, and with further Community and international greenhouse gas emission reduction commitments beyond 2012. Those factors also have an important part to play in promoting the security of energy supply, promoting technological development and innovation and providing opportunities for employment and regional development, especially in rural and isolated areas.
- (2) In particular, increasing technological improvements, incentives for the use and expansion of public transport, the use of energy efficiency technologies and the use of energy from renewable sources in transport are some of the most effective tools by which the Community can

reduce its dependence on imported oil in the transport sector, in which the security of energy supply problem is most acute, and influence the fuel market for transport.

- (3) The opportunities for establishing economic growth through innovation and a sustainable competitive energy policy have been recognised. Production of energy from renewable sources often depends on local or regional small and medium-sized enterprises (SMEs). The opportunities for growth and employment that investment in regional and local production of energy from renewable sources bring about in the Member States and their regions are important. The Commission and the Member States should therefore support national and regional development measures in those areas, encourage the exchange of best practices in production of energy from renewable sources between local and regional development initiatives and promote the use of structural funding in this area.
- (4) When favouring the development of the market for renewable energy sources, it is necessary to take into account the positive impact on regional and local development opportunities, export prospects, social cohesion and employment opportunities, in particular as concerns SMEs and independent energy producers.
- (5) In order to reduce greenhouse gas emissions within the Community and reduce its dependence on energy imports, the development of energy from renewable sources should be closely linked to increased energy efficiency.
- (6) It is appropriate to support the demonstration and commercialisation phase of decentralised renewable energy technologies. The move towards decentralised energy production has many benefits, including the utilisation of local energy sources, increased local security of energy supply, shorter transport distances and reduced energy transmission losses. Such decentralisation also fosters community development and cohesion by providing income sources and creating jobs locally.

⁽¹⁾ Opinion of 17 September 2008 (OJ C 77, 31.3.2009, p. 43).

⁽²⁾ OJ C 325, 19.12.2008, p. 12.

⁽³⁾ Opinion of the European Parliament of 17 December 2008 (not yet published in the Official Journal) and Council Decision of 6 April 2009.

- (7) Directive 2001/77/EC of the European Parliament and of the Council of 27 September 2001 on the promotion of electricity produced from renewable energy sources in the internal electricity market ⁽¹⁾ and Directive 2003/30/EC of the European Parliament and of the Council of 8 May 2003 on the promotion of the use of biofuels or other renewable fuels for transport ⁽²⁾ established definitions for different types of energy from renewable sources. Directive 2003/54/EC of the European Parliament and of the Council of 26 June 2003 concerning common rules for the internal market in electricity ⁽³⁾ established definitions for the electricity sector in general. In the interests of legal certainty and clarity it is appropriate to use the same or similar definitions in this Directive.
- (8) The Commission communication of 10 January 2007 entitled 'Renewable Energy Roadmap — Renewable energies in the 21st century: building a more sustainable future' demonstrated that a 20 % target for the overall share of energy from renewable sources and a 10 % target for energy from renewable sources in transport would be appropriate and achievable objectives, and that a framework that includes mandatory targets should provide the business community with the long-term stability it needs to make rational, sustainable investments in the renewable energy sector which are capable of reducing dependence on imported fossil fuels and boosting the use of new energy technologies. Those targets exist in the context of the 20 % improvement in energy efficiency by 2020 set out in the Commission communication of 19 October 2006 entitled 'Action Plan for Energy Efficiency: Realising the Potential', which was endorsed by the European Council of March 2007, and by the European Parliament in its resolution of 31 January 2008 on that Action Plan.
- (9) The European Council of March 2007 reaffirmed the Community's commitment to the Community-wide development of energy from renewable sources beyond 2010. It endorsed a mandatory target of a 20 % share of energy from renewable sources in overall Community energy consumption by 2020 and a mandatory 10 % minimum target to be achieved by all Member States for the share of biofuels in transport petrol and diesel consumption by 2020, to be introduced in a cost-effective way. It stated that the binding character of the biofuel target is appropriate, subject to production being sustainable, second-generation biofuels becoming commercially available and 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 ⁽⁴⁾ being amended to allow for adequate levels of blending. The European Council of March 2008 repeated that it is essential to develop and fulfil effective sustainability criteria for biofuels and ensure the commercial availability of second-generation biofuels. The European Council of June 2008 referred again to the sustainability criteria and the development of second-generation biofuels, and underlined the need to assess the possible impacts of biofuel production on agricultural food products and to take action, if necessary, to address shortcomings. It also stated that further assessment should be made of the environmental and social consequences of the production and consumption of biofuels.
- (10) In its resolution of 25 September 2007 on the Road Map for Renewable Energy in Europe ⁽⁵⁾, the European Parliament called on the Commission to present, by the end of 2007, a proposal for a legislative framework for energy from renewable sources, referring to the importance of setting targets for the shares of energy from renewable sources at Community and Member State level.
- (11) It is necessary to set transparent and unambiguous rules for calculating the share of energy from renewable sources and for defining those sources. In this context, the energy present in oceans and other water bodies in the form of waves, marine currents, tides, ocean thermal energy gradients or salinity gradients should be included.
- (12) The use of agricultural material such as manure, slurry and other animal and organic waste for biogas production has, in view of the high greenhouse gas emission saving potential, significant environmental advantages in terms of heat and power production and its use as biofuel. Biogas installations can, as a result of their decentralised nature and the regional investment structure, contribute significantly to sustainable development in rural areas and offer farmers new income opportunities.
- (13) In the light of the positions taken by the European Parliament, the Council and the Commission, it is appropriate to establish mandatory national targets consistent with a 20 % share of energy from renewable sources and a 10 % share of energy from renewable sources in transport in Community energy consumption by 2020.
- (14) The main purpose of mandatory national targets is to provide certainty for investors and to encourage continuous development of technologies which generate energy from all types of renewable sources. Deferring a decision about whether a target is mandatory until a future event takes place is thus not appropriate.

⁽¹⁾ OJ L 283, 27.10.2001, p. 33.

⁽²⁾ OJ L 123, 17.5.2003, p. 42.

⁽³⁾ OJ L 176, 15.7.2003, p. 37.

⁽⁴⁾ OJ L 350, 28.12.1998, p. 58.

⁽⁵⁾ OJ C 219 E, 28.8.2008, p. 82.

- (15) The starting point, the renewable energy potential and the energy mix of each Member State vary. It is therefore necessary to translate the Community 20 % target into individual targets for each Member State, with due regard to a fair and adequate allocation taking account of Member States' different starting points and potentials, including the existing level of energy from renewable sources and the energy mix. It is appropriate to do this by sharing the required total increase in the use of energy from renewable sources between Member States on the basis of an equal increase in each Member State's share weighted by their GDP, modulated to reflect their starting points, and by accounting in terms of gross final consumption of energy, with account being taken of Member States' past efforts with regard to the use of energy from renewable sources.
- (16) By contrast, it is appropriate for the 10 % target for energy from renewable sources in transport to be set at the same level for each Member State in order to ensure consistency in transport fuel specifications and availability. Because transport fuels are traded easily, Member States with low endowments of the relevant resources will easily be able to obtain biofuels from elsewhere. While it would technically be possible for the Community to meet its target for the use of energy from renewable sources in transport solely from domestic production, it is both likely and desirable that the target will in fact be met through a combination of domestic production and imports. To this end, the Commission should monitor the supply of the Community market for biofuels, and should, as appropriate, propose relevant measures to achieve a balanced approach between domestic production and imports, taking into account, inter alia, the development of multilateral and bilateral trade negotiations, environmental, social and economic considerations, and the security of energy supply.
- (17) The improvement of energy efficiency is a key objective of the Community, and the aim is to achieve a 20 % improvement in energy efficiency by 2020. That aim, together with existing and future legislation including Directive 2002/91/EC of the European Parliament and of the Council of 16 December 2002 on the energy performance of buildings ⁽¹⁾, Directive 2005/32/EC of the European Parliament and of the Council of 6 July 2005 establishing a framework for the setting of ecodesign requirements for energy-using products ⁽²⁾, and Directive 2006/32/EC of the European Parliament and of the Council of 5 April 2006 on energy end-use efficiency and energy services ⁽³⁾, has a critical role to play in ensuring that the climate and energy objectives are being achieved at least cost, and can also provide new opportunities for the European Union's economy. Energy efficiency and energy saving policies are some of the most effective methods by which Member States can increase the percentage share of energy from renewable sources, and Member States will thus more easily achieve the overall national and transport targets for energy from renewable sources laid down by this Directive.
- (18) It will be incumbent upon Member States to make significant improvements in energy efficiency in all sectors in order more easily to achieve their targets for energy from renewable sources, which are expressed as a percentage of gross final consumption of energy. The need for energy efficiency in the transport sector 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. The mandatory 10 % target for transport to be achieved by all Member States should therefore be defined as that share of final energy consumed in transport which is to be achieved from renewable sources as a whole, and not from biofuels alone.
- (19) To ensure that the mandatory national overall targets are achieved, Member States should work towards an indicative trajectory tracing a path towards the achievement of their final mandatory targets. They should establish a national renewable energy action plan including information on sectoral targets, while having in mind that there are different uses of biomass and therefore it is essential to mobilise new biomass resources. In addition, Member States should set out measures to achieve those targets. Each Member State should assess, when evaluating its expected gross final consumption of energy in its national renewable energy action plan, the contribution which energy efficiency and energy saving measures can make to achieving its national targets. Member States should take into account the optimal combination of energy efficiency technologies with energy from renewable sources.
- (20) To permit the benefits of technological progress and economies of scale to be reaped, the indicative trajectory should take into account the possibility of a more rapid growth in the use of energy from renewable sources in the future. Thus special attention can be given to sectors that suffer disproportionately from the absence of technological progress and economies of scale and therefore remain under-developed, but which, in future, could significantly contribute to reaching the targets for 2020.
- (21) The indicative trajectory should take 2005 as its starting point because that is the latest year for which reliable data on national shares of energy from renewable sources are available.

⁽¹⁾ OJ L 1, 4.1.2003, p. 65.

⁽²⁾ OJ L 191, 22.7.2005, p. 29.

⁽³⁾ OJ L 114, 27.4.2006, p. 64.

- (22) The achievement of the objectives of this Directive requires that the Community and Member States dedicate a significant amount of financial resources to research and development in relation to renewable energy technologies. In particular, the European Institute of Innovation and Technology should give high priority to the research and development of renewable energy technologies.
- (23) Member States may encourage local and regional authorities to set targets in excess of national targets and to involve local and regional authorities in drawing up national renewable energy action plans and in raising awareness of the benefits of energy from renewable sources.
- (24) In order to exploit the full potential of biomass, the Community and the Member States should promote greater mobilisation of existing timber reserves and the development of new forestry systems.
- (25) Member States have different renewable energy potentials and operate different schemes of support for energy from renewable sources at the national level. The majority of Member States apply support schemes that grant benefits solely to energy from renewable sources that is produced on their territory. For the proper functioning of national support schemes it is vital that Member States can control the effect and costs of their national support schemes according to their different potentials. One important means to achieve the aim of this Directive is to guarantee the proper functioning of national support schemes, as under Directive 2001/77/EC, in order to maintain investor confidence and allow Member States to design effective national measures for target compliance. This Directive aims at facilitating cross-border support of energy from renewable sources without affecting national support schemes. It introduces optional cooperation mechanisms between Member States which allow them to agree on the extent to which one Member State supports the energy production in another and on the extent to which the energy production from renewable sources should count towards the national overall target of one or the other. In order to ensure the effectiveness of both measures of target compliance, i.e. national support schemes and cooperation mechanisms, it is essential that Member States are able to determine if and to what extent their national support schemes apply to energy from renewable sources produced in other Member States and to agree on this by applying the cooperation mechanisms provided for in this Directive.
- (26) It is desirable that energy prices reflect external costs of energy production and consumption, including, as appropriate, environmental, social and healthcare costs.
- (27) Public support is necessary to reach the Community's objectives with regard to the expansion of electricity produced from renewable energy sources, in particular for as long as electricity prices in the internal market do not reflect the full environmental and social costs and benefits of energy sources used.
- (28) The Community and the Member States should strive to reduce total consumption of energy in transport and increase energy efficiency in transport. The principal means of reducing consumption of energy in transport include transport planning, support for public transport, increasing the share of electric cars in production and producing cars which are more energy efficient and smaller both in size and in engine capacity.
- (29) Member States should aim to diversify the mix of energy from renewable sources in all transport sectors. The Commission should present a report to the European Parliament and the Council by 1 June 2015 outlining the potential for increasing the use of energy from renewable sources in each transport sector.
- (30) In calculating the contribution of hydropower and wind power for the purposes of this Directive, the effects of climatic variation should be smoothed through the use of a normalisation rule. Further, electricity produced in pumped storage units from water that has previously been pumped uphill should not be considered to be electricity produced from renewable energy sources.
- (31) Heat pumps enabling the use of aerothermal, geothermal or hydrothermal heat at a useful temperature level need electricity or other auxiliary energy to function. The energy used to drive heat pumps should therefore be deducted from the total usable heat. Only heat pumps with an output that significantly exceeds the primary energy needed to drive it should be taken into account.
- (32) Passive energy systems use building design to harness energy. This is considered to be saved energy. To avoid double counting, energy harnessed in this way should not be taken into account for the purposes of this Directive.
- (33) Some Member States have a large share of aviation in their gross final consumption of energy. In view of the current technological and regulatory constraints that prevent the commercial use of biofuels in aviation, it is appropriate to provide a partial exemption for such Member States, by excluding from the calculation of their gross final consumption of energy in national air transport, the amount by which they exceed one-and-a-half times the Community average gross final consumption of energy in aviation in 2005, as assessed by Eurostat, i.e. 6,18 %. Cyprus and Malta, due to their insular and peripheral character, rely on aviation as a mode of transport, which is essential for their citizens and their economy. As a result, Cyprus and Malta

have a gross final consumption of energy in national air transport which is disproportionately high, i.e. more than three times the Community average in 2005, and are thus disproportionately affected by the current technological and regulatory constraints. For those Member States it is therefore appropriate to provide that the exemption should cover the amount by which they exceed the Community average gross final consumption of energy in aviation in 2005 as assessed by Eurostat, i.e. 4,12 %.

- (34) To obtain an energy model that supports energy from renewable sources there is a need to encourage strategic cooperation between Member States, involving, as appropriate, regions and local authorities.
- (35) Whilst having due regard to the provisions of this Directive, Member States should be encouraged to pursue all appropriate forms of cooperation in relation to the objectives set out in this Directive. Such cooperation can take place at all levels, bilaterally or multilaterally. Apart from the mechanisms with effect on target calculation and target compliance, which are exclusively provided for in this Directive, namely statistical transfers between Member States, joint projects and joint support schemes, cooperation can also take the form of, for example, exchanges of information and best practices, as provided for, in particular, in the transparency platform established by this Directive, and other voluntary coordination between all types of support schemes.
- (36) To create opportunities for reducing the cost of achieving the targets laid down in this Directive, it is appropriate both to facilitate the consumption in Member States of energy produced from renewable sources in other Member States, and to enable Member States to count energy from renewable sources consumed in other Member States towards their own national targets. For this reason, flexibility measures are required, but they remain under Member States' control in order not to affect their ability to reach their national targets. Those flexibility measures take the form of statistical transfers, joint projects between Member States or joint support schemes.
- (37) It should be possible for imported electricity, produced from renewable energy sources outside the Community, to count towards Member States' targets. However, to avoid a net increase in greenhouse gas emissions through the diversion of existing renewable sources and their complete or partial replacement by conventional energy sources, only electricity produced by renewable energy installations that become operational after the entry into force of this Directive or by the increased capacity of an installation that was refurbished after that date should be eligible to be counted. In order to guarantee an adequate effect of energy from renewable sources replacing conventional energy in

the Community as well as in third countries it is appropriate to ensure that such imports can be tracked and accounted for in a reliable way. Agreements with third countries concerning the organisation of such trade in electricity from renewable energy sources will be considered. If, by virtue of a decision taken under the Energy Community Treaty ⁽¹⁾ to that effect, the contracting parties to that treaty become bound by the relevant provisions of this Directive, the measures of cooperation between Member States provided for in this Directive will be applicable to them.

- (38) When Member States undertake joint projects with one or more third countries regarding the production of electricity from renewable energy sources, it is appropriate that those joint projects relate only to newly constructed installations or to installations with newly increased capacity. This will help ensure that the proportion of energy from renewable sources in the third country's total energy consumption is not reduced due to the importation of energy from renewable sources into the Community. In addition, the Member States concerned should facilitate the domestic use by the third country concerned of part of the production of electricity by the installations covered by the joint project. Furthermore, the third country concerned should be encouraged by the Commission and Member States to develop a renewable energy policy, including ambitious targets.
- (39) Noting that projects of high European interest in third countries, such as the Mediterranean Solar Plan, may need a long lead-time before being fully interconnected to the territory of the Community, it is appropriate to facilitate their development by allowing Member States to take into account in their national targets a limited amount of electricity produced by such projects during the construction of the interconnection.
- (40) The procedure used by the administration responsible for supervising the authorisation, certification and licensing of renewable energy plants should be objective, transparent, non-discriminatory and proportionate when applying the rules to specific projects. In particular, it is appropriate to avoid any unnecessary burden that could arise by classifying renewable energy projects under installations which represent a high health risk.
- (41) The lack of transparent rules and coordination between the different authorisation bodies has been shown to hinder the deployment of energy from renewable sources. Therefore the specific structure of the renewable energy sector should be taken into account when national, regional and local authorities review their administrative procedures for giving permission to construct and operate plants and associated transmission and distribution network infrastructures for the production of electricity, heating and

⁽¹⁾ OJ L 198, 20.7.2006, p. 18.

- cooling or transport fuels from renewable energy sources. Administrative approval procedures should be streamlined with transparent timetables for installations using energy from renewable sources. Planning rules and guidelines should be adapted to take into consideration cost-effective and environmentally beneficial renewable heating and cooling and electricity equipment.
- (42) For the benefit of rapid deployment of energy from renewable sources and in view of their overall high sustainable and environmental beneficial quality, Member States should, when applying administrative rules, planning structures and legislation which are designed for licensing installations with respect to pollution reduction and control for industrial plants, for combating air pollution and for the prevention or minimisation of the discharge of dangerous substances in the environment, take into account the contribution of renewable energy sources towards meeting environmental and climate change objectives, in particular when compared to non-renewable energy installations.
- (43) In order to stimulate the contribution by individual citizens to the objectives set out in this Directive, the relevant authorities should consider the possibility of replacing authorisations by simple notifications to the competent body when installing small decentralised devices for producing energy from renewable sources.
- (44) The coherence between the objectives of this Directive and the Community's other environmental legislation should be ensured. In particular, during the assessment, planning or licensing procedures for renewable energy installations, Member States should take account of all Community environmental legislation and the contribution made by renewable energy sources towards meeting environmental and climate change objectives, in particular when compared to non-renewable energy installations.
- (45) National technical specifications and other requirements falling within the scope of Directive 98/34/EC of the European Parliament and of the Council of 22 June 1998 laying down a procedure for the provision of information in the field of technical standards and regulations and rules on Information Society services ⁽¹⁾, relating for example to levels of quality, testing methods or conditions of use, should not create barriers for trade in renewable energy equipment and systems. Therefore, support schemes for energy from renewable sources should not prescribe national technical specifications which deviate from existing Community standards or require the supported equipment or systems to be certified or tested in a specified location or by a specified entity.
- (46) It is appropriate for Member States to consider mechanisms for the promotion of district heating and cooling from energy from renewable sources.
- (47) At national and regional level, rules and obligations for minimum requirements for the use of energy from renewable sources in new and renovated buildings have led to considerable increases in the use of energy from renewable sources. Those measures should be encouraged in a wider Community context, while promoting the use of more energy-efficient applications of energy from renewable sources through building regulations and codes.
- (48) It may be appropriate for Member States, in order to facilitate and accelerate the setting of minimum levels for the use of energy from renewable sources in buildings, to provide that such levels are achieved by incorporating a factor for energy from renewable sources in meeting minimum energy performance requirements under Directive 2002/91/EC, relating to a cost-optimal reduction of carbon emissions per building.
- (49) Information and training gaps, especially in the heating and cooling sector, should be removed in order to encourage the deployment of energy from renewable sources.
- (50) In so far as the access or pursuit of the profession of installer is a regulated profession, the preconditions for the recognition of professional qualifications are laid down in Directive 2005/36/EC of the European Parliament and of the Council of 7 September 2005 on the recognition of professional qualifications ⁽²⁾. This Directive therefore applies without prejudice to Directive 2005/36/EC.
- (51) While Directive 2005/36/EC lays down requirements for the mutual recognition of professional qualifications, including for architects, there is a further need to ensure that architects and planners properly consider an optimal combination of renewable energy sources and high-efficiency technologies in their plans and designs. Member States should therefore provide clear guidance in this regard. This should be done without prejudice to the provisions of Directive 2005/36/EC and in particular Articles 46 and 49 thereof.
- (52) Guarantees of origin issued for the purpose of this Directive have the sole function of proving to a final customer that a given share or quantity of energy was produced from renewable sources. A guarantee of origin can be transferred, independently of the energy to which it relates, from one holder to another. However, with a view to ensuring that a unit of electricity from renewable energy sources is disclosed to a customer only once, double counting and double disclosure of guarantees of origin should be avoided. Energy from renewable sources in relation to which the accompanying guarantee of origin has been sold separately by the producer should not be disclosed or sold to the final customer as energy from renewable sources. It is important to distinguish between green certificates used for support schemes and guarantees of origin.

⁽¹⁾ OJ L 204, 21.7.1998, p. 37.

⁽²⁾ OJ L 255, 30.9.2005, p. 22.

- (53) It is appropriate to allow the emerging consumer market for electricity from renewable energy sources to contribute to the construction of new installations for energy from renewable sources. Member States should therefore be able to require electricity suppliers who disclose their energy mix to final customers in accordance with Article 3(6) of Directive 2003/54/EC, to include a minimum percentage of guarantees of origin from recently constructed installations producing energy from renewable sources, provided that such a requirement is in conformity with Community law.
- (54) It is important to provide information on how the supported electricity is allocated to final customers in accordance with Article 3(6) of Directive 2003/54/EC. In order to improve the quality of that information to consumers, in particular as regards the amount of energy from renewable sources produced by new installations, the Commission should assess the effectiveness of the measures taken by Member States.
- (55) Directive 2004/8/EC of the European Parliament and of the Council of 11 February 2004 on the promotion of cogeneration based on a useful heat demand in the internal energy market ⁽¹⁾ provides for guarantees of origin for proving the origin of electricity produced from high-efficiency cogeneration plants. Such guarantees of origin cannot be used when disclosing the use of energy from renewable sources in accordance with Article 3(6) of Directive 2003/54/EC as this might result in double counting and double disclosure.
- (56) Guarantees of origin do not by themselves confer a right to benefit from national support schemes.
- (57) There is a need to support the integration of energy from renewable sources into the transmission and distribution grid and the use of energy storage systems for integrated intermittent production of energy from renewable sources.
- (58) The development of renewable energy projects, including renewable energy projects of European interest under the Trans-European Network for Energy (TEN-E) programme should be accelerated. To that end, the Commission should also analyse how the financing of such projects can be improved. Particular attention should be paid to renewable energy projects that will contribute to a significant increase in security of energy supply in the Community and neighbouring countries.
- (59) Interconnection among countries facilitates integration of electricity from renewable energy sources. Besides smoothing out variability, interconnection can reduce balancing costs, encourage true competition bringing about lower prices, and support the development of networks. Also, the sharing and optimal use of transmission capacity could help avoid excessive need for newly built capacity.
- (60) Priority access and guaranteed access for electricity from renewable energy sources are important for integrating renewable energy sources into the internal market in electricity, in line with Article 11(2) and developing further Article 11(3) of Directive 2003/54/EC. Requirements relating to the maintenance of the reliability and safety of the grid and to the dispatching may differ according to the characteristics of the national grid and its secure operation. Priority access to the grid provides an assurance given to connected generators of electricity from renewable energy sources that they will be able to sell and transmit the electricity from renewable energy sources in accordance with connection rules at all times, whenever the source becomes available. In the event that the electricity from renewable energy sources is integrated into the spot market, guaranteed access ensures that all electricity sold and supported obtains access to the grid, allowing the use of a maximum amount of electricity from renewable energy sources from installations connected to the grid. However, this does not imply any obligation on the part of Member States to support or introduce purchase obligations for energy from renewable sources. In other systems, a fixed price is defined for electricity from renewable energy sources, usually in combination with a purchase obligation for the system operator. In such a case, priority access has already been given.
- (61) In certain circumstances it is not possible fully to ensure transmission and distribution of electricity produced from renewable energy sources without affecting the reliability or safety of the grid system. In such circumstances it may be appropriate for financial compensation to be given to those producers. Nevertheless, the objectives of this Directive require a sustained increase in the transmission and distribution of electricity produced from renewable energy sources without affecting the reliability or safety of the grid system. To this end, Member States should take appropriate measures in order to allow a higher penetration of electricity from renewable energy sources, inter alia, by taking into account the specificities of variable resources and resources which are not yet storable. To the extent required by the objectives set out in this Directive, the connection of new renewable energy installations should be allowed as soon as possible. In order to accelerate grid connection procedures, Member States may provide for priority connection or reserved connection capacities for new installations producing electricity from renewable energy sources.
- (62) The costs of connecting new producers of electricity and gas from renewable energy sources to the electricity and gas grids should be objective, transparent and non-discriminatory and due account should be taken of the benefit that embedded producers of electricity from renewable energy sources and local producers of gas from renewable sources bring to the electricity and gas grids.

⁽¹⁾ OJ L 52, 21.2.2004, p. 50.

- (63) Electricity producers who want to exploit the potential of energy from renewable sources in the peripheral regions of the Community, in particular in island regions and regions of low population density, should, whenever feasible, benefit from reasonable connection costs in order to ensure that they are not unfairly disadvantaged in comparison with producers situated in more central, more industrialised and more densely populated areas.
- (64) Directive 2001/77/EC lays down the framework for the integration into the grid of electricity from renewable energy sources. However, there is a significant variation between Member States in the degree of integration actually achieved. For this reason it is necessary to strengthen the framework and to review its application periodically at national level.
- (65) Biofuel production should be sustainable. Biofuels used for compliance with the targets laid down in this Directive, and those that benefit from national support schemes, should therefore be required to fulfil sustainability criteria.
- (66) The Community should take appropriate steps in the context of this Directive, including the promotion of sustainability criteria for biofuels and the development of second and third-generation biofuels in the Community and worldwide, and to strengthen agricultural research and knowledge creation in those areas.
- (67) The introduction of sustainability criteria for biofuels will not achieve its objective if those products that do not fulfil the criteria and would otherwise have been used as biofuels are used, instead, as bioliquids in the heating or electricity sectors. For this reason, the sustainability criteria should also apply to bioliquids in general.
- (68) The European Council of March 2007 invited the Commission to propose a comprehensive Directive on the use of all renewable energy sources, which could contain criteria and provisions to ensure sustainable provision and use of bioenergy. Such sustainability criteria should form a coherent part of a wider scheme covering all bioliquids and not biofuels alone. Such sustainability criteria should therefore be included in this Directive. In order to ensure a coherent approach between energy and environment policies, and to avoid the additional costs to business and the environmental incoherence that would be associated with an inconsistent approach, it is essential to provide the same sustainability criteria for the use of biofuels for the purposes of this Directive on the one hand, and Directive 98/70/EC on the other. For the same reasons, double reporting should be avoided in this context. Furthermore, the Commission and the competent national authorities should coordinate their activities in the framework of a committee specifically responsible for sustainability aspects. The Commission should, in addition, in 2009, review the possible inclusion of other biomass applications and the modalities relating thereto.
- (69) The increasing worldwide demand for biofuels and bioliquids, and the incentives for their use provided for in this Directive, should not have the effect of encouraging the destruction of biodiverse lands. Those finite resources, recognised in various international instruments to be of value to all mankind, should be preserved. Consumers in the Community would, in addition, find it morally unacceptable that their increased use of biofuels and bioliquids could have the effect of destroying biodiverse lands. For these reasons, it is necessary to provide sustainability criteria ensuring that biofuels and bioliquids can qualify for the incentives only when it can be guaranteed that they do not originate in biodiverse areas or, in the case of areas designated for nature protection purposes or for the protection of rare, threatened or endangered ecosystems or species, the relevant competent authority demonstrates that the production of the raw material does not interfere with those purposes. The sustainability criteria should consider forest as biodiverse where it is a primary forest in accordance with the definition used by the Food and Agriculture Organisation of the United Nations (FAO) in its Global Forest Resource Assessment, which countries use worldwide to report on the extent of primary forest or where it is protected by national nature protection law. Areas where collection of non-wood forest products occurs should be included, provided the human impact is small. Other types of forests as defined by the FAO, such as modified natural forests, semi-natural forests and plantations, should not be considered as primary forests. Having regard, furthermore, to the highly biodiverse nature of certain grasslands, both temperate and tropical, including highly biodiverse savannahs, steppes, scrublands and prairies, biofuels made from raw materials originating in such lands should not qualify for the incentives provided for by this Directive. The Commission should establish appropriate criteria and geographical ranges to define such highly biodiverse grasslands in accordance with the best available scientific evidence and relevant international standards.
- (70) If land with high stocks of carbon in its soil or vegetation is converted for the cultivation of raw materials for biofuels or bioliquids, some of the stored carbon will generally be released into the atmosphere, leading to the formation of carbon dioxide. The resulting negative greenhouse gas impact can offset the positive greenhouse gas impact of the biofuels or bioliquids, in some cases by a wide margin. The full carbon effects of such conversion should therefore be

accounted for in calculating the greenhouse gas emission saving of particular biofuels and bioliquids. This is necessary to ensure that the greenhouse gas emission saving calculation takes into account the totality of the carbon effects of the use of biofuels and bioliquids.

- (71) In calculating the greenhouse gas impact of land conversion, economic operators should be able to use actual values for the carbon stocks associated with the reference land use and the land use after conversion. They should also be able to use standard values. The work of the Intergovernmental Panel on Climate Change is the appropriate basis for such standard values. That work is not currently expressed in a form that is immediately applicable by economic operators. The Commission should therefore produce guidance drawing on that work to serve as the basis for the calculation of carbon stock changes for the purposes of this Directive, including such changes to forested areas with a canopy cover of between 10 to 30 %, savannahs, scrublands and prairies.
- (72) It is appropriate for the Commission to develop methodologies with a view to assessing the impact of the drainage of peatlands on greenhouse gas emissions.
- (73) Land should not be converted for the production of biofuels if its carbon stock loss upon conversion could not, within a reasonable period, taking into account the urgency of tackling climate change, be compensated by the greenhouse gas emission saving resulting from the production of biofuels or bioliquids. This would prevent unnecessary, burdensome research by economic operators and the conversion of high-carbon-stock land that would prove to be ineligible for producing raw materials for biofuels and bioliquids. Inventories of worldwide carbon stocks indicate that wetlands and continuously forested areas with a canopy cover of more than 30 % should be included in that category. Forested areas with a canopy cover of between 10 and 30 % should also be included, unless there is evidence demonstrating that their carbon stock is sufficiently low to justify their conversion in accordance with the rules laid down in this Directive. The reference to wetlands should take into account the definition laid down in the Convention on Wetlands of International Importance, especially as Waterfowl Habitat, adopted on 2 February 1971 in Ramsar.
- (74) The incentives provided for in this Directive will encourage increased production of biofuels and bioliquids worldwide. Where biofuels and bioliquids are made from raw material produced within the Community, they should also comply with Community environmental requirements for agriculture, including those concerning the protection of groundwater and surface water quality, and with social requirements. However, there is a concern that production of biofuels and bioliquids in certain third countries might not respect minimum environmental or social requirements. It is therefore appropriate to encourage the development of multilateral and bilateral agreements and voluntary international or national schemes that cover key environmental and social considerations, in order to promote the production of biofuels and bioliquids worldwide in a sustainable manner. In the absence of such agreements or schemes, Member States should require economic operators to report on those issues.
- (75) The requirements for a sustainability scheme for energy uses of biomass, other than bioliquids and biofuels, should be analysed by the Commission in 2009, taking into account the need for biomass resources to be managed in a sustainable manner.
- (76) Sustainability criteria will be effective only if they lead to changes in the behaviour of market actors. Those changes will occur only if biofuels and bioliquids meeting those criteria command a price premium compared to those that do not. According to the mass balance method of verifying compliance, there is a physical link between the production of biofuels and bioliquids meeting the sustainability criteria and the consumption of biofuels and bioliquids in the Community, providing an appropriate balance between supply and demand and ensuring a price premium that is greater than in systems where there is no such link. To ensure that biofuels and bioliquids meeting the sustainability criteria can be sold at a higher price, the mass balance method should therefore be used to verify compliance. This should maintain the integrity of the system while at the same time avoiding the imposition of an unreasonable burden on industry. Other verification methods should, however, be reviewed.
- (77) Where appropriate, the Commission should take due account of the Millennium Ecosystem Assessment which contains useful data for the conservation of at least those areas that provide basic ecosystem services in critical situations such as watershed protection and erosion control.
- (78) It is appropriate to monitor the impact of biomass cultivation, such as through land-use changes, including displacement, the introduction of invasive alien species and other effects on biodiversity, and effects on food production and local prosperity. The Commission should consider all relevant sources of information, including the FAO hunger map. Biofuels should be promoted in a manner that encourages greater agricultural productivity and the use of degraded land.

- (79) It is in the interests of the Community to encourage the development of multilateral and bilateral agreements and voluntary international or national schemes that set standards for the production of sustainable biofuels and bioliquids, and that certify that the production of biofuels and bioliquids meets those standards. For that reason, provision should be made for such agreements or schemes to be recognised as providing reliable evidence and data, provided that they meet adequate standards of reliability, transparency and independent auditing.
- (80) It is necessary to lay down clear rules for the calculation of greenhouse gas emissions from biofuels and bioliquids and their fossil fuel comparators.
- (81) Co-products from the production and use of fuels should be taken into account in the calculation of greenhouse gas emissions. The substitution method is appropriate for the purposes of policy analysis, but not for the regulation of individual economic operators and individual consignments of transport fuels. In those cases the energy allocation method is the most appropriate method, as it is easy to apply, is predictable over time, minimises counter-productive incentives and produces results that are generally comparable with those produced by the substitution method. For the purposes of policy analysis the Commission should also, in its reporting, present results using the substitution method.
- (82) In order to avoid a disproportionate administrative burden, a list of default values should be laid down for common biofuel production pathways and that list should be updated and expanded when further reliable data is available. Economic operators should always be entitled to claim the level of greenhouse gas emission saving for biofuels and bioliquids established by that list. Where the default value for greenhouse gas emission saving from a production pathway lies below the required minimum level of greenhouse gas emission saving, producers wishing to demonstrate their compliance with this minimum level should be required to show that actual emissions from their production process are lower than those that were assumed in the calculation of the default values.
- (83) It is appropriate for the data used in the calculation of the default values to be obtained from independent, scientifically expert sources and to be updated as appropriate as those sources progress their work. The Commission should encourage those sources to address, when they update their work, emissions from cultivation, the effect of regional and climatological conditions, the effects of cultivation using sustainable agricultural and organic farming methods, and the scientific contribution of producers, within the Community and in third countries, and civil society.
- (84) In order to avoid encouraging the cultivation of raw materials for biofuels and bioliquids in places where this would lead to high greenhouse gas emissions, the use of default values for cultivation should be limited to regions where such an effect can reliably be ruled out. However, to avoid a disproportionate administrative burden, it is appropriate for Member States to establish national or regional averages for emissions from cultivation, including from fertiliser use.
- (85) Global demand for agricultural commodities is growing. Part of that increased demand will be met through an increase in the amount of land devoted to agriculture. The restoration of land that has been severely degraded or heavily contaminated and therefore cannot be used, in its present state, for agricultural purposes is a way of increasing the amount of land available for cultivation. The sustainability scheme should promote the use of restored degraded land because the promotion of biofuels and bioliquids will contribute to the growth in demand for agricultural commodities. Even if biofuels themselves are made using raw materials from land already in arable use, the net increase in demand for crops caused by the promotion of biofuels could lead to a net increase in the cropped area. This could affect high carbon stock land, which would result in damaging carbon stock losses. To alleviate that risk, it is appropriate to introduce accompanying measures to encourage an increased rate of productivity on land already used for crops, the use of degraded land, and the adoption of sustainability requirements, comparable to those laid down in this Directive for Community biofuel consumption, in other biofuel-consuming countries. The Commission should develop a concrete methodology to minimise greenhouse gas emissions caused by indirect land-use changes. To this end, the Commission should analyse, on the basis of best available scientific evidence, in particular, the inclusion of a factor for indirect land-use changes in the calculation of greenhouse gas emissions and the need to incentivise sustainable biofuels which minimise the impacts of land-use change and improve biofuel sustainability with respect to indirect land-use change. In developing that methodology, the Commission should address, inter alia, the potential indirect land-use changes resulting from biofuels produced from non-food cellulosic material and from ligno-cellulosic material.
- (86) In order to permit the achievement of an adequate market share of biofuels, it is necessary to ensure the placing on the market of higher blends of biodiesel in diesel than those envisaged by standard EN590/2004.
- (87) In order to ensure that biofuels that diversify the range of feedstocks used become commercially viable, those biofuels should receive an extra weighting under national biofuel obligations.

- (88) Regular reporting is needed to ensure a continuing focus on progress in the development of energy from renewable sources at national and Community level. It is appropriate to require the use of a harmonised template for national renewable energy action plans which Member States should submit. Such plans could include estimated costs and benefits of the measures envisaged, measures relating to the necessary extension or reinforcement of the existing grid infrastructure, estimated costs and benefits to develop energy from renewable sources in excess of the level required by the indicative trajectory, information on national support schemes and information on their use of energy from renewable sources in new or renovated buildings.
- (89) When designing their support systems, Member States may encourage the use of biofuels which give additional benefits, including the benefits of diversification offered by biofuels made from waste, residues, non-food cellulosic material, ligno-cellulosic material and algae, as well as non-irrigated plants grown in arid areas to fight desertification, by taking due account of the different costs of producing energy from traditional biofuels on the one hand and of those biofuels that give additional benefits on the other. Member States may encourage investment in research and development in relation to those and other renewable energy technologies that need time to become competitive.
- (90) The implementation of this Directive should reflect, where relevant, the provisions of the Convention on Access to Information, Public Participation in Decision-Making and Access to Justice in Environmental Matters, in particular as implemented through Directive 2003/4/EC of the European Parliament and of the Council of 28 January 2003 on public access to environmental information ⁽¹⁾.
- (91) The measures necessary for the implementation of this Directive should be adopted in accordance with Council Decision 1999/468/EC of 28 June 1999 laying down the procedures for the exercise of implementing powers conferred on the Commission ⁽²⁾.
- (92) In particular, the Commission should be empowered to adapt the methodological principles and values necessary for assessing whether sustainability criteria have been fulfilled in relation to biofuels and bioliquids, to adapt the energy content of transport fuels to technical and scientific progress, to establish criteria and geographic ranges for determining highly biodiverse grassland, and to establish detailed definitions for severely degraded or contaminated land. Since those measures are of general scope and are designed to amend non-essential elements of this Directive, inter alia, by supplementing it with new non-essential elements, they must be adopted in accordance with the regulatory procedure with scrutiny provided for in Article 5a of Decision 1999/468/EC.
- (93) Those provisions of Directive 2001/77/EC and Directive 2003/30/EC that overlap with the provisions of this Directive should be deleted from the latest possible moment for transposition of this Directive. Those that deal with targets and reporting for 2010 should remain in force until the end of 2011. It is therefore necessary to amend Directive 2001/77/EC and Directive 2003/30/EC accordingly.
- (94) Since the measures provided for in Articles 17 to 19 also have an effect on the functioning of the internal market by harmonising the sustainability criteria for biofuels and bioliquids for the target accounting purposes under this Directive, and thus facilitate, in accordance with Article 17(8), trade between Member States in biofuels and bioliquids which comply with those conditions, they are based on Article 95 of the Treaty.
- (95) The sustainability scheme should not prevent Member States from taking into account, in their national support schemes, the higher production cost of biofuels and bioliquids that deliver benefits that exceed the minima laid down in the sustainability scheme.
- (96) Since the general objectives of this Directive, namely to achieve a 20 % share of energy from renewable sources in the Community's gross final consumption of energy and a 10 % share of energy from renewable sources in each Member State's transport energy consumption by 2020, cannot be sufficiently achieved by the Member States and can therefore, by reason of the scale of the action, be better achieved at Community level, the Community may adopt measures, in accordance with the principle of subsidiarity as set out in Article 5 of the Treaty. 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.
- (97) In accordance with point 34 of the Interinstitutional agreement on better law-making ⁽³⁾, Member States are encouraged to draw up, for themselves and in the interest of the Community, their own tables illustrating, as far as possible, the correlation between this Directive and the transposition measures and to make them public,

⁽¹⁾ OJ L 41, 14.2.2003, p. 26.

⁽²⁾ OJ L 184, 17.7.1999, p. 23.

⁽³⁾ OJ C 321, 31.12.2003, p. 1.

HAVE ADOPTED THIS DIRECTIVE:

Article 1

Subject matter and scope

This Directive establishes a common framework for the promotion of energy from renewable sources. It sets mandatory national targets for the overall share of energy from renewable sources in gross final consumption of energy and for the share of energy from renewable sources in transport. It lays down rules relating to statistical transfers between Member States, joint projects between Member States and with third countries, guarantees of origin, administrative procedures, information and training, and access to the electricity grid for energy from renewable sources. It establishes sustainability criteria for biofuels and bioliquids.

Article 2

Definitions

For the purposes of this Directive, the definitions in Directive 2003/54/EC apply.

The following definitions also apply:

- (a) 'energy from renewable sources' means energy from renewable non-fossil sources, namely wind, solar, aerothermal, geothermal, hydrothermal and ocean energy, hydropower, biomass, landfill gas, sewage treatment plant gas and biogases;
- (b) 'aerothermal energy' means energy stored in the form of heat in the ambient air;
- (c) 'geothermal energy' means energy stored in the form of heat beneath the surface of solid earth;
- (d) 'hydrothermal energy' means energy stored in the form of heat in surface water;
- (e) 'biomass' means the biodegradable fraction of products, waste and residues from biological origin from agriculture (including vegetal and animal substances), forestry and related industries including fisheries and aquaculture, as well as the biodegradable fraction of industrial and municipal waste;
- (f) 'gross final consumption of energy' means the energy commodities delivered for energy purposes to industry, transport, households, services including public services, agriculture, forestry and fisheries, including the consumption of electricity and heat by the energy branch for electricity and heat production and including losses of electricity and heat in distribution and transmission;
- (g) 'district heating' or 'district cooling' means the distribution of thermal energy in the form of steam, hot water or chilled liquids, from a central source of production through a network to multiple buildings or sites, for the use of space or process heating or cooling;
- (h) 'bioliquids' means liquid fuel for energy purposes other than for transport, including electricity and heating and cooling, produced from biomass;
- (i) 'biofuels' means liquid or gaseous fuel for transport produced from biomass;
- (j) 'guarantee of origin' means an electronic document which has the sole function of providing proof to a final customer that a given share or quantity of energy was produced from renewable sources as required by Article 3(6) of Directive 2003/54/EC;
- (k) 'support scheme' means any instrument, scheme or mechanism applied by a Member State or a group of Member States, that promotes the use of energy from renewable sources by reducing the cost of that energy, increasing the price at which it can be sold, or increasing, by means of a renewable energy obligation or otherwise, the volume of such energy purchased. This includes, but is not restricted to, investment aid, tax exemptions or reductions, tax refunds, renewable energy obligation support schemes including those using green certificates, and direct price support schemes including feed-in tariffs and premium payments;
- (l) 'renewable energy obligation' means a national support scheme requiring energy producers to include a given proportion of energy from renewable sources in their production, requiring energy suppliers to include a given proportion of energy from renewable sources in their supply, or requiring energy consumers to include a given proportion of energy from renewable sources in their consumption. This includes schemes under which such requirements may be fulfilled by using green certificates;
- (m) 'actual value' means the greenhouse gas emission saving for some or all of the steps of a specific biofuel production process calculated in accordance with the methodology laid down in part C of Annex V;
- (n) 'typical value' means an estimate of the representative greenhouse gas emission saving for a particular biofuel production pathway;
- (o) 'default value' means a value derived from a typical value by the application of pre-determined factors and that may, in circumstances specified in this Directive, be used in place of an actual value.

Article 3

Mandatory national overall targets and measures for the use of energy from renewable sources

1. Each Member State shall ensure that the share of energy from renewable sources, calculated in accordance with Articles 5 to 11, in gross final consumption of energy in 2020 is at least its national overall target for the share of energy from renewable sources in that year, as set out in the third column of the table in part A of Annex I. Such mandatory national overall targets are consistent with a target of at least a 20 % share of energy from renewable sources in the Community's gross final consumption of energy in 2020. In order to achieve the targets laid down in this Article more easily, each Member State shall promote and encourage energy efficiency and energy saving.

2. Member States shall introduce measures effectively designed to ensure that the share of energy from renewable sources equals or exceeds that shown in the indicative trajectory set out in part B of Annex I.

3. In order to reach the targets set in paragraphs 1 and 2 of this Article Member States may, inter alia, apply the following measures:

- (a) support schemes;
- (b) measures of cooperation between different Member States and with third countries for achieving their national overall targets in accordance with Articles 5 to 11.

Without prejudice to Articles 87 and 88 of the Treaty, Member States shall have the right to decide, in accordance with Articles 5 to 11 of this Directive, to which extent they support energy from renewable sources which is produced in a different Member State.

4. Each Member State shall 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.

For the purposes of this paragraph, the following provisions shall apply:

- (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 shall be taken into account;
- (b) for the calculation of the numerator, that is the amount of energy from renewable sources consumed in transport for the purposes of the first subparagraph, all types of energy from renewable sources consumed in all forms of transport shall be taken into account;
- (c) for the calculation of the contribution from electricity produced from renewable sources and consumed in all types of electric vehicles 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 Community 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 electric road vehicles, that consumption shall be considered to be 2,5 times the energy content of the input of electricity from renewable energy sources.

By 31 December 2011, 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 to be considered.

By 31 December 2011, the Commission shall also present, if appropriate, a proposal for a methodology for calculating the contribution of hydrogen originating from renewable sources in the total fuel mix.

Article 4

National renewable energy action plans

1. Each Member State shall adopt a national renewable energy action plan. The national renewable energy action plans shall set out Member States' national targets for the share of energy from renewable sources consumed in transport, electricity and heating and cooling in 2020, taking into account the effects of other policy measures relating to energy efficiency on final consumption of energy, and adequate measures to be taken to achieve those national overall targets, including cooperation between local, regional and national authorities, planned statistical transfers or joint projects, national policies to develop existing biomass resources and mobilise new biomass resources for different uses, and the measures to be taken to fulfil the requirements of Articles 13 to 19.

By 30 June 2009, the Commission shall adopt a template for the national renewable energy action plans. That template shall comprise the minimum requirements set out in Annex VI. Member States shall comply with that template in the presentation of their national renewable energy action plans.

2. Member States shall notify their national renewable energy action plans to the Commission by 30 June 2010.

3. Each Member State shall publish and notify to the Commission, six months before its national renewable energy action plan is due, a forecast document indicating:

- (a) its estimated excess production of energy from renewable sources compared to the indicative trajectory which could be transferred to other Member States in accordance with Articles 6 to 11, as well as its estimated potential for joint projects, until 2020; and
- (b) its estimated demand for energy from renewable sources to be satisfied by means other than domestic production until 2020.

That information may include elements relating to cost and benefits and financing. That forecast shall be updated in the reports of the Member States as set out in Article 22(1)(l) and (m).

4. A Member State whose share of energy from renewable sources fell below the indicative trajectory in the immediately preceding two-year period set out in part B of Annex I, shall submit an amended national renewable energy action plan to the Commission by 30 June of the following year, setting out adequate and proportionate measures to rejoin, within a reasonable timetable, the indicative trajectory in part B of Annex I.

The Commission may, if the Member State has not met the indicative trajectory by a limited margin, and taking due account of the current and future measures taken by the Member State, adopt a decision to release the Member State from the obligation to submit an amended national renewable energy action plan.

5. The Commission shall evaluate the national renewable energy action plans, notably the adequacy of the measures envisaged by the Member State in accordance with Article 3(2). In response to a national renewable energy action plan or to an amended national renewable energy action plan, the Commission may issue a recommendation.

6. The Commission shall send to the European Parliament the national renewable energy action plans and the forecast documents in the form as made public on the transparency platform as referred to in Article 24(2), as well as any recommendation as referred to in paragraph 5 of this Article.

Article 5

Calculation of the share of energy from renewable sources

1. The gross final consumption of energy from renewable sources in each Member State shall be calculated as the sum of:

- (a) gross final consumption of electricity from renewable energy sources;
- (b) gross final consumption of energy from renewable sources for heating and cooling; and
- (c) final consumption of energy from renewable sources in transport.

Gas, electricity and hydrogen from renewable energy sources shall be considered only once in point (a), (b), or (c) of the first subparagraph, for calculating the share of gross final consumption of energy from renewable sources.

Subject to the second subparagraph of Article 17(1), biofuels and bioliquids that do not fulfil the sustainability criteria set out in Article 17(2) to (6) shall not be taken into account.

2. Where a Member State considers that, due to force majeure, it is impossible for it to meet its share of energy from renewable sources in gross final consumption of energy in 2020 set out in the third column of the table in Annex I, it shall inform the Commission accordingly as soon as possible. The Commission shall adopt a decision on whether force majeure has been demonstrated. In the event that the Commission decides that force majeure has been demonstrated, it shall determine what adjustment shall be made to the Member State's gross final consumption of energy from renewable sources for the year 2020.

3. For the purposes of paragraph 1(a), gross final consumption of electricity from renewable energy sources shall be calculated as the quantity of electricity produced in a Member State from renewable energy sources, excluding the production of electricity in pumped storage units from water that has previously been pumped uphill.

In multi-fuel plants using renewable and conventional sources, only the part of electricity produced from renewable energy sources shall be taken into account. For the purposes of this calculation, the contribution of each energy source shall be calculated on the basis of its energy content.

The electricity generated by hydropower and wind power shall be accounted for in accordance with the normalisation rules set out in Annex II.

