

# **CLIMATE CHANGE POLICIES**

## INTRODUCTION

**B**ecause of previous attempts to reduce air pollution, energy producers and users in Western Europe were already becoming accustomed to regulatory interference at the Community level by the early 1990s. However, the acceptance of global warming as a very real possibility, along with all the potential calamities for the globe, set in motion an international operation which threatened to have a complex and far-reaching impact on the energy industries. The EC, in particular, took up the challenge of developing a strong climate change strategy for itself, while, at the same time, pressing for the United Nations to do the same.

The first significant breakthrough occurred at the UN Conference on Environment and Development (UNCED), held in Rio in 1992, which resulted in the signature of a Framework Convention. The EC agreed to stabilise its CO<sub>2</sub> emissions at the 1990 level by 2000. In order to do this, the Commission proposed a package of measures. A programme of assistance for energy saving projects (SAVE) was already under way, but four new proposals were suggested: a greenhouse gas monitoring mechanism, a Directive for energy efficiency measures, a new programme of grants to encourage renewables (Altener), and a CO<sub>2</sub>/energy tax. The tax apart, which has remained a controversial aspect, these measures made up the first concrete actions of the Community's climate change strategy. With modifications, they have also remained the core of the strategy throughout the decade.

The next important phase occurred in the run-up for, and reaction to, the First Conference of the Parties of the Framework Convention in Berlin in 1995. The EU's environment ministers had agreed to call for a binding protocol on reduction targets beyond 2000, and the Conference agreed that more measures to combat climate change were needed. The Commission presented a working paper on how the Community could cut CO<sub>2</sub> emissions 10% by 2010.

The so-called Berlin mandate led to exhaustive negotiations, not only by the Convention parties but between the Member States within the EU, and these climaxed at the Third Conference of the Parties in Kyoto in December 1997. In the run-up to Kyoto, the Commission adopted two key papers, one on energy and climate change, and a more important but general paper describing how the EU could meet a 15% reduction target as proposed by the environment ministers. Because the Kyoto agreement set slightly different targets and objectives to those decided in the EU's negotiating position, the Commission and the Council were expected to negotiate new internal arrangements during 1998.

This chapter looks briefly at the first target for stabilisation by 2000 and at two of the policies the Commission said in 1992 were necessary to achieve that aim: the monitoring mechanism and the CO<sub>2</sub>/energy tax. (A subsequent proposal, succeeding the CO<sub>2</sub>/energy tax idea, for revising the energy taxation framework is dealt with in Chapter Three.)

The bulk of the chapter, though, discusses the preparations for Kyoto, and the policies which make up the Community's current climate change strategy. More detail on some of these is found in other chapters (RTD, for example, in Chapter Eight, and the Energy Framework Programme in Chapter Two), but the two key areas of energy saving and renewables are covered fully here. There is also a brief introduction to transport issues. Apart from a short section on methane, this chapter focuses almost exclusively on CO<sub>2</sub>, partly because most of the climate change strategies are directed at CO<sub>2</sub>, and partly because of the direct link between CO<sub>2</sub> and fossil fuel use.

## THE FIRST PHASE - POLICIES FOR STABILISATION BY 2000

The Commission launched a debate on the greenhouse effect in 1989 with its ground-breaking paper on "Energy and the environment". This was followed, in June 1990, by the Dublin summit of EC leaders pressing for the earliest adoption of targets for limiting greenhouse gases; and, in October 1990, by an agreement at the first ever joint Energy and Environment Council on a Community commitment to stabilise CO<sub>2</sub> emissions by the year 2000 at 1990 levels. In mid-1992, the EC signed up to the same target at Rio within the Framework Convention on Climate Change.

Prior to Rio, the EC had already set in motion a programme of specific actions for energy efficiency (SAVE) for the period 1991-95, and the energy technology demonstration programme

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Thermie (Chapter Eight). The Commission proposed several additional measures that would be necessary if the Community was to reach its target, a more substantial programme of energy efficiency measures, an action programme for renewables, and a CO<sub>2</sub>/energy tax. It also proposed a monitoring mechanism to be used to check the progress of Member States and the EC towards their respective targets.

### The first CO<sub>2</sub>/energy tax proposal

The Commission's original proposal for a combined CO<sub>2</sub>/energy tax of around Ecu17.75/toe, and rising to over three times that level within seven years, was put forward in 1992. It argued that higher prices caused by the tax would lead to increased energy saving and that the 50% weighting in the tax based on CO<sub>2</sub> emissions would encourage a shift away from fossil fuels. Throughout 1993 and 1994, there were intense discussions in the Council: about half the Member States - Belgium, Germany, Denmark, Luxembourg, Netherlands and Italy - enthusiastically supported the proposal; France insisted on a strong CO<sub>2</sub> component; the UK doggedly opposed any mandatory EC measure, and the Cohesion countries - Spain, Portugal, Ireland and Greece - required exemptions.

