

Amended proposal for a Directive of the European Parliament and of the Council on the promotion of electricity from renewable energy sources in the internal electricity market ⁽¹⁾

(2001/C 154 E/05)

(Text with EEA relevance)

COM(2000) 884 final — 2000/0116(COD)

(Submitted by the Commission pursuant to Article 250(2) of the EC Treaty on 29 December 2000)

⁽¹⁾ OJ C 311 E, 31.10.2000, p. 320.

INITIAL PROPOSAL

AMENDED PROPOSAL

THE EUROPEAN PARLIAMENT AND THE COUNCIL OF THE EUROPEAN UNION,

Unchanged

Having regard to the Treaty establishing the European Community, and in particular Article 95 thereof,

Having regard to the proposal from the Commission,

Having regard to the opinion of the Economic and Social Committee,

Having regard to the opinion of the Committee of the Regions,

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

Whereas:

(2) The potential for exploitation of renewable sources of energy is underused in the Community at present. It is therefore necessary to take measures to ensure that the energy is better exploited within the framework of the internal electricity market.

(1) A stable legislative framework for the market in renewable energy sources needs to be established as a matter of urgency.

(2) The potential for exploitation of renewable sources of energy is underused in the Community at present. The European Union and the Member States agree on the need to promote renewable energy sources as a priority measure, given that they contribute to environmental protection, create local employment and social well-being, ensure security of supply, make it possible to meet the Kyoto targets more quickly, represent a key peace-making factor and offer further positive synergies. It is therefore necessary to take measures to ensure that the potential of all energy produced from renewable energy sources is better exploited within the framework of the internal electricity market.

(3) Directive 96/92/EC of the European Parliament and of the Council of 19 December 1996 concerning common rules for the internal market in electricity ⁽¹⁾ provides for an important step in the completion of the internal market in electricity.

(3) Directive 96/92/EC of the European Parliament and of the Council of 19 December 1996 concerning common rules for the internal market in electricity ⁽¹⁾ provides for an important step in the completion of the internal market in electricity. A supplementary Directive concerning renewable energy sources and attaching equal weight to the environmental aspects of the Treaty is therefore needed.

⁽¹⁾ OJ L 27, 30.1.1997, p. 20.

⁽¹⁾ OJ L 27, 30.1.1997, p. 20.

INITIAL PROPOSAL

AMENDED PROPOSAL

- (4) Given that the Member States provide direct and indirect support for nuclear and fossil fuels without taking account of external consequential costs, the electricity market is distorted in favour of those energy sources. Article 3 of Directive 96/92/EC allows measures in the general economic interest which may relate to environmental protection, and Article 8(3) and 11(3) thereof allow priority to be given to electricity from renewable energy sources.
- (5) Article 6 of the Treaty requires environmental protection requirements to be integrated into the definition and implementation of the Community policies and actions. Unchanged
- (6) The promotion of electricity from renewable sources of energy is a high Community priority as outlined in the White Paper on Renewable Energy Sources (the White Paper)⁽¹⁾ for reasons of security and diversification of energy supply, for reasons of environmental protection and for reasons of social and economic cohesion. That was endorsed by the Council in its Resolution of 8 June 1998 on renewable sources of energy⁽²⁾, and by the European Parliament in its Resolution on the White Paper⁽³⁾.
- (7) In particular the Council in its Resolution of 8 June 1998 endorsed the objective of 12 % of the gross inland consumption comprising electricity, heat and biofuels from renewable energy sources for the Community as a whole by 2010, as suggested in the White Paper and called for increased efforts at Community level as well as in Member States, bearing in mind the need to reflect different national circumstances. (7) In particular the Council in its Resolution of 8 June 1998 endorsed the objective of 12 % of the gross inland consumption comprising electricity, heat and biofuels from renewable energy sources for the Community as a whole by 2010, as suggested in the White Paper and called for increased efforts at Community level as well as in Member States, bearing in mind the need to reflect different national circumstances. This Directive is therefore highly appropriate. A further Directive on biofuels from renewable energy sources should also be drawn up at some stage in the future.
- (8) In the White paper the indicative objective of 12 % was translated into a specific share of consumption of electricity produced from renewable energy sources. Taking into account an updated scenario for electricity consumption as explained in this Directive, that indicative objective of 12 % results in a 22,1 % share of electricity produced from renewable energy sources. Unchanged
- (9) A harmonised framework on electricity from renewable energy sources forms part of the Action Plan outlined in the White Paper.