4. For the purposes of paragraph 1(b), the gross final consumption of energy from renewable sources for heating and cooling shall be calculated as the quantity of district heating and cooling produced in a Member State from renewable sources, plus the consumption of other energy from renewable sources in industry, households, services, agriculture, forestry and fisheries, for heating, cooling and processing purposes.

In multi-fuel plants using renewable and conventional sources, only the part of heating and cooling produced from renewable energy sources shall be taken into account. For the purposes of this calculation, the contribution of each energy source shall be calculated on the basis of its energy content.

Aerothermal, geothermal and hydrothermal heat energy captured by heat pumps shall be taken into account for the purposes of paragraph 1(b) provided that the final energy output significantly exceeds the primary energy input required to drive the heat pumps. The quantity of heat to be considered as energy from renewable sources for the purposes of this Directive shall be calculated in accordance with the methodology laid down in Annex VII.

Thermal energy generated by passive energy systems, under which lower energy consumption is achieved passively through building design or from heat generated by energy from non-renewable sources, shall not be taken into account for the purposes of paragraph 1(b).

5. The energy content of the transport fuels listed in Annex III shall be taken to be as set out in that Annex. Annex III may be adapted to technical and scientific progress. Those measures, designed to amend non-essential elements of this Directive, shall be adopted in accordance with the regulatory procedure with scrutiny referred to in Article 25(4).

6. The share of energy from renewable sources shall be calculated as the gross final consumption of energy from renewable sources divided by the gross final consumption of energy from all energy sources, expressed as a percentage.

For the purposes of the first subparagraph, the sum referred to in paragraph 1 shall be adjusted in accordance with Articles 6, 8, 10 and 11.

In calculating a Member State's gross final energy consumption for the purpose of measuring its compliance with the targets and indicative trajectory laid down in this Directive, the amount of energy consumed in aviation shall, as a proportion of that Member State's gross final consumption of energy, be considered to be no more than 6,18 %. For Cyprus and Malta the amount of energy consumed in aviation shall, as a proportion of those Member States' gross final consumption of energy, be considered to be no more than 4,12 %.

7. The methodology and definitions used in the calculation of the share of energy from renewable sources shall be those of Regulation (EC) No 1099/2008 of the European Parliament and of the Council of 22 October 2008 on energy statistics ⁽¹⁾.

Member States shall ensure coherence of statistical information used in calculating those sectoral and overall shares and statistical information reported to the Commission under Regulation (EC) No 1099/2008.

Article 6

Statistical transfers between Member States

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) and (2); 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) and (2).

A statistical transfer shall not affect the achievement of the national target of the Member State making the transfer.

2. The arrangements referred to in paragraph 1 may have a duration of one or more years. They shall be notified to the Commission no 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.

3. Transfers shall become effective only after all Member States involved in the transfer have notified the transfer to the Commission.

⁽¹⁾ OJ L 304, 14.11.2008, p. 1.

Article 7

Joint projects between Member States

1. Two or more Member States may cooperate on all types of joint projects relating to the production of electricity, heating or cooling from renewable energy sources. That cooperation may involve private operators.

2. Member States shall notify the Commission of the proportion or amount of electricity, heating or cooling from renewable energy sources produced by any joint project in their territory, that became operational after 25 June 2009, or by the increased capacity of an installation that was refurbished after that date, which is to be regarded as counting towards the national overall target of another Member State for the purposes of measuring compliance with the requirements of this Directive.

3. The notification referred to in paragraph 2 shall:

- (a) describe the proposed installation or identify the refurbished installation;
- (b) specify the proportion or amount of electricity or heating or cooling produced from the installation which is to be regarded as counting towards the national overall target of another Member State;
- (c) identify the Member State in whose favour the notification is being made; and
- (d) specify the period, in whole calendar years, during which the electricity or heating or cooling produced by the installation from renewable energy sources is to be regarded as counting towards the national overall target of the other Member State.

4. The period specified under paragraph 3(d) shall not extend beyond 2020. The duration of a joint project may extend beyond 2020.

5. A notification made under this Article shall not be varied or withdrawn without the joint agreement of the Member State making the notification and the Member State identified in accordance with paragraph 3(c).

Article 8

Effects of joint projects between Member States

1. Within three months of the end of each year falling within the period specified under Article 7(3)(d), the Member State that made the notification under Article 7 shall issue a letter of notification stating:

- (a) the total amount of electricity or heating or cooling produced during the year from renewable energy sources by the installation which was the subject of the notification under Article 7; and

(b) the amount of electricity or heating or cooling produced during the year from renewable energy sources by that installation which is to count towards the national overall target of another Member State in accordance with the terms of the notification.

2. The notifying Member State shall send the letter of notification to the Member State in whose favour the notification was made and to the Commission.

3. For the purposes of measuring target compliance with the requirements of this Directive concerning national overall targets, the amount of electricity or heating or cooling from renewable energy sources notified in accordance with paragraph 1(b) shall be:

- (a) deducted from the amount of electricity or heating or cooling from renewable energy sources that is taken into account, in measuring compliance by the Member State issuing the letter of notification under paragraph 1; and
- (b) added to the amount of electricity or heating or cooling from renewable energy sources that is taken into account, in measuring compliance by the Member State receiving the letter of notification in accordance with paragraph 2.

Article 9

Joint projects between Member States and third countries

1. One or more Member States may cooperate with one or more third countries on all types of joint projects regarding the production of electricity from renewable energy sources. Such cooperation may involve private operators.

2. Electricity from renewable energy sources produced in a third country shall be taken into account only for the purposes of measuring compliance with the requirements of this Directive concerning national overall targets if the following conditions are met:

- (a) the electricity is consumed in the Community, a requirement that is deemed to be met where:
 - (i) an equivalent amount of electricity to the electricity accounted for has been firmly nominated to the allocated interconnection capacity by all responsible transmission system operators in the country of origin, the country of destination and, if relevant, each third country of transit;
 - (ii) an equivalent amount of electricity to the electricity accounted for has been firmly registered in the schedule of balance by the responsible transmission system operator on the Community side of an interconnector; and
 - (iii) the nominated capacity and the production of electricity from renewable energy sources by the installation referred to in paragraph 2(b) refer to the same period of time;

(b) the electricity is produced by a newly constructed installation that became operational after 25 June 2009 or by the increased capacity of an installation that was refurbished after that date, under a joint project as referred to in paragraph 1; and

(c) the amount of electricity produced and exported has not received support from a support scheme of a third country other than investment aid granted to the installation.

3. Member States may apply to the Commission, for the purposes of Article 5, for account to be taken of electricity from renewable energy sources produced and consumed in a third country, in the context of the construction of an interconnector with a very long lead-time between a Member State and a third country if the following conditions are met:

- (a) construction of the interconnector started by 31 December 2016;
- (b) it is not possible for the interconnector to become operational by 31 December 2020;
- (c) it is possible for the interconnector to become operational by 31 December 2022;
- (d) after it becomes operational, the interconnector will be used for the export to the Community, in accordance with paragraph 2, of electricity generated from renewable energy sources;
- (e) the application relates to a joint project that fulfils the criteria in points (b) and (c) of paragraph 2 and that will use the interconnector after it becomes operational, and to a quantity of electricity that is no greater than the quantity that will be exported to the Community after the interconnector becomes operational.

4. The proportion or amount of electricity produced by any installation in the territory of a third country, which is to be regarded as counting towards the national overall target of one or more Member States for the purposes of measuring compliance with Article 3, shall be notified to the Commission. When more than one Member State is concerned, the distribution between Member States of this proportion or amount shall be notified to the Commission. This proportion or amount shall not exceed the proportion or amount actually exported to, and consumed in, the Community, corresponding to the amount referred to in paragraph 2(a)(i) and (ii) of this Article and meeting the conditions as set out in its paragraph (2)(a). The notification shall be made by each Member State towards whose overall national target the proportion or amount of electricity is to count.

5. The notification referred to in paragraph 4 shall:

- (a) describe the proposed installation or identify the refurbished installation;
- (b) specify the proportion or amount of electricity produced from the installation which is to be regarded as counting towards the national target of a Member State as well as, subject to confidentiality requirements, the corresponding financial arrangements;

- (c) specify the period, in whole calendar years, during which the electricity is to be regarded as counting towards the national overall target of the Member State; and
- (d) include a written acknowledgement of points (b) and (c) by the third country in whose territory the installation is to become operational and the proportion or amount of electricity produced by the installation which will be used domestically by that third country.

6. The period specified under paragraph 5(c) shall not extend beyond 2020. The duration of a joint project may extend beyond 2020.

7. A notification made under this Article may not be varied or withdrawn without the joint agreement of the Member State making the notification and the third country that has acknowledged the joint project in accordance with paragraph 5(d).

8. Member States and the Community shall encourage the relevant bodies of the Energy Community Treaty to take, in conformity with the Energy Community Treaty, the measures which are necessary so that the Contracting Parties to that Treaty can apply the provisions on cooperation laid down in this Directive between Member States.

Article 10

Effects of joint projects between Member States and third countries

1. Within three months of the end of each year falling within the period specified under Article 9(5)(c), the Member State having made the notification under Article 9 shall issue a letter of notification stating:

- (a) the total amount of electricity produced during that year from renewable energy sources by the installation which was the subject of the notification under Article 9;
- (b) the amount of electricity produced during the year from renewable energy sources by that installation which is to count towards its national overall target in accordance with the terms of the notification under Article 9; and
- (c) proof of compliance with the conditions set out in Article 9(2).

2. The Member State shall send the letter of notification to the third country which has acknowledged the project in accordance with Article 9(5)(d) and to the Commission.

3. For the purposes of measuring target compliance with the requirements of this Directive concerning national overall targets, the amount of electricity produced from renewable energy sources notified in accordance with paragraph 1(b) shall be added to the amount of energy from renewable sources that is taken into account, in measuring compliance by the Member State issuing the letter of notification.

Article 11

Joint support schemes

1. Without prejudice to the obligations of Member States under Article 3, two or more Member States may decide, on a voluntary basis, to join or partly coordinate their national support schemes. In such cases, a certain amount of energy from renewable sources produced in the territory of one participating Member State may count towards the national overall target of another participating Member State if the Member States concerned:

- (a) make a statistical transfer of specified amounts of energy from renewable sources from one Member State to another Member State in accordance with Article 6; or
- (b) set up a distribution rule agreed by participating Member States that allocates amounts of energy from renewable sources between the participating Member States. Such a rule shall be notified to the Commission no later than three months after the end of the first year in which it takes effect.

2. Within three months of the end of each year each Member State having made a notification under paragraph 1(b) shall issue a letter of notification stating the total amount of electricity or heating or cooling from renewable energy sources produced during the year which is to be the subject of the distribution rule.

3. For the purposes of measuring compliance with the requirements of this Directive concerning national overall targets, the amount of electricity or heating or cooling from renewable energy sources notified in accordance with paragraph 2 shall be reallocated between the concerned Member States in accordance with the notified distribution rule.

Article 12

Capacity increases

For the purpose of Article 7(2) and Article 9(2)(b), units of energy from renewable sources imputable to an increase in the capacity of an installation shall be treated as if they were produced by a separate installation becoming operational at the moment at which the increase of capacity occurred.

Article 13

Administrative procedures, regulations and codes

1. Member States shall ensure that any national rules concerning the authorisation, certification and licensing procedures that are applied to plants and associated transmission and distribution network infrastructures for the production of electricity, heating or cooling from renewable energy sources, and to the process of transformation of biomass into biofuels or other energy products, are proportionate and necessary.

Member States shall, in particular, take the appropriate steps to ensure that:

- (a) subject to differences between Member States in their administrative structures and organisation, the respective responsibilities of national, regional and local administrative bodies for authorisation, certification and licensing procedures including spatial planning are clearly coordinated and defined, with transparent timetables for determining planning and building applications;
- (b) comprehensive information on the processing of authorisation, certification and licensing applications for renewable energy installations and on available assistance to applicants are made available at the appropriate level;
- (c) administrative procedures are streamlined and expedited at the appropriate administrative level;
- (d) rules governing authorisation, certification and licensing are objective, transparent, proportionate, do not discriminate between applicants and take fully into account the particularities of individual renewable energy technologies;
- (e) administrative charges paid by consumers, planners, architects, builders and equipment and system installers and suppliers are transparent and cost-related; and
- (f) simplified and less burdensome authorisation procedures, including through simple notification if allowed by the applicable regulatory framework, are established for smaller projects and for decentralised devices for producing energy from renewable sources, where appropriate.

2. Member States shall clearly define any technical specifications which must be met by renewable energy equipment and systems in order to benefit from support schemes. Where European standards exist, including eco-labels, energy labels and other technical reference systems established by the European standardisation bodies, such technical specifications shall be expressed in terms of those standards. Such technical specifications shall not prescribe where the equipment and systems are to be certified and should not impede the operation of the internal market.

3. Member States shall recommend to all actors, in particular local and regional administrative bodies to ensure equipment and systems are installed for the use of electricity, heating and cooling from renewable energy sources and for district heating and cooling when planning, designing, building and renovating industrial or residential areas. Member States shall, in particular, encourage local and regional administrative bodies to include heating and cooling from renewable energy sources in the planning of city infrastructure, where appropriate.

4. Member States shall introduce in their building regulations and codes appropriate measures in order to increase the share of all kinds of energy from renewable sources in the building sector.

In establishing such measures or in their regional support schemes, Member States may take into account national measures relating to substantial increases in energy efficiency and relating to cogeneration and to passive, low or zero-energy buildings.

By 31 December 2014, Member States shall, in their building regulations and codes or by other means with equivalent effect, where appropriate, require the use of minimum levels of energy from renewable sources in new buildings and in existing buildings that are subject to major renovation. Member States shall permit those minimum levels to be fulfilled, inter alia, through district heating and cooling produced using a significant proportion of renewable energy sources.

The requirements of the first subparagraph shall apply to the armed forces, only to the extent that its application does not cause any conflict with the nature and primary aim of the activities of the armed forces and with the exception of material used exclusively for military purposes.

5. Member States shall ensure that new public buildings, and existing public buildings that are subject to major renovation, at national, regional and local level fulfil an exemplary role in the context of this Directive from 1 January 2012 onwards. Member States may, inter alia, allow that obligation to be fulfilled by complying with standards for zero energy housing, or by providing that the roofs of public or mixed private-public buildings are used by third parties for installations that produce energy from renewable sources.

6. With respect to their building regulations and codes, Member States shall promote the use of renewable energy heating and cooling systems and equipment that achieve a significant reduction of energy consumption. Member States shall use energy or eco-labels or other appropriate certificates or standards developed at national or Community level, where these exist, as the basis for encouraging such systems and equipment.

In the case of biomass, Member States shall promote conversion technologies that achieve a conversion efficiency of at least 85 % for residential and commercial applications and at least 70 % for industrial applications.

In the case of heat pumps, Member States shall promote those that fulfil the minimum requirements of eco-labelling established in Commission Decision 2007/742/EC of 9 November 2007 establishing the ecological criteria for the award of the Community eco-label to electrically driven, gas driven or gas absorption heat pumps ⁽¹⁾.

⁽¹⁾ OJ L 301, 20.11.2007, p. 14.

In the case of solar thermal energy, Member States shall promote certified equipment and systems based on European standards where these exist, including eco-labels, energy labels and other technical reference systems established by the European standardisation bodies.

In assessing the conversion efficiency and input/output ratio of systems and equipment for the purposes of this paragraph, Member States shall use Community or, in their absence, international procedures if such procedures exist.

Article 14

Information and training

1. Member States shall ensure that information on support measures is made available to all relevant actors, such as consumers, builders, installers, architects, and suppliers of heating, cooling and electricity equipment and systems and of vehicles compatible with the use of energy from renewable sources.

2. Member States shall ensure that information on the net benefits, cost and energy efficiency of equipment and systems for the use of heating, cooling and electricity from renewable energy sources is made available either by the supplier of the equipment or system or by the national competent authorities.

3. Member States shall ensure that certification schemes or equivalent qualification schemes become or are available by 31 December 2012 for installers of small-scale biomass boilers and stoves, solar photovoltaic and solar thermal systems, shallow geothermal systems and heat pumps. Those schemes may take into account existing schemes and structures as appropriate, and shall be based on the criteria laid down in Annex IV. Each Member State shall recognise certification awarded by other Member States in accordance with those criteria.

4. Member States shall make available to the public information on certification schemes or equivalent qualification schemes as referred to in paragraph 3. Member States may also make available the list of installers who are qualified or certified in accordance with the provisions referred to in paragraph 3.

5. Member States shall ensure that guidance is made available to all relevant actors, notably for planners and architects so that they are able properly to consider the optimal combination of renewable energy sources, of high-efficiency technologies and of district heating and cooling when planning, designing, building and renovating industrial or residential areas.

6. Member States, with the participation of local and regional authorities, shall develop suitable information, awareness-raising, guidance or training programmes in order to inform citizens of the benefits and practicalities of developing and using energy from renewable sources.

Article 15

Guarantees of origin of electricity, heating and cooling produced from renewable energy sources

1. For the purposes of proving to final customers the share or quantity of energy from renewable sources in an energy supplier's energy mix in accordance with Article 3(6) of Directive 2003/54/EC, Member States shall ensure that the origin of electricity produced from renewable energy sources can be guaranteed as such within the meaning of this Directive, in accordance with objective, transparent and non-discriminatory criteria.

2. To that end, Member States shall ensure that a guarantee of origin is issued in response to a request from a producer of electricity from renewable energy sources. Member States may arrange for guarantees of origin to be issued in response to a request from producers of heating and cooling from renewable energy sources. Such an arrangement may be made subject to a minimum capacity limit. A guarantee of origin shall be of the standard size of 1 MWh. No more than one guarantee of origin shall be issued in respect of each unit of energy produced.

Member States shall ensure that the same unit of energy from renewable sources is taken into account only once.

Member States may provide that no support be granted to a producer when that producer receives a guarantee of origin for the same production of energy from renewable sources.

The guarantee of origin shall have no function in terms of a Member State's compliance with Article 3. Transfers of guarantees of origin, separately or together with the physical transfer of energy, shall have no effect on the decision of Member States to use statistical transfers, joint projects or joint support schemes for target compliance or on the calculation of the gross final consumption of energy from renewable sources in accordance with Article 5.

3. Any use of a guarantee of origin shall take place within 12 months of production of the corresponding energy unit. A guarantee of origin shall be cancelled once it has been used.

4. Member States or designated competent bodies shall supervise the issuance, transfer and cancellation of guarantees of origin. The designated competent bodies shall have non-overlapping geographical responsibilities, and be independent of production, trade and supply activities.

5. Member States or the designated competent bodies shall put in place appropriate mechanisms to ensure that guarantees of origin shall be issued, transferred and cancelled electronically and are accurate, reliable and fraud-resistant.

6. A guarantee of origin shall specify at least:

(a) the energy source from which the energy was produced and the start and end dates of production;

(b) whether it relates to:

Article 16

Access to and operation of the grids

(i) electricity; or

(ii) heating or cooling;

(c) the identity, location, type and capacity of the installation where the energy was produced;

(d) whether and to what extent the installation has benefited from investment support, whether and to what extent the unit of energy has benefited in any other way from a national support scheme, and the type of support scheme;

(e) the date on which the installation became operational; and

(f) the date and country of issue and a unique identification number.

7. Where an electricity supplier is required to prove the share or quantity of energy from renewable sources in its energy mix for the purposes of Article 3(6) of Directive 2003/54/EC, it may do so by using its guarantees of origin.

8. The amount of energy from renewable sources corresponding to guarantees of origin transferred by an electricity supplier to a third party shall be deducted from the share of energy from renewable sources in its energy mix for the purposes of Article 3(6) of Directive 2003/54/EC.

9. Member States shall recognise guarantees of origin issued by other Member States in accordance with this Directive exclusively as proof of the elements referred to in paragraph 1 and paragraph 6(a) to (f). A Member State may refuse to recognise a guarantee of origin only when it has well-founded doubts about its accuracy, reliability or veracity. The Member State shall notify the Commission of such a refusal and its justification.

10. If the Commission finds that a refusal to recognise a guarantee of origin is unfounded, the Commission may adopt a decision requiring the Member State in question to recognise it.

11. A Member State may introduce, in conformity with Community law, objective, transparent and non-discriminatory criteria for the use of guarantees of origin in complying with the obligations laid down in Article 3(6) of Directive 2003/54/EC.

12. Where energy suppliers market energy from renewable sources to consumers with a reference to environmental or other benefits of energy from renewable sources, Member States may require those energy suppliers to make available, in summary form, information on the amount or share of energy from renewable sources that comes from installations or increased capacity that became operational after 25 June 2009.

1. Member States shall take the appropriate steps to develop transmission and distribution grid infrastructure, intelligent networks, storage facilities and the electricity system, in order to allow the secure operation of the electricity system as it accommodates the further development of electricity production from renewable energy sources, including interconnection between Member States and between Member States and third countries. Member States shall also take appropriate steps to accelerate authorisation procedures for grid infrastructure and to coordinate approval of grid infrastructure with administrative and planning procedures.

2. Subject to requirements relating to the maintenance of the reliability and safety of the grid, based on transparent and non-discriminatory criteria defined by the competent national authorities:

(a) Member States shall ensure that transmission system operators and distribution system operators in their territory guarantee the transmission and distribution of electricity produced from renewable energy sources;

(b) Member States shall also provide for either priority access or guaranteed access to the grid-system of electricity produced from renewable energy sources;

(c) Member States shall ensure that when dispatching electricity generating installations, transmission system operators shall give priority to generating installations using renewable energy sources in so far as the secure operation of the national electricity system permits and based on transparent and non-discriminatory criteria. Member States shall ensure that appropriate grid and market-related operational measures are taken in order to minimise the curtailment of electricity produced from renewable energy sources. If significant measures are taken to curtail the renewable energy sources in order to guarantee the security of the national electricity system and security of energy supply, Member States shall ensure that the responsible system operators report to the competent regulatory authority on those measures and indicate which corrective measures they intend to take in order to prevent inappropriate curtailments.

3. Member States shall require transmission system operators and distribution system operators to set up and make public their standard rules relating to the bearing and sharing of costs of technical adaptations, such as grid connections and grid reinforcements, improved operation of the grid and rules on the non-discriminatory implementation of the grid codes, which are necessary in order to integrate new producers feeding electricity produced from renewable energy sources into the interconnected grid.

Those rules shall be based on objective, transparent and non-discriminatory criteria taking particular account of all the costs and benefits associated with the connection of those producers to the grid and of the particular circumstances of producers located in peripheral regions and in regions of low population density. Those rules may provide for different types of connection.

4. Where appropriate, Member States may require transmission system operators and distribution system operators to bear, in full or in part, the costs referred to in paragraph 3. Member States shall review and take the necessary measures to improve the frameworks and rules for the bearing and sharing of costs referred to in paragraph 3 by 30 June 2011 and every two years thereafter to ensure the integration of new producers as referred to in that paragraph.

5. Member States shall require transmission system operators and distribution system operators to provide any new producer of energy from renewable sources wishing to be connected to the system with the comprehensive and necessary information required, including:

- (a) a comprehensive and detailed estimate of the costs associated with the connection;
- (b) a reasonable and precise timetable for receiving and processing the request for grid connection;
- (c) a reasonable indicative timetable for any proposed grid connection.

Member States may allow producers of electricity from renewable energy sources wishing to be connected to the grid to issue a call for tender for the connection work.

6. The sharing of costs referred in paragraph 3 shall be enforced by a mechanism based on objective, transparent and non-discriminatory criteria taking into account the benefits which initially and subsequently connected producers as well as transmission system operators and distribution system operators derive from the connections.

7. Member States shall ensure that the charging of transmission and distribution tariffs does not discriminate against electricity from renewable energy sources, including in particular electricity from renewable energy sources produced in peripheral regions, such as island regions, and in regions of low population density. Member States shall ensure that the charging of transmission and distribution tariffs does not discriminate against gas from renewable energy sources.

8. Member States shall ensure that tariffs charged by transmission system operators and distribution system operators for the transmission and distribution of electricity from plants using renewable energy sources reflect realisable cost benefits resulting from the plant's connection to the network. Such cost benefits could arise from the direct use of the low-voltage grid.

9. Where relevant, Member States shall assess the need to extend existing gas network infrastructure to facilitate the integration of gas from renewable energy sources.

10. Where relevant, Member States shall require transmission system operators and distribution system operators in their territory to publish technical rules in line with Article 6 of Directive 2003/55/EC of the European Parliament and of the Council of

26 June 2003 concerning the common rules for the internal market in natural gas ⁽¹⁾, in particular regarding network connection rules that include gas quality, gas odoration and gas pressure requirements. Member States shall also require transmission and distribution system operators to publish the connection tariffs to connect renewable gas sources based on transparent and non-discriminatory criteria.

11. Member States in their national renewable energy action plans shall assess the necessity to build new infrastructure for district heating and cooling produced from renewable energy sources in order to achieve the 2020 national target referred to in Article 3(1). Subject to that assessment, Member States shall, where relevant, take steps with a view to developing a district heating infrastructure to accommodate the development of heating and cooling production from large biomass, solar and geothermal facilities.

Article 17

Sustainability criteria for biofuels and bioliquids

1. Irrespective of whether the raw materials were cultivated inside or outside the territory of the Community, energy from biofuels and bioliquids shall be taken into account for the purposes referred to in points (a), (b) and (c) only if they fulfil the sustainability criteria set out in paragraphs 2 to 6:

- (a) measuring compliance with the requirements of this Directive concerning national targets;
- (b) measuring compliance with renewable energy obligations;
- (c) eligibility for financial support for the consumption of biofuels and bioliquids.

However, biofuels and bioliquids produced from waste and residues, other than agricultural, aquaculture, fisheries and forestry residues, need only fulfil the sustainability criteria set out in paragraph 2 in order to be taken into account for the purposes referred to in points (a), (b) and (c).

2. The greenhouse gas emission saving from the use of biofuels and bioliquids taken into account for the purposes referred to in points (a), (b) and (c) of paragraph 1 shall be at least 35 %.

With effect from 1 January 2017, the greenhouse gas emission saving from the use of biofuels and bioliquids taken into account for the purposes referred to in points (a), (b) and (c) of paragraph 1 shall be at least 50 %. From 1 January 2018 that greenhouse gas emission saving shall be at least 60 % for biofuels and bioliquids produced in installations in which production started on or after 1 January 2017.

⁽¹⁾ OJ L 176, 15.7.2003, p. 57.

The greenhouse gas emission saving from the use of biofuels and bioliquids shall be calculated in accordance with Article 19(1).

In the case of biofuels and bioliquids produced by installations that were in operation on 23 January 2008, the first subparagraph shall apply from 1 April 2013.

3. Biofuels and bioliquids taken into account for the purposes referred to in points (a), (b) and (c) of paragraph 1 shall not be made from raw material obtained from land with high biodiversity value, namely land that had one of the following statuses in or after January 2008, whether or not the land continues to have that status:

- (a) primary forest and other wooded land, namely forest and other wooded land of native species, where there is no clearly visible indication of human activity and the ecological processes are not significantly disturbed;
- (b) areas designated:
 - (i) by law or by the relevant competent authority for nature protection purposes; or
 - (ii) 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, subject to their recognition in accordance with the second subparagraph of Article 18(4);

unless evidence is provided that the production of that raw material did not interfere with those nature protection purposes;

- (c) highly biodiverse grassland that is:
 - (i) natural, namely grassland that would remain grassland in the absence of human intervention and which maintains the natural species composition and ecological characteristics and processes; or
 - (ii) non-natural, namely grassland that would cease to be grassland in the absence of human intervention and which is species-rich and not degraded, unless evidence is provided that the harvesting of the raw material is necessary to preserve its grassland status.

The Commission shall establish the criteria and geographic ranges to determine which grassland shall be covered by point (c) of the first subparagraph. Those measures, designed to amend non-essential elements of this Directive, by supplementing it shall be adopted in accordance with the regulatory procedure with scrutiny referred to in Article 25(4).

4. Biofuels and bioliquids taken into account for the purposes referred to in points (a), (b) and (c) of paragraph 1 shall not be made from raw material obtained from land with high carbon stock, namely land that had one of the following statuses in January 2008 and no longer has that status:

- (a) wetlands, namely land that is covered with or saturated by water permanently or for a significant part of the year;
- (b) continuously forested areas, namely land spanning more than one hectare with trees higher than five metres and a canopy cover of more than 30 %, or trees able to reach those thresholds in situ;
- (c) land spanning more than one hectare with trees higher than five metres and a canopy cover of between 10 % and 30 %, or trees able to reach those thresholds in situ, unless evidence is provided that the carbon stock of the area before and after conversion is such that, when the methodology laid down in part C of Annex V is applied, the conditions laid down in paragraph 2 of this Article would be fulfilled.

The provisions of this paragraph shall not apply if, at the time the raw material was obtained, the land had the same status as it had in January 2008.

5. Biofuels and bioliquids taken into account for the purposes referred to in points (a), (b) and (c) of paragraph 1 shall not be made from raw material obtained from land that was peatland in January 2008, unless evidence is provided that the cultivation and harvesting of that raw material does not involve drainage of previously undrained soil.

6. Agricultural raw materials cultivated in the Community and used for the production of biofuels and bioliquids taken into account for the purposes referred to in points (a), (b) and (c) of paragraph 1 shall be obtained in accordance with the requirements and standards under the provisions referred to under the heading 'Environment' in part A and in point 9 of Annex II to Council Regulation (EC) No 73/2009 of 19 January 2009 establishing common rules for direct support schemes for farmers under the common agricultural policy and establishing certain support schemes for farmers ⁽¹⁾ and in accordance with the minimum requirements for good agricultural and environmental condition defined pursuant to Article 6(1) of that Regulation.

7. The Commission shall, every two years, report to the European Parliament and the Council, in respect of both third countries and Member States that are a significant source of biofuels or of raw material for biofuels consumed within the Community, on national measures taken to respect the sustainability criteria set out in paragraphs 2 to 5 and for soil, water and air protection. The first report shall be submitted in 2012.

⁽¹⁾ OJ L 30, 31.1.2009, p. 16.

The Commission shall, every two years, report to the European Parliament and the Council on the impact on social sustainability in the Community and in third countries of increased demand for biofuel, on the impact of Community biofuel policy on the availability of foodstuffs at affordable prices, in particular for people living in developing countries, and wider development issues. Reports shall address the respect of land-use rights. They shall state, both for third countries and Member States that are a significant source of raw material for biofuel consumed within the Community, whether the country has ratified and implemented each of the following Conventions of the International Labour Organisation:

- Convention concerning Forced or Compulsory Labour (No 29),
- Convention concerning Freedom of Association and Protection of the Right to Organise (No 87),
- Convention concerning the Application of the Principles of the Right to Organise and to Bargain Collectively (No 98),
- Convention concerning Equal Remuneration of Men and Women Workers for Work of Equal Value (No 100),
- Convention concerning the Abolition of Forced Labour (No 105),
- Convention concerning Discrimination in Respect of Employment and Occupation (No 111),
- Convention concerning Minimum Age for Admission to Employment (No 138),
- Convention concerning the Prohibition and Immediate Action for the Elimination of the Worst Forms of Child Labour (No 182).

Those reports shall state, both for third countries and Member States that are a significant source of raw material for biofuel consumed within the Community, whether the country has ratified and implemented:

- the Cartagena Protocol on Biosafety,
- the Convention on International Trade in Endangered Species of Wild Fauna and Flora.

The first report shall be submitted in 2012. The Commission shall, if appropriate, propose corrective action, in particular if evidence shows that biofuel production has a significant impact on food prices.

8. For the purposes referred to in points (a), (b) and (c) of paragraph 1, Member States shall not refuse to take into account, on other sustainability grounds, biofuels and bioliquids obtained in compliance with this Article.

9. The Commission shall report on requirements for a sustainability scheme for energy uses of biomass, other than biofuels and bioliquids, by 31 December 2009. That report shall be accompanied, where appropriate, by proposals for a sustainability scheme for other energy uses of biomass, to the European Parliament and the Council. That report and any proposals contained therein shall be based on the best available scientific evidence, taking into account new developments in innovative processes. If the analysis done for that purpose demonstrates that it would be appropriate to introduce amendments, in relation to forest biomass, in the calculation methodology in Annex V or in the sustainability criteria relating to carbon stocks applied to biofuels and bioliquids, the Commission shall, where appropriate, make proposals to the European Parliament and Council at the same time in this regard.

Article 18

Verification of compliance with the sustainability criteria for biofuels and bioliquids

1. Where biofuels and bioliquids are to be taken into account for the purposes referred to in points (a), (b) and (c) of Article 17(1), Member States shall require economic operators to show that the sustainability criteria set out in Article 17(2) to (5) have been fulfilled. For that purpose they shall require economic operators to use a mass balance system which:

- (a) allows consignments of raw material or biofuel with differing sustainability characteristics to be mixed;
- (b) requires information about the sustainability characteristics and sizes of the consignments referred to in point (a) to remain assigned to the mixture; and
- (c) provides for the sum of all consignments withdrawn from the mixture to be described as having the same sustainability characteristics, in the same quantities, as the sum of all consignments added to the mixture.

2. The Commission shall report to the European Parliament and the Council in 2010 and 2012 on the operation of the mass balance verification method described in paragraph 1 and on the potential for allowing for other verification methods in relation to some or all types of raw material, biofuel or bioliquids. In its assessment, the Commission shall consider those verification methods in which information about sustainability characteristics need not remain physically assigned to particular consignments or mixtures. The assessment shall take into account the need to maintain the integrity and effectiveness of the verification system while avoiding the imposition of an unreasonable burden on industry. The report shall be accompanied, where appropriate, by proposals to the European Parliament and the Council concerning the use of other verification methods.

3. Member States shall take measures to ensure that economic operators submit reliable information and make available to the Member State, on request, the data that were used to develop the information. Member States shall require economic operators to arrange for an adequate standard of independent auditing of the information submitted, and to provide evidence that this has been done. The auditing shall verify that the systems used by economic operators are accurate, reliable and protected against fraud. It shall evaluate the frequency and methodology of sampling and the robustness of the data.

The information referred to in the first subparagraph shall include in particular information on compliance with the sustainability criteria set out in Article 17(2) to (5), appropriate and relevant information on measures taken for soil, water and air protection, the restoration of degraded land, the avoidance of excessive water consumption in areas where water is scarce and appropriate and relevant information concerning measures taken in order to take into account the issues referred to in the second subparagraph of Article 17(7).

The Commission shall, in accordance with the advisory procedure referred to in Article 25(3), establish the list of appropriate and relevant information referred to in the first two subparagraphs. It 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.

The obligations laid down in this paragraph shall apply whether the biofuels or bioliquids are produced within the Community or imported.

Member States shall submit to the Commission, in aggregated form, the information referred to in the first subparagraph of this paragraph. The Commission shall publish that information on the transparency platform referred to in Article 24 in summary form preserving the confidentiality of commercially sensitive information.

4. The Community shall endeavour to conclude bilateral or multilateral agreements with third countries containing provisions on sustainability criteria that correspond to those of this Directive. Where the Community has concluded agreements containing provisions relating to matters covered by the sustainability criteria set out in Article 17(2) to (5), the Commission may decide that those agreements demonstrate that biofuels and bioliquids produced from raw materials cultivated in those countries comply with the sustainability criteria in question. When those agreements are concluded, due consideration shall be given to 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, indirect land-use changes, the restoration of degraded land, the avoidance of excessive water consumption in areas where water is scarce and to the issues referred to in the second subparagraph of Article 17(7).

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) or demonstrate that consignments of biofuel comply with the sustainability criteria set out in Article 17(3) to (5). 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).

The Commission may decide that voluntary national or international schemes to measure greenhouse gas emission saving contain accurate data for the purposes of Article 17(2).

The Commission may decide that land that falls within the scope of a national or regional recovery programme aimed at improving severely degraded or heavily contaminated land fulfils the criteria referred to in point 9 of part C of Annex V.

5. The Commission shall adopt decisions under paragraph 4 only if the agreement or scheme in question meets adequate standards of reliability, transparency and independent auditing. In the case of schemes to measure greenhouse gas emission saving, such schemes shall also comply with the methodological requirements in Annex V. Lists of areas of high biodiversity value as referred to in Article 17(3)(b)(ii) shall meet adequate standards of objectivity and coherence with internationally recognised standards and provide for appropriate appeal procedures.

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

7. When an economic operator provides proof or data obtained in accordance with an agreement or scheme that has been the subject of a decision pursuant to paragraph 4, to the extent covered by that decision, a Member State shall not require the supplier to provide further evidence of compliance with the sustainability criteria set out in Article 17(2) to (5) nor information on measures referred to in the second subparagraph of paragraph 3 of this Article.

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 or bioliquid and, within six months of receipt of a request and in accordance with the advisory procedure referred to in Article 25(3), decide whether the Member

State concerned may take biofuel or bioliquid from that source into account for the purposes referred to in points (a), (b) and (c) of Article 17(1).

9. By 31 December 2012, the Commission shall report to the European Parliament and to the Council on:

- (a) the effectiveness of the system in place for the provision of information on sustainability criteria; and
- (b) whether it is feasible and appropriate to introduce mandatory requirements in relation to air, soil or water protection, taking into account the latest scientific evidence and the Community's international obligations.

The Commission shall, if appropriate, propose corrective action.

Article 19

Calculation of the greenhouse gas impact of biofuels and bioliquids

1. For the purposes of Article 17(2), the greenhouse gas emission saving from the use of biofuel and bioliquids shall be calculated as follows:

- (a) where a default value for greenhouse gas emission saving for the production pathway is laid down in part A or B of Annex V and where the e_i value for those biofuels or bioliquids calculated in accordance with point 7 of part C of Annex V is equal to or less than zero, by using that default value;
- (b) by using an actual value calculated in accordance with the methodology laid down in part C of Annex V; or
- (c) by using a value calculated as the sum of the factors of the formula referred to in point 1 of part C of Annex V, where disaggregated default values in part D or E of Annex V may be used for some factors, and actual values, calculated in accordance with the methodology laid down in part C of Annex V, for all other factors.

2. By 31 March 2010, Member States shall submit to the Commission a report including a list of those areas on their territory classified as level 2 in the nomenclature of territorial units for statistics (NUTS) or as a more disaggregated NUTS level in accordance with Regulation (EC) No 1059/2003 of the European Parliament and of the Council of 26 May 2003 on the establishment of a common classification of territorial units for statistics (NUTS) ⁽¹⁾ where the typical greenhouse gas emissions from cultivation of agricultural raw materials can be expected to be lower than or equal to the emissions reported under the heading 'Disaggregated default values for cultivation' in part D of Annex V to this Directive, accompanied by a description of the method and data used to establish that list. That method shall take into account soil characteristics, climate and expected raw material yields.

⁽¹⁾ OJ L 154, 21.6.2003, p. 1.

3. The default values in part A of Annex V for biofuels, and the disaggregated default values for cultivation in part D of Annex V for biofuels and bioliquids, may be used only when their raw materials are:

- (a) cultivated outside the Community;
- (b) cultivated in the Community in areas included in the lists referred to in paragraph 2; or
- (c) waste or residues other than agricultural, aquaculture and fisheries residues.

For biofuels and bioliquids not falling under points (a), (b) or (c), actual values for cultivation shall be used.

4. By 31 March 2010, the Commission shall submit a report to the European Parliament and to the Council on the feasibility of drawing up lists of areas in third countries where the typical greenhouse gas emissions from cultivation of agricultural raw materials can be expected to be lower than or equal to the emissions reported under the heading 'cultivation' in part D of Annex V, accompanied if possible by such lists and a description of the method and data used to establish them. The report shall, if appropriate, be accompanied by relevant proposals.

5. The Commission shall report by 31 December 2012, and every two years thereafter, on the estimated typical and default values in parts B and E of Annex V, paying particular attention to emissions from transport and processing, and may, where necessary, decide to correct the values. Those measures, designed to amend non-essential elements of this Directive, shall be adopted in accordance with the regulatory procedure with scrutiny referred to in Article 25(4).

6. The Commission shall, by 31 December 2010, submit a report to the European Parliament and to the Council reviewing the impact of indirect land-use change on greenhouse gas emissions and addressing ways to minimise that impact. The report shall, if appropriate, be accompanied, by a proposal, based on the best available scientific evidence, containing a concrete methodology for emissions from carbon stock changes caused by indirect land-use changes, ensuring compliance with this Directive, in particular Article 17(2).

Such a proposal shall include the necessary safeguards to provide certainty for investment undertaken before that methodology is applied. With respect to installations that produced biofuels before the end of 2013, the application of the measures referred to in the first subparagraph shall not, until 31 December 2017, lead to biofuels produced by those installations being deemed to have failed to comply with the sustainability requirements of this Directive if they would otherwise have done so, provided that those biofuels achieve a greenhouse gas emission saving of at least 45 %. This shall apply to the capacities of the installations of biofuels at the end of 2012.

The European Parliament and the Council shall endeavour to decide, by 31 December 2012, on any such proposals submitted by the Commission.

7. Annex V may be adapted to technical and scientific progress, including by the addition of values for further biofuel production pathways for the same or for other raw materials and by modifying the methodology laid down in part C. Those measures, designed to amend non-essential elements of this Directive, *inter alia*, by supplementing it, shall be adopted in accordance with the regulatory procedure with scrutiny referred to in Article 25(4).

Regarding the default values and methodology laid down in Annex V, particular consideration shall be given 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.

Any adaptation of or addition to the list of default values in Annex V shall comply with the following:

- (a) where the contribution of a factor to overall emissions is small, or where there is limited variation, or where the cost or difficulty of establishing actual values is high, default values must be typical of normal production processes;
- (b) in all other cases default values must be conservative compared to normal production processes.

8. Detailed definitions, including technical specifications required for the categories set out in point 9 of part C of Annex V shall be established. Those measures, designed to amend non-essential elements of this Directive by supplementing it, shall be adopted in accordance with the regulatory procedure with scrutiny referred to in Article 25(4).

Article 20

Implementing measures

The implementing measures referred to in the second subparagraph of Article 17(3), the third subparagraph of Article 18(3), Article 18(6), Article 18(8), Article 19(5), the first subparagraph of Article 19(7), and Article 19(8) shall also take full account of the purposes of Article 7a of Directive 98/70/EC.

Article 21

Specific provisions related to energy from renewable sources in transport

1. Member States shall ensure that information is given to the public on the availability and environmental benefits of all different renewable sources of energy for transport. When the percentages of biofuels, blended in mineral oil derivatives, exceed 10 %

by volume, Member States shall require this to be indicated at the sales points.

2. For the purposes of demonstrating compliance with national renewable energy obligations placed on operators and the target for the use of energy from renewable sources in all forms of transport referred to in Article 3(4), the contribution made by biofuels produced from wastes, residues, non-food cellulosic material, and ligno-cellulosic material shall be considered to be twice that made by other biofuels.

Article 22

Reporting by the Member States

1. Each Member State shall submit a report to the Commission on progress in the promotion and use of energy from renewable sources by 31 December 2011, and every two years thereafter. The sixth report, to be submitted by 31 December 2021, shall be the last report required.

The report shall detail, in particular:

- (a) the sectoral (electricity, heating and cooling, and transport) and overall shares of energy from renewable sources in the preceding two calendar years and the measures taken or planned at national level to promote the growth of energy from renewable sources taking into account the indicative trajectory in part B of Annex I, in accordance with Article 5;
- (b) the introduction and functioning of support schemes and other measures to promote energy from renewable sources, and any developments in the measures used with respect to those set out in the Member State's national renewable energy action plan, and information on how supported electricity is allocated to final customers for purposes of Article 3(6) of Directive 2003/54/EC;
- (c) how, where applicable, the Member State has structured its support schemes to take into account renewable energy applications that give additional benefits in relation to other, comparable applications, but may also have higher costs, including biofuels made from wastes, residues, non-food cellulosic material, and ligno-cellulosic material;
- (d) the functioning of the system of guarantees of origin for electricity and heating and cooling from renewable energy sources and the measures taken to ensure the reliability and protection against fraud of the system;
- (e) progress made in evaluating and improving administrative procedures to remove regulatory and non-regulatory barriers to the development of energy from renewable sources;

- (f) measures taken to ensure the transmission and distribution of electricity produced from renewable energy sources, and to improve the framework or rules for bearing and sharing of costs referred to in Article 16(3);
- (g) developments in the availability and use of biomass resources for energy purposes;
- (h) changes in commodity prices and land use within the Member State associated with its increased use of biomass and other forms of energy from renewable sources;
- (i) the development and share of biofuels made from wastes, residues, non-food cellulosic material, and ligno-cellulosic material;
- (j) the estimated impact of the production of biofuels and bioliquids on biodiversity, water resources, water quality and soil quality within the Member State;
- (k) the estimated net greenhouse gas emission saving due to the use of energy from renewable sources;
- (l) the estimated excess production of energy from renewable sources compared to the indicative trajectory which could be transferred to other Member States, as well as the estimated potential for joint projects, until 2020;
- (m) the estimated demand for energy from renewable sources to be satisfied by means other than domestic production until 2020; and
- (n) information on how the share of biodegradable waste in waste used for producing energy has been estimated, and what steps have been taken to improve and verify such estimates.
2. In estimating net greenhouse gas emission saving from the use of biofuels, the Member State may, for the purpose of the reports referred to in paragraph 1, use the typical values given in part A and part B of Annex V.
3. In its first report, the Member State shall outline whether it intends to:
- (a) establish a single administrative body responsible for processing authorisation, certification and licensing applications for renewable energy installations and providing assistance to applicants;
- (b) provide for automatic approval of planning and permit applications for renewable energy installations where the authorising body has not responded within the set time limits; or
- (c) indicate geographical locations suitable for exploitation of energy from renewable sources in land-use planning and for the establishment of district heating and cooling.
4. In each report the Member State may correct the data of the previous reports.

Article 23

Monitoring and reporting by the Commission

1. The Commission shall monitor the origin of biofuels and bioliquids consumed in the Community and the impact of their production, including impact as a result of displacement, on land use in the Community and the main third countries of supply. Such monitoring shall be based on Member States' reports, submitted pursuant to Article 22(1), and those of relevant third countries, intergovernmental organisations, scientific studies and any other relevant pieces of information. The Commission shall also monitor the commodity price changes associated with the use of biomass for energy and any associated positive and negative effects on food security. The Commission shall monitor all installations to which Article 19(6) applies.

2. The Commission shall maintain a dialogue and exchange information with third countries and biofuel producers, consumer organisations and civil society concerning the general implementation of the measures in this Directive relating to biofuels and bioliquids. It shall, within that framework, pay particular attention to the impact biofuel production may have on food prices.

3. On the basis of the reports submitted by Member States pursuant to Article 22(1) and the monitoring and analysis referred to in paragraph 1 of this Article, the Commission shall report every two years to the European Parliament and the Council. The first report shall be submitted in 2012.

4. In reporting on greenhouse gas emission saving from the use of biofuels, the Commission shall use the values reported by Member States and shall evaluate whether and how the estimate would change if co-products were accounted for using the substitution approach.

5. In its reports, the Commission shall, in particular, analyse:

(a) the relative environmental benefits and costs of different biofuels, the effects of the Community's import policies thereon, the security of supply implications and the ways of achieving a balanced approach between domestic production and imports;

(b) the impact of increased demand for biofuel on sustainability in the Community and in third countries, considering economic and environmental impacts, including impacts on biodiversity;

- (c) the scope for identifying, in a scientifically objective manner, geographical areas of high biodiversity value that are not covered in Article 17(3);
- (d) the impact of increased demand for biomass on biomass using sectors;
- (e) the availability of biofuels made from waste, residues, non-food cellulosic material and ligno-cellulosic material; and
- (f) indirect land-use changes in relation to all production pathways.

The Commission shall, if appropriate, propose corrective action.

6. On the basis of the reports submitted by Member States pursuant to Article 22(3), the Commission shall analyse the effectiveness of measures taken by Member States on establishing a single administrative body responsible for processing authorisation, certification and licensing applications and providing assistance to applicants.

7. In order to improve financing and coordination with a view to the achievement of the 20 % target referred to in Article 3(1), the Commission shall, by 31 December 2010, present an analysis and action plan on energy from renewable sources with a view, in particular, to:

- (a) the better use of structural funds and framework programmes;
- (b) the better and increased use of funds from the European Investment Bank and other public finance institutions;
- (c) better access to risk capital notably by analysing the feasibility of a risk sharing facility for investments in energy from renewable sources in the Community similar to the Global Energy Efficiency and Renewable Energy Fund initiative which is aimed at third countries;
- (d) the better coordination of Community and national funding and other forms of support; and
- (e) the better coordination in support of renewable energy initiatives whose success depends on action by actors in several Member States.

8. By 31 December 2014, the Commission shall present a report, addressing, in particular, the following elements:

- (a) a review of the minimum greenhouse gas emission saving thresholds to apply from the dates referred to in the second subparagraph of Article 17(2), on the basis of an impact assessment taking into account, in particular, technological developments, available technologies and the availability of

first and second-generation bio-fuels with a high level of greenhouse gas emission saving;

- (b) with respect to the target referred to in Article 3(4), a review of:
- (i) the cost-efficiency of the measures to be implemented to achieve the target;
- (ii) an assessment of the feasibility of reaching the target whilst ensuring the sustainability of biofuels production in the Community 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 target 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 on which transport fuels represent more than half of the final energy consumption, and markets which are fully dependent on imported biofuels;
- (c) an evaluation of the implementation of this Directive, in particular with regard to cooperation mechanisms, in order to ensure that, together with the possibility for the Member States to continue to use national support schemes referred to in Article 3(3), those mechanisms enable Member States to achieve the national targets defined in Annex I on the best cost-benefit basis, of technological developments, and the conclusions to be drawn to achieve the target of 20 % of energy from renewable sources at Community level.

On the basis of that report, the Commission shall submit, if appropriate, proposals to the European Parliament and the Council, addressing the above elements and in particular:

- for the element contained in point (a), a modification of the minimum greenhouse gas emission saving referred to in that point, and
- for the element contained in point (c), appropriate adjustments of the cooperation measures provided for in this Directive in order to improve their effectiveness for achieving the target of 20 %. Such proposals shall neither affect the 20 % target nor Member States' control over national support schemes and cooperation measures.

9. In 2018, the Commission shall present a Renewable Energy Roadmap for the post-2020 period.

That roadmap shall, if appropriate, be accompanied by proposals to the European Parliament and the Council for the period after 2020. The roadmap shall take into account the experience of the implementation of this Directive and technological developments in energy from renewable sources.