*Failure of first attempt at a CO<sub>2</sub>/energy tax*

With unanimity necessary for such a proposal, the EU leaders finally faced the inevitable at the Essen European Council in December 1994. The German Presidency stated: "*The European Council has taken note of the Commission's intention of submitting guidelines to enable every Member State to apply a CO<sub>2</sub>/energy tax on the basis of common parameters if it so desires. The Ecofin Council is being instructed to consider appropriate parameters.*"

Nevertheless, the Commission persevered with a more centralised approach. In early 1995, it was predicting (in its so-called Options paper - see below) that without the CO<sub>2</sub>/energy tax, the EU would fail to meet its stabilisation target by 5-8%. Moreover, it said, such a marketplace signal would be necessary for the climate change strategy beyond 2000. Consequently, it put forward a revised proposal with "elements of flexibility" designed to overcome the obstacles that had emerged during the Council discussions.

### The Commission's second attempt at a climate change tax

The new draft still required Member States to apply a harmonised tax on coal, lignite, peat, natural gas, ethyl and methyl alcohol (and other motor fuels), electricity and heat. The proposal, moreover, included more exemptions and transition periods than the earlier one, and made use of the Community's excise tax framework for oil products. Significant allowances were proposed for high energy consuming industries and firms that made substantial energy saving investments.

In the second half of 1995, the Spanish Presidency attempted to rally finance ministers into agreement on this new text but, at the 23 October meeting, the old groupings re-emerged as strong as ever, particularly over a reference to the need for a harmonised tax after 2000. The meeting closed with the Presidency calling for yet more reports from the Commission on how such a Directive would cover the CO<sub>2</sub> objectives and on the possibility of further convergence between the proposal and the excise tax system.

*Ecofin Council rejection of revised proposal for the climate change tax*

In March 1996, the Ecofin Council formally rejected the proposal but, despite the best efforts of the Italian Presidency, was unable to provide any new guidelines for the Commission. However, five delegations - Germany, Austria, Finland, Sweden and Denmark - added a Declaration in the minutes calling on the Commission to prepare a framework encompassing a global context for energy taxation. A year later, the Commission put forward a major proposal to revise and extend the excise tax framework taking environmental considerations into account (Chapter Three).

The European Parliament never completed an Opinion on the Commission's CO<sub>2</sub>/energy tax because the rapporteur was all too aware of the difficulties in the Council and the fact that, behind the scenes, the proposal was undergoing a number of substantial rewrites. However, the Parliament has repeatedly expressed, in Resolutions and Opinions, its strong support for a switch of taxation from labour to natural resources and, in particular, for a CO<sub>2</sub>/energy tax.

The same cannot be said for industry. A large number of companies, through trade organisations such as Europa and Eurelectric, and through the umbrella federation, Unice, protested vigorously against the original proposal for a CO<sub>2</sub>/energy tax, and then redoubled their protests when the Commission put forward an amended proposal. The gist of industry's argument was that the tax would undermine the competitiveness of European industries, thereby reducing the resources available for investing in new and increasingly energy efficient technology.

**A mechanism to monitor CO<sub>2</sub> emissions and programme implementation****Chapter Four B**

A far less controversial part of the original climate change package was the greenhouse gas monitoring mechanism adopted in 1993. The Council Decision is still important today in terms of providing the Environment Directorate-General (DGXI) with information on national statistics and policy implementation for use in assessing both the EU's own strategy and its contribution to the UN Framework Convention. It requires each Member State to implement a national programme for limiting CO<sub>2</sub> emissions and it sets out the information that a State must include in the programme:

- its 1990 base year anthropogenic emissions of CO<sub>2</sub>;
- inventories of its CO<sub>2</sub> emissions by sources and removal by sinks;
- details of national policies and measures which contribute to CO<sub>2</sub> emissions;
- trajectories of its national CO<sub>2</sub> emissions between 1990 and 2000;
- measures being taken or envisaged for the implementation of relevant EC legislation and policies;
- a description of policies and measures to be taken to increase the sequestration of CO<sub>2</sub> emissions;
- an assessment of the economic impact of the above measures.

There is also a requirement to forward the programmes to the Commission, and a mechanism for their evaluation.

