



COMMISSION OF THE EUROPEAN COMMUNITIES

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

(presented by the Commission)

EXPLANATORY MEMORANDUM

1 INTRODUCTION

The basic objective underlying this draft Directive is to create a framework which will facilitate the medium-term significant increase in renewable generated electricity ("RES-E") within the EU. It is an important part of measures aimed at meeting the obligation to reduce the emission of greenhouse gases accepted by the EU at Kyoto and must be seen in the light of the indicative objective of doubling the share of renewable energy from at present 6% to 12% of the gross inland energy consumption as set out in the White Paper on renewable energy sources and endorsed by the Energy Council in May 1998.

In order to achieve its objective, the directive proposes that Member States are required to take the necessary measures to ensure that the level of RES-E develops in conformity with the energy and environmental objectives undertaken at national as well as Community level. Member States will therefore have to set and meet national targets for the domestic future consumption of RES-E which are consistent with the White Paper on renewables and national commitments to reduce greenhouse gas emissions in the light of the Kyoto obligations. These targets and the measures taken to reach them shall be set out in an annual report published by all Member States. The Commission will then assess and publish a report on the Member States policies in the light of the White paper and the Kyoto obligations.

With regard to support schemes for RES-E currently operated in Member States the Commission has concluded that insufficient evidence exists to provide, at this stage, for the introduction of a harmonised Community wide support scheme setting the price for RES-E through community-wide competition between RES-E generators, in particular with regard to direct price support being the most important form of support in practice. Nevertheless, the Commission believes that this should remain the objective since its achievement is likely, in the medium term, to reduce prices of RES-E and increase the penetration of RES-E in the internal market. Furthermore, in view of creating a proper level playing field within the internal electricity market, it is necessary for the Commission, without prejudice to its duties under Article 88(1) of the EC Treaty, to evaluate support schemes to all sources of electricity. Therefore, the draft directive puts an obligation on the Commission to monitor the application of support schemes in favour of generators of electricity from renewable as well as conventional energy sources in Member States and, no later than 5 years after the entry into force of this directive, to present a report on the experience gained in this respect. If necessary in the light of the conclusions of this report, the Commission will make a proposal for a Community framework with regard to support schemes for electricity from renewable energy sources based on principles defined already in this directive.

In order to ensure that trade in RES-E becomes both reliable and practically possible, the draft Directive requires Member States to introduce a system for the certification of origin of RES-E.

Finally, the directive foresees a number of accompanying measures intended to create a level playing field and facilitate the penetration of RES-E in the internal

electricity market, notably regarding administrative procedures and grid system issues.

2 DETAILED OVERVIEW OF THE PROPOSAL

2.1 Objectives on the consumption of electricity from renewable energy sources (Article 3)

The promotion of renewable sources of energy is a high Community priority, for reasons of security and diversification of energy supply, for reasons of environmental protection and for reasons of social and economic cohesion. This was outlined in particular in the Commission's White Paper on Renewable Energy Sources which was endorsed by the Council and the European Parliament¹.

In view of the substantial contribution RES can make to the implementation of the Community's commitments to reduce greenhouse gases, its expansion in the EU constitutes an essential part of the package of measures needed to comply with the Kyoto Protocol, and eventually in the policy package to meet further commitments.

Renewables also play an important role in the process of integrating the environment into energy policy, called for by the Cardiff European Council in 1998 in view of the objectives of sustainable development and integrating environment policy into other Community policies, which were reinforced by the Amsterdam Treaty (Art. 6 of the EC Treaty)

On the basis of the potential for further development of RES in the Community, the White Paper suggested an indicative target of 12% of the gross inland energy consumption for the Community as a whole by 2010. It must be born in mind that 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 of 22,1 %. In other words, the White Paper contains projections for the development of RES-E needed to achieve the necessary contribution of the electricity sector to the overall 12% objective. The development of this share of 22,1 % requires increased efforts at the Community level as well as in Member States.

Against this background, in the Working Paper "Electricity from renewable energy sources and the internal electricity market", it was examined whether binding targets for RES-E consumption levels should be set for all Member States at Community level. As indicated in the Working Paper, there are important arguments in favour of such an approach. Set in an appropriate manner, such targets could facilitate the achievement of the 12% objective of the White Paper on renewables and would ensure that RES-E makes a significant contribution towards the attainment of the EU's commitments within the context of Kyoto.

¹ Communication from the Commission: Energy for the future: Renewable Energy Sources - White Paper for a Community Strategy and Action Plan (COM (97) 599 final) ; Council Resolution of 8 June 1998 on renewable sources of energy (OJ no. C 198, 24.6.1998, p. 1); Resolution of the European Parliament on the above Communication from the Commission (A4-0207/98)

On the other hand, there are good arguments for maintaining a large degree of flexibility for Member States, enabling them, in the light of national circumstances, to identify the strategy best suited to achieve their climate change commitments and, if necessary, to adapt the strategy in the light of future developments.