10. In 2021, the Commission shall present a report reviewing the application of this Directive. That report shall, in particular, address the role of the following elements in having enabled Member States to achieve the national targets defined in Annex I on the best cost-benefit basis:

- (a) the process of preparing forecasts and national renewable energy action plans;
- (b) the effectiveness of the cooperation mechanisms;
- (c) technological developments in energy from renewable sources, including the development of the use of biofuels in commercial aviation;
- (d) the effectiveness of the national support schemes; and
- (e) the conclusions of the Commission reports referred to in paragraphs 8 and 9.

Article 24

Transparency platform

1. The Commission shall establish an online public transparency platform. That platform shall serve to increase transparency, and facilitate and promote cooperation between Member States, in particular concerning statistical transfers referred to in Article 6 and joint projects referred to in Articles 7 and 9. In addition, the platform may be used to make public relevant information which the Commission or a Member State deems to be of key importance to this Directive and to the achievement of its objectives.

2. The Commission shall make public on the transparency platform the following information, where appropriate in aggregated form, preserving the confidentiality of commercially sensitive information:

- (a) Member States' national renewable energy action plans;
- (b) Member States' forecast documents referred to in Article 4(3), complemented as soon as possible with the Commission's summary of excess production and estimated import demand;
- (c) Member States' offers to cooperate on statistical transfers or joint projects, upon request of the Member State concerned;

- (d) the information referred to in Article 6(2) on the statistical transfers between Member States;
- (e) the information referred to in Article 7(2) and (3) and Article 9(4) and (5) on joint projects;
- (f) Member States' national reports referred to in Article 22;
- (g) the Commission reports referred to in Article 23(3).

However, upon request of the Member State that submitted the information, the Commission shall not make public Member States' forecast documents referred to in Article 4(3), or the information in Member States' national reports referred to in Article 22(1)(l) and (m).

Article 25

Committees

1. Except in the cases referred to in paragraph 2, the Commission shall be assisted by the Committee on Renewable Energy Sources.

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.

3. Where reference is made to this paragraph, Articles 3 and 7 of Decision 1999/468/EC shall apply, having regard to the provisions of Article 8 thereof.

4. Where reference is made to this paragraph, Article 5a(1) to (4) and Article 7 of Decision 1999/468/EC shall apply, having regard to the provisions of Article 8 thereof.

Article 26

Amendments and repeal

1. In Directive 2001/77/EC, Article 2, Article 3(2), and Articles 4 to 8 shall be deleted with effect from 1 April 2010.

2. In Directive 2003/30/EC, Article 2, Article 3(2), (3) and (5), and Articles 5 and 6 shall be deleted with effect from 1 April 2010.

3. Directives 2001/77/EC and 2003/30/EC shall be repealed with effect from 1 January 2012.

Article 27

Transposition

1. Without prejudice to Article 4(1), (2) and (3), Member States shall bring into force the laws, regulations and administrative provisions necessary to comply with this Directive by 5 December 2010.

When Member States adopt 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 a reference shall be laid down by the Member States.

2. Member States shall communicate to the Commission the text of the main provisions of national law which they adopt in the field covered by this Directive.

Article 28

Entry into force

This Directive shall enter into force on the 20th day following its publication in the *Official Journal of the European Union*.

Article 29

Addressees

This Directive is addressed to the Member States.

Done at Strasbourg, 23 April 2009.

For the European Parliament
The President
H.-G. PÖTTERING

For the Council
The President
P. NEČAS

ANNEX I

National overall targets for the share of energy from renewable sources in gross final consumption of energy in 2020 ⁽¹⁾

A. *National overall targets*

	Share of energy from renewable sources in gross final consumption of energy, 2005 (S_{2005})	Target for share of energy from renewable sources in gross final consumption of energy, 2020 (S_{2020})
Belgium	2,2 %	13 %
Bulgaria	9,4 %	16 %
Czech Republic	6,1 %	13 %
Denmark	17,0 %	30 %
Germany	5,8 %	18 %
Estonia	18,0 %	25 %
Ireland	3,1 %	16 %
Greece	6,9 %	18 %
Spain	8,7 %	20 %
France	10,3 %	23 %
Italy	5,2 %	17 %
Cyprus	2,9 %	13 %
Latvia	32,6 %	40 %
Lithuania	15,0 %	23 %
Luxembourg	0,9 %	11 %
Hungary	4,3 %	13 %
Malta	0,0 %	10 %
Netherlands	2,4 %	14 %
Austria	23,3 %	34 %
Poland	7,2 %	15 %
Portugal	20,5 %	31 %
Romania	17,8 %	24 %
Slovenia	16,0 %	25 %
Slovak Republic	6,7 %	14 %
Finland	28,5 %	38 %
Sweden	39,8 %	49 %
United Kingdom	1,3 %	15 %

B. *Indicative trajectory*

The indicative trajectory referred to in Article 3(2) shall consist of the following shares of energy from renewable sources:

$S_{2005} + 0,20 (S_{2020} - S_{2005})$, as an average for the two-year period 2011 to 2012;

$S_{2005} + 0,30 (S_{2020} - S_{2005})$, as an average for the two-year period 2013 to 2014;

⁽¹⁾ In order to be able to achieve the national objectives set out in this Annex, it is underlined that the State aid guidelines for environmental protection recognise the continued need for national mechanisms of support for the promotion of energy from renewable sources.

$S_{2005} + 0,45 (S_{2020} - S_{2005})$, as an average for the two-year period 2015 to 2016; and

$S_{2005} + 0,65 (S_{2020} - S_{2005})$, as an average for the two-year period 2017 to 2018,

where

S_{2005} = the share for that Member State in 2005 as indicated in the table in part A,

and

S_{2020} = the share for that Member State in 2020 as indicated in the table in part A.

—

ANNEX II

Normalisation rule for accounting for electricity generated from hydropower and wind power

The following rule shall be applied for the purpose of accounting for electricity generated from hydropower in a given Member State:

$$Q_{N(norm)} = C_N \times \left[\sum_{i=N-14}^N \frac{Q_i}{C_i} \right] / 15$$

where:

- N = reference year;
- $Q_{N(norm)}$ = normalised electricity generated by all hydropower plants of the Member State in year N , for accounting purposes;
- Q_i = the quantity of electricity actually generated in year i by all hydropower plants of the Member State measured in GWh, excluding production from pumped storage units using water that has previously been pumped uphill;
- C_i = the total installed capacity, net of pumped storage, of all hydropower plants of the Member State at the end of year i , measured in MW.

The following rule shall be applied for the purpose of accounting for electricity generated from wind power in a given Member State:

$$Q_{N(norm)} = \frac{C_N + C_{N-1}}{2} \times \frac{\sum_{i=N-n}^N Q_i}{\sum_{j=N-n}^N \left(\frac{C_j + C_{j-1}}{2} \right)}$$

where:

- N = reference year;
- $Q_{N(norm)}$ = normalised electricity generated by all wind power plants of the Member State in year N , for accounting purposes;
- Q_i = the quantity of electricity actually generated in year i by all wind power plants of the Member State measured in GWh;
- C_j = the total installed capacity of all the wind power plants of the Member State at the end of year j , measured in MW;
- n = 4 or the number of years preceding year N for which capacity and production data are available for the Member State in question, whichever is lower.

ANNEX III

Energy content of transport fuels

Fuel	Energy content by weight (lower calorific value, MJ/kg)	Energy content by volume (lower calorific value, MJ/l)
Bioethanol (ethanol produced from biomass)	27	21
Bio-ETBE (ethyl-tertio-butyl-ether produced on the basis of bio-ethanol)	36 (of which 37 % from renewable sources)	27 (of which 37 % from renewable sources)
Biomethanol (methanol produced from biomass, to be used as biofuel)	20	16
Bio-MTBE (methyl-tertio-butyl-ether produced on the basis of bio-methanol)	35 (of which 22 % from renewable sources)	26 (of which 22 % from renewable sources)
Bio-DME (dimethylether produced from biomass, to be used as biofuel)	28	19
Bio-TAEE (tertiary-amyl-ethyl-ether produced on the basis of bio-ethanol)	38 (of which 29 % from renewable sources)	29 (of which 29 % from renewable sources)
Biobutanol (butanol produced from biomass, to be used as biofuel)	33	27
Biodiesel (methyl-ester produced from vegetable or animal oil, of diesel quality, to be used as biofuel)	37	33
Fischer-Tropsch diesel (a synthetic hydrocarbon or mixture of synthetic hydrocarbons produced from biomass)	44	34
Hydrotreated vegetable oil (vegetable oil thermochemically treated with hydrogen)	44	34
Pure vegetable oil (oil produced from oil plants through pressing, extraction or comparable procedures, crude or refined but chemically unmodified, when compatible with the type of engines involved and the corresponding emission requirements)	37	34
Biogas (a fuel gas produced from biomass and/or from the bio-degradable fraction of waste, that can be purified to natural gas quality, to be used as biofuel, or wood gas)	50	—
Petrol	43	32
Diesel	43	36

ANNEX IV

Certification of installers

The certification schemes or equivalent qualification schemes referred to in Article 14(3) shall be based on the following criteria:

1. The certification or qualification process shall be transparent and clearly defined by the Member State or the administrative body they appoint.
2. Biomass, heat pump, shallow geothermal and solar photovoltaic and solar thermal installers shall be certified by an accredited training programme or training provider.
3. The accreditation of the training programme or provider shall be effected by Member States or administrative bodies they appoint. The accrediting body shall ensure that the training programme offered by the training provider has continuity and regional or national coverage. The training provider shall have adequate technical facilities to provide practical training, including some laboratory equipment or corresponding facilities to provide practical training. The training provider shall also offer in addition to the basic training, shorter refresher courses on topical issues, including on new technologies, to enable life-long learning in installations. The training provider may be the manufacturer of the equipment or system, institutes or associations.
4. The training leading to installer certification or qualification shall include both theoretical and practical parts. At the end of the training, the installer must have the skills required to install the relevant equipment and systems to meet the performance and reliability needs of the customer, incorporate quality craftsmanship, and comply with all applicable codes and standards, including energy and eco-labelling.
5. The training course shall end with an examination leading to a certificate or qualification. The examination shall include a practical assessment of successfully installing biomass boilers or stoves, heat pumps, shallow geothermal installations, solar photovoltaic or solar thermal installations.
6. The certification schemes or equivalent qualification schemes referred to in Article 14(3) shall take due account of the following guidelines:
 - (a) Accredited training programmes should be offered to installers with work experience, who have undergone, or are undergoing, the following types of training:
 - (i) in the case of biomass boiler and stove installers: training as a plumber, pipe fitter, heating engineer or technician of sanitary and heating or cooling equipment as a prerequisite;
 - (ii) in the case of heat pump installers: training as a plumber or refrigeration engineer and have basic electrical and plumbing skills (cutting pipe, soldering pipe joints, gluing pipe joints, lagging, sealing fittings, testing for leaks and installation of heating or cooling systems) as a prerequisite;
 - (iii) in the case of a solar photovoltaic or solar thermal installer: training as a plumber or electrician and have plumbing, electrical and roofing skills, including knowledge of soldering pipe joints, gluing pipe joints, sealing fittings, testing for plumbing leaks, ability to connect wiring, familiar with basic roof materials, flashing and sealing methods as a prerequisite; or
 - (iv) a vocational training scheme to provide an installer with adequate skills corresponding to a three years education in the skills referred to in point (a), (b) or (c) including both classroom and workplace learning.
 - (b) The theoretical part of the biomass stove and boiler installer training should give an overview of the market situation of biomass and cover ecological aspects, biomass fuels, logistics, fire protection, related subsidies, combustion techniques, firing systems, optimal hydraulic solutions, cost and profitability comparison as well as the design, installation, and maintenance of biomass boilers and stoves. The training should also provide good knowledge of any European standards for technology and biomass fuels, such as pellets, and biomass related national and Community law.

- (c) The theoretical part of the heat pump installer training should give an overview of the market situation for heat pumps and cover geothermal resources and ground source temperatures of different regions, soil and rock identification for thermal conductivity, regulations on using geothermal resources, feasibility of using heat pumps in buildings and determining the most suitable heat pump system, and knowledge about their technical requirements, safety, air filtering, connection with the heat source and system layout. The training should also provide good knowledge of any European standards for heat pumps, and of relevant national and Community law. The installer should demonstrate the following key competences:
- (i) a basic understanding of the physical and operation principles of a heat pump, including characteristics of the heat pump circle: context between low temperatures of the heat sink, high temperatures of the heat source, and the efficiency of the system, determination of the coefficient of performance (COP) and seasonal performance factor (SPF);
 - (ii) an understanding of the components and their function within a heat pump circle, including the compressor, expansion valve, evaporator, condenser, fixtures and fittings, lubricating oil, refrigerant, superheating and sub-cooling and cooling possibilities with heat pumps; and
 - (iii) the ability to choose and size the components in typical installation situations, including determining the typical values of the heat load of different buildings and for hot water production based on energy consumption, determining the capacity of the heat pump on the heat load for hot water production, on the storage mass of the building and on interruptible current supply; determine buffer tank component and its volume and integration of a second heating system.
- (d) The theoretical part of the solar photovoltaic and solar thermal installer training should give an overview of the market situation of solar products and cost and profitability comparisons, and cover ecological aspects, components, characteristics and dimensioning of solar systems, selection of accurate systems and dimensioning of components, determination of the heat demand, fire protection, related subsidies, as well as the design, installation, and maintenance of solar photovoltaic and solar thermal installations. The training should also provide good knowledge of any European standards for technology, and certification such as Solar Keymark, and related national and Community law. The installer should demonstrate the following key competences:
- (i) the ability to work safely using the required tools and equipment and implementing safety codes and standards and identify plumbing, electrical and other hazards associated with solar installations;
 - (ii) the ability to identify systems and their components specific to active and passive systems, including the mechanical design, and determine the components' location and system layout and configuration;
 - (iii) the ability to determine the required installation area, orientation and tilt for the solar photovoltaic and solar water heater, taking account of shading, solar access, structural integrity, the appropriateness of the installation for the building or the climate and identify different installation methods suitable for roof types and the balance of system equipment required for the installation; and
 - (iv) for solar photovoltaic systems in particular, the ability to adapt the electrical design, including determining design currents, selecting appropriate conductor types and ratings for each electrical circuit, determining appropriate size, ratings and locations for all associated equipment and subsystems and selecting an appropriate interconnection point.
- (e) The installer certification should be time restricted, so that a refresher seminar or event would be necessary for continued certification.
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ANNEX V

Rules for calculating the greenhouse gas impact of biofuels, bioliquids and their fossil fuel comparatorsA. *Typical and default values for biofuels if produced with no net carbon emissions from land-use change*

Biofuel production pathway	Typical greenhouse gas emission saving	Default greenhouse gas emission saving
sugar beet ethanol	61 %	52 %
wheat ethanol (process fuel not specified)	32 %	16 %
wheat ethanol (lignite as process fuel in CHP plant)	32 %	16 %
wheat ethanol (natural gas as process fuel in conventional boiler)	45 %	34 %
wheat ethanol (natural gas as process fuel in CHP plant)	53 %	47 %
wheat ethanol (straw as process fuel in CHP plant)	69 %	69 %
corn (maize) ethanol, Community produced (natural gas as process fuel in CHP plant)	56 %	49 %
sugar cane ethanol	71 %	71 %
the part from renewable sources of ethyl-tertio-butyl-ether (ETBE)	Equal to that of the ethanol production pathway used	
the part from renewable sources of tertiary-amyl-ethyl-ether (TAEE)	Equal to that of the ethanol production pathway used	
rape seed biodiesel	45 %	38 %
sunflower biodiesel	58 %	51 %
soybean biodiesel	40 %	31 %
palm oil biodiesel (process not specified)	36 %	19 %
palm oil biodiesel (process with methane capture at oil mill)	62 %	56 %
waste vegetable or animal (*) oil biodiesel	88 %	83 %
hydrotreated vegetable oil from rape seed	51 %	47 %
hydrotreated vegetable oil from sunflower	65 %	62 %
hydrotreated vegetable oil from palm oil (process not specified)	40 %	26 %
hydrotreated vegetable oil from palm oil (process with methane capture at oil mill)	68 %	65 %
pure vegetable oil from rape seed	58 %	57 %
biogas from municipal organic waste as compressed natural gas	80 %	73 %
biogas from wet manure as compressed natural gas	84 %	81 %
biogas from dry manure as compressed natural gas	86 %	82 %

(*) Not including animal oil produced from animal by-products classified as category 3 material in accordance with Regulation (EC) No 1774/2002 of the European Parliament and of the Council of 3 October 2002 laying down health rules on animal by-products not intended for human consumption (1).

(1) OJ L 273, 10.10.2002, p. 1.

- B. *Estimated typical and default values for future biofuels that were not on the market or were on the market only in negligible quantities in January 2008, if produced with no net carbon emissions from land-use change*

Biofuel production pathway	Typical greenhouse gas emission saving	Default greenhouse gas emission saving
wheat straw ethanol	87 %	85 %
waste wood ethanol	80 %	74 %
farmed wood ethanol	76 %	70 %
waste wood Fischer-Tropsch diesel	95 %	95 %
farmed wood Fischer-Tropsch diesel	93 %	93 %
waste wood dimethylether (DME)	95 %	95 %
farmed wood DME	92 %	92 %
waste wood methanol	94 %	94 %
farmed wood methanol	91 %	91 %
the part from renewable sources of methyl-tertio-butyl-ether (MTBE)	Equal to that of the methanol production pathway used	

C. *Methodology*

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

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

where

- E = total emissions from the use of the fuel;
 e_{ec} = emissions from the extraction or cultivation of raw materials;
 e_l = annualised emissions from carbon stock changes caused by land-use change;
 e_p = emissions from processing;
 e_{td} = emissions from transport and distribution;
 e_u = emissions from the fuel in use;
 e_{sca} = emission saving from soil carbon accumulation via improved agricultural management;
 e_{ccs} = emission saving from carbon capture and geological storage;
 e_{ccr} = emission saving from carbon capture and replacement; and
 e_{ee} = emission saving from excess electricity from cogeneration.

Emissions from the manufacture of machinery and equipment shall not be taken into account.

2. Greenhouse gas emissions from fuels, E , shall be expressed in terms of grams of CO₂ equivalent per MJ of fuel, gCO_{2eq}/MJ.
3. By derogation from point 2, for transport fuels, values calculated in terms of gCO_{2eq}/MJ may be adjusted to take into account differences between fuels in useful work done, expressed in terms of km/MJ. Such adjustments shall be made only where evidence of the differences in useful work done is provided.
4. Greenhouse gas emission saving from biofuels and bioliquids shall be calculated as:

$$SAVING = (E_F - E_B)/E_F,$$

where

- E_B = total emissions from the biofuel or bioliquid; and
 E_F = total emissions from the fossil fuel comparator.

5. The greenhouse gases taken into account for the purposes of point 1 shall be CO₂, N₂O and CH₄. For the purpose of calculating CO₂ equivalence, those gases shall be valued as follows:

CO₂: 1

N₂O: 296

CH₄: 23

6. Emissions from the extraction or cultivation of raw materials, e_{ec} , shall include emissions from the extraction or cultivation process itself; from the collection of raw materials; from waste and leakages; and from the production of chemicals or products used in extraction or cultivation. Capture of CO₂ in the cultivation of raw materials shall be excluded. Certified reductions of greenhouse gas emissions from flaring at oil production sites anywhere in the world shall be deducted. Estimates of emissions from cultivation may be derived from the use of averages calculated for smaller geographical areas than those used in the calculation of the default values, as an alternative to using actual values.
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:

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

where

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

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

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

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

e_B = bonus of 29 gCO_{2eq}/MJ biofuel or bioliquid if biomass is obtained from restored degraded land under the conditions provided for in point 8.

8. The bonus of 29 gCO_{2eq}/MJ shall be attributed if evidence is provided that the land:

(a) was not in use for agriculture or any other activity in January 2008; and

(b) falls into one of the following categories:

(i) severely degraded land, including such land that was formerly in agricultural use;

(ii) heavily contaminated land.

The bonus of 29 gCO_{2eq}/MJ shall apply for a period of up to 10 years from the date of conversion of the land to agricultural use, provided that a steady increase in carbon stocks as well as a sizable reduction in erosion phenomena for land falling under (i) are ensured and that soil contamination for land falling under (ii) is reduced.

9. The categories referred to in point 8(b) are defined as follows:

(a) 'severely degraded land' means land that, for a significant period of time, has either been significantly salinated or presented significantly low organic matter content and has been severely eroded;

(b) 'heavily contaminated land' means land that is unfit for the cultivation of food and feed due to soil contamination.

Such land shall include land that has been the subject of a Commission decision in accordance with the fourth subparagraph of Article 18(4).

⁽¹⁾ 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.

10. The Commission shall adopt, by 31 December 2009, guidelines for the calculation of land carbon stocks drawing on the 2006 IPCC Guidelines for National Greenhouse Gas Inventories — volume 4. The Commission guidelines shall serve as the basis for the calculation of land carbon stocks for the purposes of this Directive.

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

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

12. Emissions from transport and distribution, e_{td} , shall include emissions from the transport and storage of raw and semi-finished materials and from the storage and distribution of finished materials. Emissions from transport and distribution to be taken into account under point 6 shall not be covered by this point.

13. Emissions from the fuel in use, e_w , shall be taken to be zero for biofuels and bioliquids.

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

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

16. Emission saving from excess electricity from cogeneration, e_{ec} , shall be taken into account in relation to the excess electricity produced by fuel production systems that use cogeneration except where the fuel used for the cogeneration is a co-product other than an agricultural crop residue. In accounting for that excess electricity, the size of the cogeneration unit shall be assumed to be the minimum necessary for the cogeneration unit to supply the heat that is needed to produce the fuel. The greenhouse gas emission saving associated with that excess electricity shall be taken to be equal to the amount of greenhouse gas that would be emitted when an equal amount of electricity was generated in a power plant using the same fuel as the cogeneration unit.

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

18. For the purposes of the calculation referred to in point 17, the emissions to be divided shall be $e_{ec} + e_1$ + those fractions of e_p , e_{td} and e_{ec} that take place up to and including the process step at which a co-product is produced. If any allocation to co-products has taken place at an earlier process step in the life-cycle, the fraction of those emissions assigned in the last such process step to the intermediate fuel product shall be used for this purpose instead of the total of those emissions.

In the case of biofuels and bioliquids, all co-products, including electricity that does not fall under the scope of point 16, shall be taken into account for the purposes of that calculation, except for agricultural crop residues, including straw, bagasse, husks, cobs and nut shells. Co-products that have a negative energy content shall be considered to have an energy content of zero for the purpose of the calculation.

Wastes, agricultural crop residues, including straw, bagasse, husks, cobs and nut shells, and residues from processing, including crude glycerine (glycerine that is not refined), shall be considered to have zero life-cycle greenhouse gas emissions up to the process of collection of those materials.

In the case of fuels produced in refineries, the unit of analysis for the purposes of the calculation referred to in point 17 shall be the refinery.

19. For biofuels, for the purposes of the calculation referred to in point 4, the fossil fuel comparator E_F shall be the latest available actual average emissions from the fossil part of petrol and diesel consumed in the Community as reported under Directive 98/70/EC. If no such data are available, the value used shall be 83,8 gCO_{2eq}/MJ.

For bioliquids used for electricity production, for the purposes of the calculation referred to in point 4, the fossil fuel comparator E_F shall be 91 gCO_{2eq}/MJ.

For bioliquids used for heat production, for the purposes of the calculation referred to in point 4, the fossil fuel comparator E_F shall be 77 gCO_{2eq}/MJ.

For bioliquids used for cogeneration, for the purposes of the calculation referred to in point 4, the fossil fuel comparator E_F shall be 85 gCO_{2eq}/MJ.

D. *Disaggregated default values for biofuels and bioliquids*

Disaggregated default values for cultivation: ' e_{ec} ' as defined in part C of this Annex

Biofuel and bioliquid production pathway	Typical greenhouse gas emissions (gCO _{2eq} /MJ)	Default greenhouse gas emissions (gCO _{2eq} /MJ)
sugar beet ethanol	12	12
wheat ethanol	23	23
corn (maize) ethanol, Community produced	20	20
sugar cane ethanol	14	14
the part from renewable sources of ETBE	Equal to that of the ethanol production pathway used	
the part from renewable sources of TAEE	Equal to that of the ethanol production pathway used	
rape seed biodiesel	29	29
sunflower biodiesel	18	18
soybean biodiesel	19	19
palm oil biodiesel	14	14
waste vegetable or animal (*) oil biodiesel	0	0
hydrotreated vegetable oil from rape seed	30	30
hydrotreated vegetable oil from sunflower	18	18
hydrotreated vegetable oil from palm oil	15	15
pure vegetable oil from rape seed	30	30
biogas from municipal organic waste as compressed natural gas	0	0
biogas from wet manure as compressed natural gas	0	0
biogas from dry manure as compressed natural gas	0	0

(*) Not including animal oil produced from animal by-products classified as category 3 material in accordance with Regulation (EC) No 1774/2002.

Disaggregated default values for processing (including excess electricity): ' $e_p - e_{ee}$ ' as defined in part C of this Annex

Biofuel and bioliquid production pathway	Typical greenhouse gas emissions (gCO _{2eq} /MJ)	Default greenhouse gas emissions (gCO _{2eq} /MJ)
sugar beet ethanol	19	26
wheat ethanol (process fuel not specified)	32	45
wheat ethanol (lignite as process fuel in CHP plant)	32	45
wheat ethanol (natural gas as process fuel in conventional boiler)	21	30
wheat ethanol (natural gas as process fuel in CHP plant)	14	19

Biofuel and bioliquid production pathway	Typical greenhouse gas emissions (gCO _{2eq} /MJ)	Default greenhouse gas emissions (gCO _{2eq} /MJ)
wheat ethanol (straw as process fuel in CHP plant)	1	1
corn (maize) ethanol, Community produced (natural gas as process fuel in CHP plant)	15	21
sugar cane ethanol	1	1
the part from renewable sources of ETBE	Equal to that of the ethanol production pathway used	
the part from renewable sources of TAAE	Equal to that of the ethanol production pathway used	
rape seed biodiesel	16	22
sunflower biodiesel	16	22
soybean biodiesel	18	26
palm oil biodiesel (process not specified)	35	49
palm oil biodiesel (process with methane capture at oil mill)	13	18
waste vegetable or animal oil biodiesel	9	13
hydrotreated vegetable oil from rape seed	10	13
hydrotreated vegetable oil from sunflower	10	13
hydrotreated vegetable oil from palm oil (process not specified)	30	42
hydrotreated vegetable oil from palm oil (process with methane capture at oil mill)	7	9
pure vegetable oil from rape seed	4	5
biogas from municipal organic waste as compressed natural gas	14	20
biogas from wet manure as compressed natural gas	8	11
biogas from dry manure as compressed natural gas	8	11

Disaggregated default values for transport and distribution: ' e_{td} ' as defined in part C of this Annex

Biofuel and bioliquid production pathway	Typical greenhouse gas emissions (gCO _{2eq} /MJ)	Default greenhouse gas emissions (gCO _{2eq} /MJ)
sugar beet ethanol	2	2
wheat ethanol	2	2
corn (maize) ethanol, Community produced	2	2
sugar cane ethanol	9	9
the part from renewable sources of ETBE	Equal to that of the ethanol production pathway used	
the part from renewable sources of TAAE	Equal to that of the ethanol production pathway used	
rape seed biodiesel	1	1
sunflower biodiesel	1	1
soybean biodiesel	13	13
palm oil biodiesel	5	5
waste vegetable or animal oil biodiesel	1	1
hydrotreated vegetable oil from rape seed	1	1
hydrotreated vegetable oil from sunflower	1	1
hydrotreated vegetable oil from palm oil	5	5
pure vegetable oil from rape seed	1	1
biogas from municipal organic waste as compressed natural gas	3	3
biogas from wet manure as compressed natural gas	5	5
biogas from dry manure as compressed natural gas	4	4

Total for cultivation, processing, transport and distribution

Biofuel and bioliquid production pathway	Typical greenhouse gas emissions (gCO _{2eq} /MJ)	Default greenhouse gas emissions (gCO _{2eq} /MJ)
sugar beet ethanol	33	40
wheat ethanol (process fuel not specified)	57	70
wheat ethanol (lignite as process fuel in CHP plant)	57	70
wheat ethanol (natural gas as process fuel in conventional boiler)	46	55
wheat ethanol (natural gas as process fuel in CHP plant)	39	44
wheat ethanol (straw as process fuel in CHP plant)	26	26
corn (maize) ethanol, Community produced (natural gas as process fuel in CHP plant)	37	43
sugar cane ethanol	24	24
the part from renewable sources of ETBE	Equal to that of the ethanol production pathway used	
the part from renewable sources of TAEE	Equal to that of the ethanol production pathway used	
rape seed biodiesel	46	52
sunflower biodiesel	35	41
soybean biodiesel	50	58
palm oil biodiesel (process not specified)	54	68
palm oil biodiesel (process with methane capture at oil mill)	32	37
waste vegetable or animal oil biodiesel	10	14
hydrotreated vegetable oil from rape seed	41	44
hydrotreated vegetable oil from sunflower	29	32
hydrotreated vegetable oil from palm oil (process not specified)	50	62
hydrotreated vegetable oil from palm oil (process with methane capture at oil mill)	27	29
pure vegetable oil from rape seed	35	36
biogas from municipal organic waste as compressed natural gas	17	23
biogas from wet manure as compressed natural gas	13	16
biogas from dry manure as compressed natural gas	12	15

- E. *Estimated disaggregated default values for future biofuels and bioliquids that were not on the market or were only on the market in negligible quantities in January 2008*

Disaggregated default values for cultivation: ' e_{cc} ' as defined in part C of this Annex

Biofuel and bioliquid production pathway	Typical greenhouse gas emissions (gCO _{2eq} /MJ)	Default greenhouse gas emissions (gCO _{2eq} /MJ)
wheat straw ethanol	3	3
waste wood ethanol	1	1
farmed wood ethanol	6	6
waste wood Fischer-Tropsch diesel	1	1
farmed wood Fischer-Tropsch diesel	4	4
waste wood DME	1	1
farmed wood DME	5	5
waste wood methanol	1	1
farmed wood methanol	5	5
the part from renewable sources of MTBE	Equal to that of the methanol production pathway used	

Disaggregated default values for processing (including excess electricity): ' $e_p - e_{ee}$ ' as defined in part C of this Annex

Biofuel and bioliquid production pathway	Typical greenhouse gas emissions (gCO _{2eq} /MJ)	Default greenhouse gas emissions (gCO _{2eq} /MJ)
wheat straw ethanol	5	7
wood ethanol	12	17
wood Fischer-Tropsch diesel	0	0
wood DME	0	0
wood methanol	0	0
the part from renewable sources of MTBE	Equal to that of the methanol production pathway used	

Disaggregated default values for transport and distribution: ' e_{td} ' as defined in part C of this Annex

Biofuel and bioliquid production pathway	Typical greenhouse gas emissions (gCO _{2eq} /MJ)	Default greenhouse gas emissions (gCO _{2eq} /MJ)
wheat straw ethanol	2	2
waste wood ethanol	4	4
farmed wood ethanol	2	2
waste wood Fischer-Tropsch diesel	3	3
farmed wood Fischer-Tropsch diesel	2	2
waste wood DME	4	4
farmed wood DME	2	2
waste wood methanol	4	4
farmed wood methanol	2	2
the part from renewable sources of MTBE	Equal to that of the methanol production pathway used	

Total for cultivation, processing, transport and distribution

Biofuel and bioliquid production pathway	Typical greenhouse gas emissions (gCO _{2eq} /MJ)	Default greenhouse gas emissions (gCO _{2eq} /MJ)
wheat straw ethanol	11	13
waste wood ethanol	17	22
farmed wood ethanol	20	25
waste wood Fischer-Tropsch diesel	4	4
farmed wood Fischer-Tropsch diesel	6	6
waste wood DME	5	5
farmed wood DME	7	7
waste wood methanol	5	5
farmed wood methanol	7	7
the part from renewable sources of MTBE	Equal to that of the methanol production pathway used	

ANNEX VI

Minimum requirements for the harmonised template for national renewable energy action plans

1. Expected final energy consumption:

Gross final energy consumption in electricity, transport and heating and cooling for 2020 taking into account the effects of energy efficiency policy measures.

2. National sectoral 2020 targets and estimated shares of energy from renewable sources in electricity, heating and cooling and transport:

- (a) target share of energy from renewable sources in electricity in 2020;
- (b) estimated trajectory for the share of energy from renewable sources in electricity;
- (c) target share of energy from renewable sources in heating and cooling in 2020;
- (d) estimated trajectory for the share of energy from renewable sources in heating and cooling;
- (e) estimated trajectory for the share of energy from renewable sources in transport;
- (f) national indicative trajectory as referred to in Article 3(2) and part B of Annex I.

3. Measures for achieving the targets:

- (a) overview of all policies and measures concerning the promotion of the use of energy from renewable sources;
- (b) specific measures to fulfil the requirements of Articles 13, 14 and 16, including the need to extend or reinforce existing infrastructure to facilitate the integration of the quantities of energy from renewable sources needed to achieve the 2020 national target, measures to accelerate the authorisation procedures, measures to reduce non-technological barriers and measures concerning Articles 17 to 21;
- (c) support schemes for the promotion of the use of energy from renewable sources in electricity applied by the Member State or a group of Member States;
- (d) support schemes for the promotion of the use of energy from renewable sources in heating and cooling applied by the Member State or a group of Member States;
- (e) support schemes for the promotion of the use of energy from renewable sources in transport applied by the Member State or a group of Member States;
- (f) specific measures on the promotion of the use of energy from biomass, especially for new biomass mobilisation taking into account:
 - (i) biomass availability: both domestic potential and imports;
 - (ii) measures to increase biomass availability, taking into account other biomass users (agriculture and forest-based sectors);
- (g) planned use of statistical transfers between Member States and planned participation in joint projects with other Member States and third countries:
 - (i) the estimated excess production of energy from renewable sources compared to the indicative trajectory which could be transferred to other Member States;
 - (ii) the estimated potential for joint projects;
 - (iii) the estimated demand for energy from renewable sources to be satisfied by means other than domestic production.

4. Assessments:

- (a) the total contribution expected of each renewable energy technology to meet the mandatory 2020 targets and the indicative trajectory for the shares of energy from renewable sources in electricity, heating and cooling and transport;
 - (b) the total contribution expected of the energy efficiency and energy saving measures to meet the mandatory 2020 targets and the indicative trajectory for the shares of energy from renewable sources in electricity, heating and cooling and transport.
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ANNEX VII

Accounting of energy from heat pumps

The amount of aerothermal, geothermal or hydrothermal energy captured by heat pumps to be considered energy from renewable sources for the purposes of this Directive, E_{RES} , shall be calculated in accordance with the following formula:

$$E_{RES} = Q_{usable} * (1 - 1/SPF)$$

where

- Q_{usable} = the estimated total usable heat delivered by heat pumps fulfilling the criteria referred to in Article 5(4), implemented as follows: Only heat pumps for which $SPF > 1,15 * 1/\eta$ shall be taken into account,
- SPF = the estimated average seasonal performance factor for those heat pumps,
- η is the ratio between total gross production of electricity and the primary energy consumption for electricity production and shall be calculated as an EU average based on Eurostat data.

By 1 January 2013, the Commission shall establish guidelines on how Member States are to estimate the values of Q_{usable} and SPF for the different heat pump technologies and applications, taking into consideration differences in climatic conditions, especially very cold climates.

DIRECTIVE 2009/29/EC OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL

of 23 April 2009

amending Directive 2003/87/EC so as to improve and extend the greenhouse gas emission allowance trading scheme of the Community

(Text with EEA relevance)

THE EUROPEAN PARLIAMENT AND THE COUNCIL OF THE EUROPEAN UNION,

Having regard to the Treaty establishing the European Community, and in particular Article 175(1) thereof,

Having regard to the proposal from the Commission,

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

Having regard to the opinion of the Committee of the Regions ⁽²⁾,

Acting in accordance with the procedure laid down in Article 251 of the Treaty ⁽³⁾,

Whereas:

- (1) Directive 2003/87/EC of the European Parliament and of the Council ⁽⁴⁾ establishes a scheme for greenhouse gas emission allowance trading within the Community (Community scheme) in order to promote reductions of greenhouse gas emissions in a cost-effective and economically efficient manner.
- (2) The ultimate objective of the United Nations Framework Convention on Climate Change (UNFCCC), which was approved on behalf of the European Community by Council Decision 94/69/EC ⁽⁵⁾, is to stabilise greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system. In order to meet that objective, the overall global annual mean surface temperature increase should not exceed 2 °C above pre-industrial levels. The latest Intergovernmental Panel on Climate Change (IPCC) Assessment Report shows that in order to reach that objective, global emissions of greenhouse gases must peak by 2020. This implies the increasing of efforts by the Community, the quick involvement of developed countries and encouraging the participation of developing countries in the emission reduction process.
- (3) The European Council of March 2007 made a firm commitment to reduce the overall greenhouse gas emissions of the Community by at least 20 % below 1990 levels by 2020, and by 30 % provided that other developed

countries commit themselves to comparable emission reductions and economically more advanced developing countries contribute adequately according to their responsibilities and respective capabilities. By 2050, global greenhouse gas emissions should be reduced by at least 50 % below their 1990 levels. All sectors of the economy should contribute to achieving these emission reductions, including international maritime shipping and aviation. Aviation is contributing to these reductions through its inclusion in the Community scheme. In the event that no international agreement which includes international maritime emissions in its reduction targets through the International Maritime Organisation has been approved by the Member States or no such agreement through the UNFCCC has been approved by the Community by 31 December 2011, the Commission should make a proposal to include international maritime emissions according to harmonised modalities in the Community reduction commitment, with the aim of the proposed act entering into force by 2013. Such a proposal should minimise any negative impact on the Community's competitiveness while taking into account the potential environmental benefits.

- (4) In its resolution of 31 January 2008 on the outcome of the Bali Conference on Climate Change (COP 13 and COP/MOP 3) ⁽⁶⁾, the European Parliament recalled its position that industrialised countries should commit to reducing their greenhouse gas emissions by at least 30 % by 2020 and by 60 to 80 % by 2050, compared to 1990 levels. Given that it anticipates a positive outcome to the COP 15 negotiations that will be held in Copenhagen in 2009, the European Union should begin to prepare tougher emission reduction targets for 2020 and beyond, and should seek to ensure that, after 2013, the Community scheme allows, if necessary, for more stringent emission caps, as part of the Union's contribution to a future international agreement on climate change (hereinafter referred to as the international agreement on climate change).
- (5) In order to contribute to achieving those long-term objectives, it is appropriate to set out a predictable path according to which the emissions of installations covered by the Community scheme should be reduced. To achieve cost-effectively the commitment of the Community to at least a 20 % reduction in greenhouse gas emissions below 1990 levels, emission allowances allocated in respect of those installations should be 21 % below their 2005 emission levels by 2020.

⁽¹⁾ OJ C 27, 3.2.2009, p. 66.

⁽²⁾ OJ C 325, 19.12.2008, p. 19.

⁽³⁾ Opinion of the European Parliament of 17 December 2008 (not yet published in the Official Journal) and Council Decision of 6 April 2009.

⁽⁴⁾ OJ L 275, 25.10.2003, p. 32.

⁽⁵⁾ OJ L 33, 7.2.1994, p. 11.

⁽⁶⁾ OJ C 68 E, 21.3.2009, p. 13.

- (6) In order to enhance the certainty and predictability of the Community scheme, provisions should be specified to increase the level of contribution of the Community scheme to achieving an overall reduction of more than 20 %, in particular in view of the European Council's objective of a 30 % reduction by 2020 which is considered scientifically necessary to avoid dangerous climate change.
- (7) Once the Community and third countries conclude an international agreement on climate change in accordance with which appropriate global action will be taken beyond 2012, considerable support should be given to credit emission reductions made in those countries. In advance of such an agreement, greater certainty should none the less be provided regarding the continued use of credits from outside the Community.
- (8) While experience gathered during the first trading period shows the potential of the Community scheme and the finalisation of national allocation plans for the second trading period will deliver significant emission reductions by 2012, a review undertaken in 2007 has confirmed that a more harmonised emission trading system is imperative in order to better exploit the benefits of emission trading, to avoid distortions in the internal market and to facilitate the linking of emissions trading systems. Furthermore, more predictability should be ensured and the scope of the system should be extended by including new sectors and gases with a view to both reinforcing a carbon price signal necessary to trigger the necessary investments and by offering new abatement opportunities, which will lead to lower overall abatement costs and the increased efficiency of the system.
- (9) The definition of greenhouse gases should be aligned with the definition contained in the UNFCCC, and greater clarity should be given on the setting and updating of global warming potentials for individual greenhouse gases.
- (10) The Community scheme should be extended to other installations the emissions of which are capable of being monitored, reported and verified with the same level of accuracy as that which applies under the monitoring, reporting and verification requirements currently applicable.
- (11) Where equivalent measures to reduce greenhouse gas emissions, in particular taxation, are in place for small installations the emissions of which do not exceed a threshold of 25 000 tonnes of CO₂ equivalent per year, there should be a procedure enabling Member States to exclude such small installations from the emissions trading system for as long as those measures are applied. Hospitals may also be excluded if they undertake equivalent measures. This threshold offers the maximum gain, in relative terms, of reduction of administrative costs for each tonne of CO₂ equivalent excluded from the system, for reasons of administrative simplicity. As a consequence of the move from five-year allocation periods, and in order to increase certainty and predictability, provisions should be laid down regarding the frequency of revision of greenhouse gas emission permits. It is for Member States to propose measures applying to small installations which will achieve a contribution to emission reductions equivalent to those achieved by the Community scheme. Such measures could include taxation, agreements with industry and regulation. Taking into account the need to reduce unnecessary administrative burdens for smaller emitters, Member States may set up simplified procedures and measures to comply with this Directive.
- (12) Information on the application of this Directive should be easily accessible, in particular for small and medium-sized enterprises (SMEs).
- (13) The Community-wide quantity of allowances should decrease in a linear manner calculated from the mid-point of the period from 2008 to 2012, ensuring that the emissions trading system delivers gradual and predictable reductions of emissions over time. The annual decrease of allowances should be equal to 1,74 % of the allowances issued by Member States pursuant to Commission Decisions on Member States' national allocation plans for the period from 2008 to 2012, so that the Community scheme contributes cost-effectively to achieving the commitment of the Community to an overall reduction in emissions of at least 20 % by 2020.
- (14) This contribution is equivalent to a reduction of emissions in 2020 in the Community scheme of 21 % below reported 2005 levels, including the effect of the increased scope from the period from 2005 to 2007 to the period from 2008 to 2012 and the 2005 emission figures for the trading sector used for the assessment of the Bulgarian and Romanian national allocation plans for the period from 2008 to 2012, leading to an issue of a maximum of 1 720 million allowances in 2020. Exact quantities of emissions will be calculated once Member States have issued allowances pursuant to Commission decisions on their national allocation plans for the period from 2008 to 2012, as the approval of allocations to some installations was contingent upon their emissions having been substantiated and verified. Once the issue of allowances for the period from 2008 to 2012 has taken place, the Commission will publish the Community-wide quantity of allowances. Adjustments should be made to the Community-wide quantity in relation to installations which are included in, or excluded from, the Community scheme during the period from 2008 to 2012 or from 2013 onwards.
- (15) The additional effort to be made by the Community economy requires, inter alia, that the revised Community scheme operate with the highest possible degree of economic efficiency and on the basis of fully harmonised conditions of allocation within the Community. Auctioning should therefore be the basic principle for allocation, as it is the simplest, and generally considered to be the most

economically efficient, system. This should also eliminate windfall profits and put new entrants and economies growing faster than average on the same competitive footing as existing installations.

(16) In order to maintain the environmental and administrative efficiency of the Community scheme, avoid distortions of competition and the early depletion of the new entrants reserve, the rules on new entrants should be harmonised so as to ensure that all Member States adopt the same approach, in particular in relation to the meaning of 'significant extensions' of installations. Provisions for the adoption of harmonised rules for the implementation of this Directive should therefore be included. In these rules, 'significant extension' should, wherever appropriate, be defined as an extension by at least 10 % of the installation's existing installed capacity or a substantial increase in the emissions of the installation linked to the increase in the installed capacity. Allocation from the new entrants reserve should only take place in respect of the significant extension of the installation.

(17) All Member States will need to make substantial investments to reduce the carbon intensity of their economies by 2020 and those Member States where income per capita is still significantly below the Community average and the economies of which are in the process of catching up with the richer Member States will need to make a significant effort to improve energy efficiency. The objectives of eliminating distortions to intra-Community competition and of ensuring the highest degree of economic efficiency in the transformation of the Community economy towards a safe and sustainable low-carbon economy make it inappropriate to treat economic sectors differently under the Community scheme in individual Member States. It is therefore necessary to develop other mechanisms to support the efforts of those Member States with relatively lower income per capita and higher growth prospects. 88 % of the total quantity of allowances to be auctioned should be distributed amongst Member States according to their relative share of emissions in the Community scheme for 2005 or the average of the period from 2005 to 2007, whichever one is the highest. 10 % of the total quantity should be distributed to the benefit of certain Member States for the purpose of solidarity and growth in the Community, to be used to reduce emissions and adapt to the effects of climate change. The distribution of this 10 % should take into account levels of income per capita in 2005 and the growth prospects of Member States, and be higher for Member States with low income levels per head and high growth prospects. Member States with an average level of income per capita that is more than 20 % higher than the average in the Community should contribute to this distribution, except where the direct costs of the overall package estimated in the Commission's impact assessment accompanying the package of implementation measures for the EU's objectives on climate change and renewable

energy for 2020 exceed 0,7 % of GDP. A further 2 % of the total quantity of allowances to be auctioned should be distributed amongst Member States, the greenhouse gas emissions of which were, in 2005, at least 20 % below their emissions in the base year applicable to them under the Kyoto Protocol.

(18) Given the considerable efforts necessary to combat climate change and to adapt to its inevitable effects, it is appropriate that at least 50 % of the proceeds from the auctioning of allowances should be used to reduce greenhouse gas emissions, to adapt to the impacts of climate change, to fund research and development for reducing emissions and adaptation, to develop renewable energies to meet the Union's commitment to using 20 % renewable energies by 2020, to meet the commitment of the Community to increase energy efficiency by 20 % by 2020, to provide for the environmentally safe capture and geological storage of greenhouse gases, to contribute to the Global Energy Efficiency and Renewable Energy Fund and to the Adaptation Fund as made operational by the Poznan Conference on Climate Change (COP 14 and COP/MOP 4), to provide for measures to avoid deforestation and facilitate adaptation in developing countries, and to address social aspects such as possible increases in electricity prices in lower and middle income households. This proportion is significantly below the expected net revenues for public authorities from auctioning, taking into account potentially reduced income from corporate taxes. In addition, proceeds from the auctioning of allowances should be used to cover administrative expenses of the management of the Community scheme. This Directive should also include provisions on monitoring the use of funds from auctioning for these purposes. Providing information on the use of funds does not release Member States from the obligation laid down in Article 88(3) of the Treaty to notify certain national measures. This Directive does not prejudice the outcome of any future State aid procedures that may be undertaken in accordance with Articles 87 and 88 of the Treaty.

(19) Consequently, full auctioning should be the rule from 2013 onwards for the power sector, taking into account its ability to pass on the increased cost of CO₂, and no free allocation should be given for the capture and storage of CO₂ as the incentive for this arises from allowances not being required to be surrendered in respect of emissions which are stored. In order to avoid distortions of competition, electricity generators may receive free allowances for district heating and cooling and for heating and cooling produced through high-efficiency cogeneration as defined by Directive 2004/8/EC of the European Parliament and of the Council of 11 February 2004 on the promotion of cogeneration based on a useful heat demand in the internal energy market ⁽¹⁾ where such heat produced by installations in other sectors would be given free allocations.

⁽¹⁾ OJ L 52, 21.2.2004, p. 50.

- (20) The main long-term incentive for the capture and storage of CO₂ and new renewable energy technologies is that allowances will not need to be surrendered for CO₂ emissions which are permanently stored or avoided. In addition, to accelerate the demonstration of the first commercial facilities and of innovative renewable energy technologies, allowances should be set aside from the new entrants reserve to provide a guaranteed reward for the first such facilities in the Union for tonnes of CO₂ stored or avoided on a sufficient scale, provided an agreement on knowledge-sharing is in place. The additional financing should apply to projects of sufficient scale, which are innovative in nature and which are significantly co-financed by the operator covering, in principle, more than half of the relevant investment cost, and taking into account the viability of the project.
- (21) For other sectors covered by the Community scheme, a transitional system should be put in place for which free allocation in 2013 would be 80 % of the amount that corresponded to the percentage of the overall Community-wide emissions throughout the period from 2005 to 2007 that those installations emitted as a proportion of the annual Community-wide total quantity of allowances. Thereafter, the free allocation should decrease each year by equal amounts resulting in 30 % free allocation in 2020, with a view to reaching no free allocation in 2027.
- (22) In order to ensure an orderly functioning of the carbon and electricity markets, the auctioning of allowances for the period from 2013 onwards should start by 2011 and be based on clear and objective principles defined well in advance.
- (23) Transitional free allocation to installations should be provided for through harmonised Community-wide rules (ex-ante benchmarks) in order to minimise distortions of competition with the Community. Those rules should take account of the most greenhouse gas and energy-efficient techniques, substitutes, alternative production processes, use of biomass, renewables and CO₂ capture and storage. Any such rules should not give incentives to increase emissions and should ensure that an increasing proportion of these allowances is auctioned. Allocations must be fixed prior to the trading period so as to enable the market to function properly. Those harmonised rules may also take into account emissions related to the use of combustible waste gases when the production of these waste gases cannot be avoided in the industrial process. In this respect, the rules may provide for allowances to be allocated for free to operators of installations combusting the waste gases concerned or to operators of the installations where these gases originate. They should also avoid undue distortions of competition on the markets for electricity and heating and cooling supplied to industrial installations. Furthermore, they should avoid undue distortions of competition between industrial activities carried out in installations operated by a single operator and production in outsourced installations. Those rules should apply to new entrants carrying out the same activities as existing installations receiving transitional free allocations. To avoid any distortion of competition within the internal market, no free allocation should be made in respect of the production of electricity by new entrants. Allowances which remain in the new entrants' reserve in 2020 should be auctioned.
- (24) The Community will continue to take the lead in the negotiation of an ambitious international agreement on climate change that will achieve the objective of limiting global temperature increase to 2 °C and is encouraged by the progress made at the 13th Conference of the Parties to the UNFCCC, and 3rd Meeting of the Parties to the Kyoto Protocol, held in Bali, Indonesia from 3-14 December 2007 towards this objective. In the event that other developed countries and other major emitters of greenhouse gases do not participate in this international agreement, this could lead to an increase in greenhouse gas emissions in third countries where industry would not be subject to comparable carbon constraints (carbon leakage), and at the same time could put certain energy-intensive sectors and subsectors in the Community which are subject to international competition at an economic disadvantage. This could undermine the environmental integrity and benefit of actions by the Community. To address the risk of carbon leakage, the Community should allocate 100 % of allowances free of charge to sectors or subsectors meeting the relevant criteria. The definition of these sectors and subsectors and the measures required should be subject to reassessment to ensure that action is taken where necessary and to avoid overcompensation. For those specific sectors or subsectors where it can be duly substantiated that the risk of carbon leakage cannot be prevented otherwise, where electricity constitutes a high proportion of production costs and is produced efficiently, the action taken may take into account the electricity consumption in the production process, without changing the total quantity of allowances. The carbon leakage risk in these sectors or subsectors should be assessed, as a starting point, at a 3-digit level (NACE-3 code) or, where appropriate and where the relevant data are available, at a 4-digit level (NACE-4 code).
- (25) The Commission should therefore review the situation by 30 June 2010, consult with all relevant social partners, and, in the light of the outcome of the international negotiations, submit a report accompanied by any appropriate proposals. In this context, the Commission should identify which energy-intensive industry sectors or subsectors are likely to be subject to carbon leakage by 31 December 2009. It should base its analysis on the assessment of the inability of industries to pass on the cost of required allowances in product prices without significant loss of market share to installations outside the Community which do not take comparable action to reduce their emissions. Energy-intensive industries which are determined to be exposed to

a significant risk of carbon leakage could receive a higher amount of free allocation or an effective carbon equalisation system could be introduced with a view to putting installations from the Community which are at significant risk of carbon leakage and those from third countries on a comparable footing. Such a system could apply requirements to importers that would be no less favourable than those applicable to installations within the Community, for example by requiring the surrender of allowances. Any action taken would need to be in conformity with the principles of the UNFCCC, in particular the principle of common but differentiated responsibilities and respective capabilities, taking into account the particular situation of least developed countries (LDCs). It would also need to be in conformity with the international obligations of the Community, including the obligations under the WTO agreement.