⁽¹⁾ COM(97) 599 final.

⁽²⁾ OJ C 198, 24.6.1998, p. 1.

⁽³⁾ A4-0207/98.

INITIAL PROPOSAL

AMENDED PROPOSAL

(10) The increased use of electricity from renewable energy sources constitutes an essential part of the package of measures needed to comply with the Kyoto Protocol, and in any policy package to meet further commitments. The net environmental effects of different renewable energy sources should be taken into account when implementing different measures.

(11) The increased use of electricity from renewable energy sources is not only necessary to reduce greenhouse gases but also to reduce other harmful emissions such as emissions of SO₂ and NO_x.

(12) The Council in its conclusion of 11 May 1999 ⁽¹⁾ and the European Parliament in its Resolution of 26 May 1998 on electricity from renewable energy sources ⁽²⁾ have invited the Commission to submit a concrete proposal for a Community framework on access for electricity from renewable energy sources to the internal market. Furthermore, the European Parliament in its Resolution of 30 March 2000 on Electricity from renewable energy sources and the internal electricity market ⁽³⁾ underlined that binding and ambitious renewables targets at the national level are essential to results and to achieving the Community targets.

(13) In accordance with the principles of subsidiarity and proportionality as set out in Article 5 of the Treaty, general principles providing for a framework and objectives must be established at Community level, but their detailed implementation should be left to Member States, thus allowing each Member State to choose the regime which corresponds best to its particular situation. This Directive confines itself to the minimum required in order to achieve those objectives and does not go beyond what is necessary for that purpose.

(14) Electricity generated by large hydroelectric plants, while currently the most important form of electricity generated from renewable energy sources, is generally competitive with electricity produced from conventional sources and should therefore be excluded from the scope of this Directive, except with regard to the provisions on national targets and certification of origin.

(14) Electricity generated by large hydroelectric plants, while currently the main and most highly developed form of electricity generated from renewable energy sources, is generally competitive with electricity produced from conventional sources and should therefore be excluded from the scope of this Directive, except with regard to the provisions on national targets and certification of origin. However, there should be scope for granting investment aid for modernising and enlarging large, technologically obsolete hydroelectric plants which can be used to achieve a substantial increase in the production of electricity from renewable energy sources without increasing the impact on the environment.

⁽¹⁾ 8013/99.

⁽²⁾ A4-0199/98.

⁽³⁾ A5-0078/2000.

INITIAL PROPOSAL

- (15) To ensure increased market penetration of electricity from renewable energy sources in the medium term, it is necessary to require all Member States to set national targets for the consumption of electricity from renewable sources as well as detailed plans for the achievement of those targets.
- (16) It is necessary that the national targets, individually and collectively, are consistent with the objectives of doubling the share of renewable energy sources in the gross domestic energy consumption in the Community by 2010 as outlined in the White Paper and the Climate Change commitments accepted by the Community at Kyoto, and with any national climate change commitments accepted within this context. A framework based on well-established and transparent methodologies should be laid down for the setting of such national targets.
- (17) The Commission should evaluate Member States' national targets and policies and in particular their compliance with the White Paper and the Climate Change commitments accepted by the Community at Kyoto and should, if necessary, present proposals to the European Parliament and to the Council with respect to individual and mandatory national targets with a view to achieving such compliance.
- (18) Increased possibilities of trade and competition would help increase the share of electricity from renewable energy sources in the Community by bringing down costs and facilitating the full exploitation of the potential for development of renewable energy sources in the Community, depending *inter alia* on geographical circumstances.
- (19) To facilitate trade in electricity from renewable energy sources and to increase transparency for the consumer's choice between conventionally produced electricity and electricity from renewable energy sources, certification of the guarantee of origin of such electricity is necessary. It is important that all forms of electricity generated from renewable energy sources are covered by such guarantees of origin. Consequently, the provisions on the guarantee of origin should apply to large hydroelectric plants.
- (20) Public support for electricity from renewable energy sources is based on the assumption that, in the long run, it can compete with conventionally produced electricity. Such support will be necessary to reach the Community's objectives with regard to its expansion, in particular as long as electricity prices in the internal market do not reflect the full social and environmental costs and benefits of energy sources used. The need for public support in favour of renewable energy sources is thus recognised in the Community Guidelines for State aid for environmental protection ⁽¹⁾. The rules of the Treaty, and in particular Articles 87 and 88 thereof, will continue to apply to such public support however.