In any case and notwithstanding a need for certain flexibility, it is important that the role of RES-E continues to increase significantly in all Member States and that Member States take an active role in pursuing this objective. A Community Directive must provide the necessary framework for such development.

Consequently, the draft Directive proposes that all Member States take the necessary measures to ensure that the consumption of RES-E develops in line with the above energy and environmental objectives. Member States will therefore be obliged:

- to set and meet on a yearly basis national targets for domestic future consumption of RES-E in terms of kWh consumed or as a percentage of electricity consumption for the next 10 years; these targets shall be compatible with the objectives outlined in the White Paper on RES and in particular with the 22.1 % share of electricity from renewable energy sources in the total EU electricity consumption by 2010 as referred to in Annex 1 to this Directive. They shall further be compatible with the Climate Change commitments accepted by the Community in Kyoto;
- to publish, on an annual basis, their domestic objectives and the measures taken and to be taken at national level in order to meet these objectives.

This means that the actual level of the targets set by each Member State, and the mix of RES-E sources that make up the targets, are fully left to subsidiarity, provided, however, that the national objectives, individually and collectively, are compatible with the objectives specified in the White Paper and the EU's climate change commitments entered into at Kyoto, as well as any related national commitments made in this context.

Pursuant to the draft Directive, the Commission shall be obliged to assess, on a regular basis, whether national targets meet the latter criteria, i.e. compliance with the White Paper objectives and the Kyoto commitments, and publish, in an annual report, its conclusions. If the Commission concludes that the national targets are inconsistent with the above requirements, it will present proposals to the European Parliament and to the Council with respect to individual and mandatory national targets.

In order to give guidance to Member States regarding national targets compatible with the White Paper, the directive, in the preamble, provides indications with regard to the appropriate level of the national objectives necessary to reach the White Paper objective. 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 and that this should be reached by a joint effort based on

technological and economic potentials in each Member State Support schemes (Article 4)²

Member States operate different mechanisms of support for RES-E at the national level, such as investment aid, tax exemptions or reductions, tax refunds and aid supporting the price paid to the producer (direct price support), the latter being in most Member States the principal promotion tool for RES-E. Whilst costs are coming down rapidly, due to technological advance and increasing economies of scale, support is expected to remain necessary in the medium term.

Under direct price support schemes, generators of electricity from renewable energy sources, on the basis of state regulation, receive, directly or indirectly, financial support in terms of a subsidy per kWh provided and sold. At present there are essentially two categories of direct price support mechanisms within the EU, (i) quota based systems, and (ii) fixed price systems.

(i) Quota-based systems, operating notably in the United Kingdom, Ireland and The Netherlands, and foreseen for introduction in Denmark and Flanders, are based on setting the price through competition between RES-E generators for available support following a decision by the Member State in question on the desired level of RES-E. Two different mechanisms presently operate: the green certificates and tendering schemes.

Under a **green certificate** system, RES-E is sold at market prices. In order to finance the additional cost of producing RES electricity, and to ensure that the desired RES electricity is generated, an obligation is placed on all consumers to purchase a certain amount of green certificates from RES-E producers according to a fixed percentage, or quota, of their total electricity consumption/production. Since consumers wish to buy these certificates as cheaply as possible, a secondary market of certificates develops where RES producers compete with one-another for the sale of the green certificates.

Under a **tendering procedure**, the state places a series of tenders for the supply of the RES-E, which would thereafter be supplied to the local utility on a contract basis at the price which emerged from the tender. The surplus costs generated by the purchase of RES-E are passed on to the end-consumer of electricity through a specific levy.

(ii) Fixed price schemes, operating presently in several E.U. countries, and notably Germany and Spain, are characterised by a specific price being set for RES-E that must be paid by electricity companies, usually distributors, to domestic producers of RES-E. In such schemes, in principle, there is no quota, or maximum limit for RES-E set in the Member States. This limit or quota is however set indirectly by the level at which the RES-E price is set. A variant of the fixed-price scheme is a fixed-premium mechanism, according to which the government sets a fixed-premium or an environmental bonus, paid above the normal or spot electricity price, to RES-E generators. In cases where the fixed prices are related to the market price of electricity there will in reality be little difference between the fixed price and fixed

² Detailed information on data used and methodology will be made available by the Commission services during the legislative process.

premium schemes. The fixed price or fixed premium may be revised by the government to reflect falling costs.