- (26) Discussions in the European Council concerning the determination of the sectors or subsectors exposed to a significant risk of carbon leakage are of an exceptional character and in no way affect the procedures for the exercise of the implementing powers conferred on the Commission under Article 202 of the Treaty.
- (27) Member States may deem it necessary to temporarily compensate certain installations which have been determined to be exposed to a significant risk of carbon leakage for costs related to greenhouse gas emissions passed on in electricity prices. Such support should only be granted where it is necessary and proportionate and should ensure that the Community scheme incentives to save energy and to stimulate a shift in demand from 'grey' to 'green' electricity are maintained.
- (28) In order to ensure equal conditions of competition within the Community, the use of credits for emission reductions outside the Community to be used by operators within the Community scheme should be harmonised. The Kyoto Protocol sets out quantified emission targets for developed countries for the period from 2008 to 2012, and provides for the creation of certified emission reductions (CERs) from clean development mechanism (CDM) projects and emission reduction units (ERUs) from joint implementation (JI) projects and their use by developed countries to meet part of these targets. While the Kyoto framework does not enable ERUs to be created from 2013 onwards without new quantified emission targets being in place for host countries, CDM credits can potentially continue to be generated. Once there is an international agreement on climate change, additional use of CERs and ERUs should be provided for, from countries which have ratified that agreement. In the absence of such an agreement, providing for further use of CERs and ERUs would undermine this incentive and make it more difficult to achieve the objectives of

the Community regarding the increase of renewable energy use. The use of CERs and ERUs should be consistent with the goal set by the Community of generating 20 % of energy from renewable sources by 2020, and promoting energy efficiency, innovation and technological development. Where it is consistent with achieving these goals, the possibility should be foreseen to conclude agreements with third countries to provide incentives for reductions in emissions in these countries which bring about real, additional reductions in greenhouse gas emissions while stimulating innovation by companies established within the Community and technological development in third countries. Such agreements may be ratified by more than one country. Upon the approval by the Community of a satisfactory international agreement on climate change, access to credits from projects in third countries should be increased simultaneously with the increase in the level of emission reductions to be achieved through the Community scheme.

- (29) In order to provide predictability, operators should be provided with certainty about the possibility to use after 2012 CERs and ERUs up to the remainder of the level which they were allowed to use in the period from 2008 to 2012, from project types which were eligible for use in the Community scheme during the period from 2008 to 2012. As Member States cannot carry over CERs and ERUs held by operators between commitment periods under international agreements ('banking' of CERs and ERUs) before 2015, and only if Member States choose to allow the banking of those CERs and ERUs within the context of limited rights to bank such credits, this certainty should be provided by requiring Member States to allow operators to exchange such CERs and ERUs issued in respect of emission reductions before 2012 for allowances valid from 2013 onwards. However, as Member States should not be obliged to accept CERs and ERUs which it is not certain they will be able to use towards their existing international commitments, this requirement should not extend beyond 31 March 2015. Operators should be provided with the same certainty concerning such CERs issued from projects that have been established before 2013 in respect of emission reductions from 2013 onwards. It is important that credits from projects used by operators represent real, verifiable, additional and permanent emission reductions and have clear sustainable development benefits and no significant negative environmental or social impacts. A procedure should be established which allows for the exclusion of certain project types.
- (30) In the event of the conclusion of an international agreement on climate change being delayed, the possibility should be provided for to use credits from high-quality projects in the Community scheme through agreements with third countries. Such agreements, which may be bilateral or multilateral, could enable projects that generated ERUs until 2012 but are no longer able to do so under the Kyoto framework to continue to be recognised in the Community scheme.

- (31) LDCs are especially vulnerable to the effects of climate change, and are responsible only for a very low level of greenhouse gas emissions. Therefore, particular priority should be given to addressing the needs of LDCs when revenues generated from auctioning are used to facilitate developing countries' adaptation to the impacts of climate change. Given that very few CDM projects have been established in those countries, it is appropriate to provide certainty on the acceptance of credits from projects started in LDCs after 2012, even in the absence of an international agreement on climate change, when these projects are clearly additional and contribute to sustainable development. This entitlement should apply to LDCs until 2020 provided that they have by then either ratified an international agreement on climate change or a bilateral or multilateral agreement with the Community.
- (32) Once an international agreement on climate change has been reached, additional credits of up to half of the additional reduction taking place in the Community scheme may be used, and high quality CDM credits from third countries should only be accepted in the Community scheme from 2013, once those countries have ratified the international agreement.
- (33) The Community and its Member States should only authorise project activities where all project participants have headquarters either in a country that has concluded the international agreement relating to such projects, so as to discourage 'free-riding' by companies in States which have not concluded an international agreement, except where those companies are based in third countries, or in sub-federal or regional entities which are linked to the Community scheme.
- (34) The fact that certain provisions of this Directive refer to the approval of an international agreement on climate change by the Community is without prejudice to the conclusion of that agreement also by the Member States.
- (35) In the light of experience, the provisions of the Community scheme relating to monitoring, reporting and verifying emissions should be improved.
- (36) The Union should work to establish an internationally recognised system for reducing deforestation and increasing afforestation and reforestation, supporting the objective, within the UNFCCC, of developing financing mechanisms, taking into account existing arrangements, as part of an effective, efficient, equitable and coherent financial architecture within the international agreement on climate change to be reached in the Copenhagen Conference on Climate Change (COP 15 and COP/MOP 5).
- (37) In order to clarify the coverage of all kinds of boilers, burners, turbines, heaters, furnaces, incinerators, calciners, kilns, ovens, dryers, engines, fuel cells, chemical looping combustion units, flares, and thermal or catalytic post-combustion units by Directive 2003/87/EC, a definition of 'combustion' should be added.
- (38) In order to ensure that allowances can be transferred between persons within the Community without any restriction, and to ensure that the Community scheme can be linked to emissions trading systems in third countries and sub-federal and regional entities, from January 2012 onwards, all allowances should be held in the Community registry established under Decision No 280/2004/EC of the European Parliament and of the Council of 11 February 2004 concerning a mechanism for monitoring Community greenhouse gas emissions and for implementing the Kyoto Protocol ⁽¹⁾. This should be without prejudice to the maintenance of national registries for emissions not covered by the Community scheme. The Community registry should provide the same quality of services as national registries.
- (39) From 2013 onwards, the environmentally safe capture, transport and geological storage of CO₂ should be covered by the Community scheme in a harmonised manner.
- (40) Arrangements should be provided to enable the mutual recognition of allowances between the Community scheme and other mandatory greenhouse gas emissions trading systems capping absolute emissions established in any third country or sub-federal or regional entity.
- (41) Third countries neighbouring the Union should be encouraged to join the Community scheme if they comply with this Directive. The Commission should make every effort in negotiations with, and in the provision of financial and technical assistance to, candidate countries, potential candidate countries and countries covered by the European neighbourhood policy to promote this aim. This would facilitate technology and knowledge transfer to these countries, which is an important means of providing economic, environmental and social benefits to all.
- (42) This Directive should provide for agreements to be made for the recognition of allowances between the Community scheme and other mandatory greenhouse gas emissions trading systems with absolute emissions caps, which are compatible with the Community scheme taking into account the level of environmental ambition and the presence of a robust and comparable emissions monitoring, reporting and verification mechanism and compliance system.

⁽¹⁾ OJ L 49, 19.2.2004, p. 1.

- (43) Taking into account experience under the Community scheme, it should be possible to issue allowances in respect of projects that reduce greenhouse gas emissions, provided that these projects take place in accordance with harmonised rules adopted at Community level and these projects would not result in the double-counting of emission reductions or impede the extension of the scope of the Community scheme or the undertaking of other policy measures to reduce emissions not covered by the Community scheme.
- (44) The measures necessary for the implementation of this Directive should be adopted in accordance with Council Decision 1999/468/EC of 28 June 1999 laying down the procedures for the exercise of implementing powers conferred on the Commission ⁽¹⁾.
- (45) In particular, the Commission should be empowered to adopt measures for the harmonisation of rules on the definition of 'new entrant', the auctioning of allowances, the transitional Community-wide allocation of allowances, the establishment of the criteria and modalities applicable to the selection of certain demonstration projects, the establishment of a list of sectors or subsectors which are exposed to a significant risk of carbon leakage, the use of credits, the monitoring, reporting and verification of emissions, the accreditation of verifiers, the implementation of harmonised rules for projects as well as the amendment of certain annexes. Since those measures are of general scope and are designed to amend non-essential elements of Directive 2003/87/EC, inter alia, by supplementing it with new non-essential elements, they must be adopted in accordance with the regulatory procedure with scrutiny provided for in Article 5a of Decision 1999/468/EC.
- (46) Directive 2003/87/EC should therefore be amended accordingly.
- (47) It is appropriate to provide for an early transposition of those provisions which prepare for the revised operation of the Community scheme from 2013 onwards.
- (48) In order to correctly complete the trading-period from 2008 to 2012, the provisions of Directive 2003/87/EC, as amended by Directive 2004/101/EC ⁽²⁾, Directive 2008/101/EC ⁽³⁾ and Regulation (EC) No 219/2009 ⁽⁴⁾,

⁽¹⁾ OJ L 184, 17.7.1999, p. 23.

⁽²⁾ Directive 2004/101/EC of the European Parliament and of the Council of 27 October 2004 amending Directive 2003/87/EC establishing a scheme for greenhouse gas emission allowance trading within the Community, in respect of the Kyoto Protocol's project mechanisms (OJ L 338, 13.11.2004, p. 18).

⁽³⁾ Directive 2008/101/EC of the European Parliament and of the Council of 19 November 2008 amending Directive 2003/87/EC so as to include aviation activities in the scheme for greenhouse gas emission allowance trading within the Community (OJ L 8, 13.1.2009, p. 3).

⁽⁴⁾ Regulation (EC) No 219/2009 of the European Parliament and of the Council of 11 March 2009 adapting a number of instruments subject to the procedure referred to in Article 251 of the Treaty to Council Decision 1999/468/EC with regard to the regulatory procedure with scrutiny Adaptation to the regulatory procedure with scrutiny — Part Two (OJ L 87, 31.3.2009, p. 109).

should continue to apply without affecting the possibility for the Commission to adopt the measures necessary for the revised operation of the Community scheme from 2013 onwards.

- (49) The application of this Directive is without prejudice to Articles 87 and 88 of the Treaty.
- (50) This Directive respects the fundamental rights and observes the principles recognised in particular by the Charter of Fundamental Rights of the European Union.
- (51) Since the objectives of this Directive cannot be sufficiently achieved by the Member States and can therefore, by reason of the scale and effects of this Directive be better achieved at Community level, the Community may adopt measures, in accordance with the principle of subsidiarity as set out in Article 5 of the Treaty. 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.
- (52) In accordance with point 34 of the Interinstitutional Agreement on better lawmaking ⁽⁵⁾, Member States are encouraged to draw up, for themselves and in the interests of the Community, their own tables illustrating, as far as possible, the correlation between this Directive and the transposition measures, and to make them public,

HAVE ADOPTED THIS DIRECTIVE:

Article 1

Amendments to Directive 2003/87/EC

Directive 2003/87/EC is hereby amended as follows:

1. The following paragraphs shall be added to Article 1:

'This Directive also provides for the reductions of greenhouse gas emissions to be increased so as to contribute to the levels of reductions that are considered scientifically necessary to avoid dangerous climate change.

This Directive also lays down provisions for assessing and implementing a stricter Community reduction commitment exceeding 20 %, to be applied upon the approval by the Community of an international agreement on climate change leading to greenhouse gas emission reductions exceeding those required in Article 9, as reflected in the 30 % commitment endorsed by the European Council of March 2007.;

⁽⁵⁾ OJ C 321, 31.12.2003, p. 1.

2. Article 3 shall be amended as follows:

(a) point (c) shall be replaced by the following:

‘(c) “greenhouse gases” means the gases listed in Annex II and other gaseous constituents of the atmosphere, both natural and anthropogenic, that absorb and re-emit infrared radiation;’

(b) point (h) shall be replaced by the following:

‘(h) “new entrant” means:

- any installation carrying out one or more of the activities indicated in Annex I, which has obtained a greenhouse gas emissions permit for the first time after 30 June 2011,
- any installation carrying out an activity which is included in the Community scheme pursuant to Article 24(1) or (2) for the first time, or
- any installation carrying out one or more of the activities indicated in Annex I or an activity which is included in the Community scheme pursuant to Article 24(1) or (2), which has had a significant extension after 30 June 2011, only in so far as this extension is concerned.’

(c) The following points shall be added:

‘(t) “combustion” means any oxidation of fuels, regardless of the way in which the heat, electrical or mechanical energy produced by this process is used, and any other directly associated activities, including waste gas scrubbing;

(u) “electricity generator” means an installation that, on or after 1 January 2005, has produced electricity for sale to third parties, and in which no activity listed in Annex I is carried out other than the “combustion of fuels”.’

3. In Article 3c(2), the word ‘Article 11(2)’ shall be replaced by ‘Article 13(1)’;

4. In Article 3g, the words ‘the guidelines adopted pursuant to Article 14’ shall be replaced by ‘the regulation referred to in Article 14’;

5. Article 4 shall be replaced by the following:

‘Article 4

Greenhouse gas emissions permits

Member States shall ensure that, from 1 January 2005, no installation carries out any activity listed in Annex I resulting in emissions specified in relation to that activity unless its

operator holds a permit issued by a competent authority in accordance with Articles 5 and 6, or the installation is excluded from the Community scheme pursuant to Article 27. This shall also apply to installations opted in under Article 24.’;

6. Article 5(d) shall be replaced by the following:

‘(d) the measures planned to monitor and report emissions in accordance with the regulation referred to in Article 14.’;

7. Article 6 shall be amended as follows:

(a) In paragraph 1, the following subparagraph shall be added:

‘The competent authority shall, at least every five years, review the greenhouse gas emissions permit and make any amendments as are appropriate.’;

(b) In paragraph 2, point (c) shall be replaced by the following:

‘(c) a monitoring plan that fulfils the requirements under the regulation referred to in Article 14. Member States may allow operators to update monitoring plans without changing the permit. Operators shall submit any updated monitoring plans to the competent authority for approval.’;

8. Article 7 shall be replaced by the following:

‘Article 7

Changes relating to installations

The operator shall inform the competent authority of any planned changes to the nature or functioning of the installation, or any extension or significant reduction of its capacity, which may require updating the greenhouse gas emissions permit. Where appropriate, the competent authority shall update the permit. Where there is a change in the identity of the installation’s operator, the competent authority shall update the permit to include the name and address of the new operator.’;

9. Article 9 shall be replaced by the following:

‘Article 9

Community-wide quantity of allowances

The Community-wide quantity of allowances issued each year starting in 2013 shall decrease in a linear manner beginning from the mid-point of the period from 2008 to 2012. The quantity shall decrease by a linear factor of 1,74 % compared to the average annual total quantity of allowances issued by Member States in accordance with the Commission Decisions on their national allocation plans for the period from 2008 to 2012.

The Commission shall, by 30 June 2010, publish the absolute Community-wide quantity of allowances for 2013, based on the total quantities of allowances issued or to be issued by the Member States in accordance with the Commission Decisions on their national allocation plans for the period from 2008 to 2012.

The Commission shall review the linear factor and submit a proposal, where appropriate, to the European Parliament and to the Council as from 2020, with a view to the adoption of a decision by 2025.;

10. The following Article shall be inserted:

'Article 9a

Adjustment of the Community-wide quantity of allowances

1. In respect of installations that were included in the Community scheme during the period from 2008 to 2012 pursuant to Article 24(1), the quantity of allowances to be issued from 1 January 2013 shall be adjusted to reflect the average annual quantity of allowances issued in respect of those installations during the period of their inclusion, adjusted by the linear factor referred to in Article 9.

2. In respect of installations carrying out activities listed in Annex I, which are only included in the Community scheme from 2013 onwards, Member States shall ensure that the operators of such installations submit to the relevant competent authority duly substantiated and independently verified emissions data in order for them to be taken into account for the adjustment of the Community-wide quantity of allowances to be issued.

Any such data shall be submitted, by 30 April 2010, to the relevant competent authority in accordance with the provisions adopted pursuant to Article 14(1).

If the data submitted are duly substantiated, the competent authority shall notify the Commission thereof by 30 June 2010 and the quantity of allowances to be issued, adjusted by the linear factor referred to in Article 9, shall be adjusted accordingly. In the case of installations emitting greenhouse gases other than CO₂, the competent authority may notify a lower amount of emissions according to the emission reduction potential of those installations.

3. The Commission shall publish the adjusted quantities referred to in paragraphs 1 and 2 by 30 September 2010.

4. In respect of installations which are excluded from the Community scheme in accordance with Article 27, the Community-wide quantity of allowances to be issued from 1 January 2013 shall be adjusted downwards to reflect the average annual verified emissions of those installations in the period from 2008 to 2010, adjusted by the linear factor referred to in Article 9.;

11. Article 10 shall be replaced by the following:

'Article 10

Auctioning of allowances

1. From 2013 onwards, Member States shall auction all allowances which are not allocated free of charge in accordance with Article 10a and 10c. By 31 December 2010, the Commission shall determine and publish the estimated amount of allowances to be auctioned.

2. The total quantity of allowances to be auctioned by each Member State shall be composed as follows:

- (a) 88 % of the total quantity of allowances to be auctioned being distributed amongst Member States in shares that are identical to the share of verified emissions under the Community scheme for 2005 or the average of the period from 2005 to 2007, whichever one is the highest, of the Member State concerned;
- (b) 10 % of the total quantity of allowances to be auctioned being distributed amongst certain Member States for the purpose of solidarity and growth within the Community, thereby increasing the amount of allowances that those Member States auction under point (a) by the percentages specified in Annex IIa; and
- (c) 2 % of the total quantity of allowances to be auctioned being distributed amongst Member States the greenhouse gas emissions of which were, in 2005, at least 20 % below their emissions in the base year applicable to them under the Kyoto Protocol. The distribution of this percentage amongst the Member States concerned is set out in Annex IIb.

For the purposes of point (a), in respect of Member States which did not participate in the Community scheme in 2005, their share shall be calculated using their verified emissions under the Community scheme in 2007.

If necessary, the percentages referred to in points (b) and (c) shall be adapted in a proportional manner to ensure that the distribution is 10 % and 2 % respectively.

3. Member States shall determine the use of revenues generated from the auctioning of allowances. At least 50 % of the revenues generated from the auctioning of allowances referred to in paragraph 2, including all revenues from the auctioning referred to in paragraph 2, points (b) and (c), or the equivalent in financial value of these revenues, should be used for one or more of the following:

- (a) to reduce greenhouse gas emissions, including by contributing to the Global Energy Efficiency and Renewable Energy Fund and to the Adaptation Fund as made operational by the Poznan Conference on Climate Change (COP 14 and COP/MOP 4), to adapt to the impacts of climate change and to fund research and development as

well as demonstration projects for reducing emissions and for adaptation to climate change, including participation in initiatives within the framework of the European Strategic Energy Technology Plan and the European Technology Platforms;

- (b) to develop renewable energies to meet the commitment of the Community to using 20 % renewable energies by 2020, as well as to develop other technologies contributing to the transition to a safe and sustainable low-carbon economy and to help meet the commitment of the Community to increase energy efficiency by 20 % by 2020;
- (c) measures to avoid deforestation and increase afforestation and reforestation in developing countries that have ratified the international agreement on climate change, to transfer technologies and to facilitate adaptation to the adverse effects of climate change in these countries;
- (d) forestry sequestration in the Community;
- (e) the environmentally safe capture and geological storage of CO₂, in particular from solid fossil fuel power stations and a range of industrial sectors and subsectors, including in third countries;
- (f) to encourage a shift to low-emission and public forms of transport;
- (g) to finance research and development in energy efficiency and clean technologies in the sectors covered by this Directive;
- (h) measures intended to increase energy efficiency and insulation or to provide financial support in order to address social aspects in lower and middle income households;
- (i) to cover administrative expenses of the management of the Community scheme.

Member States shall be deemed to have fulfilled the provisions of this paragraph if they have in place and implement fiscal or financial support policies, including in particular in developing countries, or domestic regulatory policies, which leverage financial support, established for the purposes set out in the first subparagraph and which have a value equivalent to at least 50 % of the revenues generated from the auctioning of allowances referred to in paragraph 2, including all revenues from the auctioning referred to in paragraph 2, points (b) and (c).

Member States shall inform the Commission as to the use of revenues and the actions taken pursuant to this paragraph in their reports submitted under Decision No 280/2004/EC.

4. By 30 June 2010, the Commission shall adopt a regulation on timing, administration and other aspects of auctioning to ensure that it is conducted in an open, transparent, harmonised and non-discriminatory manner. To this end, the process should be predictable, in particular as regards the timing and sequencing of auctions and the estimated volumes of allowances to be made available.

Auctions shall be designed to ensure that:

- (a) operators, and in particular any SMEs covered by the Community scheme, have full, fair and equitable access;
- (b) all participants have access to the same information at the same time and that participants do not undermine the operation of the auction;
- (c) the organisation and participation in auctions is cost-efficient and undue administrative costs are avoided; and
- (d) access to allowances is granted for small emitters.

That measure, designed to amend non-essential elements of this Directive by supplementing it, shall be adopted in accordance with the regulatory procedure with scrutiny referred to in Article 23(3).

Member States shall report on the proper implementation of the auctioning rules for each auction, in particular with respect to fair and open access, transparency, price formation and technical and operational aspects. These reports shall be submitted within one month of the auction concerned and shall be published on the Commission's website.

5. The Commission shall monitor the functioning of the European carbon market. Each year, it shall submit a report to the European Parliament and to the Council on the functioning of the carbon market including the implementation of the auctions, liquidity and the volumes traded. If necessary, Member States shall ensure that any relevant information is submitted to the Commission at least two months before the Commission adopts the report.;

12. The following Articles shall be inserted:

'Article 10a

Transitional Community-wide rules for harmonised free allocation

1. By 31 December 2010, the Commission shall adopt Community-wide and fully-harmonised implementing measures for the allocation of the allowances referred to in paragraphs 4, 5, 7 and 12, including any necessary provisions for a harmonised application of paragraph 19.

Those measures, designed to amend non-essential elements of this Directive by supplementing it, shall be adopted in accordance with the regulatory procedure with scrutiny referred to in Article 23(3).

The measures referred to in the first subparagraph shall, to the extent feasible, determine Community-wide ex-ante benchmarks so as to ensure that allocation takes place in a manner that provides incentives for reductions in greenhouse gas emissions and energy efficient techniques, by taking account of the most efficient techniques, substitutes, alternative production processes, high efficiency cogeneration, efficient energy recovery of waste gases, use of biomass and capture and storage of CO₂, where such facilities are available, and shall not provide incentives to increase emissions. No free allocation shall be made in respect of any electricity production, except for cases falling within Article 10c and electricity produced from waste gases.

For each sector and subsector, in principle, the benchmark shall be calculated for products rather than for inputs, in order to maximise greenhouse gas emissions reductions and energy efficiency savings throughout each production process of the sector or the subsector concerned.

In defining the principles for setting ex-ante benchmarks in individual sectors and subsectors, the Commission shall consult the relevant stakeholders, including the sectors and subsectors concerned.

The Commission shall, upon the approval by the Community of an international agreement on climate change leading to mandatory reductions of greenhouse gas emissions comparable to those of the Community, review those measures to provide that free allocation is only to take place where this is fully justified in the light of that agreement.

2. In defining the principles for setting ex-ante benchmarks in individual sectors or subsectors, the starting point shall be the average performance of the 10 % most efficient installations in a sector or subsector in the Community in the years 2007-2008. The Commission shall consult the relevant stakeholders, including the sectors and subsectors concerned.

The regulations pursuant to Articles 14 and 15 shall provide for harmonised rules on monitoring, reporting and verification of production-related greenhouse gas emissions with a view to determining the ex-ante benchmarks.

3. Subject to paragraphs 4 and 8, and notwithstanding Article 10c, no free allocation shall be given to electricity generators, to installations for the capture of CO₂, to pipelines for transport of CO₂ or to CO₂ storage sites.

4. Free allocation shall be given to district heating as well as to high efficiency cogeneration, as defined by Directive 2004/8/EC, for economically justifiable demand, in respect of the production of heating or cooling. In each year subsequent to 2013, the total allocation to such installations in respect of the production of that heat shall be adjusted by the linear factor referred to in Article 9.

5. The maximum annual amount of allowances that is the basis for calculating allocations to installations which are not covered by paragraph 3 and are not new entrants shall not exceed the sum of:

- (a) the annual Community-wide total quantity, as determined pursuant to Article 9, multiplied by the share of emissions from installations not covered by paragraph 3 in the total average verified emissions, in the period from 2005 to 2007, from installations covered by the Community scheme in the period from 2008 to 2012; and
- (b) the total average annual verified emissions from installations in the period from 2005 to 2007 which are only included in the Community scheme from 2013 onwards and are not covered by paragraph 3, adjusted by the linear factor, as referred to in Article 9.

A uniform cross-sectoral correction factor shall be applied if necessary.

6. Member States may also adopt financial measures in favour of sectors or subsectors determined to be exposed to a significant risk of carbon leakage due to costs relating to greenhouse gas emissions passed on in electricity prices, in order to compensate for those costs and where such financial measures are in accordance with state aid rules applicable and to be adopted in this area.

Those measures shall be based on ex-ante benchmarks of the indirect emissions of CO₂ per unit of production. The ex-ante benchmarks shall be calculated for a given sector or subsector as the product of the electricity consumption per unit of production corresponding to the most efficient available technologies and of the CO₂ emissions of the relevant European electricity production mix.

7. Five percent of the Community-wide quantity of allowances determined in accordance with Articles 9 and 9a over the period from 2013 to 2020 shall be set aside for new entrants, as the maximum that may be allocated to new entrants in accordance with the rules adopted pursuant to paragraph 1 of this Article. Allowances in this Community-wide reserve that are neither allocated to new entrants nor used pursuant to paragraph 8, 9 or 10 of this Article over the period from 2013 to 2020 shall be auctioned by the Member States, taking into account the level to which installations in Member States have benefited from this reserve, in accordance with Article 10(2) and, for detailed arrangements and timing, Article 10(4), and the relevant implementing provisions.

Allocations shall be adjusted by the linear factor referred to in Article 9.

No free allocation shall be made in respect of any electricity production by new entrants.

By 31 December 2010, the Commission shall adopt harmonised rules for the application of the definition of "new entrant", in particular in relation to the definition of "significant extensions".

Those measures, designed to amend non-essential elements of this Directive by supplementing it, shall be adopted in accordance with the regulatory procedure with scrutiny referred to in Article 23(3).

8. Up to 300 million allowances in the new entrants' reserve shall be available until 31 December 2015 to help stimulate the construction and operation of up to 12 commercial demonstration projects that aim at the environmentally safe capture and geological storage (CCS) of CO₂ as well as demonstration projects of innovative renewable energy technologies, in the territory of the Union.

The allowances shall be made available for support for demonstration projects that provide for the development, in geographically balanced locations, of a wide range of CCS and innovative renewable energy technologies that are not yet commercially viable. Their award shall be dependent upon the verified avoidance of CO₂ emissions.

Projects shall be selected on the basis of objective and transparent criteria that include requirements for knowledge-sharing. Those criteria and the measures shall be adopted in accordance with the regulatory procedure with scrutiny referred to in Article 23(3), and shall be made available to the public.

Allowances shall be set aside for the projects that meet the criteria referred to in the third subparagraph. Support for these projects shall be given via Member States and shall be complementary to substantial co-financing by the operator of the installation. They could also be co-financed by the Member State concerned, as well as by other instruments. No project shall receive support via the mechanism under this paragraph that exceeds 15 % of the total number of allowances available for this purpose. These allowances shall be taken into account under paragraph 7.

9. Lithuania, which, pursuant to Article 1 of Protocol No 4 on the Ignalina nuclear power plant in Lithuania, annexed to the 2003 Act of Accession, has committed to the closure of unit 2 of the Ignalina Nuclear Power Plant by 31 December 2009, may, if the total verified emissions of Lithuania in the period from 2013 to 2015 within the Community scheme exceed the sum of the free allowances issued to installations in Lithuania for electricity production emissions in that period and three-eighths of the allowances to be auctioned by Lithuania for the period from 2013 to 2020, claim allowances from the new entrants reserve for auctioning in accordance with the regulation referred to in Article 10(4). The maximum amount of such allowances shall be equivalent to the excess emissions in that period to the extent that this excess is due to increased emissions from electricity generation, minus any quantity by which allocations in that Member State in the period from 2008 to 2012 exceeded verified emissions within the Community scheme in Lithuania during that period. Any such allowances shall be taken into account under paragraph 7.

10. Any Member State with an electricity network which is interconnected with Lithuania and which, in 2007, imported more than 15 % of its domestic electricity consumption from Lithuania for its own consumption, and where emissions have increased due to investment in new electricity generation, may apply paragraph 9 *mutatis mutandis* under the conditions set out in that paragraph.

11. Subject to Article 10b, the amount of allowances allocated free of charge under paragraphs 4 to 7 of this Article in 2013 shall be 80 % of the quantity determined in accordance with the measures referred to in paragraph 1. Thereafter the free allocation shall decrease each year by equal amounts resulting in 30 % free allocation in 2020, with a view to reaching no free allocation in 2027.

12. Subject to Article 10b, in 2013 and in each subsequent year up to 2020, installations in sectors or subsectors which are exposed to a significant risk of carbon leakage shall be allocated, pursuant to paragraph 1, allowances free of charge at 100 % of the quantity determined in accordance with the measures referred to in paragraph 1.

13. By 31 December 2009 and every five years thereafter, after discussion in the European Council, the Commission shall determine a list of the sectors or subsectors referred to in paragraph 12 on the basis of the criteria referred to in paragraphs 14 to 17.

Every year the Commission may, at its own initiative or at the request of a Member State, add a sector or subsector to the list referred to in the first subparagraph if it can be demonstrated, in an analytical report, that this sector or subsector satisfies the criteria in paragraphs 14 to 17, following a change that has a substantial impact on the sector's or subsector's activities.

For the purpose of implementing this Article, the Commission shall consult the Member States, the sectors or subsectors concerned and other relevant stakeholders.

Those measures, designed to amend non-essential elements of this Directive by supplementing it, shall be adopted in accordance with the regulatory procedure with scrutiny referred to in Article 23(3).

14. In order to determine the sectors or subsectors referred to in paragraph 12, the Commission shall assess, at Community level, the extent to which it is possible for the sector or subsector concerned, at the relevant level of disaggregation, to pass on the direct cost of the required allowances and the indirect costs from higher electricity prices resulting from the implementation of this Directive into product prices without significant loss of market share to less carbon efficient installations outside the Community. These assessments shall be based on an average carbon price according to the Commission's impact assessment accompanying the package of implementation measures for the EU's objectives on climate change and renewable energy for 2020 and, if available, trade, production and value added data from the three most recent years for each sector or subsector.

15. A sector or subsector shall be deemed to be exposed to a significant risk of carbon leakage if:

- (a) the sum of direct and indirect additional costs induced by the implementation of this Directive would lead to a substantial increase of production costs, calculated as a proportion of the gross value added, of at least 5 %; and
- (b) the intensity of trade with third countries, defined as the ratio between the total value of exports to third countries plus the value of imports from third countries and the total market size for the Community (annual turnover plus total imports from third countries), is above 10 %.

16. Notwithstanding paragraph 15, a sector or subsector is also deemed to be exposed to a significant risk of carbon leakage if:

- (a) the sum of direct and indirect additional costs induced by the implementation of this Directive would lead to a particularly high increase of production costs, calculated as a proportion of the gross value added, of at least 30 %; or
- (b) the intensity of trade with third countries, defined as the ratio between the total value of exports to third countries plus the value of imports from third countries and the total market size for the Community (annual turnover plus total imports from third countries), is above 30 %.

17. The list referred to in paragraph 13 may be supplemented after completion of a qualitative assessment, taking into account, where the relevant data are available, the following criteria:

- (a) the extent to which it is possible for individual installations in the sector or subsector concerned to reduce emission levels or electricity consumption, including, as appropriate, the increase in production costs that the related investment may entail, for instance on the basis of the most efficient techniques;
- (b) current and projected market characteristics, including when trade exposure or direct and indirect cost increase rates are close to one of the thresholds mentioned in paragraph 16;
- (c) profit margins as a potential indicator of long-run investment or relocation decisions.

18. The list referred to in paragraph 13 shall be determined after taking into account, where the relevant data are available, the following:

- (a) the extent to which third countries, representing a decisive share of global production of products in sectors or subsectors deemed to be at risk of carbon leakage, firmly commit to reducing greenhouse gas emissions in the relevant

sectors or subsectors to an extent comparable to that of the Community and within the same time-frame; and

- (b) the extent to which the carbon efficiency of installations located in these countries is comparable to that of the Community.

19. No free allocation shall be given to an installation that has ceased its operations, unless the operator demonstrates to the competent authority that this installation will resume production within a specified and reasonable time. Installations for which the greenhouse gas emissions permit has expired or has been withdrawn and installations for which the operation or resumption of operation is technically impossible shall be considered to have ceased operations.

20. The Commission shall, as part of the measures adopted under paragraph 1, include measures for defining installations that partially cease to operate or significantly reduce their capacity, and measures for adapting, as appropriate, the level of free allocations given to them accordingly.

Article 10b

Measures to support certain energy-intensive industries in the event of carbon leakage

1. By 30 June 2010, the Commission shall, in the light of the outcome of the international negotiations and the extent to which these lead to global greenhouse gas emission reductions, and after consulting with all relevant social partners, submit to the European Parliament and to the Council an analytical report assessing the situation with regard to energy-intensive sectors or subsectors that have been determined to be exposed to significant risks of carbon leakage. This shall be accompanied by any appropriate proposals, which may include:

- (a) adjustment of the proportion of allowances received free of charge by those sectors or subsectors under Article 10a;
- (b) inclusion in the Community scheme of importers of products which are produced by the sectors or subsectors determined in accordance with Article 10a;
- (c) assessment of the impact of carbon leakage on Member States' energy security, in particular where the electricity connections with the rest of the Union are insufficient and where there are electricity connections with third countries, and appropriate measures in this regard.

Any binding sectoral agreements which lead to global greenhouse gas emissions reductions of the magnitude required to effectively address climate change, and which are monitorable, verifiable and subject to mandatory enforcement arrangements shall also be taken into account when considering what measures are appropriate.

2. The Commission shall assess, by 31 March 2011, whether the decisions made regarding the proportion of allowances received free of charge by sectors or subsectors in accordance with paragraph 1, including the effect of setting ex-ante benchmarks in accordance with Article 10a(2), are likely to significantly affect the quantity of allowances to be auctioned by Member States in accordance with Article 10(2)(b), compared to a scenario with full auctioning for all sectors in 2020. It shall, if appropriate, submit adequate proposals to the European Parliament and to the Council, taking into account the possible distributional effects of such proposals.

Article 10c

Option for transitional free allocation for the modernisation of electricity generation

1. By derogation from Article 10a(1) to (5), Member States may give a transitional free allocation to installations for electricity production in operation by 31 December 2008 or to installations for electricity production for which the investment process was physically initiated by the same date, provided that one of the following conditions is met:

- (a) in 2007, the national electricity network was not directly or indirectly connected to the network interconnected system operated by the Union for the Coordination of Transmission of Electricity (UCTE);
- (b) in 2007, the national electricity network was only directly or indirectly connected to the network operated by UCTE through a single line with a capacity of less than 400 MW; or
- (c) in 2006, more than 30 % of electricity was produced from a single fossil fuel, and the GDP per capita at market price did not exceed 50 % of the average GDP per capita at market price of the Community.

The Member State concerned shall submit to the Commission a national plan that provides for investments in retrofitting and upgrading of the infrastructure and clean technologies. The national plan shall also provide for the diversification of their energy mix and sources of supply for an amount equivalent, to the extent possible, to the market value of the free allocation with respect to the intended investments, while taking into account the need to limit as far as possible directly linked price increases. The Member State concerned shall submit to the Commission, every year, a report on investments made in upgrading infrastructure and clean technologies. Investment undertaken from 25 June 2009 may be counted for this purpose.

2. Transitional free allocations shall be deducted from the quantity of allowances that the respective Member State would otherwise auction pursuant to Article 10(2). In 2013, the total transitional free allocation shall not exceed 70 % of the annual average verified emissions in 2005-2007 from such electricity generators for the amount corresponding to

the gross final national consumption of the Member State concerned and shall gradually decrease, resulting in no free allocation in 2020. For those Member States which did not participate in the Community scheme in 2005, the relevant emissions shall be calculated using their verified Community scheme emissions under the Community scheme in 2007.

The Member State concerned may determine that the allowances allocated pursuant to this Article may only be used by the operator of the installation concerned for surrendering allowances pursuant to Article 12(3) with respect to emissions of the same installation during the year for which the allowances are allocated.

3. Allocations to operators shall be based on the allocation under the verified emissions in 2005-2007 or an ex-ante efficiency benchmark based on the weighted average of emission levels of most greenhouse gas efficient electricity production covered by the Community scheme for installations using different fuels. The weighting may reflect the shares of the different fuels in electricity production in the Member State concerned. The Commission shall, in accordance with the regulatory procedure referred to in Article 23(2), provide guidance to ensure that the allocation methodology avoids undue distortions of competition and minimises negative impacts on the incentives to reduce emissions.

4. Any Member State applying this Article shall require benefiting electricity generators and network operators to report every 12 months on the implementation of their investments referred to in the national plan. Member States shall report on this to the Commission and shall make such reports public.

5. Any Member State that intends to allocate allowances on the basis of this Article shall, by 30 September 2011, submit to the Commission an application containing the proposed allocation methodology and individual allocations. An application shall contain:

- (a) evidence that the Member State meets at least one of the conditions set out in paragraph 1;
- (b) a list of the installations covered by the application and the amount of allowances to be allocated to each installation in accordance with paragraph 3 and the Commission guidance;
- (c) the national plan referred to in the second subparagraph of paragraph 1;
- (d) monitoring and enforcement provisions with respect to the intended investments pursuant to the national plan;
- (e) information showing that the allocations do not create undue distortions of competition.

6. The Commission shall assess the application taking into account the elements set out in paragraph 5 and may reject the application, or any aspect thereof, within six months of receiving the relevant information.

7. Two years before the end of the period during which a Member State may give transitional free allocation to installations for electricity production in operation by 31 December 2008, the Commission shall assess the progress made in the implementation of the national plan. If the Commission considers, on request of the Member State concerned, that there is a need for a possible extension of that period, it may submit to the European Parliament and to the Council appropriate proposals, including the conditions that would have to be met in the case of an extension of that period.;

13. Articles 11 and 11a shall be replaced by the following:

Article 11

National implementation measures

1. Each Member State shall publish and submit to the Commission, by 30 September 2011, the list of installations covered by this Directive in its territory and any free allocation to each installation in its territory calculated in accordance with the rules referred to in Article 10a(1) and Article 10c.

2. By 28 February of each year, the competent authorities shall issue the quantity of allowances that are to be allocated for that year, calculated in accordance with Articles 10, 10a and 10c.

3. Member States may not issue allowances free of charge under paragraph 2 to installations whose inscription in the list referred to in paragraph 1 has been rejected by the Commission.

Article 11a

Use of CERs and ERUs from project activities in the Community scheme before the entry into force of an international agreement on climate change

1. Without prejudice to the application of Article 28(3) and (4), paragraphs 2 to 7 of this Article shall apply.

2. To the extent that the levels of CER and ERU use, allowed to operators or aircraft operators by Member States for the period from 2008 to 2012, have not been used up or an entitlement to use credits is granted under paragraph 8, operators may request the competent authority to issue allowances to them valid from 2013 onwards in exchange for CERs and ERUs issued in respect of emission reductions up until 2012 from project types which were eligible for use in the Community scheme during the period from 2008 to 2012.

Until 31 March 2015, the competent authority shall make such an exchange on request.

3. To the extent that the levels of CER and ERU use, allowed to operators or aircraft operators by Member States for the period from 2008 to 2012, have not been used up or an entitlement to use credits is granted under paragraph 8, competent authorities shall allow operators to exchange CERs and ERUs from projects that were registered before 2013 issued in respect of emission reductions from 2013 onwards for allowances valid from 2013 onwards.

The first subparagraph shall apply to CERs and ERUs for all project types which were eligible for use in the Community scheme during the period from 2008 to 2012.

4. To the extent that the levels of CER and ERU use, allowed to operators or aircraft operators by Member States for the period from 2008 to 2012, have not been used up or an entitlement to use credits is granted under paragraph 8, competent authorities shall allow operators to exchange CERs issued in respect of emission reductions from 2013 onwards for allowances from new projects started from 2013 onwards in LDCs.

The first subparagraph shall apply to CERs for all project types which were eligible for use in the Community scheme during the period from 2008 to 2012, until those countries have ratified a relevant agreement with the Community or until 2020, whichever is the earlier.

5. To the extent that the levels of CER and ERU use, allowed to operators or aircraft operators by Member States for the period from 2008 to 2012, have not been used up or an entitlement to use credits is granted under paragraph 8 and in the event that the negotiations on an international agreement on climate change are not concluded by 31 December 2009, credits from projects or other emission reducing activities may be used in the Community scheme in accordance with agreements concluded with third countries, specifying levels of use. In accordance with such agreements, operators shall be able to use credits from project activities in those third countries to comply with their obligations under the Community scheme.

6. Any agreements referred to in paragraph 5 shall provide for the use of credits in the Community scheme from project types which were eligible for use in the Community scheme during the period from 2008 to 2012, including renewable energy or energy efficiency technologies which promote technological transfer and sustainable development. Any such agreement may also provide for the use of credits from projects where the baseline used is below the level of free allocation under the measures referred to in Article 10a or below the levels required by Community legislation.

7. Once an international agreement on climate change has been reached, only credits from projects from third countries which have ratified that agreement shall be accepted in the Community scheme from 1 January 2013.

8. All existing operators shall be allowed to use credits during the period from 2008 to 2020 up to either the amount allowed to them during the period from 2008 to 2012, or to an amount corresponding to a percentage, which shall not be set below 11 %, of their allocation during the period from 2008 to 2012, whichever is the highest.

Operators shall be able to use credits beyond the 11 % provided for in the first subparagraph, up to an amount which results in their combined free allocation in the period from 2008 to 2012 and overall project credits entitlement equal to a certain percentage of their verified emissions in the period from 2005 to 2007.

New entrants, including new entrants in the period from 2008 to 2012 which received neither free allocation nor an entitlement to use CERs and ERUs in the period from 2008-2012, and new sectors shall be able to use credits up to an amount corresponding to a percentage, which shall not be set below 4,5 %, of their verified emissions during the period from 2013 to 2020. Aircraft operators shall be able to use credits up to an amount corresponding to a percentage, which shall not be set below 1,5 %, of their verified emissions during the period from 2013 to 2020.

Measures shall be adopted to specify the exact percentages which shall apply under the first, second and third subparagraphs. At least one-third of the additional amount which is to be distributed to existing operators beyond the first percentage referred to in the first subparagraph shall be distributed to the operators which had the lowest level of combined average free allocation and project credit use in the period from 2008 to 2012.

Those measures shall ensure that the overall use of credits allowed does not exceed 50 % of the Community-wide reductions below the 2005 levels of the existing sectors under the Community scheme over the period from 2008 to 2020 and 50 % of the Community-wide reductions below the 2005 levels of new sectors and aviation over the period from the date of their inclusion in the Community scheme to 2020.

Those measures, designed to amend non-essential elements of this Directive by supplementing it, shall be adopted in accordance with the regulatory procedure with scrutiny referred to in Article 23(3).

9. From 1 January 2013, measures may be applied to restrict the use of specific credits from project types.

Those measures shall also set the date from which the use of credits under paragraphs 1 to 4 shall be in accordance with these measures. That date shall be, at the earliest, six months from the adoption of the measures or, at the latest, three years from their adoption.

Those measures, designed to amend non-essential elements of this Directive by supplementing it, shall be adopted in accordance with the regulatory procedure with scrutiny referred to in Article 23(3). The Commission shall consider submitting to the Committee a draft of the measures to be taken where a Member State so requests.;

14. In Article 11b(1) the following subparagraph shall be added:

'The Community and its Member States shall only authorise project activities where all project participants have headquarters either in a country that has concluded the international agreement relating to such projects or in a country or sub-federal or regional entity which is linked to the Community scheme pursuant to Article 25.;

15. Article 12 shall be amended as follows:

(a) the following paragraph shall be inserted:

'1a. The Commission shall, by 31 December 2010, examine whether the market for emissions allowances is sufficiently protected from insider dealing or market manipulation and, if appropriate, shall bring forward proposals to ensure such protection. The relevant provisions of Directive 2003/6/EC of the European Parliament and of the Council of 28 January 2003 on insider dealing and market manipulation (market abuse) (*) may be used with any appropriate adjustments needed to apply them to trade in commodities.

(*) OJ L 96, 12.4.2003, p. 16.;

(b) the following paragraph shall be inserted:

'3a. An obligation to surrender allowances shall not arise in respect of emissions verified as captured and transported for permanent storage to a facility for which a permit is in force in accordance with Directive 2009/31/EC of the European Parliament and of the Council of 23 April 2009 on the geological storage of carbon dioxide (*).

(*) OJ L 140, 5.6.2009, p. 114.;

(c) the following paragraph shall be added:

'5. Paragraphs 1 and 2 apply without prejudice to Article 10c.;

16. Article 13 shall be replaced by the following:

'Article 13

Validity of allowances

1. Allowances issued from 1 January 2013 onwards shall be valid for emissions during periods of eight years beginning on 1 January 2013.

2. Four months after the beginning of each period referred to in paragraph 1, allowances which are no longer valid and have not been surrendered and cancelled in accordance with Article 12 shall be cancelled by the competent authority.

Member States shall issue allowances to persons for the current period to replace any allowances held by them which are cancelled in accordance with the first subparagraph.;

17. Article 14 shall be replaced by the following:

'Article 14

Monitoring and reporting of emissions

1. By 31 December 2011, the Commission shall adopt a regulation for the monitoring and reporting of emissions and, where relevant, activity data, from the activities listed in Annex I, for the monitoring and reporting of tonne-kilometre data for the purpose of an application under Articles 3e or 3f, which shall be based on the principles for monitoring and reporting set out in Annex IV and shall specify the global warming potential of each greenhouse gas in the requirements for monitoring and reporting emissions for that gas.

That measure, designed to amend non-essential elements of this Directive by supplementing it, shall be adopted in accordance with the regulatory procedure with scrutiny referred to in Article 23(3).

2. The regulation referred to in paragraph 1 shall take into account the most accurate and up-to-date scientific evidence available, in particular from the IPCC, and may also specify requirements for operators to report on emissions associated with the production of goods produced by energy intensive industries which may be subject to international competition. That regulation may also specify requirements for this information to be verified independently.

Those requirements may include reporting on levels of emissions from electricity generation covered by the Community scheme associated with the production of such goods.

3. Member States shall ensure that each operator of an installation or an aircraft operator monitors and reports the emissions from that installation during each calendar year, or, from 1 January 2010, the aircraft which it operates, to the competent authority after the end of that year in accordance with the regulation referred to in paragraph 1.

4. The regulation referred to in paragraph 1 may include requirements on the use of automated systems and data exchange formats to harmonise communication on the monitoring plan, the annual emission report and the verification activities between the operator, the verifier and competent authorities.;

18. Article 15 shall be amended as follows:

(a) the title shall be replaced by the following:

'Verification and accreditation';

(b) the following paragraphs shall be added:

'By 31 December 2011, the Commission shall adopt a regulation for the verification of emission reports based on the principles set out in Annex V and for the accreditation and supervision of verifiers. It shall specify conditions for the accreditation and withdrawal of accreditation, for mutual recognition and peer evaluation of accreditation bodies, as appropriate.

That measure, designed to amend non-essential elements of this Directive by supplementing it, shall be adopted in accordance with the regulatory procedure with scrutiny referred to in Article 23(3).;

19. The following Article shall be inserted:

'Article 15a

Disclosure of information and professional secrecy

Member States and the Commission shall ensure that all decisions and reports relating to the quantity and allocation of allowances and to the monitoring, reporting and verification of emissions are immediately disclosed in an orderly manner ensuring non-discriminatory access.