AMENDED PROPOSAL

Unchanged

- (20) Public support for electricity from renewable energy sources is based on the assumption that, in the long run, it can compete with conventionally produced electricity. Such support will be necessary to reach the Community's objectives with regard to its expansion, in particular as long as electricity prices in the internal market do not reflect the full social and environmental costs and benefits of energy sources used. The need for public support in favour of renewable energy sources is thus recognised in the Community Guidelines for State aid for environmental protection ⁽¹⁾. The rules of the Treaty, and in particular Articles 87 and 88 thereof, will continue to apply to such public support however. The application of the State aid rules should take account of the need to internalise external costs of electricity generation.

⁽¹⁾ OJ C 72, 10.3.1994, p. 3.

⁽¹⁾ OJ C 72, 10.3.1994, p. 3.

INITIAL PROPOSAL

(21) Member States operate different mechanisms of support for renewable energy sources at the national level, including investment aid, tax exemptions or reductions, tax refunds and direct price support schemes.

(22) It is too early to decide on a Community-wide framework regarding support schemes, in view of the limited experience with national schemes and the current relatively low share of price supported renewable electricity in the Community.

(23) It is however necessary, to adapt, in the medium term, support schemes to the principles of the developing internal electricity market. It is therefore appropriate that the Commission monitor the situation and present a report on experience gained with the application of national schemes. If necessary in the light of the conclusions of this report, the Commission should make a proposal for a Community framework with regard to support schemes for electricity from renewable energy sources. That proposal should be compatible with the principles of the internal electricity market, take into account the characteristics of the different technologies, be efficient and simple, and include sufficient transitional regimes to maintain investors' confidence and avoid stranded costs.

(24) When favouring the development of a market for renewable energy, it is necessary to take into account the positive impact on employment and social cohesion,

(25) Increased market penetration of electricity from renewable energy sources will allow for economies of scale, thereby reducing costs.

AMENDED PROPOSAL

(21) Member States operate different mechanisms of support for renewable energy sources at the national level, including investment aid, tax exemptions or reductions, tax refunds and direct price compensation payments for avoiding external costs and other distortions of competition.

Unchanged

(23) It is however necessary, in parallel with the removal of market distortions disfavouring renewables, to adapt, in the medium term, support schemes to the principles of the developing internal electricity market, while having regard to their particular relevance to the socio-economic and environmental principles of the Treaty. Adequate growth in electricity from renewable energy sources can only be promoted if a market for such electricity is created in the European Union. This will enable electricity from renewable energy sources to compete with electricity from conventional energy sources, limit the cost to the consumer and in the medium term reduce the need for public support. It is therefore appropriate that the Commission monitor the situation and present a report on experience gained with the application of national schemes. If necessary in the light of the conclusions of this report, the Commission should make a proposal for a Community framework with regard to support schemes for electricity from renewable energy sources. That proposal should be compatible with the principles of the internal electricity market, take into account the characteristics of the different technologies, be efficient and simple, and include sufficient transitional regimes of up to 10 years to maintain investors' confidence and avoid stranded costs.

(24) When favouring the development of a market for renewable energy, it is necessary to take into account the positive impact on employment and social cohesion, regional and local development opportunities, export prospects, development in third countries, sustainable development of the environment and peace.