A first report on national programmes, completed by the Commission in early 1994, concluded there were still large gaps in the information being provided by Member States. In its second report, in 1996, the Commission said there had been a considerable improvement in the national programmes since the first drafts were submitted in 1993, but that it was far from satisfied with the quality of the information provided by some Member States - Germany, France, Italy and the UK, for example, which accounted for 72% of emissions in 1990 - especially with regard to implementation of measures. "This is a crucial element in the assessment of progress", the Commission said.

*Commission reports on state of national programmes*

The key analysis in the report concerned the expected trajectory of emissions in the year 2000. A calculation based on the Member States' own forecasts suggested the EU would reduce CO<sub>2</sub> emissions by 0.8% in 2000, compared to 1990. However, many of the measures listed in the Member States' programmes, and required to meet their trajectories, had not yet been implemented, the Commission noted. For example, six Member States stated they needed a CO<sub>2</sub>/energy or CO<sub>2</sub> tax to meet their targets, but no such taxes were yet evident. Consequently, the Commission used two other scenarios. One was a modified trajectory with consistent growth and fuel price assumptions which indicated a 3% overshoot; and the other was a Commission projection based on DGXVII's 2020 study which indicated a 5% overshoot.

*A 3-5% overshoot in CO<sub>2</sub> emissions forecast*

**Revised mechanism for monitoring beyond 2000**

In September 1996, the Commission put forward a proposal to adapt and extend the monitoring mechanism in order to meet the reporting needs of both the Community and the Framework Convention in the post-2000 period. It was also concerned to amend the process so that the mechanism would be applied to anthropogenic emission by sources and removals by sinks of all greenhouse gases (not already controlled by the Montreal Protocol).

The Parliament supported the new proposals but called for the Member States to report every year on the cumulative emissions of each greenhouse gas since 1990 and on the projected cumulative emissions of each gas for each year over the periods up to 2005, 2010 and 2020. Cumulative monitoring was needed, the MEPs said, because otherwise a country's emissions could be excessive throughout a given period, but lowered during the last year or two just in time to meet the target. However, the Environment Commissioner Ritt Bjerregaard rejected this amendment because it would impose additional expense without sufficient advantage.

The Council delayed making a decision on the new mechanism until after Kyoto in order to ensure its compatibility with the requirements of the new Protocol. Environment ministers reached political agreement on a Common Position in March 1998. According to the draft Decision, the Member States will implement national programmes for a variety of reasons:

- limiting and/or reducing their anthropogenic emissions by sources, and enhancing the removal by sinks of greenhouse gases, in order to contribute to the stabilisation of CO<sub>2</sub> emissions by 2000 at 1990 levels;
- the fulfilment of the EC's commitments under the Climate Change Convention and Kyoto Protocol;
- the transparent and accurate monitoring of the actual and projected progress of Member States, including the contribution made by Community measures, in meeting any agreed national contributions to the EC's international commitments.

*Council agreement on new mechanism adapted to Kyoto Protocol*

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Member States will determine their emissions for all greenhouse gases (not controlled by the Montreal Protocol on ozone depleting substances) according to the methodologies agreed upon in Kyoto, and report them to the Commission on an annual basis. In this way, the Commission will be able to compile inventories for the Community as a whole and assess the progress of the Member States and the Community towards meeting their various commitments.

### PREPARATIONS FOR KYOTO AND A LEGALLY BINDING PROTOCOL

Environment ministers, meeting in December 1994, agreed a first set of Conclusions setting an agenda for a Community climate change strategy beyond the year 2000. The Council said it considered the commitments, aimed at returning greenhouse gas emissions to their 1990 levels by the year 2000, "to be inadequate to achieve the ultimate objective set out in Article 2 of the Convention to stabilise greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system". The Council affirmed that these commitments must be strengthened and extended to combat adverse effects on the climate. More specifically, the Council said it was necessary to further limit and reduce CO<sub>2</sub> emissions.

A few weeks before the First Conference of the Parties in Berlin in April 1995, the Council extended its commitment to a protocol and said it should cover: all greenhouse gases, their sources and sinks, in all relevant sectors; specific commitments of developed countries and participation in time of non-developed countries; policies/measures and targets; the regular review of commitments on emissions; provisions to exchange and coordinate information on national measures; and provisions relating to public access to information, such as on energy use and national policies.

More or less at the same time, the Commission put forward a working paper in which it presented a formidable list of options for a climate change strategy beyond 2000. The Commission estimated that if all the cost-effective technical potential of options in the paper were to be exploited, there could be a 20% saving in CO<sub>2</sub> emissions by the year 2010. Part of this would be taken up meeting the stabilisation of CO<sub>2</sub> emissions by 2000. A further 10% reduction could be achieved by the year 2010 through extending the 'no-regrets' measures (i.e. those measures which would be cost-effective in themselves). Half of this extra 10% figure came from calculating that more costly energy saving and renewable technologies were likely to be cost-effective when overall benefits were taken into account. The other 5% would come from the transport sector, the Commission advised.