Information covered by professional secrecy may not be disclosed to any other person or authority except by virtue of the applicable laws, regulations or administrative provisions.;

20. In Article 16, paragraph 4 shall be replaced by the following:

'4. The excess emissions penalty relating to allowances issued from 1 January 2013 onwards shall increase in accordance with the European index of consumer prices.;

21. Article 19 shall be amended as follows:

(a) paragraph 1 shall be replaced by the following:

'1. Allowances issued from 1 January 2012 onwards shall be held in the Community registry for the execution of processes pertaining to the maintenance of the holding accounts opened in the Member State and the allocation, surrender and cancellation of allowances under the Commission Regulation referred to in paragraph 3.

Each Member State shall be able to fulfil the execution of authorised operations under the UNFCCC or the Kyoto Protocol.;

(b) the following paragraph shall be added:

'4. The Regulation referred to in paragraph 3 shall contain appropriate modalities for the Community registry to undertake transactions and other operations to implement arrangements referred to in Article 25(1b). That Regulation shall also include processes for the change and incident management for the Community registry with regard to issues in paragraph 1 of this Article. It shall contain appropriate modalities for the Community registry to ensure that initiatives of the Member States pertaining to efficiency improvement, administrative cost management and quality control measures are possible.'

22. Article 21 shall be amended as follows:

(a) in paragraph 1, the second sentence shall be replaced by the following:

'That report shall pay particular attention to the arrangements for the allocation of allowances, the operation of registries, the application of the implementing measures on monitoring and reporting, verification and accreditation and issues relating to compliance with this Directive and on the fiscal treatment of allowances, if any.'

(b) paragraph 3 shall be replaced by the following:

'3. The Commission shall organise an exchange of information between the competent authorities of the Member States concerning developments relating to issues of allocation, the use of ERUs and CERs in the Community scheme, the operation of registries, monitoring, reporting, verification, accreditation, information technology, and compliance with this Directive.'

23. Article 22 shall be replaced by the following:

'Article 22

Amendments to the Annexes

The Annexes to this Directive, with the exception of Annexes I, IIa and IIb, may be amended in the light of the reports provided for in Article 21 and of the experience of the application of this Directive. Annexes IV and V may be amended in order to improve the monitoring, reporting and verification of emissions.

Those measures, designed to amend non-essential elements of this Directive, inter alia, by supplementing it, shall be adopted in accordance with the regulatory procedure with scrutiny referred to in Article 23(3).'

24. The following paragraph shall be added to Article 23:

'4. Where reference is made to this paragraph, Article 4 and 7 of Decision 1999/468/CE shall apply, having regard to the provisions of Article 8 thereof.'

25. Article 24 shall be replaced by the following:

'Article 24

Procedures for unilateral inclusion of additional activities and gases

1. From 2008, Member States may apply emission allowance trading in accordance with this Directive to activities and to greenhouse gases which are not listed in Annex I, taking into account all relevant criteria, in particular the effects on the internal market, potential distortions of competition, the environmental integrity of the Community scheme and the reliability of the planned monitoring and reporting system, provided that inclusion of such activities and greenhouse gases is approved by the Commission

(a) in accordance with the regulatory procedure referred to in Article 23(2), if the inclusion refers to installations which are not covered by Annex I; or

(b) in accordance with the regulatory procedure with scrutiny referred to in Article 23(3), if the inclusion refers to activities and greenhouse gases which are not listed in Annex I. Those measures are designed to amend non-essential elements of this Directive by supplementing it.

2. When the inclusion of additional activities and gases is approved, the Commission may at the same time authorise the issue of additional allowances and may authorise other Member States to include such additional activities and gases.

3. On the initiative of the Commission or at the request of a Member State, a regulation may be adopted on the monitoring of, and reporting on, emissions concerning activities, installations and greenhouse gases which are not listed as a combination in Annex I, if that monitoring and reporting can be carried out with sufficient accuracy.

That measure, designed to amend non-essential elements of this Directive by supplementing it, shall be adopted in accordance with the regulatory procedure with scrutiny referred to in Article 23(3).'

26. The following Article shall be inserted:

'Article 24a

Harmonised rules for projects that reduce emissions

1. In addition to the inclusions provided for in Article 24, implementing measures for issuing allowances or credits in respect of projects administered by Member States that reduce greenhouse gas emissions not covered by the Community scheme may be adopted.

Those measures, designed to amend non-essential elements of this Directive by supplementing it, shall be adopted in accordance with the regulatory procedure with scrutiny referred to in Article 23(3).

Any such measures shall not result in the double-counting of emission reductions nor impede the undertaking of other policy measures to reduce emissions not covered by the Community scheme. Measures shall only be adopted where inclusion is not possible in accordance with Article 24, and the next review of the Community scheme shall consider harmonising the coverage of those emissions across the Community.

2. Implementing measures that set out the details for crediting in respect of Community-level projects referred to in paragraph 1 may be adopted.

Those measures, designed to amend non-essential elements of this Directive by supplementing it, shall be adopted in accordance with the regulatory procedure with scrutiny referred to in Article 23(3).

3. A Member State can refuse to issue allowances or credits in respect of certain types of projects that reduce greenhouse gas emissions on its own territory.

Such projects will be executed on the basis of the agreement of the Member State in which the project takes place.;

27. In Article 25, the following paragraphs shall be inserted:

'1a. Agreements may be made to provide for the recognition of allowances between the Community scheme and compatible mandatory greenhouse gas emissions trading systems with absolute emissions caps established in any other country or in sub-federal or regional entities.

1b. Non-binding arrangements may be made with third countries or with sub-federal or regional entities to provide for administrative and technical coordination in relation to allowances in the Community scheme or other mandatory greenhouse gas emissions trading systems with absolute emissions caps.;

28. Articles 27, 28 and 29 shall be replaced by the following:

'Article 27

Exclusion of small installations subject to equivalent measures

1. Following consultation with the operator, Member States may exclude from the Community scheme installations which have reported to the competent authority emissions of less than 25 000 tonnes of carbon dioxide equivalent and, where they carry out combustion activities, have a rated thermal input below 35 MW, excluding emissions from biomass, in each of the three years preceding the notification

under point (a), and which are subject to measures that will achieve an equivalent contribution to emission reductions, if the Member State concerned complies with the following conditions:

- (a) it notifies the Commission of each such installation, specifying the equivalent measures applying to that installation that will achieve an equivalent contribution to emission reductions that are in place, before the list of installations pursuant to Article 11(1) has to be submitted and at the latest when this list is submitted to the Commission;
- (b) it confirms that monitoring arrangements are in place to assess whether any installation emits 25 000 tonnes or more of carbon dioxide equivalent, excluding emissions from biomass, in any one calendar year. Member States may allow simplified monitoring, reporting and verification measures for installations with average annual verified emissions between 2008 and 2010 which are below 5 000 tonnes a year, in accordance with Article 14;
- (c) it confirms that if any installation emits 25 000 tonnes or more of carbon dioxide equivalent, excluding emissions from biomass, in any one calendar year or the measures applying to that installation that will achieve an equivalent contribution to emission reductions are no longer in place, the installation will be reintroduced into the Community scheme;
- (d) it publishes the information referred to in points (a), (b) and (c) for public comment.

Hospitals may also be excluded if they undertake equivalent measures.

2. If, following a period of three months from the date of notification for public comment, the Commission does not object within a further period of six months, the exclusion shall be deemed approved.

Following the surrender of allowances in respect of the period during which the installation is in the Community scheme, the installation shall be excluded and the Member State shall no longer issue free allowances to the installation pursuant to Article 10a.

3. When an installation is reintroduced into the Community scheme pursuant to paragraph 1(c), any allowances issued pursuant to Article 10a shall be granted starting with the year of the reintroduction. Allowances issued to these installations shall be deducted from the quantity to be auctioned pursuant to Article 10(2) by the Member State in which the installation is situated.

Any such installation shall stay in the Community scheme for the rest of the trading period.

4. For installations which have not been included in the Community scheme during the period from 2008 to 2012, simplified requirements for monitoring, reporting and verification may be applied for determining emissions in the three years preceding the notification under paragraph 1 point (a).

Article 28

Adjustments applicable upon the approval by the Community of an international agreement on climate change

1. Within three months of the signature by the Community of an international agreement on climate change leading, by 2020, to mandatory reductions of greenhouse gas emissions exceeding 20 % compared to 1990 levels, as reflected in the 30 % reduction commitment as endorsed by the European Council of March 2007, the Commission shall submit a report assessing, in particular, the following elements:

- (a) the nature of the measures agreed upon in the framework of the international negotiations as well as the commitments made by other developed countries to comparable emission reductions to those of the Community and the commitments made by economically more advanced developing countries to contributing adequately according to their responsibilities and respective capabilities;
- (b) the implications of the international agreement on climate change, and consequently, options required at Community level, in order to move to the more ambitious 30 % reduction target in a balanced, transparent and equitable way, taking into account work under the Kyoto Protocol's first commitment period;
- (c) the Community manufacturing industries' competitiveness in the context of carbon leakage risks;
- (d) the impact of the international agreement on climate change on other Community economic sectors;
- (e) the impact on the Community agriculture sector, including carbon leakage risks;
- (f) the appropriate modalities for including emissions and removals related to land use, land use change and forestry in the Community;
- (g) afforestation, reforestation, avoided deforestation and forest degradation in third countries in the event of the establishment of any internationally recognised system in this context;
- (h) the need for additional Community policies and measures in view of the greenhouse gas reduction commitments of the Community' and of Member States.

2. On the basis of the report referred to in paragraph 1, the Commission shall, as appropriate, submit a legislative proposal to the European Parliament and to the Council amending this Directive pursuant to paragraph 1, with a view to the amending Directive entering into force upon the approval by the Community of the international agreement on climate change and in view of the emission reduction commitment to be implemented under that agreement.

The proposal shall be based upon the principles of transparency, economic efficiency and cost-effectiveness, as well as fairness and solidarity in the distribution of efforts between Member States.

3. The proposal shall allow, as appropriate, operators to use, in addition to the credits provided for in this Directive, CERs, ERUs or other approved credits from third countries which have ratified the international agreement on climate change.

4. The proposal shall also include, as appropriate, any other measures needed to help reach the mandatory reductions in accordance with paragraph 1 in a transparent, balanced and equitable way and, in particular, shall include implementing measures to provide for the use of additional types of project credits by operators in the Community scheme to those referred to in paragraphs 2 to 5 of Article 11a or the use by such operators of other mechanisms created under the international agreement on climate change, as appropriate.

5. The proposal shall include the appropriate transitional and suspensive measures pending the entry into force of the international agreement on climate change.

Article 29

Report to ensure the better functioning of the carbon market

If, on the basis of the regular reports on the carbon market referred to in Article 10(5), the Commission has evidence that the carbon market is not functioning properly, it shall submit a report to the European Parliament and to the Council. The report may be accompanied, if appropriate, by proposals aiming at increasing transparency of the carbon market and addressing measures to improve its functioning.;

29. The following Article shall be inserted:

'Article 29a

Measures in the event of excessive price fluctuations

1. If, for more than six consecutive months, the allowance price is more than three times the average price of allowances during the two preceding years on the European carbon market, the Commission shall immediately convene a meeting of the Committee established by Article 9 of Decision No 280/2004/EC.

2. If the price evolution referred to in paragraph 1 does not correspond to changing market fundamentals, one of the following measures may be adopted, taking into account the degree of price evolution:

- (a) a measure which allows Member States to bring forward the auctioning of a part of the quantity to be auctioned;
- (b) a measure which allows Member States to auction up to 25 % of the remaining allowances in the new entrants reserve.

Those measures shall be adopted in accordance with the management procedure referred to in Article 23(4).

3. Any measure shall take utmost account of the reports submitted by the Commission to the European Parliament and to the Council pursuant to Article 29, as well as any other relevant information provided by Member States.

4. The arrangements for the application of these provisions shall be laid down in the regulation referred to in Article 10(4).;

30. Annex I shall be replaced by the text appearing in Annex I to this Directive;

31. Annexes IIa and IIb shall be inserted as set out in Annex II to this Directive;

32. Annex III shall be deleted.

Article 2

Transposition

1. Member States shall bring into force the laws, regulations and administrative provisions necessary to comply with this Directive by 31 December 2012.

However, they shall bring into force the laws, regulations and administrative provisions necessary to comply with Article 9a(2) of Directive 2003/87/EC as inserted by Article 1(10) of this Directive and with Article 11 of Directive 2003/87/EC as amended by Article 1(13) of this Directive by 31 December 2009.

Member States shall apply the measures referred to in the first subparagraph from 1 January 2013. When Member States adopt the measures referred to in the first and second subparagraphs, those measures shall contain a reference to this Directive or shall be accompanied by such 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 provisions of national law which they adopt in the field covered by this Directive. The Commission shall inform the other Member States thereof.

Article 3

Transitional provision

The provisions of Directive 2003/87/EC, as amended by Directive 2004/101/EC, Directive 2008/101/EC and Regulation (EC) No 219/2009, shall continue to apply until 31 December 2012.

Article 4

Entry into force

This Directive shall enter into force on the 20th day following its publication in the *Official Journal of the European Union*.

Article 5

Addressees

This Directive is addressed to the Member States.

Done at Strasbourg, 23 April 2009.

For the European Parliament
The President
H.-G. PÖTTERING

For the Council
The President
P. NEČAS

ANNEX I

Annex I to Directive 2003/87/EC shall be replaced by the following:

'ANNEX I

CATEGORIES OF ACTIVITIES TO WHICH THIS DIRECTIVE APPLIES

1. Installations or parts of installations used for research, development and testing of new products and processes and installations exclusively using biomass are not covered by this Directive.
2. The thresholds values given below generally refer to production capacities or outputs. Where several activities falling under the same category are carried out in the same installation, the capacities of such activities are added together.
3. When the total rated thermal input of an installation is calculated in order to decide upon its inclusion in the Community scheme, the rated thermal inputs of all technical units which are part of it, in which fuels are combusted within the installation, are added together. These units could include all types of boilers, burners, turbines, heaters, furnaces, incinerators, calciners, kilns, ovens, dryers, engines, fuel cells, chemical looping combustion units, flares, and thermal or catalytic post-combustion units. Units with a rated thermal input under 3 MW and units which use exclusively biomass shall not be taken into account for the purposes of this calculation. "Units using exclusively biomass" includes units which use fossil fuels only during start-up or shut-down of the unit.
4. If a unit serves an activity for which the threshold is not expressed as total rated thermal input, the threshold of this activity shall take precedence for the decision about the inclusion in the Community scheme.
5. When the capacity threshold of any activity in this Annex is found to be exceeded in an installation, all units in which fuels are combusted, other than units for the incineration of hazardous or municipal waste, shall be included in the greenhouse gas emission permit.
6. From 1 January 2012 all flights which arrive at or depart from an aerodrome situated in the territory of a Member State to which the Treaty applies shall be included.

Activities	Greenhouse gases
Combustion of fuels in installations with a total rated thermal input exceeding 20 MW (except in installations for the incineration of hazardous or municipal waste)	Carbon dioxide
Refining of mineral oil	Carbon dioxide
Production of coke	Carbon dioxide
Metal ore (including sulphide ore) roasting or sintering, including pelletisation	Carbon dioxide
Production of pig iron or steel (primary or secondary fusion) including continuous casting, with a capacity exceeding 2,5 tonnes per hour	Carbon dioxide
Production or processing of ferrous metals (including ferro-alloys) where combustion units with a total rated thermal input exceeding 20 MW are operated. Processing includes, inter alia, rolling mills, re-heaters, annealing furnaces, smitheries, foundries, coating and pickling	Carbon dioxide
Production of primary aluminium	Carbon dioxide and perfluorocarbons
Production of secondary aluminium where combustion units with a total rated thermal input exceeding 20 MW are operated	Carbon dioxide
Production or processing of non-ferrous metals, including production of alloys, refining, foundry casting, etc., where combustion units with a total rated thermal input (including fuels used as reducing agents) exceeding 20 MW are operated	Carbon dioxide

Activities	Greenhouse gases
Production of cement clinker in rotary kilns with a production capacity exceeding 500 tonnes per day or in other furnaces with a production capacity exceeding 50 tonnes per day	Carbon dioxide
Production of lime or calcination of dolomite or magnesite in rotary kilns or in other furnaces with a production capacity exceeding 50 tonnes per day	Carbon dioxide
Manufacture of glass including glass fibre with a melting capacity exceeding 20 tonnes per day	Carbon dioxide
Manufacture of ceramic products by firing, in particular roofing tiles, bricks, refractory bricks, tiles, stoneware or porcelain, with a production capacity exceeding 75 tonnes per day	Carbon dioxide
Manufacture of mineral wool insulation material using glass, rock or slag with a melting capacity exceeding 20 tonnes per day	Carbon dioxide
Drying or calcination of gypsum or production of plaster boards and other gypsum products, where combustion units with a total rated thermal input exceeding 20 MW are operated	Carbon dioxide
Production of pulp from timber or other fibrous materials	Carbon dioxide
Production of paper or cardboard with a production capacity exceeding 20 tonnes per day	Carbon dioxide
Production of carbon black involving the carbonisation of organic substances such as oils, tars, cracker and distillation residues, where combustion units with a total rated thermal input exceeding 20 MW are operated	Carbon dioxide
Production of nitric acid	Carbon dioxide and nitrous oxide
Production of adipic acid	Carbon dioxide and nitrous oxide
Production of glyoxal and glyoxylic acid	Carbon dioxide and nitrous oxide
Production of ammonia	Carbon dioxide
Production of bulk organic chemicals by cracking, reforming, partial or full oxidation or by similar processes, with a production capacity exceeding 100 tonnes per day	Carbon dioxide
Production of hydrogen (H ₂) and synthesis gas by reforming or partial oxidation with a production capacity exceeding 25 tonnes per day	Carbon dioxide
Production of soda ash (Na ₂ CO ₃) and sodium bicarbonate (NaHCO ₃)	Carbon dioxide
Capture of greenhouse gases from installations covered by this Directive for the purpose of transport and geological storage in a storage site permitted under Directive 2009/31/EC	Carbon dioxide
Transport of greenhouse gases by pipelines for geological storage in a storage site permitted under Directive 2009/31/EC	Carbon dioxide
Geological storage of greenhouse gases in a storage site permitted under Directive 2009/31/EC	Carbon dioxide

Activities	Greenhouse gases
<p>Aviation</p> <p>Flights which depart from or arrive in an aerodrome situated in the territory of a Member State to which the Treaty applies.</p> <p>This activity shall not include:</p> <ul style="list-style-type: none"> (a) flights performed exclusively for the transport, on official mission, of a reigning Monarch and his immediate family, Heads of State, Heads of Government and Government Ministers, of a country other than a Member State, where this is substantiated by an appropriate status indicator in the flight plan; (b) military flights performed by military aircraft and customs and police flights; (c) flights related to search and rescue, fire-fighting flights, humanitarian flights and emergency medical service flights authorised by the appropriate competent authority; (d) any flights performed exclusively under visual flight rules as defined in Annex 2 to the Chicago Convention; (e) flights terminating at the aerodrome from which the aircraft has taken off and during which no intermediate landing has been made; (f) training flights performed exclusively for the purpose of obtaining a licence, or a rating in the case of cockpit flight crew where this is substantiated by an appropriate remark in the flight plan provided that the flight does not serve for the transport of passengers and/or cargo or for the positioning or ferrying of the aircraft; (g) flights performed exclusively for the purpose of scientific research or for the purpose of checking, testing or certifying aircraft or equipment whether airborne or ground-based; (h) flights performed by aircraft with a certified maximum take-off mass of less than 5 700 kg; (i) flights performed in the framework of public service obligations imposed in accordance with Regulation (EEC) No 2408/92 on routes within outermost regions, as specified in Article 299(2) of the Treaty, or on routes where the capacity offered does not exceed 30 000 seats per year; and (j) flights which, but for this point, would fall within this activity, performed by a commercial air transport operator operating either: <ul style="list-style-type: none"> — fewer than 243 flights per period for three consecutive four-month periods, or — flights with total annual emissions lower than 10 000 tonnes per year. <p>Flights performed exclusively for the transport, on official mission, of a reigning Monarch and his immediate family, Heads of State, Heads of Government and Government Ministers, of a Member State may not be excluded under this point.'</p>	<p>Carbon dioxide</p>

ANNEX II

The following Annexes shall be inserted as Annex IIa and Annex IIb to Directive 2003/87/EC:

‘ANNEX IIa

Increases in the percentage of allowances to be auctioned by Member States pursuant to Article 10(2)(a), for the purpose of Community solidarity and growth in order to reduce emissions and adapt to the effects of climate change

	MemberState share
Belgium	10 %
Bulgaria	53 %
CzechRepublic	31 %
Estonia	42 %
Greece	17 %
Spain	13 %
Italy	2 %
Cyprus	20 %
Latvia	56 %
Lithuania	46 %
Luxembourg	10 %
Hungary	28 %
Malta	23 %
Poland	39 %
Portugal	16 %
Romania	53 %
Slovenia	20 %
Slovakia	41 %
Sweden	10 %

ANNEX IIb

DISTRIBUTION OF ALLOWANCES TO BE AUCTIONED BY MEMBER STATES PURSUANT TO ARTICLE 10(2)(c) REFLECTING EARLY EFFORTS OF SOME MEMBER STATES TO ACHIEVE 20 % REDUCTION OF GREENHOUSE GAS EMISSIONS

Member State	Distribution of the 2 % against the Kyoto base in percentages
Bulgaria	15 %
CzechRepublic	4 %
Estonia	6 %
Hungary	5 %
Latvia	4 %
Lithuania	7 %
Poland	27 %
Romania	29 %
Slovakia	3 %

DIRECTIVE 2009/30/EC OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL

of 23 April 2009

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

(Text with EEA relevance)

THE EUROPEAN PARLIAMENT AND THE COUNCIL OF THE EUROPEAN UNION,

Having regard to the Treaty establishing the European Community, and in particular Article 95 thereof and Article 175(1) thereof in relation to Article 1(5) and Article 2 of this Directive,

Having regard to the proposal from the Commission,

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 procedure laid down in Article 251 of the Treaty ⁽²⁾,

Whereas:

- (1) 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 ⁽³⁾ establishes minimum specifications for petrol and diesel fuels for use in road and non-road mobile applications for health and environmental reasons.
- (2) One of the objectives laid down in the Sixth Community Environment Action Programme established by Decision No 1600/2002/EC ⁽⁴⁾ of 22 July 2002 is to achieve levels of air quality that do not give rise to significant negative impacts on, or risks to, human health and the environment. In its statement accompanying Directive 2008/50/EC of the European Parliament and of the Council of 21 May 2008 on ambient air quality and cleaner air for Europe ⁽⁵⁾ the Commission recognised the need to reduce emissions of harmful air pollutants if significant progress were to be made towards the objectives established in the Sixth Community Environment Action Programme and foresaw, in particular, new legislative proposals that would further reduce Member States' permitted national emissions of key pollutants, reduce emissions associated with refuelling of petrol cars at service stations and address the sulphur content of fuels, including marine fuels.

- (3) The Community has committed itself under the Kyoto Protocol to greenhouse gas emission targets for the period 2008-2012. The Community has also committed itself by 2020 to a 30 % reduction in greenhouse gas emissions in the context of a global agreement and a 20 % reduction unilaterally. All sectors will need to contribute to these goals.

- (4) One aspect of greenhouse gas emissions from transport has been tackled through the Community policy on CO₂ and cars. Transport fuel use makes a significant contribution to overall Community greenhouse gas emissions. Monitoring and reducing fuel life cycle greenhouse gas emissions can contribute to helping the Community meet its greenhouse gas reduction goals through the decarbonisation of transport fuel.

- (5) The Community has adopted regulations limiting pollutant emissions from light and heavy duty road vehicles. The fuel specification is one of the factors that influence the ease with which such emission limits can be met.

- (6) Derogations from the maximum summer petrol vapour pressure should be limited to those Member States with low ambient summer temperatures. It is therefore appropriate to clarify in which Member States a derogation should be permitted. These are, in principle, those Member States where the average temperature for a majority of their territory is below 12 °C for at least two of the three months of June, July and August.

- (7) Directive 97/68/EC of the European Parliament and of the Council of 16 December 1997 on the approximation of the laws of the Member States relating to measures against the emission of gaseous and particulate pollutants from internal combustion engines to be installed in non-road mobile machinery ⁽⁶⁾, sets emission limits for engines used in non-road mobile machinery. Fuel enabling the proper functioning of these engines needs to be provided for the operation of this machinery.

- (8) The combustion of road transport fuel is responsible for around 20 % of Community greenhouse gas emissions. One approach to reducing these emissions is through reducing the life-cycle greenhouse gas emissions of these fuels. This can be done in a number of ways. In

⁽¹⁾ OJ C 44, 16.2.2008, p. 53.

⁽²⁾ Opinion of the European Parliament of 17 December 2008 (not yet published in the Official Journal) and Council Decision of 6 April 2009.

⁽³⁾ OJ L 350, 28.12.1998, p. 58.

⁽⁴⁾ OJ L 242, 10.9.2002, p. 1.

⁽⁵⁾ OJ L 152, 11.6.2008, p. 43.

⁽⁶⁾ OJ L 59, 27.2.1998, p. 1.

view of the Community's ambition to further reduce greenhouse gas emissions and the significant contribution that road transport makes to those emissions, it is appropriate to establish a mechanism requiring fuel suppliers to report the life-cycle greenhouse gas emissions of the fuel that they supply and to reduce them from 2011 onwards. The methodology for the calculation of life-cycle greenhouse gas emissions from biofuels should be identical to that established for the purposes of the calculation of greenhouse gas impacts under Directive 2009/28/EC of the European Parliament and of the Council of 23 April 2009 on the promotion of the use of energy from renewable sources ⁽¹⁾.

- (9) Suppliers should, by 31 December 2020, gradually reduce life cycle greenhouse gas emissions by up to 10 % per unit of energy from fuel and energy supplied. This reduction should amount to at least 6 % by 31 December 2020, compared to the EU-average level of life cycle greenhouse gas emissions per unit of energy from fossil fuels in 2010, obtained through the use of biofuels, alternative fuels and reductions in flaring and venting at production sites. Subject to a review, it should comprise a further 2 % reduction obtained through the use of environmentally friendly carbon capture and storage technologies and electric vehicles and an additional further 2 % reduction obtained through the purchase of credits under the Clean Development Mechanism of the Kyoto Protocol. These additional reductions should not be binding on Member States or fuel suppliers on entry into force of this Directive. The review should address their non-binding character.
- (10) Biofuel production should be sustainable. Biofuels used for compliance with the greenhouse gas reduction targets laid down in this Directive should therefore be required to fulfil sustainability criteria. In order to ensure a coherent approach between energy and environment policies, and to avoid the additional costs to business and the environmental incoherence that would be associated with an inconsistent approach, it is essential to provide the same sustainability criteria for the use of biofuels for the purposes of this Directive on the one hand and Directive 2009/28/EC on the other. For the same reasons, double reporting should be avoided in this context. Furthermore, the Commission and competent national authorities should coordinate their activities within the framework of a committee specifically responsible for sustainability aspects.
- (11) The increasing worldwide demand for biofuels, and the incentives for their use provided for in this Directive should not have the effect of encouraging the destruction of biodiverse lands. Those finite resources, recognised in various international instruments to be of value to all mankind, should be preserved. Consumers in the Community would, in addition, find it morally unacceptable that their increased use of biofuels could have the effect of destroying biodiverse lands. For these reasons, it is necessary to provide sustainability criteria ensuring that biofuels can qualify for the incentives only when it can be guaranteed that they do not originate in biodiverse areas or, in the case of areas designated for nature protection purposes or for the protection or rare, threatened or endangered ecosystems or species, the relevant competent authority demonstrates that the production of the raw material does not interfere with those purposes. The sustainability criteria should consider forest as biodiverse where it is a primary forest in accordance with the definition used by the Food and Agriculture Organisation of the United Nations (FAO) in its Global Forest Resource Assessment, which countries use worldwide to report on the extent of primary forest or where it is protected by national nature protection law. Areas where collection of non-wood forest products occurs should be included, provided the human impact is small. Other types of forests as defined by the FAO, such as modified natural forests, semi natural forests and plantations, should not be considered as primary forests. Having regard furthermore, to the highly biodiverse nature of certain grasslands, both temperate and tropical, including highly biodiverse savannahs, steppes, scrublands and prairies, biofuels made from raw materials originating in such lands should not qualify for the incentives provided for by this Directive. The Commission should establish appropriate criteria and geographical ranges to define such highly biodiverse grasslands in accordance with the best available scientific evidence and relevant international standards.
- (12) In calculating the impact of greenhouse gas emissions of land conversion, economic operators should be able to use actual values for the carbon stocks associated with the reference land use and the land use after conversion. They should also be able to use standard values. The work of the Intergovernmental Panel on Climate Change is the appropriate basis for such standard values. That work is not currently expressed in a form that is immediately applicable by economic operators. The Commission should therefore produce guidance drawing on that work to serve as the basis for the calculation of carbon stock changes for the purposes of this Directive, including such changes to forested areas with a canopy cover of between 10 % and 30 %, savannahs, scrublands and prairies.

⁽¹⁾ See page 16 of this Official Journal.

- (13) It is appropriate for the Commission to develop methodologies with a view to assessing the impact of the drainage of peatlands on greenhouse gas emissions.
- (14) Land should not be converted for the production of biofuels if its carbon stock loss upon conversion could not, within a reasonable period, taking into account the urgency of tackling climate change, be compensated by the greenhouse gas savings resulting from the production of biofuels. This would prevent unnecessarily burdensome research by economic operators and the conversion of high carbon stock land that would prove to be ineligible for producing raw materials for biofuels. Inventories of worldwide carbon stocks indicate that wetlands and continuously forested areas with canopy cover of more than 30 % should be included in that category. Forested areas with a canopy cover of between 10 % and 30 % should also be included, unless there is evidence demonstrating that their carbon stock is sufficiently low to justify their conversion in accordance with the rules laid down in this Directive. The reference to wetlands should take into account the definition laid down in the Convention on Wetlands of International Importance, especially as Waterfowl Habitat, adopted on 2 February 1971 in Ramsar.
- (15) The incentives provided for in this Directive will encourage increased production of biofuels worldwide. Where biofuels are made from raw material produced within the Community, they should also comply with Community environmental requirements for agriculture, including requirements for the protection of the quality of groundwater and surface water, and with social requirements. However, there is a concern that production of biofuels in certain third countries might not respect minimum environmental or social requirements. It is therefore appropriate to encourage the development of multilateral and bilateral agreements and voluntary international or national schemes that cover key environmental and social considerations, in order to promote the production of biofuels worldwide in a sustainable manner. In the absence of such agreements or schemes, Member States should require economic operators to report on those issues.
- (16) Sustainability criteria will be effective only if they lead to changes in the behaviour of market actors. Those changes will occur only if biofuels meeting those criteria command a price premium compared to those that do not. According to the mass balance method of verifying compliance, there is a physical link between the production of biofuels meeting the sustainability criteria and the consumption of biofuels in the Community, providing an appropriate balance between supply and demand and ensuring a price premium that is greater than in systems where there is no such link. To ensure that biofuels meeting the sustainability criteria can be sold at a higher price, the mass balance method should therefore be used to verify compliance. This should maintain the integrity of the system while at the same time avoiding the imposition of an unreasonable burden on industry. Other verification methods should, however, be reviewed.
- (17) Where appropriate, the Commission should take due account of the Millennium Ecosystem Assessment which contains useful data for the conservation of at least those areas that provide, in critical situations, basic ecosystem services such as watershed protection and erosion control.
- (18) Co-products from the production and use of fuels should be taken into account in the calculation of greenhouse gas emissions. The substitution method is appropriate for the purposes of policy analysis but not for the regulation of individual economic operators and individual consignments of transport fuels. In these cases the energy allocation method is the most appropriate method, as it is easy to apply, is predictable over time, minimises counter-productive incentives and produces results that are generally comparable with those produced by the substitution method. For the purposes of policy analysis the Commission should also, in its reporting, present results using the substitution method.
- (19) In order to avoid a disproportionate administrative burden, a list of default values should be laid down for common biofuel production pathways and that list should be updated and expanded when further reliable data is available. Economic operators should always be entitled to claim the level of greenhouse gas savings for biofuels established by that list. Where the default value for greenhouse gas savings from a production pathway lies below the required minimum level of greenhouse gas savings, producers wishing to demonstrate their compliance with this minimum level should be required to show that actual emissions from their production process are lower than those that were assumed in the calculation of the default values.
- (20) It is appropriate for the data used in the calculation of the default values to be obtained from independent, scientifically expert sources and to be updated as appropriate as those sources progress their work. The Commission should encourage those sources to address, when they update their work, emissions from cultivation, the effect of regional and climatological conditions, the effects of cultivation using sustainable agricultural and organic farming methods, and the scientific contribution of producers, within the Community and in third countries, and civil society.

- (21) In order to avoid encouraging the cultivation of raw materials for biofuels in places where this would lead to high greenhouse gas emissions, the use of default values for cultivation should be limited to regions where such an effect can reliably be excluded. However, to avoid a disproportionate administrative burden, it is appropriate for Member States to establish national or regional averages for emissions from cultivation, including from fertiliser use.
- (22) Global demand for agricultural commodities is growing. Part of this increased demand will be met through an increase in the amount of land devoted to agriculture. The restoration of land that has been severely degraded or heavily contaminated and therefore cannot be used, in its present state, for agricultural purposes is a way of increasing the amount of land available for cultivation. The sustainability scheme should promote the use of restored degraded land, because the promotion of biofuels will contribute to the growth in demand for agricultural commodities. Even if biofuels themselves are made using raw materials from land already in arable use, the net increase in demand for crops caused by the promotion of biofuels could lead to a net increase in the cropped area. This could affect high carbon stock land, which would result in damaging carbon stock losses. To alleviate this risk, it is appropriate to introduce accompanying measures to encourage an increased rate of productivity on land already used for crops, the use of degraded land, and the adoption of sustainability requirements, comparable to those laid down in this Directive for Community biofuel consumption, in other biofuel-consuming countries. The Commission should develop a concrete methodology to minimise greenhouse gas emissions caused by indirect land use changes. To this end, the Commission should analyse, on the basis of best available scientific evidence, in particular, the inclusion of a factor for indirect land use changes in the calculation of greenhouse gas emissions, and the need to incentivise sustainable biofuels which minimise the impact of land use change and improve biofuel sustainability with respect to indirect land use change. In developing this methodology, the Commission should address, *inter alia*, the potential indirect land use changes resulting from biofuels produced from non-food cellulosic material and from ligno-cellulosic material.
- (23) Since the measures provided for in Articles 7b to 7e of Directive 98/70/EC also promote the functioning of the internal market, by harmonising sustainability criteria for biofuels for target accounting purposes under that Directive, and thus facilitate, in accordance with Article 7b(8) of that Directive, trade between Member States in biofuels which comply with these conditions, they are based on Article 95 of the Treaty.
- (24) Continuing technical progress in the fields of automotive and fuel technology coupled with the continuing desire to ensure that the level of environmental and health protection is optimised necessitate periodic review of the fuel specifications based upon further studies and analyses of the impact of additives and biofuel components on pollutant emissions. Therefore, the possibility of facilitating the decarbonisation of transport fuels should be regularly reported upon.
- (25) Detergent use can contribute to the maintenance of clean engines and therefore the reduction of pollutant emissions. At present there is no satisfactory way of testing fuel samples for their detergency properties. Therefore the responsibility for informing their customers of the benefits of detergents and their use rests with suppliers of fuel and vehicles. Nevertheless, the Commission should review whether further developments would result in a more effective approach to optimising the use of and benefits from detergents.
- (26) Provisions concerning the blending of ethanol into petrol should be reviewed on the basis of experience gained from the application of Directive 98/70/EC. The review should examine in particular the provisions concerning limits on vapour pressure and possible alternatives for ensuring that ethanol blends do not exceed acceptable vapour pressure limits.
- (27) Blending ethanol into petrol increases the vapour pressure of the resulting fuel. Moreover petrol vapour pressure should be controlled to limit air pollutant emissions.
- (28) Blending ethanol into petrol results in a non-linear change of the vapour pressure of the resulting fuel mixture. It is appropriate to provide for the possibility of a derogation from the maximum summer vapour pressure for such mixtures after an appropriate assessment by the Commission. A derogation should be conditional on compliance with Community legislation on air quality and air pollution. Such a derogation should correspond to the actual increase in vapour pressure that results from adding a given percentage of ethanol to petrol.
- (29) In order to encourage the use of low-carbon fuels while respecting air pollution targets, petrol refiners should, where possible, make available low vapour pressure petrol in the volumes required. As this is not the case at present, the vapour pressure limit for ethanol blends should be increased, subject to certain conditions, in order to allow the biofuels market to develop.

- (30) Some older vehicles are not warranted to use petrol with a high biofuel content. These vehicles may travel from one Member State to another. It is therefore appropriate to ensure for a transitional period, the continued supply of petrol suitable for these older vehicles. Member States should in consultation with stakeholders, ensure an appropriate geographical coverage reflecting the demand for such petrol. The marking of petrol, for example as E5 or E10, should be consistent with the relevant standard drawn up by the European Committee for Standardisation (CEN).
- (31) It is appropriate to adapt Annex IV to Directive 98/70/EC to enable the placing on the market of diesel fuels with a higher biofuel content (B7) than envisaged in standard EN 590:2004 (B5). This standard should be updated accordingly and should establish limits for technical parameters not included in that Annex, such as oxidation stability, flash point, carbon residue, ash content, water content, total contamination, copper strip corrosion, lubricity, kinematic viscosity, cloud point, cold filter plugging point, phosphorous content, acid index, peroxides, acid index variation, injector fouling and addition of additives for stability.
- (32) In order to facilitate the effective marketing of biofuels, CEN is encouraged to continue working rapidly on a standard allowing the blending of higher levels of biofuel components into diesel and, in particular, to develop a standard for 'B10'.
- (33) A limit for the fatty acid methyl ester (FAME) content of diesel is required for technical reasons. However, such a limit is not required for other biofuel components, such as pure diesel-like hydrocarbons made from biomass using the Fischer-Tropsch process or hydro-treated vegetable oil.
- (34) Member States and the Commission should take appropriate steps to facilitate the placing on the market of gasoil containing 10 ppm sulphur earlier than 1 January 2011.
- (35) The use of specific metallic additives, and in particular the use of methylcyclopentadienyl manganese tricarbonyl (MMT), might raise the risk of damage to human health and might cause damage to vehicle engines and emission control equipment. Many vehicle manufacturers advise against the use of fuel containing metallic additives and the use of such fuel may invalidate vehicle warranties. It is therefore appropriate to keep under constant review the effects of the use of the MMT in fuel in consultation with all relevant stakeholders. Pending further review it is necessary to take steps to limit the severity of any damage that may be caused. It is therefore appropriate to set an upper limit on the use of MMT in fuel, based upon currently available scientific knowledge. This limit should be revised upwards only if the use of higher dosage rates can be demonstrated not to cause adverse effects. To avoid consumers unknowingly invalidating their vehicles' warranties, it is also necessary to require the labelling of any fuel that contains metallic additives.
- (36) In accordance with point 34 of the Interinstitutional agreement on better law making ⁽¹⁾, Member States are encouraged to draw up, for themselves and in the interests of the Community, their own tables, which will, as far as possible, illustrate the correlation between this Directive and the transposition measures and to make those tables public.
- (37) The measures necessary for the implementation of Directive 98/70/EC should be adopted in accordance with Council Decision 1999/468/EC of 28 June 1999 laying down the procedures for the exercise of implementing powers conferred on the Commission ⁽²⁾.
- (38) In particular, the Commission should be empowered to adopt implementing measures concerning the mechanism to monitor and reduce greenhouse gas emissions, to adapt the methodological principles and values necessary for assessing whether sustainability criteria have been fulfilled in relation to biofuels, to establish criteria and geographic ranges for highly biodiverse grassland, to revise the limit for the MMT content of fuel and to adapt to technical and scientific progress the methodology for the calculation of lifecycle greenhouse gas emissions, the permitted analytical methods related to the fuel specifications and the vapour pressure waiver permitted for petrol containing bioethanol. Since those measures are of general scope and are designed to amend non-essential elements of this Directive by the adaptation of the methodological principles and values, they must be adopted in accordance with the regulatory procedure with scrutiny provided for in Article 5a of Decision 1999/468/EC.
- (39) Directive 98/70/EC provides for a number of fuel specifications some of which are now redundant. In addition, it contains a number of derogations that have expired. For reasons of clarity it is therefore appropriate to delete these provisions.
- (40) Council Directive 1999/32/EC of 26 April 1999 relating to a reduction in the sulphur content of certain liquid fuels ⁽³⁾ lays down some aspects of fuel use in inland waterway transport. The delimitation between that Directive and Directive 98/70/EC requires clarification. Both Directives establish limits for the maximum sulphur content of gasoil used in inland waterway vessels. In the interest of clarity and legal certainty, it is therefore, appropriate to adjust those Directives, so that only one act lays down this limit.

⁽¹⁾ OJ C 321, 31.12.2003, p. 1.

⁽²⁾ OJ L 184, 17.7.1999, p. 23.

⁽³⁾ OJ L 121, 11.5.1999, p. 13.

- (41) New, cleaner engine technologies have been developed for inland waterway vessels. These engines can only be fuelled with very low-sulphur fuel. The sulphur content of inland waterway vessel fuels should be reduced as soon as possible.
- (42) Directive 98/70/EC and Directive 1999/32/EC should therefore be amended accordingly.
- (43) Council Directive 93/12/EEC of 23 March 1993 relating to the sulphur content of certain liquid fuels⁽¹⁾ has been extensively amended over time and as a result no longer retains any elements of substance. It should therefore be repealed.
- (44) Since the objectives of this Directive, namely ensuring a single market for fuel for road transport and non-road mobile machinery and ensuring respect for minimum levels of environmental protection from use of this fuel cannot be sufficiently achieved by the Member States and can therefore, be better achieved at Community level, the Community may adopt measures, in accordance with the principle of subsidiarity as set out in Article 5 of the Treaty. 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,

HAVE ADOPTED THIS DIRECTIVE:

Article 1

Amendments to Directive 98/70/EC

Directive 98/70/EC is hereby amended as follows:

1. Article 1 shall be replaced by the following:

'Article 1

Scope

This Directive sets, in respect of road vehicles, and non-road mobile machinery (including inland waterway vessels when not at sea), agricultural and forestry tractors, and recreational craft when not at sea:

- (a) technical specifications on health and environmental grounds for fuels to be used with positive ignition and compression-ignition engines, taking account of the technical requirements of those engines; and
- (b) a target for the reduction of life cycle greenhouse gas emissions.;

2. Article 2 shall be amended as follows:

- (a) in the first paragraph:

- (i) point 3 shall be replaced by the following:

- ‘3. “gas oils intended for use by non-road mobile machinery (including inland waterway vessels), agricultural and forestry tractors, and recreational craft” means any petroleum-derived liquid, falling within CN codes 2710 19 41 and 2710 19 45 (*), intended for use in compression ignition engines referred to in Directives 94/25/EC (**), 97/68/EC (***) and 2000/25/EC (****);

(*) The numbering of these CN codes as specified in the Common Customs Tariff (OJ L 256, 7.6.1987, p. 1).

(**) OJ L 164, 30.6.1994, p. 15.

(***) OJ L 59, 27.2.1998, p. 1.

(****) OJ L 173, 12.7.2000, p. 1.;

- (ii) the following points shall be added:

‘5. “Member States with low ambient summer temperatures” means Denmark, Estonia, Finland, Ireland, Latvia, Lithuania, Sweden and the United Kingdom;

6. “life cycle greenhouse gas emissions” means all net emissions of CO₂, CH₄ and N₂O that can be assigned to the fuel (including any blended components) or energy supplied. This includes all relevant stages from extraction or cultivation, including land-use changes, transport and distribution, processing and combustion, irrespective of where those emissions occur;

7. “greenhouse gas emissions per unit of energy” means the total mass of CO₂ equivalent greenhouse gas emissions associated with the fuel or energy supplied, divided by the total energy content of the fuel or energy supplied (for fuel, expressed as its low heating value);

8. “supplier” means the entity responsible for passing fuel or energy through an excise duty point or, if no excise is due, any other relevant entity designated by a Member State;

9. “biofuels” has the same meaning as in Directive 2009/28/EC of the European Parliament and of the Council of 23 April 2009 on the promotion of the use of energy from renewable sources (*).

(*) OJ L 140, 5.6.2009, p. 16.;

(1) OJ L 74, 27.3.1993, p. 81.

(b) the second paragraph shall be deleted;

3. Article 3 shall be amended as follows:

(a) paragraphs 2 to 6 shall be replaced by the following:

‘2. Member States shall ensure that petrol may be placed on the market within their territory only if it complies with the environmental specifications set out in Annex I.

However, Member States may, for the outermost regions, make specific provisions for the introduction of petrol with a maximum sulphur content of 10 mg/kg. Member States making use of this provision shall inform the Commission accordingly.

3. Member States shall require suppliers to ensure the placing on the market of petrol with a maximum oxygen content of 2,7 % and a maximum ethanol content of 5 % until 2013 and may require the placing on the market of such petrol for a longer period if they consider it necessary. They shall ensure the provision of appropriate information to consumers concerning the biofuel content of petrol and, in particular, on the appropriate use of different blends of petrol.

4. Member States with low ambient summer temperatures may, subject to paragraph 5, permit the placing on the market during the summer period of petrol with a maximum vapour pressure of 70 kPa.

Member States in which the derogation referred to in the first subparagraph is not applied may, subject to paragraph 5, permit the placing on the market during the summer period of petrol containing ethanol with a maximum vapour pressure of 60 kPa and in addition the permitted vapour pressure waiver specified in Annex III, on condition that the ethanol used is a biofuel.

5. Where Member States wish to apply either of the derogations provided for in paragraph 4, they shall notify the Commission and provide all relevant information. The Commission shall assess the desirability and duration of the derogation, taking account of both:

- (a) the avoidance of socioeconomic problems resulting from higher vapour pressure, including time-limited technical adaptation needs; and
- (b) the environmental or health consequences of the higher vapour pressure and, in particular, the impact on compliance with Community legislation on air quality, both in the Member State concerned and in other Member States.

If the Commission's assessment shows that the derogation will result in a lack of compliance with Community legislation on air quality or air pollution, including the

relevant limit values and emissions ceilings, the application shall be rejected. The Commission should also take account of relevant target values.

Where the Commission has raised no objections within six months of receipt of all relevant information, the Member State concerned may apply the requested derogation.

6. Notwithstanding paragraph 1, Member States may continue to permit the marketing of small quantities of leaded petrol, with a lead content not exceeding 0,15 g/l, to a maximum of 0,03 % of total sales, to be used by old vehicles of a characteristic nature and to be distributed through special interest groups.;

(b) paragraph 7 shall be deleted;

4. Article 4 shall be replaced by the following:

‘Article 4

Diesel fuel

1. Member States shall ensure that diesel fuel may be placed on the market in their territory only if it complies with the specifications set out in Annex II.

Notwithstanding the requirements of Annex II, Member States may permit the placing on the market of diesel with a fatty acid methyl ester (FAME) content greater than 7 %.

Member States shall ensure the provision of appropriate information to consumers concerning the biofuel, in particular FAME, content of diesel fuel.

2. Member States shall ensure that, no later than from 1 January 2008, gas oils intended for use by non-road mobile machinery (including inland waterway vessels), agricultural and forestry tractors and recreational craft may be placed on the market within their territory only if the sulphur content of those gas oils does not exceed 1 000 mg/kg. From 1 January 2011, the maximum permissible sulphur content of those gas oils shall be 10 mg/kg. Member States shall ensure that liquid fuels other than those gas oils may be used in inland waterway vessels and recreational craft only if the sulphur content of those liquid fuels does not exceed the maximum permissible content of those gas oils.

However, in order to accommodate minor contamination in the supply chain, Member States may, from 1 January 2011, permit gas oil intended for use by non-road mobile machinery (including inland waterway vessels), agricultural and forestry tractors and recreational craft to contain up to 20 mg/kg of sulphur at the point of final distribution to end users. Member States may also permit the continued placing on the market until 31 December 2011 of gas oil containing up to 1 000 mg/kg sulphur for rail vehicles and agricultural and forestry tractors, provided that they can ensure that the proper functioning of emissions control systems will not be compromised.

3. Member States may, for the outermost regions, make specific provision for the introduction of diesel fuel and gas oils with a maximum sulphur content of 10 mg/kg. Member States making use of this provision shall inform the Commission accordingly.

4. For Member States with severe winter weather, the maximum distillation point of 65 % at 250 °C for diesel fuels and gas oils may be replaced by a maximum distillation point of 10 % (vol/vol) at 180 °C;

5. the following Article shall be inserted:

'Article 7a

Greenhouse gas emission reductions

1. Member States shall designate the supplier or suppliers responsible for monitoring and reporting life cycle greenhouse gas emissions per unit of energy from fuel and energy supplied. In the case of providers of electricity for use in road vehicles, Member States shall ensure that such providers may choose to become a contributor to the reduction obligation laid down in paragraph 2 if they can demonstrate that they can adequately measure and monitor electricity supplied for use in those vehicles.

With effect from 1 January 2011, suppliers shall report annually, to the authority designated by the Member State, on the greenhouse gas intensity of fuel and energy supplied within each Member State by providing, as a minimum, the following information:

- (a) the total volume of each type of fuel or energy supplied, indicating where purchased and its origin; and
- (b) life cycle greenhouse gas emissions per unit of energy.

Member States shall ensure that reports are subject to verification.

The Commission shall, where appropriate, establish guidelines for the implementation of this paragraph.

2. Member States shall require suppliers to reduce as gradually as possible life cycle greenhouse gas emissions per unit of energy from fuel and energy supplied by up to 10 % by 31 December 2020, compared with the fuel baseline standard referred to in paragraph 5(b). This reduction shall consist of:

- (a) 6 % by 31 December 2020. Member States may require suppliers, for this reduction, to comply with the following intermediate targets: 2 % by 31 December 2014 and 4 % by 31 December 2017;

(b) an indicative additional target of 2 % by 31 December 2020, subject to Article 9(1)(h), to be achieved through one or both of the following methods:

- (i) the supply of energy for transport supplied for use in any type of road vehicle, non-road mobile machinery (including inland waterway vessels), agricultural or forestry tractor or recreational craft;
- (ii) the use of any technology (including carbon capture and storage) capable of reducing life cycle greenhouse gas emissions per unit of energy from fuel or energy supplied;

(c) an indicative additional target of 2 % by 31 December 2020, subject to Article 9(1)(i), to be achieved through the use of credits purchased through the Clean Development Mechanism of the Kyoto Protocol, under the conditions set out in Directive 2003/87/EC of the European Parliament and of the Council of 13 October 2003 establishing a scheme for greenhouse gas emission allowance trading within the Community (*), for reductions in the fuel supply sector.