(25) Increased market penetration of electricity from renewable energy sources will allow for economies of scale, thereby reducing costs. It is important to utilise the strength of the market forces and the internal market and make electricity from renewable energy sources competitive and attractive to European citizens.

INITIAL PROPOSAL

AMENDED PROPOSAL

(26) Small and medium-sized undertakings and independent power producers play an important role in the production of electricity from renewable energy sources, and their access to the market for renewable electricity should be encouraged, thus improving the employment opportunities for companies in this sector.

Unchanged

(27) While this Directive is designed to encourage, amongst other things, the use of biomass as a renewable energy source, it is not the intention to interfere excessively with its availability for normal use.

(28) The specific structure of the renewables sector, which includes many small and medium-sized enterprises, should be taken into account, especially when reviewing the administrative procedures for obtaining permission to construct plants producing electricity from renewable energy sources.

Unchanged

(29) The costs of connecting new producers of electricity from renewable energy sources should be transparent and non-discriminatory and due account should be taken of the benefit embedded generators bring to the grid,

HAVE ADOPTED THIS DIRECTIVE:

CHAPTER I

SCOPE AND DEFINITIONS

Article 1

The purpose of this Directive is to create a common framework in order to promote an increase of the contribution of renewable energy sources to electricity production in the internal market for electricity.

Article 2

For the purposes of this Directive, the definitions in Directive 96/92/EC shall apply.

The following definitions shall also apply:

1. 'renewable energy sources' shall mean renewable non-fossil sources (wind, solar, geothermal, wave, tidal, hydroelectric installations with a capacity below 10 MW and biomass, which means products from agriculture and forestry, vegetable waste from agriculture, forestry and from the food production industry, untreated wood waste and cork waste);

1. 'renewable energy sources' shall mean renewable non-fossil sources;

— wind,

— solar ray energy,

— geothermal,

— wave,

— sea currents,

— tidal and hydroelectric installations with a capacity below 10 MW,

INITIAL PROPOSAL

AMENDED PROPOSAL

2. 'electricity from renewable energy sources' shall mean electricity generated by plants using only renewable energy sources, including the part of electricity produced from renewable energy sources in hybrid plants using conventional sources of energy, in particular for back-up purposes;
3. 'support scheme' shall mean a mechanism according to which a generator of electricity, on the basis of state regulation, receives, directly or indirectly, public support, including in particular, direct price support, paid as a subsidy per kWh provided and sold (e.g. quota systems providing for tendering or green certificates, fixed feed-in prices and fixed premium schemes), investment aid and tax exemptions;
4. 'consumption of electricity' shall mean domestic electricity production, plus imports, minus exports (gross consumption).

- biomass with insignificant impurities, meaning the biodegradable fraction of materials from agriculture and forestry, wood and cork waste, biodegradable by-products of the pulp and paper industry and the decomposition of the biodegradable fraction of separated municipal wastes,
- landfill gas;

Unchanged

CHAPTER II

**NATIONAL TARGETS FOR CONSUMPTION OF ELECTRICITY
FROM RENEWABLE SOURCES OF ENERGY**

Article 3

1. Member States shall take the necessary steps to ensure that the consumption of electricity from renewable energy sources develops in conformity with the established objectives referred to in paragraph 2. For the application of this Article, hydroelectric installations with a capacity above 10 MW shall be considered as a renewable energy source.

2. No later than one year after the entry into force of this Directive and every five years thereafter, Member States shall adopt and publish a report setting national targets for future consumption of electricity from renewable energy sources. Such targets shall identify the national objective for future levels of consumption of electricity from renewable energy sources, in terms of kWh consumed or as a percentage of electricity consumption, on a year-by-year basis for the next 10 years. They shall be compatible with the objective of 12 % of the gross domestic energy consumption by 2010 set in the White Paper on Renewable Energy Sources and in particular with the 22,1 % share of electricity from renewable energy sources in the total Community electricity consumption by 2010 as referred to in the Annex to this Directive. They shall further be compatible with any national commitments accepted in the context of the Climate Change commitments accepted by the Community in Kyoto and subsequently. The report shall also outline the measures taken and to be taken, at national level, to achieve these objectives.