*The options paper for a 10% reduction in CO<sub>2</sub> emissions by 2010*

### **Berlin mandate granted by First Conference of the Parties**

The Berlin meeting concluded by granting a mandate to the developed countries to take the lead in combating climate change and its adverse effects, and to negotiate a protocol setting quantified limitation and reduction objectives within a specified time frame. The agreement accepted that developing countries might need to increase their emissions as their economies expand and acknowledged the possibility of a pilot phase for joint implementation, whereby industrialised states could sponsor reductions in developing countries. Bonn was chosen as the secretariat for the Convention.

A key point came later in 1995 when the International Panel for Climate Change hardened its view significantly with the following statement: "*The balance of evidence suggests that there is a discernible human influence on global climate, and that global temperatures are projected to rise by between 1 and 3.5°C by the end of the next century, compared with 1990, leading to changes in climate patterns and increases in sea levels with the risk of significant damage and disruption.*" The EU's Environment Council said this finding underlined "the necessity for urgent action at the widest possible level".

*A discernible human influence on global climate*

With international discussions on the Berlin mandate becoming stalled, the EU took a decisive, and somewhat surprising, lead in March 1997 when environment ministers agreed to call for a 15% reduction target for CO<sub>2</sub>, CH<sub>4</sub> and N<sub>2</sub>O by 2010 compared to 1990 levels. They stressed, though, that this was simply a negotiating position in advance of the Third Conference of the Parties in Kyoto and that it would be dependent on other developed countries making a comparable commitment.

### **Common and coordinated policies and measures needed**

The key to the ministers' agreement appears to have been an inspired decision to accept a division of only part of the burden - a reduction of only 10% - by means of an emission index for each

Member State (see table), without making any decisions on the remaining 5%. The Council also agreed an indicative list of additional common and coordinated policies and measures (CCPMs):

- a renewable energy programme;
- CHP, fuel switching, and energy efficiency;
- recovery of methane from landfills;
- a modal switch in transportation;
- fuel efficiency improvements for freight and passenger vehicles;
- reduction/removal of fossil fuel subsidies;
- tax schemes (fuel and vehicles, removal of regulations which counteract energy efficiency, higher excise taxes);
- energy efficiency standards for household appliances, office equipment, lighting, heating and air compressors.
- energy efficiency improvements in industry (including large combustion plant);
- limitation of HFCs, PFCs and SF6;
- N2O reduction in the chemical industry;

### Reduction targets for 2010 compared to 1990\* (%)

Luxembourg	-30	Finland	0
Germany	-25	France	0
Austria	-25	Sweden	+5
Denmark	-25	Ireland	+15
Belgium	-10	Spain	+17
Netherlands	-10	Greece	+30
UK	-10	Portugal	+40
Italy	-7		

\* CO<sub>2</sub>, CH<sub>4</sub>, N<sub>2</sub>O together and GWP100 weighted.

Source: Council Conclusions (3 March 1997)

Three months later, in June, the ministers strengthened their negotiating position with a further agreement to cut emissions of the same basket of gases 7.5% by 2005. They also took the opportunity to express their “regrets that not all industrialised countries have come forward with proposals for quantified targets or CCPMs” (meaning the US and Japan), and of commenting on the idea of trading permits: “*The Council considers that mechanisms such as emissions trading are supplementary to domestic action and CCPMs, and that the inclusion of any trading system in the protocol and the level of the targets to be achieved are interdependent. It therefore calls upon all industrialised countries to indicate the targets they envisage for 2005 and 2010.*”

*Further decision to cut emissions 7.5% by 2005*

Two highly important and visible meetings of world leaders took place at the end of June, the Denver summit and the follow-up to Rio, the UN General Assembly Special Session. The forthcoming deadline for agreement on the Berlin mandate was on the agenda at both, but neither the US nor Japan would make any concessions towards the EU 15% reduction target. After Denver, the EU’s President Jacques Santer said: “*I am frankly disappointed that not all our partners were able here and now to take quantified commitments on the reduction of greenhouse gas emissions. . . We must stop the degradation of our climate. The future of the planet is at stake.*”

### The energy dimension of climate change

In response to the Council’s ambitious target, the Commission put forward two Communications. The first, called “The energy dimension of climate change”, predicted that CO<sub>2</sub> emissions would rise 8% by 2010 compared to the 1990 level. In consequence, policy measures would be needed, it said, to reduce CO<sub>2</sub> emissions by at least 20% from a business-as-usual scenario. The paper outlined potential areas for action in energy policy - improved energy saving and management, more use of renewables etc. - very much along the lines of previous papers.