3. Life cycle greenhouse gas emissions from biofuels shall be calculated in accordance with Article 7d. Lifecycle greenhouse gas emissions from other fuels and energy shall be calculated using a methodology laid down in accordance with paragraph 5 of this Article.

4. Member States shall ensure that a group of suppliers may choose to meet the reduction obligations pursuant to paragraph 2 jointly. In such case they shall be considered as a single supplier for the purposes of paragraph 2.

5. Measures necessary for the implementation of this Article, designed to amend non-essential elements of this Directive by supplementing it, shall be adopted in accordance with the regulatory procedure with scrutiny referred to in Article 11(4). Such measures include, in particular:

- (a) the methodology for the calculation of life cycle greenhouse gas emissions from fuels other than biofuels and from energy;
- (b) the methodology specifying, before 1 January 2011, the fuel baseline standard based on the life cycle greenhouse gas emissions per unit of energy from fossil fuels in 2010 for the purposes of paragraph 2;
- (c) any necessary rules to give effect to paragraph 4;
- (d) the methodology to calculate the contribution of electric road vehicles, which shall be compatible with Article 3(4) of Directive 2009/28/EC.

(*) OJ L 275, 25.10.2003, p. 32.;

6. the following Articles shall be inserted:

'Article 7b

Sustainability criteria for biofuels

1. Irrespective of whether the raw materials were cultivated inside or outside the territory of the Community, energy from biofuels shall be taken into account for the purposes of Article 7a only if they fulfil the sustainability criteria set out in paragraphs 2 to 6 of this Article.

However, biofuels produced from waste and residues, other than agricultural, aquaculture, fisheries and forestry residues, need only fulfil the sustainability criteria set out in paragraph 2 of this Article in order to be taken into account for the purposes referred to in Article 7a.

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 35 %.

With effect from 1 January 2017, 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 50 %. From 1 January 2018 that greenhouse gas emissions saving shall be at least 60 % for biofuels produced in installations in which production has started on or after 1 January 2017.

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

In the case of biofuels produced by installations that were in operation on 23 January 2008, the first subparagraph shall apply from 1 April 2013.

3. Biofuels taken into account for the purposes referred to in paragraph 1 shall not be made from raw material obtained from land with high biodiversity value, namely, land that had one of the following statuses in or after January 2008, whether or not the land continues to have such a status:

(a) primary forest and other wooded land, that is forest and other wooded land of native species, where there is no clearly visible indication of human activity and the ecological processes are not significantly disturbed;

(b) areas designated:

(i) by law or by the relevant competent authority for nature protection purposes; or

(ii) for the protection of rare, threatened or endangered ecosystems or species recognised by international agreements or included in lists drawn up by inter-governmental organisations or the International Union for the Conservation of Nature, subject to their recognition in accordance with the second subparagraph of Article 7c(4);

unless evidence is provided that the production of that raw material did not interfere with those nature protection purposes;

(c) highly biodiverse grassland that is:

(i) natural, namely, grassland that would remain grassland in the absence of human intervention and which maintains the natural species composition and ecological characteristics and processes; or

(ii) non-natural, namely, grassland that would cease to be grassland in the absence of human intervention and which is species-rich and not degraded, unless evidence is provided that the harvesting of the raw material is necessary to preserve its grassland status.

The Commission shall establish the criteria and geographic ranges to determine which grassland shall be covered by point (c) of the first subparagraph. Those measures, designed to amend non-essential elements of this Directive, by supplementing it shall be adopted in accordance with the regulatory procedure with scrutiny referred to in Article 11(4).

4. Biofuels taken into account for the purposes referred to in paragraph 1 shall not be made from raw material obtained from land with high carbon stock, namely, land that had one of the following statuses in January 2008 and no longer has that status:

(a) wetlands, namely, land that is covered with or saturated by water permanently or for a significant part of the year;

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

(c) land spanning more than one hectare with trees higher than five metres and a canopy cover of between 10 % and 30 %, or trees able to reach those thresholds *in situ*, unless evidence is provided that the carbon stock of the area before and after conversion is such that, when the methodology laid down in Part C of Annex IV is applied, the conditions laid down in paragraph 2 of this Article would be fulfilled.

The provisions of this paragraph shall not apply if, at the time the raw material was obtained, the land had the same status as it had in January 2008.

5. Biofuels taken into account for the purposes referred to in paragraph 1 shall not be made from raw material obtained from land that was peatland in January 2008, unless evidence is provided that the cultivation and harvesting of that raw material does not involve drainage of previously undrained soil.

6. Agricultural raw materials cultivated in the Community and used for the production of biofuels taken into account for the purposes referred to in Article 7a shall be obtained in accordance with the requirements and standards under the provisions referred to under the heading "Environment" in Part A and in point 9 of Annex II to Council Regulation (EC) No 73/2009 of 19 January 2009 establishing common rules for direct support schemes for farmers under the common agricultural policy and establishing certain support schemes for farmers (*) and in accordance with the minimum requirements for good agricultural and environmental condition defined pursuant to Article 6(1) of that Regulation.

7. The Commission shall, every two years, report to the European Parliament and the Council, in respect of both third countries and Member States that are a significant source of biofuels or of raw material for biofuels consumed within the Community, on national measures taken to respect the sustainability criteria set out in paragraphs 2 to 5 and for soil, water and air protection. The first report shall be submitted in 2012.

The Commission shall, every two years, report to the European Parliament and the Council on the impact on social sustainability in the Community and in third countries of increased demand for biofuel, on the impact of Community biofuel policy on the availability of foodstuffs at affordable prices, in particular for people living in developing countries, and on wider development issues. Reports shall address the respect of land use rights. They shall state, both for third countries and Member States that are a significant source of raw material for biofuel consumed within the Community, whether the country has ratified and implemented each of the following Conventions of the International Labour Organisation:

- Convention concerning Forced or Compulsory Labour (No 29),
- Convention concerning Freedom of Association and Protection of the Right to Organise (No 87),
- Convention concerning the Application of the Principles of the Right to Organise and to Bargain Collectively (No 98),
- Convention concerning Equal Remuneration of Men and Women Workers for Work of Equal Value (No 100),
- Convention concerning the Abolition of Forced Labour (No 105),

- Convention concerning Discrimination in Respect of Employment and Occupation (No 111),
- Convention concerning Minimum Age for Admission to Employment (No 138),
- Convention concerning the Prohibition and Immediate Action for the Elimination of the Worst Forms of Child Labour (No 182).

Those reports shall state, both for third countries and Member States that are a significant source of raw material for biofuel consumed within the Community, whether the country has ratified and implemented:

- the Cartagena Protocol on biosafety,
- the Convention on International Trade in Endangered Species of Wild Fauna and Flora.

The first report shall be submitted in 2012. The Commission shall, if appropriate, propose corrective action, in particular if evidence shows that biofuel production has a significant impact on food prices.

8. For the purposes referred to in paragraph 1, Member States shall not refuse to take into account, on other sustainability grounds, biofuels obtained in compliance with this Article.

Article 7c

Verification of compliance with the sustainability criteria for biofuels

1. Where biofuels are to be taken into account for the purposes of Article 7a, Member States shall require economic operators to show that the sustainability criteria set out in Article 7b(2) to (5) have been fulfilled. For that purpose they shall require economic operators to use a mass balance system which:

- (a) allows consignments of raw material or biofuel with differing sustainability characteristics to be mixed;
- (b) requires information about the sustainability characteristics and sizes of the consignments referred to in point (a) to remain assigned to the mixture; and
- (c) provides for the sum of all consignments withdrawn from the mixture to be described as having the same sustainability characteristics, in the same quantities, as the sum of all consignments added to the mixture.

2. The Commission shall report to the European Parliament and the Council in 2010 and 2012 on the operation of the mass balance verification method described in paragraph 1 and on the potential for allowing for other verification methods in relation to some or all types of raw material or biofuels. In its assessment the Commission shall consider those verification methods in which information about sustainability characteristics need not remain physically assigned to particular consignments or mixtures. The assessment shall take into account the need to maintain the integrity and effectiveness of the verification system while avoiding the imposition of an unreasonable burden on industry. The report shall be accompanied, where appropriate, by proposals to the European Parliament and the Council, concerning the use of other verification methods.

3. Member States shall take measures to ensure that economic operators submit reliable information and make available to the Member State, on request, the data that were used to develop the information. Member States shall require economic operators to arrange for an adequate standard of independent auditing of the information submitted, and to provide evidence that this has been done. The auditing shall verify that the systems used by economic operators are accurate, reliable and protected against fraud. It shall evaluate the frequency and methodology of sampling and the robustness of the data.

The information referred to in the first subparagraph shall include in particular information on compliance with the sustainability criteria set out in Article 7b(2) to (5), appropriate and relevant information on measures taken for soil, water and air protection, the restoration of degraded land, the avoidance of excessive water consumption in areas where water is scarce, and appropriate and relevant information concerning measures taken in order to take into account the issues referred to in the second subparagraph of Article 7b(7).

The Commission shall, in accordance with the advisory procedure referred to in Article 11(3), establish the list of appropriate and relevant information referred to in the first two subparagraphs. It shall ensure, in particular, that the provision of that information does not represent an excessive administrative burden for operators in general or for small-holder farmers, producer organisations and cooperatives in particular.

The obligations laid down in this paragraph shall apply whether the biofuels are produced within the Community or imported.

Member States shall submit to the Commission in aggregated form, the information referred to in the first subparagraph. The Commission shall publish that information on the transparency platform referred to in Article 24 of Directive 2009/28/EC in summary form preserving the confidentiality of commercially sensitive information.

4. The Community shall endeavour to conclude bilateral or multilateral agreements with third countries containing provisions on sustainability criteria that correspond to those in this Directive. Where the Community has concluded agreements containing provisions relating to matters covered by the sustainability criteria set out in Article 7b(2) to (5), the Commission may decide that those agreements demonstrate that biofuels produced from raw materials cultivated in those countries comply with the sustainability criteria in question. When those agreements are concluded, due consideration shall be given to 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, indirect land-use changes, the restoration of degraded land, the avoidance of excessive water consumption in areas where water is scarce and to the issues referred to in the second subparagraph of Article 7b(7).

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 7b(2) or demonstrate that consignments of biofuel comply with the sustainability criteria set out in Article 7b(3) to (5). 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 7b(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 7b(3)(b)(ii).

The Commission may decide that voluntary national or international schemes to measure greenhouse gas savings contain accurate data for the purposes of Article 7b(2).

The Commission may decide that land that falls within the scope of a national or regional recovery programme aimed at improving severely degraded or heavily contaminated land fulfils the criteria referred to in point 9 of Part C of Annex IV.

5. The Commission shall adopt decisions under paragraph 4 only if the agreement or scheme in question meets adequate standards of reliability, transparency and independent auditing. Schemes to measure greenhouse gas savings shall also comply with the methodological requirements in Annex IV. Lists of areas of high biodiversity value as referred

to in Article 7b(3)(b)(ii) shall meet adequate standards of objectivity and coherence with internationally recognised standards and provide for appropriate appeal procedures.

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

7. When an economic operator provides proof or data obtained in accordance with an agreement or scheme that has been the subject of a decision under paragraph 4, to the extent covered by that decision, a Member State shall not require the supplier to provide further evidence of compliance with the sustainability criteria set out in Article 7b(2) to (5) nor information on measures referred to in the second subparagraph of paragraph 3 of this Article.

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 and in accordance with the advisory procedure referred to in Article 11(3), decide whether the Member State concerned may take biofuel from that source into account for the purposes of Article 7a.

9. By 31 December 2012, the Commission shall report to the European Parliament and to the Council on:

- (a) the effectiveness of the system in place for the provision of information on sustainability criteria; and
- (b) whether it is feasible and appropriate to introduce mandatory requirements in relation to air, soil or water protection, taking into account the latest scientific evidence and the Community's international obligations.

The Commission shall, if appropriate, propose corrective action.

Article 7d

Calculation of life cycle greenhouse gas emissions from biofuels

1. For the purposes of Article 7a and Article 7b(2), life cycle greenhouse gas emissions from biofuels shall be calculated as follows:

- (a) where a default value for greenhouse gas emission savings for the biofuel production pathway is laid down in Part A or B of Annex IV and where the e_i value for those biofuels calculated in accordance with point 7 of Part C of Annex IV is equal to or less than zero, by using that default value;
- (b) by using an actual value calculated in accordance with the methodology laid down in Part C of Annex IV; or

- (c) by using a value calculated as the sum of the factors of the formula referred to in point 1 of Part C of Annex IV, where disaggregated default values in Part D or E of Annex IV may be used for some factors, and actual values, calculated in accordance with the methodology laid down in Part C of Annex IV, for all other factors.

2. By 31 March 2010, Member States shall submit to the Commission a report, including a list of those areas on their territory classified as level 2 in the nomenclature of territorial units for statistics (NUTS) or as a more disaggregated NUTS level in accordance with Regulation (EC) No 1059/2003 of the European Parliament and of the Council of 26 May 2003 on the establishment of a common classification of territorial units for statistics (NUTS) (**) where the typical greenhouse gas emissions from cultivation of agricultural raw materials can be expected to be lower than or equal to the emissions reported under the heading "Disaggregated default values for cultivation" in Part D of Annex IV to this Directive, accompanied by a description of the method and data used to establish that list. That method shall take into account soil characteristics, climate and expected raw material yields.

3. The default values in Part A of Annex IV, and the disaggregated default values for cultivation in Part D of Annex IV, may be used only when their raw materials are:

- (a) cultivated outside the Community;
- (b) cultivated in the Community in areas included in the lists referred to in paragraph 2; or
- (c) waste or residues other than agricultural, aquaculture and fisheries residues.

For biofuels not falling under points (a), (b) or (c), actual values for cultivation shall be used.

4. By 31 March 2010, the Commission shall submit a report to the European Parliament and to the Council on the feasibility of drawing up lists of areas in third countries where the typical greenhouse gas emissions from cultivation of agricultural raw materials can be expected to be lower than or equal to the emissions reported under the heading "cultivation" in Part D of Annex IV, accompanied if possible by such lists and a description of the method and data used to establish them. The report shall, if appropriate, be accompanied by relevant proposals.

5. The Commission shall report by 31 December 2012 at the latest, and every two years thereafter, on the estimated typical and default values in Parts B and E of Annex IV, paying special attention to emissions from transport and processing and may, where necessary, decide to correct the values. Those measures, designed to amend non-essential elements of this Directive shall be adopted in accordance with the regulatory procedure with scrutiny referred to in Article 11(4).

6. The Commission shall, by 31 December 2010, submit a report to the European Parliament and to the Council reviewing the impact of indirect land use change on greenhouse gas emissions and addressing ways to minimise that impact. The report shall, if appropriate, be accompanied by a proposal, based on the best available scientific evidence, containing a concrete methodology for emissions from carbon stock changes caused by indirect land use changes, ensuring compliance with this Directive, in particular Article 7b(2).

Such a proposal shall include the necessary safeguards to provide certainty for investment, undertaken before that methodology is applied. With respect to installations that produced biofuels before the end of 2013, the application of the measures referred to in the first subparagraph shall not, until 31 December 2017, lead to biofuels produced by these installations being deemed to have failed to comply with the sustainability requirements of this Directive if they would otherwise have done so, provided that those biofuels achieve a greenhouse gas saving of at least 45 %. This shall apply to the capacities of the installations of biofuels at the end of 2012.

The European Parliament and the Council shall endeavour to decide by 31 December 2012 on any such proposals submitted by the Commission.

7. Annex IV may be adapted to technical and scientific progress, including by the addition of values for further biofuel production pathways for the same or for other raw materials and by modifying the methodology laid down in Part C. Those measures, designed to amend non-essential elements of this Directive, *inter alia*, by supplementing it, shall be adopted in accordance with the regulatory procedure with scrutiny referred to in Article 11(4).

Regarding the default values and methodology laid down in Annex IV, particular consideration shall be paid 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.

Any adaptation of or addition to the list of default values in Annex IV shall comply with the following:

- (a) where the contribution of a factor to overall emissions is small, or where there is limited variation, or where the cost or difficulty of establishing actual values is high, default values must be typical of normal production processes;

- (b) in all other cases default values must be conservative compared to normal production processes.

8. Detailed definitions, including technical specifications required for the categories set out in point 9 of Part C of Annex IV shall be established. Those measures, designed to amend non-essential elements of this Directive by supplementing it, shall be adopted in accordance with the regulatory procedure with scrutiny referred to in Article 11(4).

Article 7e

Implementing measures and reports concerning the sustainability of biofuels

1. The implementing measures referred to in the second subparagraph of Article 7b(3), the third subparagraph of Article 7c(3), Article 7c(6), Article 7c(8), Article 7d(5), the first subparagraph of Article 7d(7) and Article 7d(8) shall also take full account of the purposes of Directive 2009/28/EC.

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), Article 7d(4) and (5) and the first subparagraph of Article 7d(6), as well as the reports and information submitted pursuant to in 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.

(*) OJ L 30, 31.1.2009, p. 16.

(**) OJ L 154, 21.6.2003, p. 1.;

7. in Article 8, paragraph 1 shall be 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 European standards EN 228:2004 and EN 590:2004 respectively.;

8. the following Article shall be inserted:

Article 8a

Metallic additives

1. The Commission shall conduct an assessment of the risks for health and the environment from the use of metallic additives in fuel and, for this purpose, develop a test methodology. It shall report its conclusions to the European Parliament and to the Council by 31 December 2012.

2. Pending the development of the test methodology referred to in paragraph 1, the presence of the metallic additive methylcyclopentadienyl manganese tricarbonyl (MMT) in fuel shall be limited to 6 mg of manganese per litre from 1 January 2011. The limit shall be 2 mg of manganese per litre from 1 January 2014.

3. The limit for the MMT content of fuel specified in paragraph 2 shall be revised on the basis of the results of the assessment carried out using the test methodology referred to in paragraph 1. It may be reduced to zero where justified by the risk assessment. It cannot be increased unless justified by the risk assessment. Such a measure, designed to amend non-essential elements of this Directive shall be adopted in accordance with the regulatory procedure with scrutiny referred to in Article 11(4).

4. Member States shall ensure that a label concerning the metallic additive content of fuel is displayed at any point where a fuel with metallic additives is made available to consumers.

5. The label shall contain the following text: "Contains metallic additives".

6. The label shall be attached to the place where information indicating the type of fuel is displayed, in a clearly visible position. The label shall be of a size and font that is clearly visible and easily legible.;

9. Article 9 shall be replaced by the following:

'Article 9

Reporting

1. The Commission shall submit by 31 December 2012, and every three years thereafter, a report to the European Parliament and the Council accompanied, where appropriate, by a proposal for amendments to this Directive. That report shall in particular take account of the following:

- (a) the use and evolution of automotive technology and, in particular, the feasibility of increasing the maximum permitted biofuel content of petrol and diesel and the need to review the date referred to in Article 3(3);
- (b) Community policy on CO₂ emissions from road transport vehicles;
- (c) the possibility of applying the requirements of Annex II, and in particular the limit value for polycyclic aromatic hydrocarbons, to non-road mobile machinery (including inland waterways vessels), agricultural and forestry tractors and recreational craft;
- (d) the increase in the use of detergents in fuels;
- (e) the use of metallic additives other than MMT in fuels;

(f) the total volume of components used in petrol and diesel having regard to Community environmental legislation, including the objectives of Directive 2000/60/EC of the European Parliament and of the Council of 23 October 2000 establishing a framework for Community action in the field of water policy (*) and its daughter directives;

(g) the consequences of the greenhouse gas reduction target set in Article 7a(2) for the emissions trading scheme;

(h) the potential need for adjustments to Articles 2(6), 2(7) and 7a(2)(b) in order to assess possible contributions for reaching a greenhouse gas reduction target of up to 10 % by 2020. These considerations shall be based on the potential for life cycle greenhouse gas emission reductions from fuels and energy within the Community, taking into account in particular any developments in environmentally safe carbon capture and storage technologies and in electric road vehicles, and the cost effectiveness of means of reducing those emissions, as referred to in Article 7a(2)(b);

(i) the possibility of introducing additional measures for suppliers to reduce by 2 % life cycle greenhouse gas emissions per unit of energy, in comparison with the fuel baseline standard referred to in Article 7a(5)(b), through the use of credits purchased through the Clean Development Mechanism of the Kyoto Protocol under the conditions set out in Directive 2003/87/EC, in order to assess further possible contributions for reaching a greenhouse gas reduction target of up to 10 % by 2020, as referred to in Article 7a(2)(c) of this Directive;

(j) an updated cost-benefit and impact analysis of a reduction in the maximum permitted vapour pressure for petrol for the summer period below 60 kPa.

2. At the latest in 2014, the Commission shall submit a report to the European Parliament and the Council relating to the achievement of the greenhouse gas emission target for 2020 referred to in Article 7a, taking into account the need for consistency between this target and the target referred to in Article 3(3) of Directive 2009/28/EC, concerning the share of energy from renewable sources in transport, in the light of the reports referred to in Articles 23(8) and 23(9) of that Directive.

The Commission shall, if appropriate, accompany its report by a proposal for modification of the target.

(*) OJ L 327, 22.12.2000, p. 1.;

10. in Article 10, paragraph 1 shall be replaced by the following:

'1. If the adaptation of the permitted analytical methods referred to in Annex I or II to technical progress is necessary, amendments, designed to amend non-essential elements of this Directive, may be adopted in accordance with the regulatory procedure with scrutiny referred to in Article 11(4). Annex III may also be adapted to technical and scientific progress. That measure, designed to amend non-essential elements of this Directive, shall be adopted in accordance with the regulatory procedure with scrutiny referred to in Article 11(4).';

11. Article 11 shall be 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.

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.

3. Where reference is made to this paragraph, Articles 3 and 7 of Decision 1999/468/EC shall apply, having regard to the provisions of Article 8 thereof.

4. Where reference is made to this paragraph, Articles 5a(1) to (4), and Article 7 of Decision 1999/468/EC shall apply, having regard to the provisions of Article 8 thereof.;

12. Article 14 shall be deleted;

13. Annexes I, II, III and IV shall be replaced by the text appearing in the Annex to this Directive.

Article 2

Amendments to Directive 1999/32/EC

Directive 1999/32/EC is hereby amended as follows:

1. Article 2 shall be amended as follows:

(a) point 3 shall be replaced by the following:

'3. marine fuel means any petroleum-derived liquid fuel intended for use or in use on board a vessel, including those fuels defined in ISO 8217. It includes any petroleum-derived liquid fuel in use on board inland waterway vessels or recreational craft, as defined in Directive 97/68/EC of the European Parliament and of the Council of 16 December 1997 on the approximation of the laws of the Member States relating to measures against the emission

of gaseous and particulate pollutants from internal combustion engines to be installed in non-road mobile machinery (*) and Directive 94/25/EC of the European Parliament and of the Council of 16 June 1994 on the approximation of the laws, regulations and administrative provisions of the Member States relating to recreational craft (**), when such vessels are at sea;

(*) OJ L 59, 27.2.1998, p. 1.

(**) OJ L 164, 30.6.1994, p. 15.;

(b) point 3j shall be deleted;

2. Article 4b shall be amended as follows:

(a) the title shall be replaced by the following: 'Maximum sulphur content of marine fuels used by ships at berth in Community ports';

(b) in paragraph 1, point (a) shall be deleted;

(c) in paragraph 2, point (b) shall be deleted;

3. in Article 6, paragraph 1a, the third subparagraph shall be replaced by the following:

'Sampling shall commence on the date on which the relevant limit for maximum sulphur content in the fuel comes into force. It shall be carried out with sufficient frequency, in sufficient quantities, and in such a way that the samples are representative of the fuel examined, and of the fuel being used by vessels while in relevant sea areas and ports.'

Article 3

Repeal

Directive 93/12/EEC shall be repealed.

Article 4

Transposition

1. Member States shall bring into force the laws, regulations and administrative provisions necessary to comply with this Directive by 31 December 2010 at the latest.

They shall forthwith communicate to the Commission the text of those measures.

When Member States adopt these 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 the Member States.

2. Member States shall communicate to the Commission the text of the main provisions of national law which they adopt in the field covered by this Directive.

Article 5

Entry into force

This Directive shall enter into force on the 20th day following its publication in the *Official Journal of the European Union*.

*Article 6***Addressees**

This Directive is addressed to the Member States.

Done at Strasbourg, 23 April 2009.

For the European Parliament
The President
H.-G. PÖTTERING

For the Council
The President
P. NEČAS

ANNEX

'ANNEX I

ENVIRONMENTAL SPECIFICATIONS FOR MARKET FUELS TO BE USED FOR VEHICLES EQUIPPED WITH POSITIVE-IGNITION ENGINES

Type: **Petrol**

Parameter ⁽¹⁾	Unit	Limits ⁽²⁾	
		Minimum	Maximum
Research octane number		95 ⁽³⁾	—
Motor octane number		85	—
Vapour pressure, summer period ⁽⁴⁾	kPa	—	60,0 ⁽⁵⁾
Distillation:			
— percentage evaporated at 100 °C	% v/v	46,0	—
— percentage evaporated at 150 °C	% v/v	75,0	—
Hydrocarbon analysis:			
— olefins	% v/v	—	18,0
— aromatics	% v/v	—	35,0
— benzene	% v/v	—	1,0
Oxygen content	% m/m		3,7
Oxygenates			
— Methanol	% v/v		3,0
— Ethanol (stabilising agents may be necessary)	% v/v		10,0
— Iso-propyl alcohol	% v/v	—	12,0
— Tert-butyl alcohol	% v/v	—	15,0
— Iso-butyl alcohol	% v/v	—	15,0
— Ethers containing five or more carbon atoms per molecule	% v/v	—	22,0
— Other oxygenates ⁽⁶⁾	% v/v	—	15,0
Sulphur content	mg/kg	—	10,0
Lead content	g/l	—	0,005

⁽¹⁾ Test methods shall be those specified in EN 228:2004. Member States may adopt the analytical method specified in replacement EN 228:2004 standard if it can be shown to give at least the same accuracy and at least the same level of precision as the analytical method it replaces.

⁽²⁾ The values quoted in the specification are 'true values'. In the establishment of their limit values, the terms of EN ISO 4259:2006 'Petroleum products — Determination and application of precision data in relation to methods of test' have been applied and in fixing a minimum value, a minimum difference of 2R above zero has been taken into account (R = reproducibility). The results of individual measurements shall be interpreted on the basis of the criteria described in EN ISO 4259:2006.

⁽³⁾ Member States may decide to continue to permit the placing on the market of unleaded regular grade petrol with a minimum motor octane number (MON) of 81 and a minimum research octane number (RON) of 91.

⁽⁴⁾ The summer period shall begin no later than 1 May and shall not end before 30 September. For Member States with low ambient summer temperatures the summer period shall begin no later than 1 June and shall not end before 31 August.

⁽⁵⁾ In the case of Member States with low ambient summer temperatures and for which a derogation is in effect in accordance with Article 3(4) and (5), the maximum vapour pressure shall be 70 kPa. In the case of Member States for which a derogation is in effect in accordance with Article 3(4) and (5) for petrol containing ethanol, the maximum vapour pressure shall be 60 kPa plus the vapour pressure waiver specified in Annex III.

⁽⁶⁾ Other mono-alcohols and ethers with a final boiling point no higher than that stated in EN 228:2004.

ANNEX II

**ENVIRONMENTAL SPECIFICATIONS FOR MARKET FUELS TO BE USED FOR VEHICLES EQUIPPED WITH
COMPRESSION IGNITION ENGINES**

Type: **Diesel**

Parameter ⁽¹⁾	Unit	Limits ⁽²⁾	
		Minimum	Maximum
Cetane number		51,0	—
Density at 15 °C	kg/m ⁽³⁾	—	845,0
Distillation:			
— 95 % v/v recovered at:	°C	—	360,0
Polycyclic aromatic hydrocarbons	% m/m	—	8,0
Sulphur content	mg/kg	—	10,0
FAME content — EN 14078	% v/v	—	7,0 ⁽³⁾

⁽¹⁾ Test methods shall be those specified in EN 590:2004. Member States may adopt the analytical method specified in replacement EN 590:2004 standard if it can be shown to give at least the same accuracy and at least the same level of precision as the analytical method it replaces.

⁽²⁾ The values quoted in the specification are 'true values'. In the establishment of their limit values, the terms of EN ISO 4259:2006 'Petroleum products — Determination and application of precision data in relation to methods of test' have been applied and in fixing a minimum value, a minimum difference of 2R above zero has been taken into account (R = reproducibility). The results of individual measurements shall be interpreted on the basis of the criteria described in EN ISO 4259:2006.

⁽³⁾ FAME shall comply with EN 14214.

ANNEX III

VAPOUR PRESSURE WAIVER PERMITTED FOR PETROL CONTAINING BIOETHANOL

Bioethanol content (% v/v)	Vapour pressure waiver permitted (kPa)
0	0
1	3,65
2	5,95
3	7,20
4	7,80
5	8,0
6	8,0
7	7,94
8	7,88
9	7,82
10	7,76

The permitted vapour pressure waiver for intermediate bioethanol content between the values listed shall be determined by a straight line interpolation between the bioethanol content immediately above and that immediately below the intermediate value.

ANNEX IV

RULES FOR CALCULATING LIFE CYCLE GREENHOUSE EMISSIONS FROM BIOFUELS

A. Typical and default values for biofuels if produced with no net carbon emissions from land use change

Biofuel production pathway	Typical greenhouse gas emission saving	Default greenhouse gas emission saving
Sugar beet ethanol	61 %	52 %
Wheat ethanol (process fuel not specified)	32 %	16 %
Wheat ethanol (lignite as process fuel in CHP plant)	32 %	16 %
Wheat ethanol (natural gas as process fuel in conventional boiler)	45 %	34 %
Wheat ethanol (natural gas as process fuel in CHP plant)	53 %	47 %
Wheat ethanol (straw as process fuel in CHP plant)	69 %	69 %
Corn (maize) ethanol, Community produced (natural gas as process fuel in CHP plant)	56 %	49 %
Sugar cane ethanol	71 %	71 %
The part from renewable sources of ethyl-Tertio-butyl-ether (ETBE)	Equal to that of the ethanol production Pathway used	
The part from renewable sources of tertiary-amyl-ethyl-ether (TAEE)	Equal to that of the ethanol production pathway used	
Rape seed biodiesel	45 %	38 %
Sunflower biodiesel	58 %	51 %
Soybean biodiesel	40 %	31 %
Palm oil biodiesel (process not specified)	36 %	19 %
Palm oil biodiesel (process with methane capture at oil mill)	62 %	56 %
Waste vegetable or animal (*) oil biodiesel	88 %	83 %
Hydrotreated vegetable oil from rape seed	51 %	47 %
Hydrotreated vegetable oil from sunflower	65 %	62 %
Hydrotreated vegetable oil from palm oil (process not specified)	40 %	26 %
Hydrotreated vegetable oil from palm oil (process with methane capture at oil mill)	68 %	65 %
Pure vegetable oil from rape seed	58 %	57 %
Biogas from municipal organic waste as compressed natural gas	80 %	73 %
Biogas from wet manure as compressed natural gas	84 %	81 %
Biogas from dry manure as compressed natural gas	86 %	82 %

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

(!) OJ L 273, 10.10.2002, p. 1.

B. Estimated typical and default values for future biofuels that were not on the market or were on the market only in negligible quantities in January 2008, if produced with no net carbon emissions from land use change

Biofuel production pathway	Typical greenhouse gas emission saving	Default greenhouse gas emission saving
Wheat straw ethanol	87 %	85 %
Waste wood ethanol	80 %	74 %
Farmed wood ethanol	76 %	70 %
Waste wood Fischer-Tropsch diesel	95 %	95 %
Farmed wood Fischer-Tropsch diesel	93 %	93 %
Waste wood dimethylether (DME)	95 %	95 %
Farmed wood DME	92 %	92 %
Waste wood methanol	94 %	94 %
Farmed wood methanol	91 %	91 %
The part from renewable sources of methyl-tertio-butyl-ether (MTBE)	Equal to that of the methanol production pathway used	

C. Methodology

1. Greenhouse gas emissions from the production and use of biofuels shall be calculated as:

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

where

- E = total emissions from the use of the fuel;
 e_{ec} = emissions from the extraction or cultivation of raw materials;
 e_l = annualised emissions from carbon stock changes caused by land use change;
 e_p = emissions from processing;
 e_{td} = emissions from transport and distribution;
 e_u = emissions from the fuel in use;
 e_{sca} = emission savings from soil carbon accumulation via improved agricultural management;
 e_{ccs} = emission savings from carbon capture and geological storage;
 e_{ccr} = emission savings from carbon capture and replacement; and
 e_{ee} = emission savings from excess electricity from cogeneration.

Emissions from the manufacture of machinery and equipment shall not be taken into account.

2. Greenhouse gas emissions from fuels, E , shall be expressed in terms of grams of CO₂ equivalent per MJ of fuel, gCO_{2eq}/MJ.
3. By derogation from point 2, values calculated in terms of gCO_{2eq}/MJ may be adjusted to take into account differences between fuels in useful work done, expressed in terms of km/MJ. Such adjustments shall only be made where evidence of the differences in useful work done is provided.
4. Greenhouse gas emission savings from biofuels shall be calculated as:

$$SAVING = (E_F - E_B)/E_F$$

where

- E_B = total emissions from the biofuel; and
 E_F = total emissions from the fossil fuel comparator.

5. The greenhouse gases taken into account for the purposes of point 1 shall be CO₂, N₂O and CH₄. For the purpose of calculating CO₂ equivalence, those gases shall be valued as follows:

CO₂: 1

N₂O: 296

CH₄: 23

6. Emissions from the extraction or cultivation of raw materials, e_{ec} , shall include emissions from the extraction or cultivation process itself; from the collection of raw materials; from waste and leakages; and from the production of chemicals or products used in extraction or cultivation. Capture of CO₂ in the cultivation of raw materials shall be excluded. Certified reductions of greenhouse gas emissions from flaring at oil production sites anywhere in the world shall be deducted. Estimates of emissions from cultivation may be derived from the use of averages calculated for smaller geographical areas than those used in the calculation of the default values, as an alternative to using actual values.

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:

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

where

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

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

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

8. The bonus of 29 gCO_{2eq}/MJ shall be attributed if evidence is provided that the land:

(a) was not in use for agriculture or any other activity in January 2008; and

(b) falls into one of the following categories:

(i) severely degraded land, including such land that was formerly in agricultural use;

(ii) heavily contaminated land.

The bonus of 29 gCO_{2eq}/MJ shall apply for a period of up to 10 years from the date of conversion of the land to agricultural use, provided that a steady increase in carbon stocks as well as a sizable reduction in erosion phenomena for land falling under (i) are ensured and that soil contamination for land falling under (ii) is reduced.

9. The categories mentioned in point 8(b) are defined as follows:

(a) 'severely degraded land' means land that, for a significant period of time, has either been significantly salinated or presented significantly low organic matter content and been severely eroded;

(b) 'heavily contaminated land' means land that is unfit for the cultivation of food and feed due to soil contamination.

Such land shall include land that has been the subject of a Commission decision in accordance with the fourth subparagraph of Article 7c(3).

⁽¹⁾ 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.

10. The guide adopted pursuant to point 10 of Part C of Annex V to Directive 2009/28/EC shall serve as the basis of the calculation of land carbon stocks for the purposes of this Directive.
11. Emissions from processing, e_p , shall include emissions from the processing itself; from waste and leakages; and from the production of chemicals or products used in processing.

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

12. Emissions from transport and distribution, e_{td} , shall include emissions from the transport and storage of raw and semi-finished materials and from the storage and distribution of finished materials. Emissions from transport and distribution to be taken into account under point 6 shall not be covered by this point.
13. Emissions from the fuel in use, e_u , shall be taken to be zero for biofuels.
14. Emission savings from carbon capture and geological storage e_{ccs} , that have not already been accounted for in e_p , shall be limited to emissions avoided through the capture and sequestration of emitted CO₂ directly related to the extraction, transport, processing and distribution of fuel.
15. Emission savings from carbon capture and replacement, e_{ccr} , shall be limited to emissions avoided through the capture of CO₂ of which the carbon originates from biomass and which is used to replace fossil-derived CO₂ used in commercial products and services.
16. Emission savings from excess electricity from cogeneration, e_{ec} , shall be taken into account in relation to the excess electricity produced by fuel production systems that use cogeneration except where the fuel used for the cogeneration is a co-product other than an agricultural crop residue. In accounting for that excess electricity, the size of the cogeneration unit shall be assumed to be the minimum necessary for the cogeneration unit to supply the heat that is needed to produce the fuel. The greenhouse gas emission savings associated with that excess electricity shall be taken to be equal to the amount of greenhouse gas that would be emitted when an equal amount of electricity was generated in a power plant using the same fuel as the cogeneration unit.
17. Where a fuel production process produces, in combination, the fuel for which emissions are being calculated and one or more other products (co-products), greenhouse gas emissions shall be divided between the fuel or its intermediate product and the co-products in proportion to their energy content (determined by lower heating value in the case of co-products other than electricity).
18. For the purposes of the calculation referred to in point 17, the emissions to be divided shall be $e_{ec} + e_i$ + those fractions of e_p , e_{td} and e_{ec} that take place up to and including the process step at which a co-product is produced. If any allocation to co-products has taken place at an earlier process step in the life-cycle, the fraction of those emissions assigned in the last such process step to the intermediate fuel product shall be used for this purpose instead of the total of those emissions.

All co-products, including electricity that does not fall under the scope of point 16, shall be taken into account for the purposes of that calculation, except for agricultural crop residues, including straw, bagasse, husks, cobs and nut shells. Co-products that have a negative energy content shall be considered to have an energy content of zero for the purpose of the calculation.

Wastes, agricultural crop residues, including straw, bagasse, husks, cobs and nut shells, and residues from processing, including crude glycerine (glycerine that is not refined), shall be considered to have zero life-cycle greenhouse gas emissions up to the process of collection of those materials.

In the case of fuels produced in refineries, the unit of analysis for the purposes of the calculation referred to in point 17 shall be the refinery.

19. For the purposes of the calculation referred to in point 4, the fossil fuel comparator E_f shall be the latest available actual average emissions from the fossil part of petrol and diesel consumed in the Community as reported under this Directive. If no such data are available, the value used shall be 83,8 gCO_{2eq}/MJ.

D. Disaggregated default values for biofuels

Disaggregated default values for cultivation: 'e_{cc}' as defined in Part C of this Annex

Biofuel production pathway	Typical greenhouse gas emissions (gCO _{2eq} /MJ)	Default greenhouse gas emissions (gCO _{2eq} /MJ)
Sugar beet ethanol	12	12
Wheat ethanol	23	23
Corn (maize) ethanol, Community produced	20	20
Sugar cane ethanol	14	14
The part from renewable sources of ETBE	Equal to that of the ethanol production pathway used	
The part from renewable sources of TAEE	Equal to that of the ethanol production pathway used	
Rape seed biodiesel	29	29
Sunflower biodiesel	18	18
Soybean biodiesel	19	19
Palm oil biodiesel	14	14
Waste vegetable or animal (*) oil biodiesel	0	0
Hydrotreated vegetable oil from rape seed	30	30
Hydrotreated vegetable oil from sunflower	18	18
Hydrotreated vegetable oil from palm oil	15	15
Pure vegetable oil from rape seed	30	30
Biogas from municipal organic waste as compressed natural gas	0	0
Biogas from wet manure as compressed natural gas	0	0
Biogas from dry manure as compressed natural gas	0	0

(*) Not including animal oil produced from animal by-products classified as category 3 material in accordance with Regulation (EC) No 1774/2002.

Disaggregated default values for processing (including excess electricity): 'e_p - e_{cc}' as defined in Part C of this Annex

Biofuel production pathway	Typical greenhouse gas emissions (gCO _{2eq} /MJ)	Default greenhouse gas emissions (gCO _{2eq} /MJ)
Sugar beet ethanol	19	26
Wheat ethanol (process fuel not specified)	32	45
Wheat ethanol (lignite as process fuel in CHP plant)	32	45
Wheat ethanol (natural gas as process fuel in conventional boiler)	21	30
Wheat ethanol (natural gas as process fuel in CHP plant)	14	19
Wheat ethanol (straw as process fuel in CHP plant)	1	1
Corn (maize) ethanol, Community produced (natural gas as process fuel in CHP plant)	15	21
Sugar cane ethanol	1	1

Biofuel production pathway	Typical greenhouse gas emissions (gCO _{2eq} /MJ)	Default greenhouse gas emissions (gCO _{2eq} /MJ)
The part from renewable sources of ETBE	Equal to that of the ethanol production pathway used	
The part from renewable sources of TAAE	Equal to that of the ethanol production pathway used	
Rape seed biodiesel	16	22
Sunflower biodiesel	16	22
Soybean biodiesel	18	26
Palm oil biodiesel (process not specified)	35	49
Palm oil biodiesel (process with methane capture at oil mill)	13	18
Waste vegetable or animal oil biodiesel	9	13
Hydrotreated vegetable oil from rape seed	10	13
Hydrotreated vegetable oil from sunflower	10	13
Hydrotreated vegetable oil from palm oil (process not specified)	30	42
Hydrotreated vegetable oil from palm oil (process with methane capture at oil mill)	7	9
Pure vegetable oil from rape seed	4	5
Biogas from municipal organic waste as compressed natural gas	14	20
Biogas from wet manure as compressed natural gas	8	11
Biogas from dry manure as compressed natural gas	8	11

Disaggregated default values for transport and distribution: 'e_{td}' as defined in Part C of this Annex

Biofuel production pathway	Typical greenhouse gas emissions (gCO _{2eq} /MJ)	Default greenhouse gas emissions (gCO _{2eq} /MJ)
Sugar beet ethanol	2	2
Wheat ethanol	2	2
Corn (maize) ethanol, Community produced	2	2
Sugar cane ethanol	9	9
The part from renewable sources of ETBE	Equal to that of the ethanol production pathway used	
The part from renewable sources of TAAE	Equal to that of the ethanol production pathway used	
Rape seed biodiesel	1	1
Sunflower biodiesel	1	1
Soybean biodiesel	13	13
Palm oil biodiesel	5	5
Waste vegetable or animal oil biodiesel	1	1
Hydrotreated vegetable oil from rape seed	1	1
Hydrotreated vegetable oil from sunflower	1	1
Hydrotreated vegetable oil from palm oil	5	5
Pure vegetable oil from rape seed	1	1
Biogas from municipal organic waste as compressed natural gas	3	3
Biogas from wet manure as compressed natural gas	5	5
Biogas from dry manure as compressed natural gas	4	4

Total for cultivation, processing, transport and distribution

Biofuel production pathway	Typical greenhouse gas emissions (gCO _{2eq} /MJ)	Default greenhouse gas emissions (gCO _{2eq} /MJ)
Sugar beet ethanol	33	40
Wheat ethanol (process fuel not specified)	57	70
Wheat ethanol (lignite as process fuel in CHP plant)	57	70
Wheat ethanol (natural gas as process fuel in conventional boiler)	46	55
Wheat ethanol (natural gas as process fuel in CHP plant)	39	44
Wheat ethanol (straw as process fuel in CHP plant)	26	26
Corn (maize) ethanol, Community produced (natural gas as process fuel in CHP plant)	37	43
Sugar cane ethanol	24	24
The part from renewable sources of ETBE	Equal to that of the ethanol production pathway used	
The part from renewable sources of TAEE	Equal to that of the ethanol production pathway used	
Rape seed biodiesel	46	52
Sunflower biodiesel	35	41
Soybean biodiesel	50	58
Palm oil biodiesel (process not specified)	54	68
Palm oil biodiesel (process with methane capture at oil mill)	32	37
Waste vegetable or animal oil biodiesel	10	14
Hydrotreated vegetable oil from rape seed	41	44
Hydrotreated vegetable oil from sunflower	29	32
Hydrotreated vegetable oil from palm oil (process not specified)	50	62
Hydrotreated vegetable oil from palm oil (process with methane capture at oil mill)	27	29
Pure vegetable oil from rape seed	35	36
Biogas from municipal organic waste as compressed natural gas	17	23
Biogas from wet manure as compressed natural gas	13	16
Biogas from dry manure as compressed natural gas	12	15

E. Estimated disaggregated default values for future biofuels that were not on the market or were only on the market in negligible quantities in January 2008

Disaggregated values for cultivation: 'e_{cc}' as defined in Part C of this Annex

Biofuel production pathway	Typical greenhouse gas emissions (gCO _{2eq} /MJ)	Default greenhouse gas emissions (gCO _{2eq} /MJ)
Wheat straw ethanol	3	3
Waste wood ethanol	1	1
Farmed wood ethanol	6	6
Waste wood Fischer-Tropsch diesel	1	1
Farmed wood Fischer-Tropsch diesel	4	4
Waste wood DME	1	1
Farmed wood DME	5	5
Waste wood methanol	1	1
Farmed wood methanol	5	5
The part from renewable sources of MTBE	Equal to that of the methanol production pathway used	

Disaggregated values for processing (including excess electricity): ' $e_p - e_{ec}$ ' as defined in Part C of this Annex

Biofuel production pathway	Typical greenhouse gas emissions (gCO _{2eq} /MJ)	Default greenhouse gas emissions (gCO _{2eq} /MJ)
Wheat straw ethanol	5	7
Wood ethanol	12	17
Wood Fischer-Tropsch diesel	0	0
Wood DME	0	0
Wood methanol	0	0
The part from renewable sources of MTBE	Equal to that of the methanol production pathway used	

Disaggregated values for transport and distribution: ' e_{td} ' as defined in Part C of this Annex

Biofuel production pathway	Typical greenhouse gas emissions (gCO _{2eq} /MJ)	Default greenhouse gas emissions (gCO _{2eq} /MJ)
Wheat straw ethanol	2	2
Waste wood ethanol	4	4
Farmed wood ethanol	2	2
Waste wood Fischer-Tropsch diesel	3	3
Farmed wood Fischer-Tropsch diesel	2	2
Waste wood DME	4	4
Farmed wood DME	2	2
Waste wood methanol	4	4
Farmed wood methanol	2	2
The part from renewable sources of MTBE	Equal to that of the methanol production pathway used	

Total for cultivation, processing, transport and distribution

Biofuel production pathway	Typical greenhouse gas emissions (gCO _{2eq} /MJ)	Default greenhouse gas emissions (gCO _{2eq} /MJ)
Wheat straw ethanol	11	13
Waste wood ethanol	17	22
Farmed wood ethanol	20	25
Waste wood Fischer-Tropsch diesel	4	4
Farmed wood Fischer-Tropsch diesel	6	6
Waste wood DME	5	5
Farmed wood DME	7	7
Waste wood methanol	5	5
Farmed wood methanol	7	7
The part from renewable sources of MTBE	Equal to that of the methanol production pathway used	

DIRECTIVE 2009/31/EC OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL

of 23 April 2009

on the geological storage of carbon dioxide and amending Council Directive 85/337/EEC, European Parliament and Council Directives 2000/60/EC, 2001/80/EC, 2004/35/EC, 2006/12/EC, 2008/1/EC and Regulation (EC) No 1013/2006

(Text with EEA relevance)

THE EUROPEAN PARLIAMENT AND THE COUNCIL OF THE EUROPEAN UNION,

Having regard to the Treaty establishing the European Community, and in particular Article 175(1) thereof,

Having regard to the proposal from the Commission,

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 procedure laid down in Article 251 of the Treaty ⁽²⁾,

Whereas:

- (1) The ultimate objective of the United Nations Framework Convention on Climate Change, which was approved by Council Decision 94/69/EC of 15 December 1993 ⁽³⁾, is to stabilise greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system.
- (2) The Sixth Community Environment Action Programme established by Decision No 1600/2002/EC of the European Parliament and of the Council of 22 July 2002 ⁽⁴⁾ identifies climate change as a priority for action. That programme recognises that the Community is committed to achieving an 8 % reduction in emissions of greenhouse gases by 2008 to 2012 compared to 1990 levels, and that, in the longer term, global emissions of greenhouse gases will need to be reduced by approximately 70 % compared to 1990 levels.
- (3) The Commission Communication of 10 January 2007 entitled 'Limiting global climate change to two degrees Celsius – The way ahead for 2020 and beyond' clarifies that

in the context of the envisaged global reduction of greenhouse gas emissions of 50 % by 2050, a reduction in greenhouse gas emissions of 30 % in the developed world by 2020 is required, rising to 60 %-80 % by 2050, that this reduction is technically feasible and the benefits far outweigh the costs, but that, to achieve it, all mitigation options must be harnessed.

- (4) Carbon dioxide capture and geological storage (CCS) is a bridging technology that will contribute to mitigating climate change. It consists of the capture of carbon dioxide (CO₂) from industrial installations, its transport to a storage site and its injection into a suitable underground geological formation for the purposes of permanent storage. This technology should not serve as an incentive to increase the share of fossil fuel power plants. Its development should not lead to a reduction of efforts to support energy saving policies, renewable energies and other safe and sustainable low carbon technologies, both in research and financial terms.
- (5) Preliminary estimates, carried out with a view to assessing the impact of the Directive and referred to in the impact assessment of the Commission, indicate that seven million tonnes of CO₂ could be stored by 2020, and up to 160 million tonnes by 2030, assuming a 20 % reduction in greenhouse gas emissions by 2020 and provided that CCS obtains private, national and Community support and proves to be an environmentally safe technology. The CO₂ emissions avoided in 2030 could account for some 15 % of the reductions required in the Union.
- (6) The Second European Climate Change Programme, which was established by the Commission Communication of 9 February 2005 entitled 'Winning the Battle Against Global Climate Change' to prepare and examine future climate policy in the Community, set up a Working Group on Carbon Capture and Geological Storage. The Working Group's mandate was to explore CCS as a means of reducing climate change. The Working Group published a detailed report on the topic of regulation, which was adopted in June 2006. It stressed the need for the development of both policy and regulatory frameworks for CCS and urged the Commission to undertake further research into the subject.

⁽¹⁾ OJ C 27, 3.2.2009, p. 75.

⁽²⁾ Opinion of the European Parliament of 17 December 2008 (not yet published in the Official Journal) and Council Decision of 6 April 2009.