INITIAL PROPOSAL

Each year, the Member States shall publish a report which includes an analysis of success in meeting the previous year's national targets and shall indicate to which extent the measures taken are consistent with the national climate change commitment.

3. Each year, the Commission shall, on the basis of the Member States' reports referred to in paragraph 2, assess the extent to which the national targets, individually and collectively, are consistent with the established objectives referred to in paragraph 2 and publish its conclusions in a report.

4. The Commission shall, if the report referred to in paragraph 3 concludes that the national targets are liable to be inconsistent with the established objectives referred to in paragraph 2, present proposals to the European Parliament and to the Council with respect to individual and mandatory national targets.

CHAPTER III

ACCESS OF ELECTRICITY FROM RENEWABLE ENERGY SOURCES TO THE INTERNAL MARKET OF ELECTRICITY

Article 4

Support schemes

The Commission shall monitor the application of support schemes in Member States and shall, no later than five years after the entry into force of this Directive, present a report on:

— experience gained with the application and the co-existence of different support schemes in Member States,

In the light of the conclusions of that report, the Commission will, if necessary, make a proposal for a Community framework with regard to support schemes for electricity from renewable energy sources. That proposal shall:

- (a) be compatible with the principles of the internal electricity market
- (b) take into account the characteristics of the different renewable energy technologies and;

AMENDED PROPOSAL

- the success of individual support schemes in achieving the targets set in this Directive,
- the competitiveness of renewable energy sources on the energy market and progress in internalising external costs, as well as the status of subsidies to other energy sources,
- the perspective for a proposal for a harmonised support system which is intended to lead to a high degree of utilisation of electricity from renewable energy sources, lower prices for the public, a level playing field for market operators and which is capable of forming part of an integrated electricity market.

Unchanged

- (a) be compatible with the principles of the internal electricity market and the objective of environmental protection pursuant to Article 6 of the EC Treaty;
- (b) take into account the characteristics of the different renewable energy technologies and geographical circumstances;

INITIAL PROPOSAL

AMENDED PROPOSAL

(c) be efficient and simple

(c) promote the use of renewable energy sources in an effective way, and be simple and at the same time as efficient as possible, particularly in terms of cost;

(d) include sufficient transitional regimes to maintain investors' confidence.

Unchanged

The rules of the Treaty, and in particular Articles 87 and 88 thereof, apply to the support schemes.

Article 5

Guarantee of origin of electricity from renewable energy sources

1. Member States shall, within two years following the entry into force of this Directive, ensure that the origin of electricity generated from renewable energy sources can be guaranteed as such within the meaning of this Directive according to objective and non-discriminatory criteria laid down by each of the Member States. They shall issue guarantee certificates to this effect. For the application of this Article, hydroelectric installations with a capacity above 10 MW shall be considered as a renewable energy source. The certificates shall specify the energy source from which the electricity is generated and in the case of hydroelectric installations, whether the capacity is above or under 10 MW.

2. Guarantee certification shall serve to enable producers of electricity from renewable energy sources to demonstrate that the electricity they sell is electricity from renewable energy sources within the meaning of this Directive. Such certificates shall be mutually recognised by the Member States for this purpose. Any refusal to recognise certificates, in particular for reasons relating to the prevention of fraud, must be based on objective, transparent and non-discriminatory criteria. Any disputes shall be settled by the Commission.

3. Member States shall designate a competent body, independent from generation and distribution activities, to issue such guarantee certificates within one year following the entry into force of this Directive.

4. Member States shall put into place appropriate mechanisms to ensure that certification is both accurate and reliable and they shall outline in the report referred to in the second subparagraph of Article 3(2) the measures taken to ensure the reliability of the certification system.

5. After having consulted national experts, the Commission shall in the report referred to in Article 8 consider the form and modalities that Member States should follow in the certification of electricity generated from renewable energy sources. If necessary, the Commission shall propose to the European Parliament and the Council the adoption of common rules in this respect.