The above described schemes, in particular fixed price schemes, have been generally very successful in bringing about a substantial increase of the share of RES-E in the Community's electricity production. It will be necessary to continue and reinforce these schemes within the limits set by the EC Treaty and in particular its Articles 87 and 88, in order to achieve the national objectives that Member States will be obliged to set pursuant to this directive and as long as electricity prices do not fully reflect the full social and environmental costs and benefits of energy sources used. The question is, however, how these schemes should be adapted to the new framework conditions of the internal electricity market. In fact, it would be desirable that ultimately the price supported RES-E market can benefit from the advantages of the developing internal market, which would mean in practical terms provision for Community wide *trade* and *competition* between equivalent suppliers of RES-E. Indeed, both trade and competition would help increase the share of RES-E in the EC in that it would bring down costs and facilitate to full exploitation the potential for RES development in the EC, often depending on geographical circumstances.

However, at present, Community wide trade and competition of price supported RES-E is not provided for. In fact, under all existing price support schemes, the support is granted exclusively where production is sold by national producers of RES-E to the national market.

This characteristic of the existing schemes could be changed by providing a framework for a gradual move from purely national schemes to schemes allowing participation of all producers in the EC. This would gradually lead to an EC wide market of RES-E, within the internal electricity market. In principle, there are two ways of achieving this goal:

Under a first approach MS states would continue their national support schemes, provided that they are compatible with the State aid rules, but cease selectivity on grounds of nationality and allow participation of foreign producers as well as, ultimately, trade and competition within the RES sector. This approach has the advantage of keeping the principle of national schemes intact, in line with subsidiarity, but would open the schemes for foreign producers. However, its disadvantage is that the co-existence of different schemes, even if open to foreign producers, may lead to distortions of the market, e.g. when all RES producers will try to benefit from the national system offering the best conditions, e.g. in terms of prices paid.

Another possibility would be to replace the national schemes by a promotion system operated as harmonised at the Community level, i.e. a sole system applicable throughout the Community. This would avoid the above described shortcoming of the coexistence of national schemes. However, given the relatively limited experience with the various price support mechanisms at the national level, in particular with regard to the innovative "green certificate" system, it would be difficult to decide on the appropriate design of such a mechanism. In fact, on the basis of the existing evidence, it is not appropriate, at present, to conclude that either of the existing models should form the exclusive basis of an internal market for RES-E.

In the light of these considerations and in view of the numerous comments received on the issue, the Commission has reached the conclusion not to include in the Directive at this stage rules on price support schemes. This approach has the advantage of providing more time for the preparation of a Community framework, on the basis of experience gained at the national level in the near future, and seems justifiable as long as the share of RES-E benefiting from national price support in the Community is relatively small..

However, in the medium term direct price support schemes should be adapted to the principles of the internal market, firstly in order to facilitate the further development of RES-E through increased possibilities of trade and competition but also to avoid possible conflicts with EC law as the share of RES-E increases.

When considering such an adaptation, not only direct price support schemes but all existing forms of support should be taken into account, in order to get a complete picture and to ensure consistency between the different forms of support. Furthermore, in view of creating a proper level playing field within the internal electricity market, it is also necessary to assess support schemes to conventional sources of electricity and how the latter influence the market for RES-E. Therefore, the Directive provides for an obligation on the Commission to monitor the application of existing support schemes in Member States and, no later than 5 years after the entry into force of this directive, to present a report on experience gained with the application of different national support schemes in Member States. If necessary in the light of the conclusions of this report, the Commission will make a proposal for a Community framework with regard to support schemes for electricity from renewable energy sources. However, in order to provide a certain perspective already at this stage, the directive defines the principles on the basis of which such a future proposal shall be designed, namely:

- compatibility with the principles of the internal electricity market;
- consideration of the characteristics of the different technologies;
- efficiency and simplicity;
- inclusion of sufficient transitional regimes to maintain investors' confidence and avoid stranded costs

It should be noted that this approach does not mean that no Community rules will be applicable to support schemes as long as the future Community framework is not in place. The Commission assesses their compatibility with the state aid rules on the basis of the "Community guidelines on state aid for environmental protection". The Commission has recently presented a draft revised version of these guidelines. These revised guidelines will facilitate the operation of national support schemes for RES-E by providing clear and favourable rules while at the same time ensuring compliance with the state aid rules of the Treaty.

The Commission insists that progress has to be made in adopting its 1997 proposal for a Council Directive, restructuring the Community framework for the taxation of energy products (COM(97) 30 final, of 12.03.1997). This proposal aims to establish a new Community framework which makes it possible to restructure national tax

systems and to better attain national objectives of, inter alia, environment, and energy policy, while respecting a key Community achievement which is the single market.

2.2 Guarantee of origin

There is a need for mechanisms which allow the identification of RES-E within the internal electricity market. Experience gained at national level has shown that consumers are increasingly interested in buying clean electricity, even if it is currently more expensive than conventional electricity. Also, the application of ecologically motivated tax regimes in Member States, for instance, may require the identification of the origin of imported electricity in terms of primary energy source used.