⁽³⁾ OJ L 33, 7.2.1994, p. 11.

⁽⁴⁾ OJ L 242, 10.9.2002, p. 1.

- (7) The Commission Communication of 10 January 2007 entitled 'Sustainable power generation from fossil fuels: aiming for near-zero emissions from coal after 2020' reiterated the need for a regulatory framework based on an integrated risk assessment for CO₂ leakage, including site selection requirements designed to minimise the risk of leakage, monitoring and reporting regimes to verify storage and adequate remediation of any damage that may occur. The Communication set out an action plan for the Commission in this area during 2007, which required the development of a sound management framework for CCS, including the work on the regulatory framework, incentive framework, and support programmes, as well as external elements, for example technology cooperation with key countries on CCS.
- (8) The European Council of March 2007 also urged the Member States and the Commission to work towards strengthening research and development and developing the necessary technical, economic and regulatory framework in order to remove existing legal barriers and to bring environmentally safe CCS to deployment with new fossil power plants, if possible by 2020.
- (9) The European Council of March 2008 recalled that the objective of proposing a regulatory framework on CCS was to ensure that this novel technology would be deployed in an environmentally safe way.
- (10) The European Council of June 2008 called on the Commission to bring forward as soon as possible a mechanism to incentivise Member State and private sector investments to ensure the construction and operation by 2015 of up to 12 CCS demonstration plants.
- (11) Each of the different components of CCS, namely capture, transport and storage of CO₂, has been the object of pilot projects on a smaller scale than that required for their industrial application. These components still need to be integrated into a complete CCS process, technological costs need to be reduced and more and better scientific knowledge has to be gathered. It is therefore important that Community efforts on CCS demonstration within an integrated policy framework start as soon as possible, including, in particular, a legal framework for the environmentally safe application of CO₂ storage, incentives, notably for further research and development, efforts by means of demonstration projects, and public awareness measures.
- (12) At the international level, legal barriers to the geological storage of CO₂ in geological formations under the seabed have been removed through the adoption of related risk management frameworks under the 1996 London Protocol to the 1972 Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter (1996 London Protocol) and under the Convention for the Protection of the Marine Environment of the North-East Atlantic (OSPAR Convention).
- (13) In 2006, the Contracting Parties to the 1996 London Protocol adopted amendments to the Protocol. These amendments allow and regulate the storage of CO₂ streams from CO₂ capture processes in geological formations under the seabed.
- (14) The Contracting Parties to the OSPAR Convention in 2007 adopted amendments to the Annexes to the Convention to allow the storage of CO₂ in geological formations under the seabed, a Decision to ensure environmentally safe storage of CO₂ streams in geological formations, and OSPAR Guidelines for Risk Assessment and Management of that activity. They also adopted a Decision to prohibit placement of CO₂ into the water-column of the sea and on the seabed, because of the potential negative effects.
- (15) At Community level, a number of legislative instruments are already in place to manage some of the environmental risks of CCS, in particular regarding capture and transport of CO₂, and they should be used where possible.
- (16) Directive 2008/1/EC of the European Parliament and of the Council of 15 January 2008 concerning integrated pollution prevention and control ⁽¹⁾ is suitable for regulating, in respect of certain industrial activities, the risks of CO₂ capture to the environment and human health and, as a result, should be applied to the capture of CO₂ streams for the purposes of geological storage from installations covered by that Directive.
- (17) Council Directive 85/337/EEC of 27 June 1985 on the assessment of the effects of certain public and private projects on the environment ⁽²⁾ should be applied to the capture and transport of CO₂ streams for the purposes of geological storage. It should also apply to storage sites pursuant to this Directive.
- (18) This Directive should apply to the geological storage of CO₂ within the territory of the Member States, in their exclusive economic zones and on their continental shelves. The Directive should not apply to projects with a total intended storage below 100 kilotonnes, undertaken for research, development or testing of new products and processes. This threshold would also seem appropriate for the purposes of other relevant Community legislation. The storage of CO₂ in storage complexes extending beyond the territorial scope of this Directive and the storage of CO₂ in the water column should not be permitted.

⁽¹⁾ OJ L 24, 29.1.2008, p. 8.

⁽²⁾ OJ L 175, 5.7.1985, p. 40.

- (19) Member States should retain the right to determine the areas within their territory from which storage sites may be selected. This includes the right of Member States not to allow any storage in parts or on the whole of their territory, or to give priority to any other use of the underground, such as exploration, production and storage of hydrocarbons or geothermal use of aquifers. In this context, Member States should in particular give due consideration to other energy-related options for the use of a potential storage site, including options which are strategic for the security of the Member State's energy supply or for the development of renewable sources of energy. The selection of the appropriate storage site is crucial to ensure that the stored CO₂ will be completely and permanently contained. Member States should, in selecting storage sites, take account of their geological characteristics, for example seismicity, in the most objective and effective way possible. A site should therefore only be selected as a storage site, if there is no significant risk of leakage, and if in any case no significant environmental or health impacts are likely to occur. This should be determined through a characterisation and assessment of a potential storage complex pursuant to specific requirements.
- (20) Enhanced Hydrocarbon Recovery (EHR) refers to the recovery of hydrocarbons in addition to those extracted by water injection or other means. EHR is not in itself included in the scope of this Directive. However, where EHR is combined with geological storage of CO₂, the provisions of this Directive for the environmentally safe storage of CO₂ should apply. In that case, the provisions of this Directive concerning leakage are not intended to apply to quantities of CO₂ released from surface installations which do not exceed what is necessary in the normal process of extraction of hydrocarbons, and which do not compromise the security of the geological storage or adversely affect the surrounding environment. Such releases are covered by the inclusion of storage sites in Directive 2003/87/EC of the European Parliament and of the Council of 13 October 2003 establishing a scheme for greenhouse gas emission allowance trading within the Community ⁽¹⁾, which requires surrender of emissions trading allowances for any leaked emissions.
- (21) Member States should make available to the public environmental information relating to geological storage of CO₂ in accordance with applicable Community legislation.
- (22) Member States which intend to allow geological storage of CO₂ in their territory should undertake an assessment of the storage capacity available within their territory. The Commission should organise an exchange of information and best practices between those Member States, in the context of the exchange of information provided for in this Directive.
- (23) Member States should determine in which cases exploration is required to generate the information necessary for the site selection. Exploration, that is activities intruding into the subsurface, should be made subject to a permit requirement. Member States do not need to set admission criteria for procedures for granting exploration permits, but where they do, they should at least ensure that the procedures for the granting of exploration permits are open to all entities possessing the necessary capacities. Member States should also ensure that the permits are granted on the basis of objective, published and non-discriminatory criteria. In order to protect and encourage exploration investments, exploration permits should be granted for a limited volume area and for a limited time during which the holder of the permit should have the sole right to explore the potential CO₂ storage complex. Member States should ensure that no conflicting uses of the complex are permitted during this time. If no activities are carried out within a reasonable time, Member States should ensure that the exploration permit is withdrawn and can be granted to other entities.
- (24) Storage sites should not be operated without a storage permit. The storage permit should be the core instrument to ensure that the substantial requirements of this Directive are met and that geological storage therefore takes place in an environmentally safe way. In the granting of the storage permit, priority should be given to the holder of the exploration permit over competitors, as the former will generally have made substantial investments.
- (25) In the early phase of the implementation of this Directive, to ensure consistency in implementation of the requirements of this Directive across the Community, all storage permit applications should be made available to the Commission after receipt. The draft storage permits should be transmitted to the Commission to enable it to issue an opinion on the draft permits within four months of their receipt. The national authorities should take this opinion into consideration when taking a decision on the permit and should justify any departure from the Commission's opinion. The review at Community level should also help to enhance public confidence in CCS.

⁽¹⁾ OJ L 275, 25.10.2003, p. 32.

- (26) The competent authority should review and where necessary update or withdraw the storage permit if, inter alia, it has been notified of leakages or significant irregularities, if the reports submitted by the operators or the inspections carried out show non-compliance with permit conditions or if it is made aware of any other failure by the operator to comply with the permit conditions. After the withdrawal of a permit, the competent authority should either issue a new permit or close the storage site. In the meantime, the competent authority should take over the responsibility for the storage site, including specific legal obligations. Costs incurred should be recovered from the former operator.
- (27) It is necessary to impose on the composition of the CO₂ stream constraints that are consistent with the primary purpose of geological storage, which is to isolate CO₂ emissions from the atmosphere, and that are based on the risks that contamination may pose to the safety and security of the transport and storage network and to the environment and human health. To this end, the composition of the CO₂ stream should be verified prior to injection and storage. The composition of the CO₂ stream is the result of the processes at the capture installations. Following inclusion of capture installations in Directive 85/337/EEC, an environmental impact assessment has to be carried out in the capture permit process. Inclusion of capture installations in Directive 2008/1/EC further ensures that best available techniques to improve the composition of the CO₂ stream have to be established and applied. In addition, in accordance with this Directive, the operator of the storage site should only accept and inject CO₂ streams if an analysis of the composition, including corrosive substances, of the streams, and a risk assessment have been carried out, and if the risk assessment has shown that the contamination levels of the CO₂ stream are in line with the composition criteria referred to in this Directive.
- (28) Monitoring is essential to assess whether injected CO₂ is behaving as expected, whether any migration or leakage occurs, and whether any identified leakage is damaging the environment or human health. To that end, Member States should ensure that during the operational phase, the operator monitors the storage complex and the injection facilities on the basis of a monitoring plan designed pursuant to specific monitoring requirements. The plan should be submitted to and approved by the competent authority. In the case of geological storage under the seabed, monitoring should further be adapted to the specific conditions for the management of CCS in the marine environment.
- (29) The operator should report, inter alia, the results of the monitoring to the competent authority at least once a year. In addition, Member States should establish a system of inspections to ensure that the storage site is operated in compliance with the requirements of this Directive.
- (30) Provisions are required concerning liability for damage to the local environment and the climate, resulting from any failure of permanent containment of CO₂. Liability for environmental damage (damage to protected species and natural habitats, water and land) is regulated by Directive 2004/35/EC of the European Parliament and of the Council of 21 April 2004 on environmental liability with regard to the prevention and remedying of environmental damage⁽¹⁾, which should be applied to the operation of storage sites pursuant to this Directive. Liability for climate damage as a result of leakages is covered by the inclusion of storage sites in Directive 2003/87/EC, which requires surrender of emissions trading allowances for any leaked emissions. In addition, this Directive should establish the obligation on the operator of the storage site to take corrective measures in case of leakages or significant irregularities on the basis of a corrective measures plan submitted to and approved by the competent national authority. Where the operator fails to take the necessary corrective measures, these measures should be taken by the competent authority, which should recover the costs from the operator.
- (31) A storage site should be closed if the relevant conditions stated in the permit have been complied with, upon request from the operator after authorisation of the competent authority, or if the competent authority so decides after the withdrawal of a storage permit.
- (32) After a storage site has been closed, the operator should remain responsible for maintenance, monitoring and control, reporting, and corrective measures pursuant to the requirements of this Directive on the basis of a post-closure plan submitted to and approved by the competent authority as well as for all ensuing obligations under other relevant Community legislation until the responsibility for the storage site is transferred to the competent authority.
- (33) The responsibility for the storage site, including specific legal obligations, should be transferred to the competent authority, if and when all available evidence indicates that the stored CO₂ will be completely and permanently contained. To this end, the operator should submit a report to the competent authority for approval of the transfer. In the early phase of the implementation of this Directive, to ensure consistency in implementation of the requirements of this Directive across the Community, all reports should be made available to the Commission after receipt. The draft approval decisions should be transmitted to the Commission to enable it to issue an opinion on the draft approval decisions within four months of their receipt. The national authorities should take this opinion into consideration when taking a decision on the approval and should justify any departure from the Commission's opinion. The review of draft approval decisions should, in the same way as the review of draft storage permits at Community level, also help to enhance public confidence in CCS.

⁽¹⁾ OJ L 143, 30.4.2004, p. 56.

- (34) Liabilities other than those covered by this Directive, Directive 2003/87/EC and Directive 2004/35/EC, in particular concerning the injection phase, the closure of the storage site and the period after transfer of legal obligations to the competent authority, should be dealt with at national level.
- (35) After the transfer of responsibility, monitoring should be reduced to a level which still allows for identification of leakages or significant irregularities, but should again be intensified if leakages or significant irregularities are identified. There should be no recovery of costs incurred by the competent authority from the former operator after the transfer of responsibility except in the case of fault on the part of the operator prior to the transfer of responsibility for the storage site.
- (36) Financial provision should be made in order to ensure that closure and post-closure obligations, obligations arising from inclusion under Directive 2003/87/EC, and obligations under this Directive to take corrective measures in case of leakages or significant irregularities, can be met. Member States should ensure that financial provision, by way of financial security or any other equivalent, is made by the potential operator so that it is valid and effective before commencement of injection.
- (37) National authorities may, after transfer of responsibility, have to bear costs, such as monitoring costs, associated with CO₂ storage. A financial contribution should therefore be made available by the operator to the competent authority, before the transfer of responsibility takes place and on the basis of arrangements to be decided by Member States. This financial contribution should at least cover the anticipated cost of monitoring for a period of 30 years. The level of the financial contribution should be determined on the basis of guidelines to be adopted by the Commission to help ensure consistency in implementation of the requirements of this Directive across the Community.
- (38) Access to CO₂ transport networks and storage sites, irrespective of the geographical location of potential users within the Union, could become a condition for entry into or competitive operation within the internal electricity and heat market, depending on the relative prices of carbon and CCS. It is therefore appropriate to make arrangements for potential users to obtain such access. This should be done in a manner to be determined by each Member State, applying the objectives of fair, open and non-discriminatory access and taking into account, inter alia, the transport and storage capacity which is available or can reasonably be made available as well as the proportion of its CO₂ reduction obligations pursuant to international legal instruments and to Community legislation intended to be met through CCS. Pipelines for CO₂ transport should, where possible, be designed so as to facilitate access of CO₂ streams meeting reasonable minimum composition thresholds. Member States should also establish dispute settlement mechanisms to enable expeditious settlement of disputes regarding access to transport networks and storage sites.
- (39) Provisions are required to ensure that, in cases of transboundary CO₂ transport, transboundary storage sites or transboundary storage complexes, the competent authorities of the Member States concerned meet jointly the requirements of this Directive and of all other Community legislation.
- (40) The competent authority should establish and maintain a register of the storage permits granted and of all closed storage sites and surrounding storage complexes, including maps of their spatial extent to be taken into consideration by the competent national authorities in relevant planning and permitting procedures. The register should also be reported to the Commission.
- (41) Member States should submit reports on the implementation of this Directive on the basis of questionnaires drawn up by the Commission pursuant to Council Directive 91/692/EEC of 23 December 1991 standardising and rationalising reports on the implementation of certain Directives relating to the environment ⁽¹⁾.
- (42) Member States should lay down rules on penalties applicable to infringements of the national provisions adopted pursuant to this Directive. Those penalties should be effective, proportionate and dissuasive.
- (43) The measures necessary for the implementation of this Directive should be adopted in accordance with Council Decision 1999/468/EC of 28 June 1999 laying down the procedures for the exercise of implementing powers conferred on the Commission ⁽²⁾.
- (44) In particular the Commission should be empowered to amend the Annexes. Since those measures are of general scope and are designed to amend non-essential elements of this Directive, they must be adopted in accordance with the regulatory procedure with scrutiny provided for in Article 5a of Decision 1999/468/EC.
- (45) Directive 85/337/EEC should be amended to cover capture and transport of CO₂ streams for the purposes of geological storage as well as storage sites pursuant to this Directive. Directive 2004/35/EC should be amended to cover the operation of storage sites pursuant to this Directive. Directive 2008/1/EC should be amended to cover capture of CO₂ streams for the purposes of geological storage from installations covered by that Directive.

⁽¹⁾ OJ L 377, 31.12.1991, p. 48.

⁽²⁾ OJ L 184, 17.7.1999, p. 23.

- (46) The adoption of this Directive should ensure a high level of protection of the environment and human health from the risks posed by the geological storage of CO₂. For this reason, Directive 2006/12/EC of the European Parliament and of the Council of 5 April 2006 on waste ⁽¹⁾ and Regulation (EC) No 1013/2006 of the European Parliament and of the Council of 14 June 2006 on shipments of waste ⁽²⁾ should be amended so as to exclude CO₂ captured and transported for the purposes of geological storage from the scope of application of those instruments. Directive 2000/60/EC of the European Parliament and of the Council of 23 October 2000 establishing a framework for Community action in the field of water policy ⁽³⁾ should also be amended to allow for injection of CO₂ into saline aquifers for the purposes of geological storage. Any such injection is subject to the provisions of Community legislation on the protection of groundwater, and must be in accordance with Article 4(1)(b) of Directive 2000/60/EC and with Directive 2006/118/EC of the European Parliament and of the Council of 12 December 2006 on the protection of groundwater against pollution and deterioration ⁽⁴⁾.
- (47) The transition to low-carbon power generation requires that, in the case of fossil fuel power generation, new investments be made in such a way as to facilitate substantial reductions in emissions. To this end, Directive 2001/80/EC of the European Parliament and of the Council of 23 October 2001 on the limitation of emissions of certain pollutants into the air from large combustion plants ⁽⁵⁾ should be amended to require that all combustion plants of a specified capacity, for which the original construction licence or the original operating licence is granted after the entry into force of this Directive, have suitable space on the installation site for the equipment necessary to capture and compress CO₂ if suitable storage sites are available, and if CO₂ transport and retrofitting for CO₂ capture are technically and economically feasible. The economic feasibility of the transport and retrofitting should be assessed taking into account the anticipated costs of avoided CO₂ for the particular local conditions in the case of retrofitting and the anticipated costs of CO₂ allowances in the Community. The projections should be based on the latest evidence; a review of technical options and an analysis of uncertainties in the assessment processes should also be undertaken. The competent authority should determine whether these conditions are met on the basis of an assessment made by the operator and other available information, particularly concerning the protection of the environment and human health.
- (48) The Commission should, by 30 June 2015, conduct a review of this Directive in the light of the experience gained in the early phase of its implementation and make proposals for its revision as appropriate.
- (49) Since the objective of this Directive, namely the establishment of a legal framework for the environmentally safe storage of CO₂, cannot be sufficiently achieved by the Member States acting individually, and can therefore, by reason of its scale and effects, be better achieved at Community level, the Community may adopt measures in accordance with the principle of subsidiarity as set out in Article 5 of the Treaty. 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 that objective.
- (50) In accordance with point 34 of the Interinstitutional agreement on better law-making ⁽⁶⁾, Member States are encouraged to draw up, for themselves and in the interest of the Community, their own tables, which will, as far as possible, illustrate the correlation between this Directive and the transposition measures and to make them public.
- (51) The application of this Directive is without prejudice to Articles 87 and 88 of the Treaty,

HAVE ADOPTED THIS DIRECTIVE:

CHAPTER 1

SUBJECT MATTER, SCOPE AND DEFINITIONS

Article 1

Subject matter and purpose

1. This Directive establishes a legal framework for the environmentally safe geological storage of carbon dioxide (CO₂) to contribute to the fight against climate change.
2. The purpose of environmentally safe geological storage of CO₂ is permanent containment of CO₂ in such a way as to prevent and, where this is not possible, eliminate as far as possible negative effects and any risk to the environment and human health.

Article 2

Scope and prohibition

1. This Directive shall apply to the geological storage of CO₂ in the territory of the Member States, their exclusive economic zones and on their continental shelves within the meaning of the United Nations Convention on the Law of the Sea (Unclos).

⁽¹⁾ OJ L 114, 27.4.2006, p. 9. Directive 2006/12/EC is repealed by 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) with effect from 12 December 2010.

⁽²⁾ OJ L 190, 12.7.2006, p. 1.

⁽³⁾ OJ L 327, 22.12.2000, p. 1.

⁽⁴⁾ OJ L 372, 27.12.2006, p. 19.

⁽⁵⁾ OJ L 309, 27.11.2001, p. 1.

⁽⁶⁾ OJ C 321, 31.12.2003, p. 1.

2. This Directive shall not apply to geological storage of CO₂, with a total intended storage below 100 kilotonnes, undertaken for research, development or testing of new products and processes.

3. The storage of CO₂ in a storage site with a storage complex extending beyond the area referred to in paragraph 1 shall not be permitted.

4. The storage of CO₂ in the water column shall not be permitted.

Article 3

Definitions

For the purposes of this Directive the following definitions shall apply:

1. 'geological storage of CO₂' means injection accompanied by storage of CO₂ streams in underground geological formations;
2. 'water column' means the vertically continuous mass of water from the surface to the bottom sediments of a water body;
3. 'storage site' means a defined volume area within a geological formation used for the geological storage of CO₂ and associated surface and injection facilities;
4. 'geological formation' means a lithostratigraphical subdivision within which distinct rock layers can be found and mapped;
5. 'leakage' means any release of CO₂ from the storage complex;
6. 'storage complex' means the storage site and surrounding geological domain which can have an effect on overall storage integrity and security; that is, secondary containment formations;
7. 'hydraulic unit' means a hydraulically connected pore space where pressure communication can be measured by technical means and which is bordered by flow barriers, such as faults, salt domes, lithological boundaries, or by the wedging out or outcropping of the formation;
8. 'exploration' means the assessment of potential storage complexes for the purposes of geologically storing CO₂ by means of activities intruding into the subsurface such as drilling to obtain geological information about strata in the potential storage complex and, as appropriate, carrying out injection tests in order to characterise the storage site;
9. 'exploration permit' means a written and reasoned decision authorising exploration, and specifying the conditions under which it may take place, issued by the competent authority pursuant to the requirements of this Directive;
10. 'operator' means any natural or legal, private or public person who operates or controls the storage site or to whom decisive economic power over the technical functioning of the storage site has been delegated according to national legislation;
11. 'storage permit' means a written and reasoned decision or decisions authorising the geological storage of CO₂ in a storage site by the operator, and specifying the conditions under which it may take place, issued by the competent authority pursuant to the requirements of this Directive;
12. 'substantial change' means any change not provided for in the storage permit, which may have significant effects on the environment or human health;
13. 'CO₂ stream' means a flow of substances that results from CO₂ capture processes;
14. 'waste' means the substances defined as waste in Article 1(1)(a) of Directive 2006/12/EC;
15. 'CO₂ plume' means the dispersing volume of CO₂ in the geological formation;
16. 'migration' means the movement of CO₂ within the storage complex;
17. 'significant irregularity' means any irregularity in the injection or storage operations or in the condition of the storage complex itself, which implies the risk of a leakage or risk to the environment or human health;
18. 'significant risk' means a combination of a probability of occurrence of damage and a magnitude of damage that cannot be disregarded without calling into question the purpose of this Directive for the storage site concerned;
19. 'corrective measures' means any measures taken to correct significant irregularities or to close leakages in order to prevent or stop the release of CO₂ from the storage complex;
20. 'closure' of a storage site means the definitive cessation of CO₂ injection into that storage site;
21. 'post-closure' means the period after the closure of a storage site, including the period after the transfer of responsibility to the competent authority;
22. 'transport network' means the network of pipelines, including associated booster stations, for the transport of CO₂ to the storage site.

CHAPTER 2

SELECTION OF STORAGE SITES AND EXPLORATION PERMITS*Article 4***Selection of storage sites**

1. Member States shall retain the right to determine the areas from which storage sites may be selected pursuant to the requirements of this Directive. This includes the right of Member States not to allow for any storage in parts or in the whole of their territory.

2. Member States which intend to allow geological storage of CO₂ in their territory shall undertake an assessment of the storage capacity available in parts or in the whole of their territory, including by allowing exploration pursuant to Article 5. The Commission may organise an exchange of information and best practices between those Member States, in the context of the exchange of information provided for in Article 27.

3. The suitability of a geological formation for use as a storage site shall be determined through a characterisation and assessment of the potential storage complex and surrounding area pursuant to the criteria specified in Annex I.

4. A geological formation shall only be selected as a storage site, if under the proposed conditions of use there is no significant risk of leakage, and if no significant environmental or health risks exist.

*Article 5***Exploration permits**

1. Where Member States determine that exploration is required to generate the information necessary for selection of storage sites pursuant to Article 4, they shall ensure that no such exploration takes place without an exploration permit.

Where appropriate, monitoring of injection tests may be included in the exploration permit.

2. Member States shall ensure that the procedures for the granting of exploration permits are open to all entities possessing the necessary capacities and that the permits are granted or refused on the basis of objective, published and non-discriminatory criteria.

3. The duration of a permit shall not exceed the period necessary to carry out the exploration for which it is granted. However, the Member States may extend the validity of the permit where the stipulated duration is insufficient to complete the exploration concerned and where the exploration has been performed in accordance with the permit. Exploration permits shall be granted in respect of a limited volume area.

4. The holder of an exploration permit shall have the sole right to explore the potential CO₂ storage complex. Member States shall ensure that no conflicting uses of the complex are permitted during the period of validity of the permit.

CHAPTER 3

STORAGE PERMITS*Article 6***Storage permits**

1. Member States shall ensure that no storage site is operated without a storage permit, that there shall be only one operator for each storage site, and that no conflicting uses are permitted on the site.

2. Member States shall ensure that the procedures for the granting of storage permits are open to all entities possessing the necessary capacities and that the permits are granted on the basis of objective, published and transparent criteria.

3. Without prejudice to the requirements of this Directive, priority for the granting of a storage permit for a particular site shall be given to the holder of the exploration permit for that site, provided that the exploration of that site is completed, that any condition set in the exploration permit has been complied with, and that the application for a storage permit is made during the period of validity of the exploration permit. Member States shall ensure that no conflicting uses of the complex are allowed during the permit procedure.

*Article 7***Applications for storage permits**

Applications to the competent authority for storage permits shall include at least the following information:

1. the name and address of the potential operator;
2. proof of the technical competence of the potential operator;
3. the characterisation of the storage site and storage complex and an assessment of the expected security of the storage pursuant to Article 4(3) and (4);
4. the total quantity of CO₂ to be injected and stored, as well as the prospective sources and transport methods, the composition of CO₂ streams, the injection rates and pressures, and the location of injection facilities;
5. a description of measures to prevent significant irregularities;
6. a proposed monitoring plan pursuant to Article 13(2);

7. a proposed corrective measures plan pursuant to Article 16(2);
8. a proposed provisional post-closure plan pursuant to Article 17(3);
9. the information provided pursuant to Article 5 of Directive 85/337/EEC;
10. proof that the financial security or other equivalent provision as required under Article 19 will be valid and effective before commencement of the injection.

Article 8

Conditions for storage permits

The competent authority shall issue a storage permit only if the following conditions are met:

1. the competent authority, on the basis of the application submitted pursuant to Article 7 and of any other relevant information, is satisfied that:
 - (a) all relevant requirements of this Directive and of other relevant Community legislation are met;
 - (b) the operator is financially sound and technically competent and reliable to operate and control the site and that professional and technical development and training of the operator and all staff are provided;
 - (c) in the case of more than one storage site in the same hydraulic unit, the potential pressure interactions are such that both sites can simultaneously meet the requirements of this Directive;
2. the competent authority has considered any opinion of the Commission on the draft permit issued pursuant to Article 10.

Article 9

Contents of storage permits

The permit shall contain at least the following:

1. the name and address of the operator;
2. the precise location and delimitation of the storage site and storage complex, and information concerning the hydraulic unit;
3. the requirements for storage operation, the total quantity of CO₂ authorised to be geologically stored, the reservoir pressure limits, and the maximum injection rates and pressures;

4. the requirements for the composition of the CO₂ stream and the CO₂ stream acceptance procedure pursuant to Article 12, and, if necessary, further requirements for injection and storage in particular to prevent significant irregularities;
5. the approved monitoring plan, the obligation to implement the plan and requirements for updating it pursuant to Article 13 as well as the reporting requirements pursuant to Article 14;
6. the requirement to notify the competent authority in the event of leakages or significant irregularities, the approved corrective measures plan and the obligation to implement the corrective measures plan in the event of leakages or significant irregularities pursuant to Article 16;
7. the conditions for closure and the approved provisional post-closure plan referred to in Article 17;
8. any provisions on changes, review, updating and withdrawal of the storage permit pursuant to Article 11;
9. the requirement to establish and maintain the financial security or any other equivalent pursuant to Article 19.

Article 10

Commission review of draft storage permits

1. Member States shall make the permit applications available to the Commission within one month after receipt. They shall also make available other related material that shall be taken into account by the competent authority when it seeks to make a decision on the award of a storage permit. They shall inform the Commission of all draft storage permits and any other material taken into consideration for the adoption of the draft decision. Within four months after receipt of the draft storage permit, the Commission may issue a non-binding opinion on it. If the Commission decides not to issue an opinion, it shall inform the Member State within one month of submission of the draft permit and state its reasons.
2. The competent authority shall notify the final decision to the Commission, and where it departs from the Commission opinion it shall state its reasons.

Article 11

Changes, review, update and withdrawal of storage permits

1. The operator shall inform the competent authority of any changes planned in the operation of the storage site, including changes concerning the operator. Where appropriate, the competent authority shall update the storage permit or the permit conditions.

2. Member States shall ensure that no substantial change is implemented without a new or updated storage permit issued in accordance with this Directive. Annex II, point 13, first indent of Directive 85/337/EEC shall apply in such cases.

3. The competent authority shall review and where necessary update or, as a last resort, withdraw the storage permit:

- (a) if it has been notified or made aware of any leakages or significant irregularities pursuant to Article 16(1);
- (b) if the reports submitted pursuant to Article 14 or the environmental inspections carried out pursuant to Article 15 show non-compliance with permit conditions or risks of leakages or significant irregularities;
- (c) if it is aware of any other failure by the operator to meet the permit conditions;
- (d) if it appears necessary on the basis of the latest scientific findings and technological progress; or
- (e) without prejudice to points (a) to (d), five years after issuing the permit and every 10 years thereafter.

4. After a permit has been withdrawn pursuant to paragraph 3, the competent authority shall either issue a new storage permit or close the storage site pursuant to Article 17(1)(c). Until a new storage permit has been issued, the competent authority shall temporarily take over all legal obligations relating to acceptance criteria where the competent authority decides to continue CO₂ injections, monitoring and corrective measures pursuant to the requirements laid down in this Directive, the surrender of allowances in cases of leakage pursuant to Directive 2003/87/EC and preventive and remedial action pursuant to Articles 5(1) and 6(1) of Directive 2004/35/EC. The competent authority shall recover any costs incurred from the former operator, including by drawing on the financial security referred to in Article 19. In case of closure of the storage site pursuant to Article 17(1)(c), Article 17(4) shall apply.

CHAPTER 4

OPERATION, CLOSURE AND POST-CLOSURE OBLIGATIONS

Article 12

CO₂ stream acceptance criteria and procedure

1. A CO₂ stream shall consist overwhelmingly of carbon dioxide. To this end, no waste or other matter may be added for the purpose of disposing of that waste or other matter. However, a CO₂ stream may contain incidental associated substances from the source, capture or injection process and trace substances

added to assist in monitoring and verifying CO₂ migration. Concentrations of all incidental and added substances shall be below levels that would:

- (a) adversely affect the integrity of the storage site or the relevant transport infrastructure;
- (b) pose a significant risk to the environment or human health; or
- (c) breach the requirements of applicable Community legislation.

2. The Commission shall, if appropriate, adopt guidelines to help identify the conditions applicable on a case by case basis for respecting the criteria laid down in paragraph 1.

3. Member States shall ensure that the operator:

- (a) accepts and injects CO₂ streams only if an analysis of the composition, including corrosive substances, of the streams and a risk assessment have been carried out, and if the risk assessment has shown that the contamination levels are in line with the conditions referred to in paragraph 1;
- (b) keeps a register of the quantities and properties of the CO₂ streams delivered and injected, including the composition of those streams.

Article 13

Monitoring

1. Member States shall ensure that the operator carries out monitoring of the injection facilities, the storage complex (including where possible the CO₂ plume), and where appropriate the surrounding environment for the purpose of:

- (a) comparison between the actual and modelled behaviour of CO₂ and formation water, in the storage site;
- (b) detecting significant irregularities;
- (c) detecting migration of CO₂;
- (d) detecting leakage of CO₂;
- (e) detecting significant adverse effects for the surrounding environment, including in particular on drinking water, for human populations, or for users of the surrounding biosphere;
- (f) assessing the effectiveness of any corrective measures taken pursuant to Article 16;
- (g) updating the assessment of the safety and integrity of the storage complex in the short and long term, including the assessment of whether the stored CO₂ will be completely and permanently contained.

2. The monitoring shall be based on a monitoring plan designed by the operator pursuant to the requirements laid down in Annex II, including details on the monitoring in accordance with the guidelines established pursuant to Article 14 and Article 23(2) of Directive 2003/87/EC, submitted to and approved by the competent authority pursuant to Article 7(6) and Article 9(5) of this Directive. The plan shall be updated pursuant to the requirements laid down in Annex II and in any case every five years to take account of changes to the assessed risk of leakage, changes to the assessed risks to the environment and human health, new scientific knowledge, and improvements in best available technology. Updated plans shall be re-submitted for approval to the competent authority.

Article 14

Reporting by the operator

At a frequency to be determined by the competent authority, and in any event at least once a year, the operator shall submit to the competent authority:

1. all results of the monitoring pursuant to Article 13 in the reporting period, including information on the monitoring technology employed;
2. the quantities and properties of the CO₂ streams delivered and injected, including composition of those streams, in the reporting period, registered pursuant to Article 12(3)(b);
3. proof of the putting in place and maintenance of the financial security pursuant to Article 19 and Article 9(9);
4. any other information the competent authority considers relevant for the purposes of assessing compliance with storage permit conditions and increasing the knowledge of CO₂ behaviour in the storage site.

Article 15

Inspections

1. Member States shall ensure that the competent authorities organise a system of routine and non-routine inspections of all storage complexes within the scope of this Directive for the purposes of checking and promoting compliance with the requirements of the Directive and of monitoring the effects on the environment and on human health.
2. Inspections should include activities such as visits of the surface installations, including the injection facilities, assessing the injection and monitoring operations carried out by the operator, and checking all relevant records kept by the operator.
3. Routine inspections shall be carried out at least once a year until three years after closure and every five years until transfer of responsibility to the competent authority has occurred. They shall examine the relevant injection and monitoring facilities as well as

the full range of relevant effects from the storage complex on the environment and on human health.

4. Non-routine inspections shall be carried out:
 - (a) if the competent authority has been notified or made aware of leakages or significant irregularities pursuant to Article 16(1);
 - (b) if the reports pursuant to Article 14 have shown insufficient compliance with the permit conditions;
 - (c) to investigate serious complaints related to the environment or human health;
 - (d) in other situations where the competent authority considers this appropriate.

5. Following each inspection, the competent authority shall prepare a report on the results of the inspection. The report shall evaluate compliance with the requirements of this Directive and indicate whether or not further action is necessary. The report shall be communicated to the operator concerned and shall be publicly available in accordance with relevant Community legislation within two months of the inspection.

Article 16

Measures in case of leakages or significant irregularities

1. Member States shall ensure that in the event of leakages or significant irregularities, the operator immediately notifies the competent authority, and takes the necessary corrective measures, including measures related to the protection of human health. In cases of leakages and significant irregularities which imply the risk of leakage, the operator shall also notify the competent authority pursuant to Directive 2003/87/EC.
2. The corrective measures referred to in paragraph 1 shall be taken as a minimum on the basis of a corrective measures plan submitted to and approved by the competent authority pursuant to Article 7(7) and Article 9(6).
3. The competent authority may at any time require the operator to take the necessary corrective measures, as well as measures related to the protection of human health. These may be additional to or different from those laid out in the corrective measures plan. The competent authority may also at any time take corrective measures itself.
4. If the operator fails to take the necessary corrective measures, the competent authority shall take the necessary corrective measures itself.
5. The competent authority shall recover the costs incurred in relation to the measures referred to in paragraphs 3 and 4 from the operator, including by drawing on the financial security pursuant to Article 19.

Article 17

Closure and post-closure obligations

1. A storage site shall be closed:
 - (a) if the relevant conditions stated in the permit have been met;
 - (b) at the substantiated request of the operator, after authorisation of the competent authority; or
 - (c) if the competent authority so decides after the withdrawal of a storage permit pursuant to Article 11(3).
2. After a storage site has been closed pursuant to points (a) or (b) of paragraph 1, the operator remains responsible for monitoring, reporting and corrective measures, pursuant to the requirements laid down in this Directive, and for all obligations relating to the surrender of allowances in case of leakages pursuant to Directive 2003/87/EC and preventive and remedial actions pursuant to Articles 5 to 8 of Directive 2004/35/EC until the responsibility for the storage site is transferred to the competent authority pursuant to Article 18(1) to (5) of this Directive. The operator shall also be responsible for sealing the storage site and removing the injection facilities.
3. The obligations referred to in paragraph 2 shall be fulfilled on the basis of a post-closure plan designed by the operator based on best practice and in accordance with the requirements laid down in Annex II. A provisional post-closure plan shall be submitted to and approved by the competent authority pursuant to Article 7(8) and Article 9(7). Prior to the closure of a storage site pursuant to points (a) or (b) of paragraph 1 of this Article, the provisional post-closure plan shall be:
 - (a) updated as necessary, taking account of risk analysis, best practice and technological improvements;
 - (b) submitted to the competent authority for its approval; and
 - (c) approved by the competent authority as the definitive post-closure plan.
4. After a storage site has been closed pursuant to paragraph 1(c), the competent authority shall be responsible for monitoring and corrective measures pursuant to the requirements laid down in this Directive and for all obligations relating to the surrender of allowances in case of leakages pursuant to Directive 2003/87/EC and preventive and remedial action pursuant to Articles 5(1) and 6(1) of Directive 2004/35/EC. The post-closure requirements pursuant to this Directive shall be fulfilled by the competent authority on the basis of the provisional post-closure plan referred to in paragraph 3 of this Article, which shall be updated as necessary.
5. The competent authority shall recover from the operator the costs incurred in relation to the measures referred to in paragraph 4, including by drawing on the financial security pursuant to Article 19.

Article 18

Transfer of responsibility

1. Where a storage site has been closed pursuant to points (a) or (b) of Article 17(1), all legal obligations relating to monitoring and corrective measures pursuant to the requirements laid down in this Directive, the surrender of allowances in the event of leakages pursuant to Directive 2003/87/EC and preventive and remedial action pursuant to Articles 5(1) and 6(1) of Directive 2004/35/EC, shall be transferred to the competent authority on its own initiative or upon request from the operator, if the following conditions are met:
 - (a) all available evidence indicates that the stored CO₂ will be completely and permanently contained;
 - (b) a minimum period, to be determined by the competent authority has elapsed. This minimum period shall be no shorter than 20 years, unless the competent authority is convinced that the criterion referred to in point (a) is complied with before the end of that period;
 - (c) the financial obligations referred to in Article 20 have been fulfilled;
 - (d) the site has been sealed and the injection facilities have been removed.
 2. The operator shall prepare a report documenting that the condition referred to in paragraph 1(a) has been met and shall submit it to the competent authority for the latter to approve the transfer of responsibility. This report shall demonstrate, at least:
 - (a) the conformity of the actual behaviour of the injected CO₂ with the modelled behaviour;
 - (b) the absence of any detectable leakage;
 - (c) that the storage site is evolving towards a situation of long-term stability.
- The Commission may adopt guidelines on the assessment of the matters referred to in points (a), (b) and (c) of the first subparagraph, highlighting therein any implications for the technical criteria relevant to the determination of the minimum periods referred to in paragraph 1(b).
3. Where the competent authority is satisfied that the conditions referred to in points (a) and (b) of paragraph 1 are met, it shall prepare a draft decision of approval of the transfer of responsibility. The draft decision shall specify the method for determining that the conditions referred to in paragraph 1(d) have been met as well as any updated requirements for the sealing of the storage site and for the removal of injection facilities.
- If the competent authority considers that the conditions referred to in points (a) and (b) of paragraph 1 are not met, it shall inform the operator of its reasons.

4. Member States shall make the reports referred to in paragraph 2 available to the Commission within one month after receipt. They shall also make available other related material that shall be taken into account by the competent authority when it prepares a draft decision of approval on the transfer of responsibility. They shall inform the Commission of all draft decisions of approval prepared by the competent authority pursuant to paragraph 3, including any other material taken into consideration for arriving at its conclusion. Within four months after receipt of the draft decision of approval, the Commission may issue a non-binding opinion on it. If the Commission decides not to issue an opinion, it shall inform the Member State within one month of submission of the draft decision of approval and state its reasons.

5. Where the competent authority is satisfied that the conditions referred to in points (a) to (d) of paragraph 1 are complied with, it shall adopt the final decision and notify that decision to the operator. The competent authority shall also notify the final decision to the Commission, and where it departs from the Commission opinion it shall state its reasons.

6. After the transfer of responsibility, routine inspections provided for in Article 15(3) shall cease and monitoring may be reduced to a level which allows for detection of leakages or significant irregularities. If any leakages or significant irregularities are detected, monitoring shall be intensified as required to assess the scale of the problem and the effectiveness of corrective measures.

7. In cases where there has been fault on the part of the operator, including cases of deficient data, concealment of relevant information, negligence, wilful deceit or a failure to exercise due diligence, the competent authority shall recover from the former operator the costs incurred after the transfer of responsibility has taken place. Without prejudice to Article 20, there shall be no further recovery of costs after the transfer of responsibility.

8. Where a storage site has been closed pursuant to Article 17(1)(c), transfer of responsibility shall be deemed to take place if and when all available evidence indicates that the stored CO₂ will be completely and permanently contained, and after the site has been sealed and the injection facilities have been removed.

Article 19

Financial security

1. Member States shall ensure that proof that adequate provisions can be established, by way of financial security or any other equivalent, on the basis of arrangements to be decided by the Member States, is presented by the potential operator as part of the application for a storage permit. This is in order to ensure that all obligations arising under the permit issued pursuant to this Directive, including closure and post-closure requirements, as well as any obligations arising from inclusion of the storage site under Directive 2003/87/EC, can be met. This financial security shall be valid and effective before commencement of injection.

2. The financial security shall be periodically adjusted to take account of changes to the assessed risk of leakage and the estimated costs of all obligations arising under the permit issued pursuant to this Directive as well as any obligations arising from inclusion of the storage site under Directive 2003/87/EC.

3. The financial security or any other equivalent referred to in paragraph 1 shall remain valid and effective:

- (a) after a storage site has been closed pursuant to points (a) or (b) of Article 17(1), until the responsibility for the storage site is transferred to the competent authority pursuant to Article 18(1) to (5);
- (b) after the withdrawal of a storage permit pursuant to Article 11(3):
 - (i) until a new storage permit has been issued;
 - (ii) where the site is closed pursuant to Article 17(1)(c), until the transfer of responsibility pursuant to Article 18(8), provided the financial obligations referred to in Article 20 have been fulfilled.

Article 20

Financial mechanism

1. Member States shall ensure that the operator, on the basis of arrangements to be decided by the Member States, makes a financial contribution available to the competent authority before the transfer of responsibility pursuant to Article 18 has taken place. The contribution from the operator shall take into account those criteria referred to in Annex I and elements relating to the history of storing CO₂ relevant to determining the post-transfer obligations, and cover at least the anticipated cost of monitoring for a period of 30 years. This financial contribution may be used to cover the costs borne by the competent authority after the transfer of responsibility to ensure that the CO₂ is completely and permanently contained in geological storage sites after the transfer of responsibility.

2. The Commission may adopt guidelines for the estimation of the costs referred to in paragraph 1 to be developed in consultation with Member States with a view to ensuring transparency and predictability for operators.

CHAPTER 5

THIRD-PARTY ACCESS

Article 21

Access to transport network and storage sites

1. Member States shall take the necessary measures to ensure that potential users are able to obtain access to transport networks and to storage sites for the purposes of geological storage of the produced and captured CO₂, in accordance with paragraphs 2, 3 and 4.

2. The access referred to in paragraph 1 shall be provided in a transparent and non-discriminatory manner determined by the Member State. The Member State shall apply the objectives of fair and open access, taking into account:

- (a) the storage capacity which is or can reasonably be made available within the areas determined under Article 4, and the transport capacity which is or can reasonably be made available;
- (b) the proportion of its CO₂ reduction obligations pursuant to international legal instruments and to Community legislation that it intends to meet through capture and geological storage of CO₂;
- (c) the need to refuse access where there is an incompatibility of technical specifications which cannot be reasonably overcome;
- (d) the need to respect the duly substantiated reasonable needs of the owner or operator of the storage site or of the transport network and the interests of all other users of the storage or the network or relevant processing or handling facilities who may be affected.

3. Transport network operators and operators of storage sites may refuse access on the grounds of lack of capacity. Duly substantiated reasons shall be given for any refusal.

4. Member States shall take the measures necessary to ensure that the operator refusing access on the grounds of lack of capacity or a lack of connection makes any necessary enhancements as far as it is economic to do so or when a potential customer is willing to pay for them, provided this would not negatively impact on the environmental security of transport and geological storage of CO₂.

Article 22

Dispute settlement

1. Member States shall ensure that they have in place dispute settlement arrangements, including an authority independent of the parties with access to all relevant information, to enable disputes relating to access to transport networks and to storage sites to be settled expeditiously, taking into account the criteria referred to in Article 21(2) and the number of parties which may be involved in negotiating such access.

2. In the event of cross-border disputes, the dispute settlement arrangements of the Member State having jurisdiction over the transport network or the storage site to which access has been refused shall be applied. Where, in cross-border disputes, more than one Member State covers the transport network or storage site concerned, the Member States concerned shall consult with a view to ensuring that this Directive is applied consistently.

CHAPTER 6

GENERAL PROVISIONS

Article 23

Competent authority

Member States shall establish or designate the competent authority or authorities responsible for fulfilling the duties established under this Directive. Where more than one competent authority is designated, Member States shall establish arrangements for the coordination of the work of those authorities undertaken pursuant to this Directive.

Article 24

Transboundary cooperation

In cases of transboundary transport of CO₂, transboundary storage sites or transboundary storage complexes, the competent authorities of the Member States concerned shall jointly meet the requirements of this Directive and of other relevant Community legislation.

Article 25

Registers

1. The competent authority shall establish and maintain:

- (a) a register of the storage permits granted; and
- (b) a permanent register of all closed storage sites and surrounding storage complexes, including maps and sections of their spatial extent and available information relevant for assessing that the stored CO₂ will be completely and permanently contained.

2. The registers referred to in paragraph 1 shall be taken into consideration by the competent national authorities in relevant planning procedures and when permitting any activity that could affect or be affected by the geological storage of CO₂ in the registered storage sites.

Article 26

Information to the public

Member States shall make available to the public environmental information relating to the geological storage of CO₂ in accordance with the applicable Community legislation.

Article 27

Reporting by Member States

1. Every three years the Member States shall submit to the Commission a report on the implementation of this Directive, including the register referred to in Article 25(1)(b). The first report shall be sent to the Commission by 30 June 2011. The report shall be drawn up on the basis of a questionnaire or outline drafted by the Commission in accordance with the procedure referred to in Article 6 of Directive 91/692/EEC. The questionnaire or outline shall be sent to Member States at least six months before the deadline for the submission of the report.

2. The Commission shall organise an exchange of information between the competent authorities of the Member States concerning the implementation of this Directive.

Article 28

Penalties

The Member States shall lay down the rules on penalties applicable to infringements of the national provisions adopted pursuant to this Directive and shall take all measures necessary to ensure that they are implemented. The penalties provided for must be effective, proportionate and dissuasive. The Member States shall notify those provisions to the Commission by 25 June 2011 and shall notify it without delay of any subsequent amendment affecting them.

Article 29

Amendments of Annexes

Measures may be adopted to amend the Annexes. Those measures, designed to amend non-essential elements of this Directive, shall be adopted in accordance with the regulatory procedure with scrutiny referred to in Article 30(2).

Article 30

Committee procedure

1. The Commission shall be assisted by the Climate Change Committee.

2. Where reference is made to this paragraph, Article 5a(1) to (4) and Article 7 of Decision 1999/468/EC shall apply, having regard to the provisions of Article 8 thereof.

CHAPTER 7

AMENDMENTS

Article 31

Amendment of Directive 85/337/EEC

Directive 85/337/EEC is hereby amended as follows:

1. Annex I shall be amended as follows:

(a) point 16 shall be replaced by the following:

‘16. Pipelines with a diameter of more than 800 mm and a length of more than 40 km:

- for the transport of gas, oil, chemicals, and,
- for the transport of carbon dioxide (CO₂) streams for the purposes of geological storage, including associated booster stations.’;

(b) the following points shall be added:

‘23. Storage sites pursuant to Directive 2009/31/EC of the European Parliament and of the Council of 23 April 2009 on the geological storage of carbon dioxide (*).

24. Installations for the capture of CO₂ streams for the purposes of geological storage pursuant to Directive 2009/31/EC from installations covered by this Annex, or where the total yearly capture of CO₂ is 1,5 megatonnes or more.

(*) OJ L 140, 5.6.2009, p. 114.’;

2. Annex II shall be amended as follows:

(a) the following point shall be added to point 3:

‘(j) Installations for the capture of CO₂ streams for the purposes of geological storage pursuant to Directive 2009/31/EC from installations not covered by Annex I to this Directive.’;

(b) point (i) of point 10 shall be replaced by the following:

‘(i) Oil and gas pipeline installations and pipelines for the transport of CO₂ streams for the purposes of geological storage (projects not included in Annex I).’

Article 32

Amendment of Directive 2000/60/EC

In Article 11(3)(j) of Directive 2000/60/EC, the following indent shall be inserted after the third indent:

‘— injection of carbon dioxide streams for storage purposes into geological formations which for natural reasons are permanently unsuitable for other purposes, provided that such injection is made in accordance with Directive 2009/31/EC of the European Parliament and of the Council of 23 April 2009 on the geological storage of carbon dioxide (*) or excluded from the scope of that Directive pursuant to its Article 2(2);

(*) OJ L 140, 5.6.2009, p. 114.’

Article 33

Amendment of Directive 2001/80/EC

In Directive 2001/80/EC, the following Article shall be inserted:

‘Article 9a

1. Member States shall ensure that operators of all combustion plants with a rated electrical output of 300 megawatts or more for which the original construction licence or, in the absence of such a procedure, the original operating licence is granted after the entry into force of Directive 2009/31/EC of the European Parliament and of the Council of 23 April 2009 on the geological storage of carbon dioxide (*), have assessed whether the following conditions are met:

- suitable storage sites are available,

- transport facilities are technically and economically feasible,
- it is technically and economically feasible to retrofit for CO₂ capture.