It made one interesting new suggestion: “*If a new major policy initiative is required, we may need to examine very carefully the merits of mobilisation of funds at the appropriate level so as to provide resources for funds earmarked for energy management and renewables.*” Given that the Member States’ expenditure on energy in 1995 was of the order of Ecu500bn, the Commission argued, it should be possible to raise funds to finance energy management and the penetration of renewables: “*A minimum contribution would be sufficient to raise funds to ensure that the policies and measures adopted post-Kyoto are implemented.*”

*Energy ministers’ warning about magnitude of effort needed*

Energy ministers responded to the paper in May 1997 by listing CCPMs with “a high potential for contributing to meeting the reduction objectives to be agreed at Kyoto” and by warning of “the magnitude of the policy effort required from public policy at both EU and Member States’ level, and from behaviour changes by economic actors across the different economic and social sectors”. An agreement in Kyoto on the basis of the existing Community negotiating position would require, in a limited time-frame, “a substantial improvement in both energy and carbon intensities to realise the reduction target, without jeopardising the economic competitiveness and

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development of the EU”, the ministers said. They also invited the Commission to develop an action programme in the field of energy and climate change to support the Member States in achieving their objectives after Kyoto.

### The Commission’s strategy paper in advance of Kyoto

The second and more general paper, “Climate change - the EU approach for Kyoto”, was adopted by the Commission in October 1997 to demonstrate that it was technically feasible and economically manageable for the EU to reduce emissions of the three greenhouse gases 15% by 2010, relative to 1990, as long as the other industrialised countries made comparable efforts. The paper focused on CO<sub>2</sub>, the Commission said, because it is “by far the most important” of the three gases and is responsible for 80% of the impact when they are weighted together according to their global warming potential (GWP).

*Policy proposals needed to boost climate change strategy*

After an analysis of the policy measures already under way in each sector, the Commission argued in the paper that they were insufficient and that additional proposals would be needed, depending on the outcome of the Kyoto talks. It suggested:

- a proposal for significantly increasing the share of renewable energies in the EU’s energy consumption (see below);
- a strategy to increase the use of cogeneration (see below);
- a series of actions regarding standardisation, harmonisation and liability to promote intermodal freight transport;
- revision of the trans-European network guidelines to integrate strategic environmental considerations;
- proposals to improve the overall thermal efficiency of power plants significantly (increased penetration of cogeneration would be particularly effective in this regard, the Commission said).

Fiscal instruments, other market-based tools and related options were also discussed in the paper. These included the potential role of negotiated agreements; the benefits of a switch in the tax burden from labour to energy and carbon intensive production in a revenue-neutral way; the need for socio-economic research, and the problems associated with the culture of a liberalised market in which investors require short-term pay back. The current trend for phasing out coal subsidies “should be continued and accelerated where this brings benefits for emission reduction”, it said, although short-term subsidies for renewables and clean technologies should remain as an additional option.

*Estimated costs and benefits of a 15% reduction in greenhouse gases*

The Communication did not shy away from the costs of the climate change policy. For a 15% reduction in CO<sub>2</sub> emissions compared to 1990, it estimated that the direct compliance costs related to energy supply/demand mitigation actions would range from around Ecu15bn to about Ecu35bn annually by 2010, corresponding roughly to 0.2-0.4% of GDP in the year 2010. However, the Commission also estimated (with the usual provisos over the difficulty of making such calculations) that the global benefits of a 15% reduction in CO<sub>2</sub> emissions by the EU would be between Ecu0.3bn and 101bn/yr, of which only part would actually benefit the EU. The wide range was due to very different forecasts allocated to damage occurring in the distant future.

At the last Environment Council before Kyoto, presided over by the Luxembourg Presidency, ministers agreed Conclusions in which they welcomed the Commission’s Communication and reaffirmed their commitment to the 15% target. The key point of their statement, though, concerned the so-called ‘bubble concept’ as a solution to the question of how a regional economic integration organisation, such as the EU and its Member States, could jointly meet its obligations under a new Protocol.