Against this background and in order to permit trade in RES-E to take place effectively, a guarantee of origin system is necessary which will permit purchasers to be certain that the electricity acquired is produced from renewable sources. In the absence of such a system, not only will it be difficult for potential importers to identify RES producers, but the “multiple sale” of RES produced electricity may pose a problem. For reasons outlined in point 2.5 it is suggested to include electricity from large hydro power plants above 10 MW in the certification. Whilst a single EU certification system and control and verification mechanism would in many respects be the most effective approach to this guarantee of RES origin issue, it is proposed that, at least for the time being, each Member State be responsible for issuing the guarantees to RES producers in its territory. The guarantee certificates shall specify the energy sources from which the electricity is generated. In line with the arguments developed in point 2.5, certificates covering hydroelectric installations shall specify whether the capacity is above or under 10 MW. The certificates would be mutually recognised by the Member States. The Commission will, after having consulted national experts, consider the form and modalities that the Member States should follow when issuing the guarantees when reporting on the implementation of the directive. If it is considered necessary, the Commission will propose further measures in this respect at that point.

It has to be recognised, however, that fraud in this area is an issue and must be prevented *ab initio*. The guarantees in question will be valuable and, without appropriate control procedures, susceptible to fraud. To permit effective mutual recognition it is important that mutual confidence exists. To encourage and develop this, the draft Directive proposes that (i) Member States are obliged to put into place appropriate mechanisms to ensure that the issue of guarantees is both accurate and reliable; (ii) Member States are obliged to report on a yearly basis on the measures taken to ensure that fraud does not exist; (iii) the Commission, on the basis of national reports, produces a regular overall report; and (iv) the “Follow-up Group” of national experts, created in the context of follow-up to the electricity directive, would consider, at least annually, experience in this area, and any measures or improvements that might be appropriate. Furthermore, the Directive stipulates that the Commission will settle disputes, e.g. a dispute between Member States on the validity of such guarantees.

2.3 Administrative and planning procedures (Article 6)

One major barrier to the further development of RES electricity in the E.U. is the administrative and planning procedures that potential generators must meet. This has been highlighted by a number of representative organisations responsible for the wind and other RES producers.

Articles 4-6 of the Electricity Directive provide the basic rules in this respect, notably that where an authorisation procedure is followed, the rules must be objective and non-discriminatory.

However, it should be noted that these rules, often developed for both large generation projects and small RES projects alike, place a significant burden on RES producers given their smaller size, both overall and in terms of average generation site.

In these circumstances, and given the need to encourage the opportunities for RES producers throughout the EU, harmonisation in this area would be likely to produce significant benefits. However, there would also be a number of disadvantages to such an approach. The planning procedures vary significantly from Member State to Member State, and take into account the very different environmental, demographic, and federal structures across the Community.

In such circumstances, and with due regard to subsidiarity, it is proposed not to adopt specific harmonisation in this area.

An effort to make progress in this area is nonetheless necessary. It is thus proposed to require all Member States.

(i) to review the existing measures, planning and administrative, that potential RES producers must meet, to determine which action, if any, can be taken to reduce the regulatory barriers to increasing RES production such as (a) the setting up of a single reception point for authorisation applications (b) ensuring co-ordination between the different administrative bodies involved and the establishment of reasonable deadlines (c) the establishment of a “fast-track” planning procedure for RES producers, (d) where applicable, the possibility of establishing mechanisms under which the absence of a decision by the competent bodies on an application for authorisation within a certain period of time automatically results in an authorisation, (e) the production of specific planning guidelines for RES projects, (f) the identification, at national, regional or local level, of sites suitable for establishing new capacity for generating RES electricity and (g) the introduction of training programmes for the personnel responsible for the authorisation procedures, and

(ii) to publish a report in this respect, outlining the conclusions reached as to what action, will be taken, no later than two years following the entry into force of this Directive. The Commission would, on the basis of the Member States reports, present a report on the experience of Member States, highlighting best practice.

2.4 Grid connection and reinforcement issues (Article 7)

Producers of RES-E must be sure of that they can feed-in electricity to the transmission grid. This is of particular importance for RES-E being often small

projects and, thus economically vulnerable towards interruptions in feeding in their electricity.

Therefore, the draft directive contains a provision whereby 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.

In addition, renewable electricity (RES-E) generators wishing to feed electricity into the grid have to be connected, which may require expensive installations, especially for wind electricity often located in areas remote from the grid. Connection costs may thus considerably increase the investment costs and inhibit the development of installations. This is particularly the case, due to the small size of many renewable generators: the connection costs represent a significantly larger part of the total per site investment for a RES-E installation than for a conventional plant.

In addition, as new generators are connected, strengthening of the grid, i.e. installation of new or upgraded power lines may be necessary. The question of who has to pay for these grid-strengthening investments may affect the rate of uptake of RES-E in general.