INITIAL PROPOSAL

AMENDED PROPOSAL

CHAPTER IV

ADMINISTRATIVE PROCEDURES*Article 6*

1. Member States shall review the existing legislative and regulatory framework with regard to authorisation procedures applicable to installations of generation plants for electricity from renewable energy sources, with a view to streamlining and expediting procedures at the appropriate administrative level, and ensuring that the rules are objective, transparent and non-discriminatory, and take fully into account the particularities of the various renewable technologies.

2. Member States shall publish not later than two years after the entry into force of this Directive a report on the review referred to in paragraph 1 setting out the action which must be taken to reduce regulatory and non-regulatory barriers to increasing production of electricity from renewable energy sources. The report shall cover, in particular, the following issues:

- (a) coordination between the different administrative bodies concerned with the procedure for authorisation of generation plants producing electricity from renewable energy sources;
- (b) reasonable deadlines for dealing with applications for authorisation;
- (c) the establishment of a fast-track planning procedure for producers of electricity from renewable energy sources;
- (d) where applicable, the possibility of establishing mechanisms under which the absence of reply by the competent bodies on an application for authorisation within a certain period of time automatically results in an authorisation;
- (e) establishment of single reception points, at the appropriate administrative level, for applications of authorisations for the installation of generation plants for electricity from renewable energy sources;
- (f) the identification at the national, regional or local level of sites suitable for establishing new capacity for generating electricity from renewable energy sources;
- (g) specific planning guidelines for projects for electricity from renewable energy sources;
- (h) the designation of an authority (a public or a private body) to act as mediator in disputes between authorities responsible for the granting of authorisations and applicants for authorisations;

INITIAL PROPOSAL

AMENDED PROPOSAL

- (i) the introduction of comprehensive information and training programmes on technologies concerning the utilisation of renewable energy sources for personnel responsible for the authorisation procedures.

3. The Commission shall, in the report mentioned in Article 8 and on the basis of the Member States' reports referred to in paragraph 2 of this Article, assess best practice with respect to removing regulatory and non-regulatory barriers with a view to promoting the penetration of electricity from renewable energy sources.

CHAPTER V

GRID SYSTEM ISSUES*Article 7*

1. Member States shall take the necessary measures to ensure that transmission system operators and distribution system operators in their territory grant priority access to the transmission and distribution of electricity from renewable energy sources.

2. Member States shall require transmission system operators and distribution system operators to set up and publish standard rules relating to the bearing of costs of technical adaptations, such as grid connections and grid reinforcements which are necessary in order to integrate a new producer feeding electricity from renewable energy sources into the interconnected grid.

These rules shall be based on objective, transparent and non-discriminatory criteria taking particular account of all the future system costs and benefits generated by renewable energy installations.

3. Transmission and distribution system operators shall be required to provide to a new generator wishing to be connected a comprehensive and detailed estimate of the costs associated with the connection.

4. Member States shall require transmission system operators and distribution system operators to set up and publish standard rules relating to the sharing of costs of system installations, such as grid connections and reinforcements, between all generators benefiting from them.

The sharing shall be enforced by an appropriate compensation mechanism and shall be based on objective, transparent and non-discriminatory criteria taking into account the benefits initially and subsequently connected generators as well as transmission system operators and distribution system operators derive from the connections.

5. Member States shall in the report referred to in Article 6(2) also consider the measures to be taken to facilitate access to the grid system of electricity from renewable energy sources. In particular, that report shall examine the necessity to introduce two-way metering.

INITIAL PROPOSAL

AMENDED PROPOSAL

CHAPTER VI

FINAL PROVISIONS

Article 8

The Commission shall, if necessary, two years after the entry into force of this Directive and in any event no later than 31 December 2004, taking into account, *inter alia*, progress made in the Community by 1 January 2004 pursuant to Directive 96/92/EC, as well as progress made in meeting climate change commitments, and the reports produced by Member States pursuant to Article 3(2) and Article 6(2), present to the European Parliament and the Council an interim report on the implementation of this Directive.