### The Kyoto agreement for a binding Protocol

The Third Conference of the Parties to the UN Convention on Climate Change concluded a day late on 11 December 1997, after more than a week of intense negotiations. The final compromise, for binding commitments to be contained in a Protocol to the Convention, sets differentiated targets aimed at a collective cut in emissions of six greenhouse gases (CO<sub>2</sub>, CH<sub>4</sub>, N<sub>2</sub>O as wanted by the EU, plus HFCs, PFCs and SF<sub>6</sub>) of 5.2% by 2012. The EU and its Member States have the highest target, at 8%, which they share with several CEEC, while the US agreed to 7% and Japan to 6% reductions. Countries will, though, be able to mitigate their targets through joint implementation under a “clean development mechanism”, and an emissions trading regime. The Protocol also requires some implementation of CCPMs (although not as much as the EU would have liked).

One major source of dispute at the meeting was the EU’s bubble concept. The US and Japan vigorously maintained that this created unfair advantages for the EU, and said the Community

should accept a 3% higher (or penalty) target than other countries or it should accept the principle of differentiation among the parties. Commissioner Bjerregaard noted that “a lot of negotiating effort had to be spent on turning down this idea”. In fact, the EU won agreement that the 8% reduction specified for each of the Member States could be achieved jointly, although the share-out targets must be notified at the time of ratification. Also, if the EU fails to meet its target then each individual Member State will be responsible for its own national target.

On the targets themselves, the US had held strenuously, before Kyoto, to a goal of stabilising greenhouse gas emissions at 1990 levels by 2010. However, it compromised on the targets but with the proviso that they could be eased by emissions trading and joint implementation, something which had been opposed by the EU. The US also reduced the impact of the agreement by saying it would not be ready to send it to the Senate without some commitments from developing countries (which had not been forthcoming at Kyoto).

### **The Kyoto follow-up process**

Meeting in December after Kyoto, both the Environment Council and the European Parliament welcomed the agreement. Bjerregaard told MEPs that it was “history in the making” and a “milestone in international environment policy”. She regretted the fact that the EU had been unable to push the US and Japan any further but noted that an 8% reduction based on six gases is equivalent to a 12.5% reduction based on three gases, and was thus close to the EU’s original negotiating position. With a view to the Fourth Conference of the Parties in Buenos Aires, in November 1998, the Council said it would reach agreement on the following points in particular:

- “a) Defining the principles, means, rules and guidelines for emissions trading;*
- b) increasing understanding and scope of the concept of sinks, introduced in the Kyoto Protocol;*
- c) examining more closely the implications of the introduction in the Protocol of a clean development mechanism.”*

The environment ministers gave further consideration to the Protocol in March 1998. They welcomed it as “a major step forward in the fight against climate change” and agreed that the EU should ratify the agreement. First, however, they insisted on the need for much clearer definitions of the new systems for emissions trading, joint implementation and the clean development mechanism, to ensure that they provide real, cost-effective environmental benefits. The ministers expressed concern about the lack of any interim targets and emphasised the importance of the clause which states that developed countries need to make demonstrable progress by 2005. They also agreed to seek an early deal between themselves on the individual contributions of Member States to the 8% reduction target using the initial distribution agreed in March 1997 as a guide.

*Clearer definitions sought on new mechanisms*

The Commission was expected to put out a further Communication, in May-June 1998, with guidance on how the EU should meet the 8% target for six greenhouse gases, and how it should approach the Buenos Aires negotiations on the unresolved issues, such as emissions trading, joint implementation and the clean development mechanism.

## **ENERGY EFFICIENCY - THE BEDROCK OF CO<sub>2</sub> CONTROL POLICY**

As is apparent from the above, energy efficiency is one of the bedrock policies of the EC’s climate change strategy. The SAVE programme, first put forward by the European Commission in 1991, consisted of two parts: an ambitious action programme including proposed legislation, and a scheme to provide grants for pilot projects and support activities. The action programme was intended to pave the way for a series of important and innovative Directives affecting the way industry and domestic consumers consume energy.

### **Energy efficiency standards and voluntary agreements**

The legislative side of the programme began in 1992 with the Council framework Directive for mandatory energy efficiency labelling on domestic appliances. This allowed the Commission, after consulting Member States’ experts, to issue product-specific rules requiring manufacturers to provide energy efficiency information on labels and fiches. The first Commission Directive, for fridges/freezers, was approved in January 1994 with Member States obliged to implement it from January 1995. Since then, rules for washing machines, tumble dryers, dishwashers and lamps have all been adopted, the latter in January 1998 for implementation by mid-1999. Further labels are planned for other appliances such as ovens and water heaters.

*Commission Directives for energy labelling of appliances*

Also in 1992, the Energy Council approved, after substantial debate, a Directive - the first of its type - defining minimum energy efficiency standards for hot water boilers. The Commission said at the time it could lead to CO<sub>2</sub> savings as high as 7mt of carbon per year by 2010.