On the other hand, the connection of a new generator can have benefits for the grid system; if connected at the appropriate part of the system, a new generator can reinforce the grid system by its mere existence and would thus stretch or assist the network. Consequently, reinforcements intended by the grid-operator become unnecessary or can be postponed.

To function properly, the internal market in electricity has to provide a level playing field for all existing and potential producers of electricity. This requires that charges put on renewable generators related to the grid-system correctly reflect the economic costs and benefits associated with the connection, in order to avoid that connection and grid-system costs become unfairly prohibitive.

It should be noted that the Electricity Directive in Article 7(2) provides that Member States must to ensure that technical rules and operational requirements concerning the connection of generators to the transmission grid are developed in an objective and non-discriminatory manner and are published. However, a comparable provision regarding the distribution system does not exist.

It has been suggested, as a general rule, that connection costs of renewable generators should be borne by the grid operator, to facilitate deployment of RES installations. It is doubtful whether this approach can be considered appropriate. In fact, it would lead to a situation where the distance to the grid would be irrelevant to potential investors. Such an approach would thus encourage non-economic installations. On the contrary, to ensure the correct development of the RES sector in the EU, it is important that all relevant investments are fully taken into account, including grid connection costs.

It does not seem appropriate to set mandatory rules on cost sharing with regard to connection and other grid system costs at the European level. However, it should be ensured that the rules at Member State level comply with some general principles:

- the full costs and benefits associated with the connection of a new RES-installation should be made transparent;
- future costs and benefits to the grid-system, such as avoided or postponed reinforcement, should be taken into account;
- there should be rules foreseeing compensation payments if subsequent persons connecting to the grid benefit from a grid asset (connection or strengthening) associated with and paid for by a first person connecting to the grid.

As regards the benefits RES-electricity installations can provide to the grid system in terms of avoided system losses, Member States should ensure that these benefits are fully reflected in the relevant tariff systems.

Pursuant to Article 8 (4), Member States must in the report to be prepared regarding the reduction of regulatory barriers (Article 7 (2)), also consider the measures to be taken to facilitate access to the grid system of electricity generated by renewable energy sources. These measures shall include the possible introduction of two-way metering.

2.5 Definitions in this proposal (Article 2)

The basic definition of RES-E adopted for the purposes of the draft Directive is electricity generated from renewable non-fossil fuels, and notably “wind solar, geothermal, wave, tidal, hydroelectric installations with a capacity below 10 MW and biomass” where biomass is defined as products from agriculture and forestry, vegetable waste from agriculture, forestry and from the food production industry, untreated wood waste and cork waste. Thus the obligations contained in the Directive with respect to national targets for consumption of electricity from renewable sources of electricity (Article 3), the issuing of guarantees of origin of electricity from renewable energy sources (Article 6), administrative procedures (Article 7), and grid system issues (Article 8) must be met by Member States with respect to all the above-mentioned RES-E sources..

Starting with the adoption of the White paper on renewable sources of energy, the Commission consistently held the position that large hydro is clearly a renewable energy source. The Commission also found that large hydro is in general competitive and does not need particular support. However, there exist good arguments of including large hydro for the purposes of national targets (Article 3) and the guarantee of origin (Article 5):

The 12 % indicative objective of the White paper included electricity produced from large hydroelectric installations. Therefore, it is consistent with the White paper objective that the targets with regard to future consumption of RES-E to be set by Member States at national level shall include electricity from large hydro. It would of course be possible to carve out mathematically large hydro from the White paper objective and the Member States’ targets, but this would lead to a corresponding reduction of the well-known 12 % objective and related national targets, and could give rise to confusion.

Furthermore, insofar as large hydro is recognised by the Commission as a renewable source of energy, its certification provides value added to the consumer who has a

legitimate interest as to whether the electricity is produced from renewable energy sources, in particular in the context of voluntary purchasing schemes.

However, as large hydro is in principle competitive, and in the absence of evidence to the contrary, there is no reason why large hydro should benefit from a future harmonised European wide support system, e.g. a green certificate system. Article (5) thus stipulates that certificates shall specify, in the case of hydroelectric installations, whether the capacity is above or under 10 MW. This will allow to exclude large hydro from having access to a harmonised support system.

2.6 Review of the Provisions of this Directive (Article 8)

The objective of this Directive is to promote a significant increase in the share of RES-E throughout the Community. Therefore, the development needs to be closely monitored and, if the results are lacking, necessary action must be taken. It is therefore suggested that the Commission produces detailed reports to the Council and European Parliament on the implementation of this Directive, taking into account:

- progress made pursuant to the Electricity Directive 96/92/EC,
- progress made in meeting the climate change commitments,
- progress made in reflecting the external costs of electricity produced from non-renewable energy sources,
- the impact of support schemes and state aid with regard to both electricity from renewable energy sources and electricity not generated from renewable energy sources, and
- the national reports on domestic RES-E objectives and their success in meeting them, c.f. the requirement of Article 3,

The report will, if necessary already be presented 2 years after the entry into force, but in any event will be presented no later than 31 December 2004. A final report shall be made by the Commission no later than 1 January 2009.