A final report shall be produced by the Commission no later than 1 January 2009

Those reports shall consider the progress made in reflecting the external costs of electricity not generated from renewable energy sources and the impact of State aid granted to electricity not generated from renewable energy sources.

The final report shall, in particular, take into account the possibility for Member States to meet the objectives established in the framework of Article 3 and the existence of discrimination between different energy sources.

If appropriate, the Commission shall submit with the reports further proposals to the European Parliament and the Council.

Article 9

Member States shall bring into force the laws, regulations and administrative provisions necessary to comply with this Directive by 31 May 2001 at the latest. They shall forthwith inform the Commission thereof.

When Member States adopt those provisions, they shall contain a reference to this Directive or be accompanied by such a reference on the occasion of their official publication. Member States shall determine how such reference is to be made.

Article 10

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

Article 11

This Directive is addressed to the Member States.

A final report shall be produced by the Commission no later than 1 January 2009. In the first report the Commission shall present a forward looking review and indications of targets for the period from 2010 to 2020.

Both reports shall consider the progress made in reflecting the external costs of electricity not generated from renewable energy sources and the impact of State aid granted to electricity not generated from renewable energy sources.

Unchanged

ANNEX

INDICATIVE FIGURES FOR MEMBER STATE TARGETS

This Annex provides an indication for setting national targets for electricity from renewable energy sources (RES-E), as referred to in Article 3(2).

1. Analytical basis

The following elements have been used for the analysis and calculation of the figures contained in the table in section 3:

- Update of the Best Practice Scenario of the TERES II study ⁽¹⁾ taking into account recent developments in renewable energy sources (RES).
- Official Eurostat 1997 data for RES consumption per Member State.
- Gross electricity consumption per Member State, from the baseline scenario provided in 'Energy in Europe — European Union Energy Outlook to 2020', published in November 1999 ⁽²⁾.
- Action plans, strategies, White Papers, etc. published by Member States, as well as various sectoral studies and recent reports analysing potentials and trends in renewable energy have been used as an important input for the analysis.

2. Methodology

The calculation of indicative Member State targets for RES-E is based upon the principle that the targets should collectively be compatible with the White Paper objective of doubling the contribution of RES to 12 % of gross inland energy consumption by 2010 and that this should be reached by a joint effort based on technological and economic potentials in each Member State.

In the White Paper this 12 % share of total renewable energy sources in the gross inland energy consumption has been translated into a specific share for consumption of electricity produced from renewable energy sources. In other words, the White Paper contains projections for the development of RES-E needed to achieve the overall 12 % objective. The results of these projections require a doubling of RES-E from 337 TWh (14,3 %) in 1995 to 675 TWh (23,5 %) in 2010. These projections have been used as the starting point of the analysis.

By examining existing Member State targets, it appears that they are not sufficiently ambitious to reach collectively the overall 12 % objective, or the specific RES-E share projected in the White Paper.

In order to establish a set of indicative Member State targets which are compatible with the objective of the White Paper, an updated version of the energy model used for the preparation of the White Paper has been employed as the principal analytical basis, taking into account the latest available figures (Eurostat figures from 1997 together with figures for gross electricity consumption from the baseline scenario ⁽³⁾ have been used in the modelling process; furthermore, recent technological developments, such as progress in wind energy technologies, market penetration curves etc. have been included in the calculation).

The energy model used is Safire (Strategic Assessment Framework for the Implementation of Rational Energy), which was used already in the TERES II study and was originally developed under the Joule II programme ⁽⁴⁾.

Safire is a highly sophisticated database and computer model that contains, among others, country-specific databases with information on energy demand by sector, energy prices, technology costs and renewable energy resources available. For this exercise, Safire has been run on a country by country basis for the 15 EU countries, using the best practice scenario of the TERES II study which is the scenario that lies behind the 12 % objective of the White paper.

⁽¹⁾ TERES II — The European Renewable Energy Study, European Commission, 1997. Through different scenarios, TERES II analyses the degree of political action necessary to meet Community objectives for the development of RES. TERES II was prepared for the European Commission within the framework of the Altener programme and was used as the main analytical basis for the drafting of the White Paper.