2. If the conditions in paragraph 1 are met, the competent authority shall ensure that suitable space on the installation site for the equipment necessary to capture and compress CO₂ is set aside. The competent authority shall determine whether the conditions are met on the basis of the assessment referred to in paragraph 1 and other available information, particularly concerning the protection of the environment and human health.

(*) OJ L 140, 5.6.2009, p. 114.’

Article 34

Amendment of Directive 2004/35/EC

In Annex III to Directive 2004/35/EC, the following paragraph shall be added:

‘14. The operation of storage sites pursuant to Directive 2009/31/EC of the European Parliament and of the Council of 23 April 2009 on the geological storage of carbon dioxide (*);

(*) OJ L 140, 5.6.2009, p. 114.’

Article 35

Amendment of Directive 2006/12/EC

Article 2(1)(a) of Directive 2006/12/EC shall be replaced by the following:

‘(a) gaseous effluents emitted into the atmosphere and carbon dioxide captured and transported for the purposes of geological storage and geologically stored in accordance with Directive 2009/31/EC of the European Parliament and of the Council of 23 April 2009 on the geological storage of carbon dioxide (*) or excluded from the scope of that Directive pursuant to its Article 2(2);

(*) OJ L 140, 5.6.2009, p. 114.’

Article 36

Amendment of Regulation (EC) No 1013/2006

In Article 1(3) of Regulation (EC) No 1013/2006, the following point shall be added:

‘(h) shipments of CO₂ for the purposes of geological storage in accordance with Directive 2009/31/EC of the European Parliament and of the Council of 23 April 2009 on the geological storage of carbon dioxide (*);

(*) OJ L 140, 5.6.2009, p. 114.’

Article 37

Amendment of Directive 2008/1/EC

In Annex I to Directive 2008/1/EC, the following point shall be added:

‘6.9. Capture of CO₂ streams from installations covered by this Directive for the purposes of geological storage pursuant to Directive 2009/31/EC of the European Parliament and of the Council of 23 April 2009 on the geological storage of carbon dioxide (*).

(*) OJ L 140, 5.6.2009, p. 114.’

CHAPTER 8

FINAL PROVISIONS

Article 38

Review

1. The Commission shall transmit to the European Parliament and to the Council a report on the implementation of this Directive within nine months of receiving the reports referred to in Article 27.

2. In the report transmitted by 31 March 2015, the Commission shall assess in particular, on the basis of experience with the implementation of this Directive, in light of the experience with CCS and taking into account technical progress and the most recent scientific knowledge:

- whether permanent containment of CO₂ in such a way as to prevent and reduce as far as possible negative effects on the environment and any resulting risk to human health and the environmental and human safety of CCS has been sufficiently demonstrated,
- whether the procedures regarding the Commission’s reviews of the draft storage permits, referred to in Article 10, and the draft decisions on transfer of responsibility, referred to in Article 18, are still required,
- experience with the provisions on CO₂ stream acceptance criteria and procedure referred to in Article 12,
- experience with the provisions on third-party access referred to in Articles 21 and 22 and with the provisions on trans-boundary cooperation pursuant to Article 24,
- the provisions applicable to combustion plants with a rated electrical output of 300 megawatts or more referred to in Article 9a of Directive 2001/80/EC,
- prospects for geological storage of CO₂ in third countries,
- further development and updating of the criteria referred to in Annex I and Annex II,

- experience with incentives for applying CCS on installations combusting biomass,
- the need for further regulation on environmental risks related to CO₂ transport,

and shall present a proposal for revision of the Directive if appropriate.

3. Where permanent containment of CO₂ in such way as to prevent and, where this is not possible, eliminate as far as possible negative effects and any risk to the environment and human health, and the environmental and human safety of CCS have been sufficiently demonstrated, as well as its economic feasibility, the review shall examine whether it is needed and practicable to establish a mandatory requirement for emission performance standards for new electricity-generating large combustion installations pursuant to Article 9a of Directive 2001/80/EC.

Article 39

Transposition and transitional measures

1. Member States shall bring into force the laws, regulations and administrative provisions necessary to comply with this Directive by 25 June 2011. They shall forthwith communicate to the Commission the text of those measures.

When Member States adopt these measures, they shall contain a reference to this Directive or shall be accompanied by such 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 provisions of national law which they adopt in the field covered by this Directive.

3. Member States shall ensure that the following storage sites falling within the scope of this Directive are operated in accordance with the requirements of this Directive by 25 June 2012:

- (a) storage sites used in accordance with existing legislation on 25 June 2009;
- (b) storage sites authorised in accordance with such legislation before or on 25 June 2009, provided that the sites are used not later than one year after that date.

Articles 4 and 5, Article 7(3), Article 8(2) and Article 10 shall not apply in these cases.

Article 40

Entry into force

This Directive shall enter into force on the 20th day following its publication in the *Official Journal of the European Union*.

Article 41

Addressees

This Directive is addressed to the Member States.

Done at Strasbourg, 23 April 2009.

For the European Parliament
The President
H.-G. PÖTTERING

For the Council
The President
P. NEČAS

ANNEX I

CRITERIA FOR THE CHARACTERISATION AND ASSESSMENT OF THE POTENTIAL STORAGE COMPLEX AND SURROUNDING AREA REFERRED TO IN ARTICLE 4(3)

The characterisation and assessment of the potential storage complex and surrounding area referred to in Article 4(3) shall be carried out in three steps according to best practices at the time of the assessment and to the following criteria. Derogations from one or more of these criteria may be permitted by the competent authority provided the operator has demonstrated that the capacity of the characterisation and assessment to enable the determinations pursuant to Article 4 is not affected.

Step 1: Data collection

Sufficient data shall be accumulated to construct a volumetric and three-dimensional static (3-D)-earth model for the storage site and storage complex, including the caprock, and the surrounding area, including the hydraulically connected areas. This data shall cover at least the following intrinsic characteristics of the storage complex:

- (a) geology and geophysics;
- (b) hydrogeology (in particular existence of ground water intended for consumption);
- (c) reservoir engineering (including volumetric calculations of pore volume for CO₂ injection and ultimate storage capacity);
- (d) geochemistry (dissolution rates, mineralisation rates);
- (e) geomechanics (permeability, fracture pressure);
- (f) seismicity;
- (g) presence and condition of natural and man-made pathways, including wells and boreholes which could provide leakage pathways.

The following characteristics of the complex vicinity shall be documented:

- (h) domains surrounding the storage complex that may be affected by the storage of CO₂ in the storage site;
- (i) population distribution in the region overlying the storage site;
- (j) proximity to valuable natural resources (including in particular Natura 2000 areas pursuant to Council Directive 79/409/EEC of 2 April 1979 on the conservation of wild birds ⁽¹⁾ and Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora ⁽²⁾, potable groundwater and hydrocarbons);
- (k) activities around the storage complex and possible interactions with these activities (for example, exploration, production and storage of hydrocarbons, geothermal use of aquifers and use of underground water reserves);
- (l) proximity to the potential CO₂ source(s) (including estimates of the total potential mass of CO₂ economically available for storage) and adequate transport networks.

Step 2: Building the three-dimensional static geological earth model

Using the data collected in Step 1, a three-dimensional static geological earth model, or a set of such models, of the candidate storage complex, including the caprock and the hydraulically connected areas and fluids shall be built using computer reservoir simulators. The static geological earth model(s) shall characterise the complex in terms of:

- (a) geological structure of the physical trap;
- (b) geomechanical, geochemical and flow properties of the reservoir overburden (caprock, seals, porous and permeable horizons) and surrounding formations;

⁽¹⁾ OJ L 103, 25.4.1979, p. 1.

⁽²⁾ OJ L 206, 22.7.1992, p. 7.

- (c) fracture system characterisation and presence of any human-made pathways;
- (d) areal and vertical extent of the storage complex;
- (e) pore space volume (including porosity distribution);
- (f) baseline fluid distribution;
- (g) any other relevant characteristics.

The uncertainty associated with each of the parameters used to build the model shall be assessed by developing a range of scenarios for each parameter and calculating the appropriate confidence limits. Any uncertainty associated with the model itself shall also be assessed.

Step 3: Characterisation of the storage dynamic behaviour, sensitivity characterisation, risk assessment

The characterisations and assessment shall be based on dynamic modelling, comprising a variety of time-step simulations of CO₂ injection into the storage site using the three-dimensional static geological earth model(s) in the computerised storage complex simulator constructed under Step 2.

Step 3.1: Characterisation of the storage dynamic behaviour

At least the following factors shall be considered:

- (a) possible injection rates and CO₂ stream properties;
- (b) the efficacy of coupled process modelling (that is, the way various single effects in the simulator(s) interact);
- (c) reactive processes (that is, the way reactions of the injected CO₂ with in situ minerals feedback in the model);
- (d) the reservoir simulator used (multiple simulations may be required in order to validate certain findings);
- (e) short and long-term simulations (to establish CO₂ fate and behaviour over decades and millennia, including the rate of dissolution of CO₂ in water).

The dynamic modelling shall provide insight into:

- (f) pressure and temperature of the storage formation as a function of injection rate and accumulative injection amount over time;
- (g) areal and vertical extent of CO₂ vs time;
- (h) the nature of CO₂ flow in the reservoir, including phase behaviour;
- (i) CO₂ trapping mechanisms and rates (including spill points and lateral and vertical seals);
- (j) secondary containment systems in the overall storage complex;
- (k) storage capacity and pressure gradients in the storage site;
- (l) the risk of fracturing the storage formation(s) and caprock;
- (m) the risk of CO₂ entry into the caprock;
- (n) the risk of leakage from the storage site (for example, through abandoned or inadequately sealed wells);
- (o) the rate of migration (in open-ended reservoirs);
- (p) fracture sealing rates;

- (q) changes in formation(s) fluid chemistry and subsequent reactions (for example, pH change, mineral formation) and inclusion of reactive modelling to assess affects;
- (r) displacement of formation fluids;
- (s) increased seismicity and elevation at surface level.

Step 3.2: Sensitivity characterisation

Multiple simulations shall be undertaken to identify the sensitivity of the assessment to assumptions made about particular parameters. The simulations shall be based on altering parameters in the static geological earth model(s), and changing rate functions and assumptions in the dynamic modelling exercise. Any significant sensitivity shall be taken into account in the risk assessment.

Step 3.3: Risk assessment

The risk assessment shall comprise, inter alia, the following:

3.3.1. Hazard characterisation

Hazard characterisation shall be undertaken by characterising the potential for leakage from the storage complex, as established through dynamic modelling and security characterisation described above. This shall include consideration of, inter alia:

- (a) potential leakage pathways;
- (b) potential magnitude of leakage events for identified leakage pathways (flux rates);
- (c) critical parameters affecting potential leakage (for example maximum reservoir pressure, maximum injection rate, temperature, sensitivity to various assumptions in the static geological Earth model(s));
- (d) secondary effects of storage of CO₂, including displaced formation fluids and new substances created by the storing of CO₂;
- (e) any other factors which could pose a hazard to human health or the environment (for example physical structures associated with the project).

The hazard characterisation shall cover the full range of potential operating conditions to test the security of the storage complex.

3.3.2. Exposure assessment — based on the characteristics of the environment and the distribution and activities of the human population above the storage complex, and the potential behaviour and fate of leaking CO₂ from potential pathways identified under Step 3.3.1.

3.3.3. Effects assessment — based on the sensitivity of particular species, communities or habitats linked to potential leakage events identified under Step 3.3.1. Where relevant it shall include effects of exposure to elevated CO₂ concentrations in the biosphere (including soils, marine sediments and benthic waters (asphyxiation; hypercapnia) and reduced pH in those environments as a consequence of leaking CO₂). It shall also include an assessment of the effects of other substances that may be present in leaking CO₂ streams (either impurities present in the injection stream or new substances formed through storage of CO₂). These effects shall be considered at a range of temporal and spatial scales, and linked to a range of different magnitudes of leakage events.

3.3.4. Risk characterisation — this shall comprise an assessment of the safety and integrity of the site in the short and long term, including an assessment of the risk of leakage under the proposed conditions of use, and of the worst-case environment and health impacts. The risk characterisation shall be conducted based on the hazard, exposure and effects assessment. It shall include an assessment of the sources of uncertainty identified during the steps of characterisation and assessment of storage site and when feasible, a description of the possibilities to reduce uncertainty.

ANNEX II

CRITERIA FOR ESTABLISHING AND UPDATING THE MONITORING PLAN REFERRED TO IN ARTICLE 13(2) AND FOR POST-CLOSURE MONITORING**1. Establishing and updating the monitoring plan**

The monitoring plan referred to in Article 13(2) shall be established according to the risk assessment analysis carried out in Step 3 of Annex I, and updated with the purpose of meeting the monitoring requirements laid out in Article 13(1) according to the following criteria:

1.1. Establishing the plan

The monitoring plan shall provide details of the monitoring to be deployed at the main stages of the project, including baseline, operational and post-closure monitoring. The following shall be specified for each phase:

- (a) parameters monitored;
- (b) monitoring technology employed and justification for technology choice;
- (c) monitoring locations and spatial sampling rationale;
- (d) frequency of application and temporal sampling rationale.

The parameters to be monitored are identified so as to fulfil the purposes of monitoring. However, the plan shall in any case include continuous or intermittent monitoring of the following items:

- (e) fugitive emissions of CO₂ at the injection facility;
- (f) CO₂ volumetric flow at injection wellheads;
- (g) CO₂ pressure and temperature at injection wellheads (to determine mass flow);
- (h) chemical analysis of the injected material;
- (i) reservoir temperature and pressure (to determine CO₂ phase behaviour and state).

The choice of monitoring technology shall be based on best practice available at the time of design. The following options shall be considered and used as appropriate:

- (j) technologies that can detect the presence, location and migration paths of CO₂ in the subsurface and at surface;
- (k) technologies that provide information about pressure-volume behaviour and areal/vertical distribution of CO₂-plume to refine numerical 3-D simulation to the 3-D-geological models of the storage formation established pursuant to Article 4 and Annex I;
- (l) technologies that can provide a wide areal spread in order to capture information on any previously undetected potential leakage pathways across the areal dimensions of the complete storage complex and beyond, in the event of significant irregularities or migration of CO₂ out of the storage complex.

1.2. Updating the plan

The data collected from the monitoring shall be collated and interpreted. The observed results shall be compared with the behaviour predicted in dynamic simulation of the 3-D-pressure-volume and saturation behaviour undertaken in the context of the security characterisation pursuant to Article 4 and Annex I Step 3.

Where there is a significant deviation between the observed and the predicted behaviour, the 3-D model shall be recalibrated to reflect the observed behaviour. The recalibration shall be based on the data observations from the monitoring plan, and where necessary to provide confidence in the recalibration assumptions, additional data shall be obtained.

Steps 2 and 3 of Annex I shall be repeated using the recalibrated 3-D model(s) so as to generate new hazard scenarios and flux rates and to revise and update the risk assessment.

Where new CO₂ sources, pathways and flux rates or observed significant deviations from previous assessments are identified as a result of history matching and model recalibration, the monitoring plan shall be updated accordingly.

2. **Post-closure monitoring**

Post-closure monitoring shall be based on the information collected and modelled during the implementation of the monitoring plan referred to in Article 13(2) and above in point 1.2 of this Annex. It shall serve in particular to provide information required for the determination of Article 18(1).

DECISIONS ADOPTED JOINTLY BY THE EUROPEAN PARLIAMENT AND THE COUNCIL

DECISION No 406/2009/EC OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL

of 23 April 2009

on the effort of Member States to reduce their greenhouse gas emissions to meet the Community's greenhouse gas emission reduction commitments up to 2020

THE EUROPEAN PARLIAMENT AND THE COUNCIL OF THE EUROPEAN UNION,

Having regard to the Treaty establishing the European Community, and in particular Article 175(1) thereof,

Having regard to the proposal from the Commission,

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 procedure laid down in Article 251 of the Treaty ⁽²⁾,

Whereas:

- (1) The ultimate objective of the United Nations Framework Convention on Climate Change (UNFCCC), which was approved on behalf of the European Community by Council Decision 94/69/EC ⁽³⁾, is to stabilise greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system.
- (2) The view of the Community, most recently expressed, in particular, by the European Council of March 2007, is that in order to meet this objective, the overall global annual mean surface temperature increase should not exceed 2 °C above pre-industrial levels, which implies that global

greenhouse gas emissions should be reduced to at least 50 % below 1990 levels by 2050. The Community's greenhouse gas emissions covered by this Decision should continue to decrease beyond 2020 as part of the Community's efforts to contribute to this global emissions reduction goal. Developed countries, including the EU Member States, should continue to take the lead by committing to collectively reducing their emissions of greenhouse gases in the order of 30 % by 2020 compared to 1990. They should do so also with a view to collectively reducing their greenhouse gas emissions by 60 to 80 % by 2050 compared to 1990. All sectors of the economy should contribute to achieving these emission reductions, including international maritime shipping and aviation. Aviation is contributing to these reductions through its inclusion in the Community greenhouse gas emission allowance trading scheme (hereinafter referred to as the 'Community scheme'). In the event that no international agreement which includes international maritime emissions in its reduction targets through the International Maritime Organisation has been approved by the Member States or no such agreement through the UNFCCC has been approved by the Community by 31 December 2011, the Commission should make a proposal to include international maritime emissions in the Community reduction commitment with the aim of the proposed act entering into force by 2013. Such a proposal should minimise any negative impact on the Community's competitiveness while taking into account the potential environmental benefits.

- (3) Furthermore, in order to meet this objective, the European Council of March 2007 endorsed a Community objective of a 30 % reduction of greenhouse gas emissions by 2020 compared to 1990 as its contribution to a global and comprehensive agreement for the period after 2012, provided that other developed countries commit themselves to comparable emission reductions and economically more advanced developing countries commit themselves to contributing adequately according to their responsibilities and capabilities.

⁽¹⁾ OJ C 27, 3.2.2009, p. 71.

⁽²⁾ Opinion of the European Parliament of 17 December 2008 (not yet published in the Official Journal) and Council Decision of 6 April 2009.

⁽³⁾ OJ L 33, 7.2.1994, p. 11.

- (4) The European Council of March 2007 emphasised that the Community is committed to transforming Europe into a highly energy-efficient and low greenhouse-gas-emitting economy and has decided that, until a global and comprehensive agreement for the period after 2012 is concluded, and without prejudice to its position in international negotiations, the Community makes a firm independent commitment to achieve at least a 20 % reduction of greenhouse gas emissions by 2020 compared to 1990.
- (5) Energy efficiency improvements are a crucial element for Member States to meet the requirements under this Decision. In this context, the Commission should closely monitor progress towards the objective to reduce energy consumption by 20 % by 2020, and propose additional actions if progress is insufficient.
- (6) Directive 2003/87/EC ⁽¹⁾ establishes a scheme for greenhouse gas emission allowance trading within the Community, which covers certain sectors of the economy. All sectors of the economy should contribute to emission reductions in order to cost-effectively achieve the objective of a 20 % reduction of greenhouse gas emissions by 2020 compared to 1990 levels. Member States should therefore implement additional policies and measures in an effort to further limit the greenhouse gas emissions from sources not covered under Directive 2003/87/EC.
- (7) The effort of each Member State should be determined in relation to the level of its 2005 greenhouse gas emissions covered by this Decision, adjusted to exclude the emissions from installations that existed in 2005 but which were brought into the Community scheme in the period from 2006 to 2012. Annual emission allocations for the period from 2013 to 2020 in terms of tonnes of carbon dioxide equivalent should be determined on the basis of reviewed and verified data.
- (8) Member States' reduction efforts should be based on the principle of solidarity between Member States and the need for sustainable economic growth across the Community, taking into account the relative per capita GDP of Member States. Member States that currently have a relatively low per capita GDP, and thus high GDP growth expectations, should be allowed to increase their greenhouse gas emissions compared to 2005, but should limit this greenhouse gas emissions growth to contribute to the independent reduction commitment of the Community. Member States that currently have a relatively high per capita GDP should reduce their greenhouse gas emissions compared to 2005.
- (9) To further ensure a fair distribution between the Member States of the efforts to contribute to the implementation of the independent reduction commitment of the Community, no Member State should be required to reduce its greenhouse gas emissions in 2020 to more than 20 % below 2005 levels nor allowed to increase its greenhouse gas emissions in 2020 to more than 20 % above 2005 levels. Reductions in greenhouse gas emissions should take place between 2013 and 2020. Each Member State should be allowed to carry forward from the following year a quantity of up to 5 % of its annual emission allocation. Where the emissions of a Member State are below that annual emission allocation, a Member State should be allowed to carry over its excess emission reductions to the subsequent years.
- (10) As a means to even out the differences in abatement costs faced by different Member States, by allowing for increased geographical flexibility, and at the same time, as a means to enhance the overall cost-effectiveness of the total commitment of the Community, Member States should be able to transfer part of their annual emission allocation to other Member States. The transparency of such transfers should be ensured by way of a notification to the Commission and the registration of each transfer in the registries of both Member States involved. Such transfers may be carried out in a manner that is mutually convenient, including by means of auctioning, the use of market intermediaries acting on an agency basis, or by way of bilateral arrangements.
- (11) Significant greenhouse gas emission reductions should be made within the Union. The use of credits from project activities should be limited so that it is supplemental to domestic action. The Union remains committed to the continued improvement of the Clean Development Mechanism (CDM) and will seek improvements through the appropriate international processes. It is important that credits from project activities used by Member States represent real, verifiable, additional and permanent emission reductions and have clear sustainable development benefits and no significant negative environmental or social impacts. Member States should also report on the qualitative criteria they apply for the use of such credits.
- (12) In order to provide for flexibility for Member States in implementing their commitments, to promote sustainable development in third countries, in particular in developing countries, and to provide certainty to investors, the Community should continue to recognise a certain amount of credits from greenhouse gas emission reduction projects in third countries before a future international agreement on climate change (hereinafter referred to as the international agreement on climate change) has been reached. Member States should ensure that their policies for purchasing these credits enhance the equitable geographical distribution of projects, in particular by increasing the share of certified emission reductions (CERs) purchased from least developed countries (LDCs) and small island developing States (SIDS), and enhance the achievement of an international agreement on climate change.

⁽¹⁾ Directive 2003/87/EC of the European Parliament and of the Council of 13 October 2003 establishing a scheme for greenhouse gas emission allowance trading within the Community (OJ L 275, 25.10.2003, p. 32).

- (13) Member States should therefore be able to use greenhouse gas emission reduction credits issued for reductions that were made during the period from 2008 to 2012 and that result from project types which were eligible for use in the Community scheme during that period. Member States should also be able to use greenhouse gas emission reduction credits for reductions that were made after the period from 2008 to 2012, that result from projects that were registered during the period from 2008 to 2012 and that result from project types which were eligible for use in the Community scheme during that period.
- (14) Very few CDM projects have been implemented in LDCs. Given that the Community supports the equitable distribution of CDM projects, including through the Commission's Global Climate Change Alliance as set out in the Commission Communication of 18 September 2007 entitled 'Building a Global Climate Change Alliance between the European Union and poor developing countries most vulnerable to climate change', it is appropriate to provide certainty on the acceptance of credits from projects started after the period from 2008 to 2012 in LDCs, for project types that were eligible for use in the Community scheme during the period from 2008 to 2012. That acceptance should continue until 2020 or the conclusion of a relevant agreement with the Community, whichever is the earlier.
- (15) In order to provide for further flexibility for Member States and to promote sustainable development in developing countries, Member States should be able to use additional credits from projects resulting from agreements concluded by the Community with third countries. Without an international agreement on climate change that determines the assigned amount for developed countries, Joint Implementation (JI) projects cannot continue after 2012. Greenhouse gas emission reduction credits resulting from such projects should, however, continue to be recognised by means of agreements with third countries.
- (16) The continued ability for Member States to use CDM credits is important to help ensure a market for those credits after 2012. To help ensure such a market and in order to ensure further greenhouse gas emission reductions within the Community, and thus enhance the implementation of the objectives of the Community relating to renewable energy, energy efficiency, energy security, innovation and competitiveness, it is proposed to allow the annual use by Member States of credits from greenhouse gas emission reduction projects in third countries, up to a quantity representing 3 % of the greenhouse gas emissions of each Member State not covered under Directive 2003/87/EC in 2005, or in other Member States, until an international agreement on climate change has been reached. Member States should be allowed to transfer the unused part of that quantity to other Member States. Certain Member States with a negative limit, or a positive limit of at most 5 %, as set out in this Decision, should, in addition to the credits referred to above, be allowed annually to use additional credits amounting to 1 % of their verified emissions in 2005 from projects in LDCs and SIDS, subject to compliance with one of the four conditions set out in this Decision.
- (17) This Decision should be without prejudice to more stringent national objectives. Where Member States limit the greenhouse gas emissions covered by this Decision beyond their obligations under this Decision in order to meet a more stringent objective, the limitation imposed by this Decision on the use of greenhouse gas emission reduction credits should not apply to the additional emission reductions to attain the national objective.
- (18) In order to increase the cost-effectiveness of attaining national objectives, in particular for Member States with ambitious objectives, Member States can make use of credits resulting from Community-level projects as defined in Article 24a of Directive 2003/87/EC.
- (19) Once an international agreement on climate change has been reached, Member States should only accept emission reduction credits from countries which have ratified that agreement and subject to a common approach.
- (20) The fact that certain provisions of this Decision refer to the approval of an international agreement on climate change by the Community is without prejudice to the conclusion of that agreement also by Member States.
- (21) Upon the approval of an international agreement on climate change for the period after 2012 and as provided for in that agreement, the Community and its Member States should participate in the financing of measurable, reportable, verifiable and nationally appropriate greenhouse gas emissions mitigation action, consistent with the objective of limiting overall global annual mean surface temperature increase to 2 °C compared to pre-industrial levels, in developing countries which have ratified the agreement.
- (22) Upon the approval of an international agreement on climate change for the period after 2012 and as provided for in that agreement, the Community and its Member States should participate in the financing of assistance for developing countries which have ratified the agreement, in particular for communities and countries most at risk from climate change, with the aim of supporting them in their adaptation and risk reduction strategies.

- (23) In the event that no international agreement on climate change is approved by the Community by 31 December 2010, the Commission should make a proposal to include emissions and removals related to land use, land use change and forestry in the Community reduction commitment, in accordance with harmonised modalities, building on work carried out in the context of the UNFCCC, and ensure permanence and the environmental integrity of the contribution of land use, land use change and forestry as well as accurate monitoring and accounting, with the aim of the proposed act entering into force from 2013. The Commission should assess if the distribution of individual Member States' efforts should be adjusted accordingly.
- (24) Progress in implementing commitments under this Decision should be annually evaluated on the basis of reports submitted under Decision No 280/2004/EC of the European Parliament and of the Council of 11 February 2004 concerning a mechanism for monitoring Community greenhouse gas emissions and for implementing the Kyoto Protocol ⁽¹⁾. Every two years an assessment should be made on the projected progress and a full evaluation of the implementation of this Decision should be made in 2016.
- (25) Any adjustments in the coverage of Directive 2003/87/EC should be matched by a corresponding adjustment in the maximum quantity of greenhouse gas emissions covered by this Decision.
- (26) Upon the approval by the Community of an international agreement on climate change, the emission limits for Member States should be adjusted to achieve the Community's greenhouse gas emission reduction commitment set out in that agreement, taking into account the principle of solidarity between Member States and the need for sustainable economic growth across the Community. The amount of credits from greenhouse gas emission reduction projects in third countries that each Member State can use should be increased by up to half of the additional reduction effort under this Decision.
- (27) The registries established under Decision No 280/2004/EC and the Central Administrator designated under Directive 2003/87/EC should be used to ensure an accurate processing and accounting of all transactions for the implementation of this Decision.
- (28) Since the reduction commitment of the Community imposes tasks not only on the central governments of Member States but also on their local and regional governments and on other local and regional advocacy forums and organisations, Member States should ensure cooperation between their central authorities and local authorities at different levels.
- (29) In addition to individual Member States, central governments and local and regional organisations and authorities, market actors — together with households and individual consumers — should be involved in contributing to the implementation of the Community's reduction commitment, irrespective of the level of greenhouse gas emissions which can be attributed to them.
- (30) Member States should ensure funding for the use of new, innovative techniques in order to enable industrial operators to create new jobs, thereby increasing competitiveness and promoting the achievement of the objectives set by the Lisbon Strategy.
- (31) Since increasing electricity generation from renewable energy sources is a particularly important means of reducing greenhouse gas emissions, Member States should seek to do this in the context of Directive 2009/28/EC of the European Parliament and of the Council of 23 April 2009 on the promotion of the use of energy from renewable sources ⁽²⁾.
- (32) The measures necessary for the implementation of this Decision should be adopted in accordance with Council Decision 1999/468/EC of 28 June 1999 laying down the procedures for the exercise of implementing powers conferred on the Commission ⁽³⁾.
- (33) In particular, the Commission should be empowered to determine the annual emission allocations for the period from 2013 to 2020 in terms of tonnes of carbon dioxide equivalent, to indicate modalities in order to facilitate transfers by Member States of parts of their emission allocations and increase the transparency of these transfers, as well as to adopt measures to implement the provisions relating to registries and the Central Administrator. Since those measures are of general scope and are designed to amend the non-essential elements of this Decision by supplementing it with new non-essential elements, they must be adopted in accordance with the regulatory procedure with scrutiny provided for in Article 5a of Decision 1999/468/EC.
- (34) Since the objectives of this Decision cannot be sufficiently achieved by the Member States and can therefore, by reason of its scale and effects, be better achieved at Community level, the Community may adopt measures, in accordance with the principle of subsidiarity as set out in Article 5 of the Treaty. In accordance with the principle of proportionality, as set out in that Article, this Decision does not go beyond what is necessary in order to achieve those objectives,

⁽¹⁾ OJ L 49, 19.2.2004, p. 1.

⁽²⁾ See page 16 of this Official Journal.

⁽³⁾ OJ L 184, 17.7.1999, p. 23.

HAVE ADOPTED THIS DECISION:

Article 1

Subject matter

This Decision lays down the minimum contribution of Member States to meeting the greenhouse gas emission reduction commitment of the Community for the period from 2013 to 2020 for greenhouse gas emissions covered by this Decision, and rules on making these contributions and for the evaluation thereof.

This Decision also lays down provisions for assessing and implementing a stricter Community reduction commitment exceeding 20 %, to be applied upon the approval by the Community of an international agreement on climate change leading to emissions reductions exceeding those required pursuant to Article 3, as reflected in the 30 % reduction commitment as endorsed by the European Council of March 2007.

Article 2

Definitions

For the purposes of this Decision, the following definitions shall apply:

1. 'Greenhouse gas emissions' means the emission of carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs) and sulphur hexafluoride (SF₆) from the categories listed in Annex I, expressed in terms of tonnes of carbon dioxide equivalent, as determined pursuant to Decision No 280/2004/EC, excluding greenhouse gases emissions covered under Directive 2003/87/EC.
2. 'Annual emission allocation' means the annual maximum allowed greenhouse gas emissions in the years 2013 to 2020 as specified in Article 3(2).

Article 3

Emission levels for the period from 2013 to 2020

1. Each Member State shall, by 2020, limit its greenhouse gas emissions at least by the percentage set for that Member State in Annex II to this Decision in relation to its emissions in 2005.
2. Subject to paragraphs 3, 4 and 5 of this Article and Article 5, each Member State with a negative limit under Annex II shall ensure, including by making use of the flexibilities provided for in this Decision, that its greenhouse gas emissions in 2013 do not exceed its average annual greenhouse gas emissions during 2008, 2009 and 2010, as reported and verified pursuant to Directive 2003/87/EC and Decision No 280/2004/EC.

Subject to paragraphs 3, 4 and 5 of this Article and Article 5, each Member State with a positive limit under Annex II shall ensure, including by making use of the flexibilities provided for in this Decision, that its greenhouse gas emissions in 2013 do not exceed a level defined by a linear trajectory, starting in 2009, on its average annual greenhouse gas emissions during 2008, 2009 and 2010, as reported and verified pursuant to Directive 2003/87/EC and Decision No 280/2004/EC, ending in 2020 on the limit for that Member State as specified in Annex II.

Subject to paragraphs 3, 4 and 5 of this Article and Article 5, each Member State shall annually limit its greenhouse gas emissions in a linear manner, including by making use of the flexibilities provided for in this Decision, in order to ensure that its emissions do not exceed its limit in 2020 as specified in Annex II.

When the relevant reviewed and verified emission data are available, measures shall be adopted within six months to determine the annual emission allocations for the period from 2013 to 2020 in terms of tonnes of carbon dioxide equivalent.

Those measures, designed to amend non-essential elements of this Decision by supplementing it, shall be adopted in accordance with the regulatory procedure with scrutiny referred to in Article 13(2).

3. During the period from 2013 to 2019, a Member State may carry forward from the following year a quantity of up to 5 % of its annual emission allocation. If the greenhouse gas emissions of a Member State are below its annual emission allocation, taking into account the use of flexibilities pursuant to this paragraph and paragraphs 4 and 5, it may carry over the part of its annual emission allocation of a given year that exceeds its greenhouse gas emissions in that year to the subsequent years, until 2020.

A Member State may request an increased carry forward rate in excess of 5 % in 2013 and 2014 in the event of extreme meteorological conditions which have led to substantially increased greenhouse gas emissions in those years compared to years with normal meteorological conditions. To this end, the Member State shall submit a report to the Commission substantiating this request. Within three months, the Commission shall decide whether an increased carry forward can be granted.

4. A Member State may transfer up to 5 % of its annual emission allocation for a given year to other Member States. A receiving Member State may use this quantity for the implementation of its obligation under this Article for the given year or any subsequent years until 2020. A Member State cannot transfer any part of its annual emission allocation if, at the time of transfer, that Member State is not in compliance with the requirements of this Decision.

5. A Member State may transfer the part of its annual emission allocation that exceeds its greenhouse gas emissions for that year, taking into account the use of flexibilities pursuant to paragraphs 3 and 4, to other Member States. A receiving Member State may use this quantity for the implementation of its obligations under this Article for the same year or any subsequent years until 2020. A Member State cannot transfer any part of its annual emission allocation if, at the time of transfer, it is not in compliance with the requirements of this Decision.

6. In order to facilitate the transfers referred to in paragraphs 4 and 5 and increase their transparency, measures indicating the modalities for such transfers shall be adopted.

Those measures, designed to amend non-essential elements of this Decision by supplementing it, shall be adopted in accordance with the regulatory procedure with scrutiny referred to in Article 13(2).

Article 4

Energy efficiency

1. By 2012, the Commission shall assess and report on the progress of the Community and its Member States towards the objective to reduce energy consumption by 20 % by 2020 compared to projections for 2020, as outlined in the Action Plan for Energy Efficiency which was set out in the Commission Communication of 19 October 2006.

2. If appropriate, in particular in order to assist Member States in their contributions towards meeting the Community's greenhouse gas emission reduction commitments, the Commission shall, by 31 December 2012, propose strengthened or new measures to accelerate energy efficiency improvements.

Article 5

Use of credits from project activities

1. Member States may use the following greenhouse gas emission reduction credits to implement their obligations under Article 3:

- (a) Certified Emission Reductions (CERs) and Emission Reduction Units (ERUs), as set out in Directive 2003/87/EC, issued in respect of emission reductions until 31 December 2012 which were eligible for use in the Community scheme during the period from 2008 to 2012;
- (b) CERs and ERUs issued in respect of emission reductions from 1 January 2013 from projects which were registered before 2013 and which were eligible for use in the Community scheme during the period from 2008 to 2012;
- (c) CERs issued in respect of emission reductions achieved from projects implemented in LDCs which were eligible for use in the Community scheme during the period from 2008 to 2012, until those countries have ratified a relevant agreement with the Community or until 2020, whichever is the earlier;

- (d) temporary CERs (tCERs) or long-term CERs (lCERs) from afforestation and reforestation projects provided that, where a Member State has used tCERs or lCERs towards its commitments under Council Decision 2002/358/EC⁽¹⁾ for the period from 2008 to 2012, the Member State commits to the continuing replacement of those credits by tCERs, lCERs or other units valid under the Kyoto Protocol before the expiry date of the tCERs or lCERs, and the Member State also commits to the continuing replacement of tCERs or lCERs used under this Decision with tCERs, lCERs or other units usable towards those commitments before the expiry date of the tCERs or lCERs. Where replacement takes place using tCERs or lCERs, the Member State shall replace also those tCERs or lCERs before their expiry date on a continuing basis, until their replacement with units of unlimited validity.

Member States should ensure that their policies for purchasing these credits enhance the equitable geographical distribution of projects and the achievement of an international agreement on climate change.

2. In addition to paragraph 1 and in the event that negotiations on an international agreement on climate change are not concluded by 31 December 2009, Member States may, for the implementation of their obligations under Article 3, use additional greenhouse gas emission reduction credits resulting from projects or other emission reducing activities in accordance with the agreements referred to in Article 11a(5) of Directive 2003/87/EC.

3. Provided that an international agreement on climate change as referred to in Article 1 has been reached, Member States may, from 1 January 2013, only use credits from projects in third countries which have ratified that agreement.

4. The annual use of credits by each Member State pursuant to paragraphs 1, 2 and 3 shall not exceed a quantity equal to 3 % of the greenhouse gas emissions of that Member State in 2005, plus any quantity transferred in accordance with paragraph 6.

5. Member States with a negative limit, or a positive limit of at most 5 %, as set out in Annex II, which are listed in Annex III, shall, in addition to credits used pursuant to paragraph 4, be allowed to use additional credits amounting to 1 % of their verified emissions in 2005 from projects in LDCs and SIDS each year, subject to compliance with one of the following four conditions:

- (a) the direct costs of the overall package exceed 0,70 % of GDP according to the Commission's Impact Assessment accompanying the Package of Implementation measures for the EU's objectives on climate change and renewable energy for 2020;

⁽¹⁾ Council Decision 2002/358/EC of 25 April 2002 concerning the approval, on behalf of the European Community, of the Kyoto Protocol to the United Nations Framework Convention on Climate Change and the joint fulfilment of commitments thereunder (OJ L 130, 15.5.2002, p. 1).

- (b) there is an increase of at least 0,1 % of GDP between the target actually adopted for the Member State concerned and the cost-effective scenario according to the Commission's Impact Assessment referred to in point (a);
 - (c) more than 50 % of the total emissions covered by this Decision for the Member State concerned are accounted for by transport-related emissions; or
 - (d) the Member State concerned has a renewable energies target for 2020 in excess of 30 % as set out in Directive 2009/28/EC.
6. Each year, a Member State may transfer to another Member State the unused part of its annual quantity equal to 3 % as specified in paragraph 4. Where a Member State's annual use of credits does not reach the quantity in paragraph 4, the Member State may carry over the unused part of that quantity to subsequent years.
7. Member States shall, in addition, be able to use credits from Community-level projects issued pursuant to Article 24a of Directive 2003/87/EC towards their emission reduction commitments, without any quantitative limit whatsoever.

Article 6

Reporting, evaluation of progress, amendments and review

1. Member States shall, in their reports submitted pursuant to Article 3 of Decision No 280/2004/EC, include the following:
- (a) their annual greenhouse gas emissions resulting from the implementation of Article 3;
 - (b) the use, geographical distribution and types of, as well as the qualitative criteria applied to, credits used in accordance with Article 5;
 - (c) projected progress towards meeting their obligations under this Decision, including information on national policies and measures and national projections;
 - (d) information on planned additional national policies and measures envisaged with a view to limiting greenhouse gas emissions beyond their commitments under this Decision and in view of the implementation of an international agreement on climate change, as referred to in Article 8.
2. In the event that a Member State uses credits from project types that cannot be used by operators in the Community scheme, that Member State shall provide a detailed justification for the use of such credits.
3. The Commission shall, in its reports submitted pursuant to Article 5(1) and (2) of Decision No 280/2004/EC, evaluate whether the progress made by Member States is sufficient for them to fulfil their obligations under this Decision.

The evaluation shall take into account progress in Community policies and measures and information from Member States in accordance with Article 3 and Article 5 of Decision No 280/2004/EC.

Every two years, starting with the greenhouse gas emissions reported for 2013, the evaluation shall also include the projected progress of the Community towards meeting its reduction commitment and of Member States towards fulfilling their obligations under this Decision.

4. In the report referred to in paragraph 3, the Commission shall assess the overall implementation of this Decision, including the use and quality of CDM credits and the need for further common and coordinated policies and measures at Community level in the sectors covered by this Decision in order to assist Member States in meeting their commitments under this Decision, and shall make proposals as appropriate.

5. In order to implement this Decision, the Commission shall, where appropriate, make proposals to amend Decision No 280/2004/EC and adopt amendments to Commission Decision 2005/166/EC ⁽¹⁾ with a view to the amending acts applying from 1 January 2013, to ensure in particular:

- (a) faster, efficient, transparent and cost-effective monitoring, reporting and verification of greenhouse gas emissions;
- (b) the development of national projections of greenhouse gas emissions beyond 2020.

Article 7

Corrective action

1. If the greenhouse gas emissions of a Member State exceed the annual emission allocation specified pursuant to Article 3(2), taking into account the flexibilities used pursuant to Articles 3 and 5, the following measures shall apply:
- (a) a deduction from the Member State's emission allocation of the following year equal to the amount in tonnes of carbon dioxide equivalent of those excess emissions, multiplied by an abatement factor of 1,08;
 - (b) the development of a corrective action plan in accordance with paragraph 2 of this Article; and
 - (c) the temporary suspension of the eligibility to transfer part of the Member State's emission allocation and JI/CDM rights to another Member State until the Member State is in compliance with Article 3(2).

⁽¹⁾ Commission Decision 2005/166/EC of 10 February 2005 laying down rules implementing Decision No 280/2004/EC of the European Parliament and of the Council concerning a mechanism for monitoring Community greenhouse gas emissions and for implementing the Kyoto Protocol (OJ L 55, 1.3.2005, p. 57).

2. A Member State covered by paragraph 1 shall, within three months, submit to the Commission an assessment and a corrective action plan that includes:

- (a) action that the Member State will implement in order to meet its specific obligations under Article 3(2), giving priority to domestic policies and measures and the implementation of Community action;
- (b) a timetable for implementing such action, which enables the assessment of annual progress in the implementation.

The Commission may issue an opinion on the corrective action plan of the Member State in question.

Before issuing that opinion, the Commission may submit the corrective action plan to the Climate Change Committee, referred to in Article 13(1), for comments.

Article 8

Adjustments applicable upon the approval by the Community of an international agreement on climate change

1. Within three months of the signature by the Community of an international agreement on climate change leading, by 2020, to mandatory reductions of greenhouse gas emissions exceeding 20 % compared to 1990 levels, as reflected in the 30 % reduction commitment as endorsed by the European Council of March 2007, the Commission shall submit a report assessing, in particular, the following elements:

- (a) the nature of the measures agreed upon in the framework of the international negotiations, as well as the commitments made by other developed countries to comparable emission reductions to those of the Community and the commitments made by economically more advanced developing countries to contributing adequately according to their responsibilities and respective capabilities;
- (b) the implications of the international agreement on climate change, and consequently, options required at Community level, in order to move to the 30 % reduction target in a balanced, transparent and equitable way, taking into account work under the Kyoto Protocol's first commitment period;
- (c) the Community manufacturing industries' competitiveness in the context of carbon leakage risks;
- (d) the impact of the international agreement on climate change on other Community economic sectors;
- (e) the impact on the Community agriculture sector, including carbon leakage risks;

(f) the appropriate modalities for including emissions and removals related to land use, land use change and forestry in the Community;

- (g) afforestation, reforestation, avoided deforestation and forest degradation in third countries in the event of the establishment of any internationally recognised system in this context;
- (h) the need for additional Community policies and measures in view of the greenhouse gas emission reduction commitments of the Community and of Member States.

2. On the basis of the report referred to in paragraph 1, the Commission shall, if appropriate, submit a legislative proposal to the European Parliament and to the Council amending this Decision pursuant to paragraph 1, with a view to the amending act entering into force upon the approval by the Community of the international agreement on climate change and in view of the emission reduction commitment to be implemented under that agreement.

The proposal shall be based upon the principles of transparency, economic efficiency and cost-effectiveness, as well as fairness and solidarity in the distribution of efforts between Member States.

3. The proposal shall allow, as appropriate, Member States to use, in addition to the credits provided for in this Decision, CERs, ERUs or other approved credits from projects in third countries which have ratified the international agreement on climate change.

4. The proposal shall also include, as appropriate, measures to allow for Member States to use the unused part of the additional usable quantity referred to in paragraph 3 in the subsequent years or transfer the unused part of that quantity to another Member State.

5. The proposal shall also include, as appropriate, any other measures needed to help reach the mandatory reductions in accordance with paragraph 1 in a transparent, balanced and equitable way and, in particular, shall include implementing measures to provide for the use by Member States of additional types of project credits or of other mechanisms created under the international agreement on climate change, as appropriate.

6. On the basis of rules agreed as part of an international agreement on climate change, the Commission shall propose to include emissions and removals related to land use, land use change and forestry in the Community reduction commitment, as appropriate, according to harmonised modalities ensuring permanence and the environmental integrity of the contribution of land use, land use change and forestry as well as accurate monitoring and accounting. The Commission shall assess whether the distribution of individual Member States' efforts should be adjusted accordingly.

7. The proposal shall include the appropriate transitional and suspensive measures pending the entry into force of the international agreement on climate change.

Article 9

Procedure in relation to land use, land use change and forestry in the event of no international agreement on climate change

In the event that no international agreement on climate change is approved by the Community by 31 December 2010, Member States may specify their intentions for the inclusion of land use, land use change and forestry in the Community reduction commitment taking into account methodologies within the work carried out in the context of UNFCCC. Taking into account such specification by Member States, the Commission shall, by 30 June 2011, assess modalities for the inclusion of emissions and removals from activities related to land use, land use change and forestry in the Community reduction commitment, ensuring permanence and the environmental integrity of the contribution of land use, land use change and forestry as well as accurate monitoring and accounting, and make a proposal, as appropriate, with the aim of the proposed act entering into force from 2013 onwards. The Commission's assessment shall consider if the distribution of individual Member States' efforts should be adjusted accordingly.

Article 10

Changes in the scope of Directive 2003/87/EC and application of Article 24a thereof

The maximum quantity of emissions for each Member State under Article 3 of this Decision shall be adjusted in accordance with the quantity of:

- (a) allowances for greenhouse gas emissions issued pursuant to Article 11 of Directive 2003/87/EC that results from a change in the coverage of sources under that Directive following the final approval by the Commission of the national allocation plans for the period from 2008 to 2012 pursuant to Directive 2003/87/EC;
- (b) allowances or credits issued pursuant to Articles 24 and 24a of Directive 2003/87/EC in respect of emission reductions in a Member State covered by this Decision;
- (c) allowances for greenhouse gas emissions from installations excluded from the Community scheme in accordance with Article 27 of Directive 2003/87/EC for the time that they are excluded.

The Commission shall publish the figures resulting from that adjustment.

Article 11

Registries and Central Administrator

1. The Community and its Member States' registries established pursuant to Article 6 of Decision No 280/2004/EC shall ensure the accurate accounting of transactions under this Decision. This information shall be accessible to the public.

2. The Central Administrator designated under Article 20 of Directive 2003/87/EC shall, through its independent transaction log, conduct an automated check on each transaction under this Decision and, where necessary, block transactions to ensure there are no irregularities. This information shall be accessible to the public.

3. The Commission shall adopt measures necessary to implement paragraphs 1 and 2.

Those measures designed to amend non-essential elements of this Decision by supplementing it shall be adopted in accordance with the regulatory procedure with scrutiny referred to in Article 13(2).

Article 12

Amendments to Regulation (EC) No 994/2008

In order to implement this Decision, the Commission shall adopt amendments to Commission Regulation (EC) No 994/2008 of 8 October 2008 for a standardised and secured system of registries pursuant to Directive 2003/87/EC of the European Parliament and of the Council and Decision No 280/2004/EC of the European Parliament and of the Council ⁽¹⁾.

Article 13

Committee procedure

1. The Commission shall be assisted by the Climate Change Committee established by Article 9 of Decision No 280/2004/EC.

2. Where reference is made to this paragraph, Articles 5a(1) to (4) and Article 7 of Decision 1999/468/EC shall apply, having regard to the provisions of Article 8 thereof.

Article 14

Report

The Commission shall draw up a report evaluating the implementation of this Decision. That report shall also evaluate how the implementation of this Decision has affected competition at national, Community and international level. The Commission shall submit its report to the European Parliament and to the Council by 31 October 2016, accompanied by proposals as appropriate, in particular whether it is appropriate to differentiate national targets for the period after 2020.

⁽¹⁾ OJ L 271, 11.10.2008, p. 3.

*Article 15***Entry into force**

This Decision shall enter into force on the 20th day following its publication in the *Official Journal of the European Union*.

*Article 16***Addressees**

This Decision is addressed to the Member States.

Done at Strasbourg, 23 April 2009.

For the European Parliament
The President
H.-G. PÖTTERING

For the Council
The President
P. NEČAS

ANNEX I

**CATEGORIES REFERRED TO IN ARTICLE 2(1) OF THIS DECISION AS FURTHER SPECIFIED IN ANNEX I,
CATEGORIES 1 to 4 AND 6 OF DECISION 2005/166/EC**

Energy

- Fuel combustion,
- Fugitive emissions from fuels,

Industrial processes

Solvent and other product use

Agriculture

Waste

ANNEX II

MEMBER STATE GREENHOUSE GAS EMISSION LIMITS UNDER ARTICLE 3

	Member State greenhouse gas emission limits in 2020 compared to 2005 greenhouse gas emissions levels
Belgium	- 15 %
Bulgaria	20 %
Czech Republic	9 %
Denmark	- 20 %
Germany	- 14 %
Estonia	11 %
Ireland	- 20 %
Greece	- 4 %
Spain	- 10 %
France	- 14 %
Italy	- 13 %
Cyprus	- 5 %
Latvia	17 %
Lithuania	15 %
Luxembourg	- 20 %
Hungary	10 %
Malta	5 %
Netherlands	- 16 %
Austria	- 16 %
Poland	14 %
Portugal	1 %
Romania	19 %
Slovenia	4 %
Slovakia	13 %
Finland	- 16 %
Sweden	- 17 %
United Kingdom	- 16 %

*ANNEX III***MEMBER STATES REFERRED TO IN ARTICLE 5(5)**

Belgium

Denmark

Ireland

Spain

Italy

Cyprus

Luxembourg

Austria

Portugal

Slovenia

Finland

Sweden

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