The reports will include, if appropriate, concrete proposals for further progress in this area.

3 EXPERTS GROUP

Pursuant to the subsidiarity principle, much of the detailed implementation of this Directive will be undertaken at national level. The experience of the different Member States, and benchmarking as to the results achieved, will be fundamental in developing a coherent and effective systems of RES support and trade at EU level. Experiences of implementation of the Electricity Directive have already demonstrated the importance of such an approach. It is therefore proposed to use this “Follow-up Group” for this purpose.

4 IMPACT ON BUSINESS

The introduction of an obligation for Member States to take positive steps to set targets for domestic RES-E consumption and identify the measures to achieve them is likely to give an important impetus to the development of the RES sector. Today, EU companies are amongst the world leaders in developing new RES-E technologies and the introduction of this impetus to increasing RES-E levels will allow these companies to maintain and even improve the competitive edge. This initiative will especially have significant effects on SMEs, as they constitute an important part of the sector.

Furthermore, the progressive implementation of a single market for RES-E will promote cost efficiency. The undertaking for Member States to review the existing legislative and regulatory framework in order to reduce the regulatory barriers via streamlining and expediting the administrative procedures involved in the planning process will also improve the business environment. This is especially important for SMEs which often do not have the same expertise as large companies in dealing with the planning authorities.

5 CONSULTATION DURING THE PREPARATION OF THE PROPOSAL

This proposal follows the 1997 White Paper on Renewable Energy Sources as well as the first Harmonisation report and the Working Paper "Electricity from renewable energy sources and the internal electricity market". These papers have been widely discussed between the Commission services and Member States agencies, industries, professional associations and non-governmental organisations. The Commission has also participated in the public hearing of the European Parliament on "a Directive on network access for electricity from RES - a comparison of existing systems across the EU, their functioning in practice, their compatibility, the way forward". Furthermore, the Advisory Committee on Energy, which comprises representatives from generators of conventional and of renewable sourced electricity, trade unions, consumer groups, and environmental groups, has been consulted on a number of questions relevant to the proposed Directive. Member States have also been asked to provide information on their support schemes. This information was published in a Commission Staff Working document "Support of electricity from renewable energy sources in the Member States".

Furthermore, Member States were consulted on the basis of an orientation paper distributed at the Energy on 2 December 1999 and outlining key issues and options with regard to a Community framework on RES-E

Specific consultation with the electricity supply industry and organisations representing the RES industry on the administrative procedures and grid reinforcement issues has also taken place.

6 CONCLUSIONS

The adoption of this draft Directive is an important part of the Community strategy to further expand the share of electricity from renewable energy sources in the EU

and, therefore, an important step towards the meeting of the EU's climate change commitments, set and accepted at Kyoto.

Its entry into force at this time will create a dynamic for increasing levels of RES-E in the EU. This would not only benefit EU citizens and industry, but would also provide a major boost to EU industry in the RES plant and equipment sector where EU industry is already a world leader in the EU and on the export markets.

Such a development would produce benefits both to employment and the E.U.'s technological and industrial base. The positive impact on employment was confirmed by a study that was carried out during 1998-1999, evaluating the employment and economic benefits of renewable energies in the EU.³

This proposal for a Directive will not lead to additional expenses for the Community budget. Expenses related to implementing and monitoring this proposal for a directive will be covered by the multiannual programme for the promotion of renewable energy sources in the Community (Althener) running till 2002.⁴

³ The study was funded by the European Commission under the Althener programme: The impact of renewables on employment and economic growth. (Contract number 4.1030/E/97/009.

⁴ OJ L 79, 30.3..2000, p.79

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on the promotion of electricity from renewable energy sources in the internal electricity market

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,

Having regard to the proposal from the Commission⁵,

Having regard to the opinion of the Economic and Social Committee⁶,

Having regard to the opinion of the Committee of the Regions⁷,

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

Whereas:

- (1) The potential for exploitation of renewable sources of energy is underused in the Community at present, and it is therefore necessary to take measures to ensure that the potential is better exploited within the framework of the internal electricity market;
- (2) Directive 96/92/EC of the European Parliament and of the Council of 19 December 1996 concerning common rules for the internal market in electricity⁸ provides for an important step in the completion of the internal market in electricity;
- (3) Article 6 of the Treaty requires environmental protection requirements to be integrated into the definition and implementation of the Community policies and actions;
- (4) The promotion of electricity from renewable sources of energy is a high Community priority⁹ as outlined in the White Paper on Renewable Energy Sources, for reasons of security and diversification of energy supply, for reasons of environmental protection and for reasons of social and economic cohesion;

⁵ OJ C , , p. .