⁽²⁾ Energy in Europe — European Union Energy Outlook to 2020, special issue November 1999, European Commission — the Shared Analysis Project.

⁽³⁾ See footnote 14.

⁽⁴⁾ Safire, European Commission, Directorate General XII, Science, Research and Development, 1995.

The latest existing Member States targets and policies have been used as references to validate the results of the calculations of the TERES II update and to check for possible compliance between model projections and current targets in Member States.

3. Indicative figures for Member State targets

Percentages and amounts of TWh per Member State set out in the table below are the result of the analysis described above. The indicative Member State targets are collectively compatible with the White Paper objective, leading in the updated analysis to a total RES-E share of total EU electricity consumption of 22 % by 2010 ⁽¹⁾. The indicative targets per Member State are expressed as a percentage of gross electricity consumption by 2010 ⁽²⁾. The figures in TWh are put as a reference.

Figures relating to each country's gross electricity consumption are taken from the baseline scenario of 'Energy in Europe'. This baseline scenario predicts an increase in final energy demand of 1,2 % annually between 1995-2010. If Member States achieve a lower gross electricity consumption than in the baseline scenario, the same percentage target would lead to a smaller consumption of RES-E in TWh.

Indicative figures for Member State targets for contribution of RES-E to gross electricity consumption by 2010

	Percentage (*)	TWh
Austria	78,1	55,3
Belgium	6,0	6,3
Denmark	29,0	12,9
Finland	35,0	33,7
France	21,0	112,9
Germany	12,5	76,4
Greece	20,1	14,5
Ireland	13,2	4,5
Italy	25,0	89,6
Luxembourg	5,7	0,5
Netherlands	12,0	15,9
Portugal	45,6	28,3
Spain	29,4	76,6
Sweden	60,0	97,5
United Kingdom	10,0	50,0
European Union	22,1 %	674,9

(*) RES-E consumption as % of total gross electricity consumption of 3 058 TWh as forecasted in the baseline scenario.

⁽¹⁾ The projections of the White Paper were based on an older scenario for electricity consumption. For the purpose of this calculation, the new 1999 electricity consumption scenario has been used, transforming the 23,5 % RES-E share of electricity consumption of the White Paper to a 22,1 % share. Therefore, a consumption of 675 TWh as projected in the White Paper in order to contribute to the 12 % objective for all RES will result in a 22,1 % share of electricity.

⁽²⁾ For the purpose of this Directive, Article 2 has defined 'consumption of electricity' as domestic electricity production, plus imports, minus exports (gross consumption).

4. Member States 1997 official Eurostat RES-E compared with indicative targets in 2010

	RES-E % 1997	RES-E % 2010	RES-E % 1997 without large hydro	RES-E % 2010 without large hydro
Austria	72,7	78,1	10,7	21,1
Belgium	1,1	6,0	0,9	5,8
Denmark	8,7	29,0	8,7	29,0
Finland	24,7	35,0	10,4	21,7
France	15,0	21,0	2,2	8,9
Germany	4,5	12,5	2,4	10,3
Greece	8,6	20,1	0,4	14,5
Ireland	3,6	13,2	1,1	11,7
Italy	16,0	25,0	4,5	14,9
Luxembourg	2,1	5,7	2,1	5,7
Netherlands	3,5	12,0	3,5	12,0
Portugal	38,5	45,6	4,8	21,5
Spain	19,9	29,4	3,6	17,5
Sweden	49,1	60,0	5,1	15,7
United Kingdom	1,7	10,0	0,9	9,3
European Union	13,9 %	22,1 %	3,2	12,5 %

The possibilities of using large hydro are to a large extent dependent upon geographical conditions. In order to adjust for this, the above comparisons are presented both including and excluding large hydro. The differences in the country figures with regard to the current penetration of RES-E without large hydro indicate to some extent whether promotional RES policies have been successfully implemented.

It should be noted that developments after 1997, for which no official Eurostat RES-E figures are yet available, indicate positive developments and strong promotional policies in several countries.