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*Mandatory energy efficiency standards for fridges/freezers*

The hot water boilers Directive was followed by a second energy efficiency standards Directive - for fridges and freezers. This was adopted by the Council and the Parliament under the codecision procedure in September 1996, some two years after the Commission presented its proposal and four years after the Dutch government had been refused permission by Brussels to bring in national efficiency standards for fridges. Although early drafts showed an intention to propose two mandatory phases, the actual proposal only required a first stage of standards, equivalent to a 10% increase in efficiency, to be applied to products, defined in eight categories, by 1 January 2000.

In its first reading, the EP had argued for a 20% increase in standards during a first phase; and a mandatory second stage. However, in second reading, it ceded to the Council's Common Position which accepted, by qualified majority, an increase in energy efficiency of 15%. The Italian delegation voted against because it believed the Directive would have a negative impact on its appliance manufacturers.

*Voluntary agreement on standby power for TVs and VCRs*

No further draft standards Directives have emerged since then, but the Commission has worked with manufacturers to develop acceptable voluntary agreements. The first of these, for standby power of televisions (TVs) and video recorders (VCRs) was notified to the Commission in April 1997 by the European Association of Consumer Electronics Manufacturers (EACEM) for negative clearance under the competition rules. Under the agreement, which was devised by EACEM in collaboration with DGXVII and published in the Official Journal in early 1998, the parties undertook to ensure that, from 1 January 2000, all TVs and VCRs placed on the market would have standby power use less than or equal to 10 W, and that the average standby power consumption of all models sold by a manufacturer would not exceed 6 W. The agreement also includes requirements for reporting and independent monitoring.

By 2005 total electricity use in Europe would be 3.2 TWh lower each year than it would be without this agreement, according to Commission estimates, and would represent a saving to consumers of about Ecu480m. By 2010, the estimated saving would be 4.6 TWh/yr or Ecu690m. By contrast, the cost to the industry would be only Ecu11m in redesign of old stock and Ecu65m/yr for the extra cost of components. In view of these benefits, the Commission approved the notified agreement in April 1998, under Article 85-3 of the EC Treaty. A similar type of agreement was notified by washing machine manufacturers in November 1997 and was due for publication and clearance in 1998.

### **The rest of the SAVE legislative programme**

Under pressure to take account of subsidiarity and to act in time for the Rio UNCED, the Commission lumped many of its intended energy efficiency actions into a proposed omnibus Directive "to limit CO2 emissions by improving energy efficiency". This Directive was watered down in the Council and approved in September 1993. It required Member States to "draw up and implement programmes" in six areas:

*The SAVE omnibus Directive*

- energy certification;
- the billing of heating, air-conditioning and hot water costs based on actual consumption;
- third party financing for energy efficiency investments in the public sector;
- thermal insulation of new buildings;
- regular inspection of boilers;
- energy audits of undertakings with high energy consumption.

*No report on SAVE Directive after five years*

The Directive also required Member States to forward information on their programmes to the Commission within two years. It did not, though, give the Commission any powers to intervene. Despite the weakness of the Directive, many Member States delayed transposing it into national legislation, and the Commission began infringement proceedings in 1995 against nine of the Member States for not implementing it on time. In 1996, one case, against Belgium was actually taken to the Court, and several other States were threatened. Later, though, all the infringement proceedings were closed. A report was due from DGXVII in 1996 on implementation of the Directive but had not appeared by early 1998; (however, a Communication on energy efficiency issued in April 1998 recommended enhancing the Directive, see below).

As a complement to the SAVE labelling, standards and omnibus Directives, the Commission also proposed, despite fierce opposition from industry, a draft Directive to introduce rational planning techniques in the electricity and gas distribution sectors. The proposal, put forward in 1995, was aimed at obliging distribution companies to establish development plans giving equal consideration to all economic options on the supply side as well as on the demand side in meeting consumer needs. Action was justified at EC level, the Commission argued, since the

non-introduction of such techniques in one or more Member States would diminish the zero-cost CO<sub>2</sub> reduction potential in the European Community and impose additional costs of CO<sub>2</sub> abatement on other States.

In autumn 1996, the Parliament called for a substantial strengthening of the proposal and for a switch in legal base from Article 130s (which only gave it cooperation rights) to Article 100a (under which it would have codecision powers). The Commission accepted a number of the EP's amendments (though not the switch in legal base) and put out an amended proposal in March 1997. The Council was no more interested in the amended plan than it was in the original. Only Denmark supported it enthusiastically, and many Member States opposed it strongly, although some suggested they might accept it as a Recommendation rather than a Directive. In autumn 1997, the Luxembourg Presidency advised the Commission that the Council could make no progress with the proposal.