⁶ OJ C , , p. .

⁷ OJ C , , p. .

⁸ OJ L 27, 30 January 1997, p.20

⁹ Communication from the Commission: Energy for the future: Renewable Energy Sources - White Paper for a Community Strategy and Action Plan (COM (97) 599 final) ; Council Resolution of 8 June 1998 on renewable sources of energy (OJ no. C 198, 24.6.1998, p. 1); Resolution of the European Parliament on the above Communication from the Commission (A4-0207/98)

- (5) In particular the Council in its Resolution of 8 June 1998 on renewable sources of energy endorsed the 12 % objective of 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;
- (6) Increased efforts at the Community level as well as in Member States at all levels are necessary to achieve the indicative 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 on renewable sources of energy; furthermore, in that 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 Annex 1 to this Directive, this indicative objective of 12% results in a 22.1% share of electricity produced from renewable energy sources.
- (7) A harmonised framework on electricity from renewable energy sources forms part of the Action Plan outlined in the White Paper on renewable sources of energy;
- (8) 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 eventually in the policy package to meet further commitments; the net environmental effects of different renewable energy sources will be taken into account when implementing different measures
- (9) The increased use of electricity from renewable energy sources is not only necessary to reduce greenhouse gasses but also to reduce other harmful emissions such as emissions of SO₂ and NO_x;
- (10) The Council¹⁰ and the European Parliament¹¹ 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 underlined that binding and ambitious renewables targets at the national level are essential to results and to achieving the EU targets¹² in accordance with the principle of subsidiarity, 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;
- (11) Electricity generated by large hydro plants, though being currently the most important form of electricity generated from renewable energy sources, is generally competitive with electricity produced from conventional sources and is therefore excluded from the scope of this Directive, except with regard to the provisions on national targets and certification of origin;
- (12) To ensure increased market penetration of electricity from renewable energy sources in the medium term it is necessary to require all Member States to establish national

¹⁰ Council conclusion 8013/99 of 11 May 1999

¹¹ A4-0199/98, European Parliament 26.05.1998, Resolution on electricity from renewable energy sources.

¹² A5-0078/2000, European Parliament, 30.03.2000, European Parliament resolution on Electricity from renewable energy sources and the internal electricity market

targets for the consumption of electricity from renewable sources as well as detailed plans for the achievement of these targets;

- (13) It is necessary that these 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 on Renewable Energy Sources and the Climate Change commitments accepted by the Community at Kyoto, and with any national climate change commitments accepted within this context; annex 1 to this Directive establishes a framework based on well-established and transparent methodologies for the elaboration of such national targets;
- (14) The Commission shall evaluate Member States' national targets and policies and in particular their compliance with the White Paper and the Community Climate change commitments and shall, if necessary, present proposals to the European Parliament and to the Council with respect to individual and mandatory national targets in view of achieving such compliance
- (15) Increased possibilities of trade and competition would help increase the share of RES-E in the EC by bringing down costs and facilitating the full exploitation of the potential for RES development in the EC, depending inter alia on geographical circumstances.
- (16) 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, even if hydroelectric installations with a capacity above 10 MW are not considered to be a renewable energy source in the sense of the Directive as they are generally competitive with electricity produced from conventional sources, it is important that the provisions on the guarantee of origin apply to them.
- (17) 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; such public support however has to be provided without prejudice to the EC Treaty and in particular its Articles 87 and 88.
- (18) 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;
- (19) 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;

- (20) 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 to oblige the Commission to monitor the situation and, no later than 5 years after the entry into force of this directive, to 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 will make a proposal for a Community framework with regard to support schemes for electricity from renewable energy sources. This proposal shall be compatible with , the principles of the internal electricity market; it shall take into account the characteristics of the different technologies, it shall be efficient and simple, and it shall include sufficient transitional regimes to maintain investors' confidence and avoid stranded costs.
- (21) Until a Community-wide framework is established, national support schemes are subject to the Community state aid rules of the Treaty, in particular as specified in the Community Guidelines on the State aid for environmental protection
- (22) 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;
- (23) Increased market penetration of electricity from renewable energy sources will allow for economies of scale, thereby reducing costs;
- (24) 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 through the implementation of this Directive, thus improving the employment opportunities for companies in this sector;
- (25) 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 receiving permission to construct plants producing electricity from renewable energy sources;
- (26) 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:

1. “renewable energy sources” shall mean renewable non-fossil fuels (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);
2. “electricity from renewable energy sources” shall mean electricity generated by plants using only renewable energy sources; the part of electricity produced from renewable energy sources in hybrid plants using conventional sources of energy, in particular for back-up purposes, may be included in this definition;
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, such as, for instance, 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);
5. the definitions in Directive 96/92/EC are valid.

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 as mentioned in paragraph 2 below. 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 hereafter every 5 years, 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 EU electricity consumption by 2010 as referred to in Annex 1 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.

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 reports from the Member States, assess to which extent the national targets, individually and collectively, are consistent with the objectives outlined in the White Paper on Renewable Energy Sources from 1997 and the Climate Change commitments accepted by the Community in Kyoto, and with any national climate change commitments accepted within this context. The Commission shall, in an annual report, publish its conclusions.
4. The Commission shall, if the report mentioned in paragraph 3 concludes that the national targets are liable to be inconsistent with the objectives outlined in the White Paper on Renewable Energy Sources from 1997 and the Climate Change commitments accepted by the Community in Kyoto, and with any national climate change commitments accepted within this context, 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*

1. The application of support schemes shall be without prejudice to the EC Treaty and in particular its Articles 87 and 88.. The Commission shall monitor the application of support schemes in Member States and shall, no later than 5 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 this report, the Commission will, if necessary, make a proposal for a Community framework with regard to support schemes for electricity from renewable energy sources. This proposal shall:
 - be compatible with the principles of the internal electricity market;
 - take into account the characteristics of the different renewable energy technologies
 - be efficient and simple;
 - include sufficient transitional regimes to maintain investors' confidence .

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 in the sense 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. Such guarantee certification shall serve to enable producers of electricity from renewable energy sources to demonstrate that the electricity they sell is produced according to the definition of electricity from renewable energy sources contained in Article 2 (2). 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. The Commission will settle disputes.
3. Member States shall designate a competent body, independent from generation and distribution activities, to issue such guarantee certificates in the year following the entry into force of this Directive.
4. Member States shall put into place appropriate mechanisms to ensure certification is both accurate and reliable and they shall outline in the report mentioned in Article 3 (2) the measures taken to ensure such reliability of the certification system
5. After having consulted national experts, the Commission will in the report mentioned 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 Council and European Parliament the adoption of common rules in this respect.

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 a report on the above review setting out the action which will be taken to reduce regulatory and non-regulatory barriers to increasing production of electricity from renewable energy sources. They shall publish this

report not later than two years after the entry into force of this Directive. In this report they will, in particular, consider the following issues:

- co-ordination between the different administrative bodies concerned with the procedure for authorisation of generation plants producing electricity from renewable energy sources;
 - reasonable deadlines for dealing with applications for authorisation of such plants;
 - the establishment of a fast-track planning procedure for producers of electricity from renewable energy sources;
 - 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;
 - 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;
 - the identification at the national, regional or local level of sites suitable for establishing new capacity for generating electricity from renewable energy sources;
 - specific planning guidelines for projects for electricity from renewable energy sources;
 - the designation of an authority (a public or a private body) to act as mediator between authorities responsible for the granting of authorisations and applicants for authorisations in the case of disputes between these parties; and
 - 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 Member States reports, 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 the 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 mentioned 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, this report shall examine the necessity to introduce two-way metering.

Chapter VI

Final provisions

Article 8

Taking into account, inter alia, progress made in the European Community by 1 January 2004 pursuant to Directive 96/92/EC, as well as progress made in meeting climate change commitments, and on the basis of the reports issued by Member States pursuant to Article 3(2) and Article 6(2), the Commission shall, if necessary, 2 years after the entry into force of this directive and in any event no later than 31 December 2004 present a report on the implementation of this Directive. A final report shall then be made by the Commission no later than 1 January 2009. 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. 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 accompany the reports with further proposals to the European Parliament and the Council.

Article 9

1. Member States shall bring into force the laws, regulations and administrative provisions necessary to comply with this Directive within one year of its publication. They shall forthwith inform the Commission thereof.
2. When Member States adopt these provisions, they shall contain a reference to this Directive or be accompanied by such 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.

Done at Brussels,

For the European Parliament
The President

For the Council
The President

ANNEX 1

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 recital (14) of the preamble.

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 study¹³ 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 1999¹⁴.
- 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.

¹³ 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.

¹⁴ Energy in Europe – European Union Energy Outlook to 2020, special issue November 1999, European Commission – the Shared Analysis Project.

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 scenario¹⁵ 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 programme¹⁶.

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.

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 2010¹⁷. The indicative targets per Member State are expressed as a percentage of gross electricity consumption by 2010¹⁸. 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.

¹⁵ See footnote 14.

¹⁶ SAFIRE, European Commission, Directorate General XII, Science, Research and Development, 1995.

¹⁷ 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.

¹⁸ For the purpose of this directive, article 2 has defined "consumption of electricity" as domestic electricity production, plus imports, minus exports (gross consumption).

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

	Percentage*	<i>TWh</i>
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

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.