*EP support for Directive on rational planning techniques*

As a consequence of the SAVE omnibus Directive and an ongoing deregulation exercise, the Commission and the Council have, in recent years, repealed a number of out-dated energy efficiency laws. Two Commission Recommendations were repealed in November 1995, one designed to encourage the use of third party financing and the other to promote rational use of energy in industrial enterprises. A Council Recommendation on rational use of energy through better driving habits was repealed in December 1996.

In its deregulation reports, the Commission drew attention to a number of other old rules which it wanted to keep for the time being: a Council Directive on space heating/hot water in non-industrial undertakings; a Council Directive from 1979 relating to optional energy labelling of electric ovens (only Denmark has ever implemented this); and Council Recommendations on rational use of energy in urban transport and in industrial undertakings, on advisory bodies to promote CHP, and on investment in rational use of energy. The Commission promised a report about each one, detailing what Member States had done to implement it and why it should be kept on the statute books.

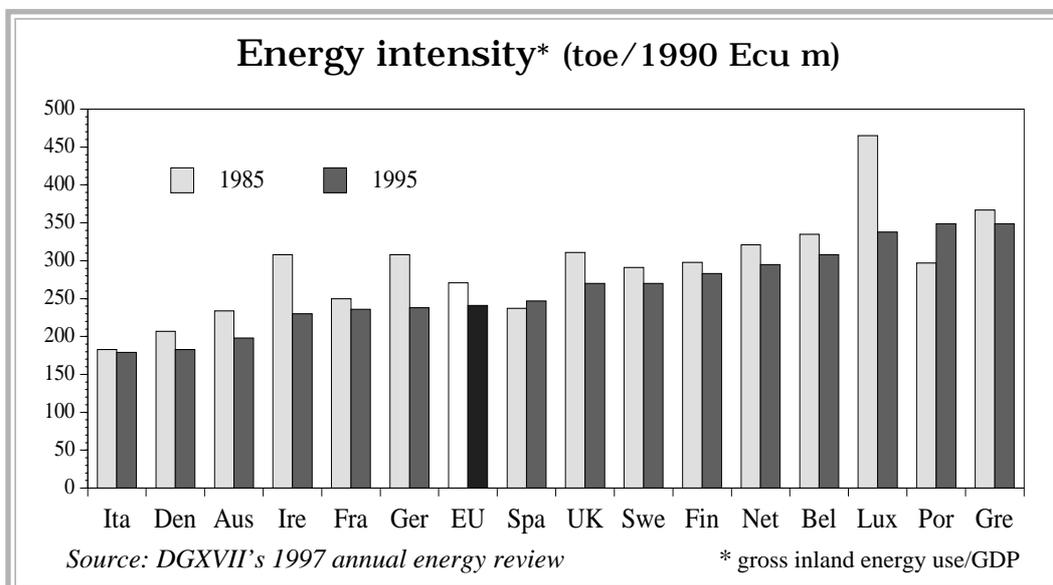
*Deregulation of outdated energy saving rules*

**The SAVE grant programme of projects and promotion**

The legislative action programme was the political side of SAVE, but it also had a practical side of pilot actions and support for Member States' activities. A 1991 Council Decision, setting up the SAVE grant programme, provided Ecu35m for the five year period which finished at the end of 1995. Four categories of action were specified: technical evaluations for standards; measures to support Member States' initiatives for infrastructure; measures to foster an information network; and measures to implement the PACE programme (an earlier scheme for electricity efficiency, then incorporated into SAVE).

A Commission analysis of the programme concluded that most of the projects funded under SAVE would not have gone ahead without Community funding. In some countries, SAVE had become an essential part of the national programme whereas, in others, it had raised the profile of energy efficiency measures, helping to secure sponsors and reassure management. The projects had also improved EU cohesion by physically bringing together actors in a particular sector from different regions and countries.

*Positive analysis of energy efficiency projects*



## Chapter Four B

DGXVII, however, was not so content with the functioning of the 1991-95 SAVE Decision. In the second category, it had allowed Member States to propose actions that were too small and, at the final tally, over 200 individual projects had been financed. This had led to a large administrative burden and a restricted effort in the setting up of cooperative projects and the diffusion of results. On the other hand, the third category, the information programme, had proved more successful through the use of a new network, EnR, which was set up in 1993 by the energy efficiency bodies of the Member States. There was considerable scope, the analysis said, for improving the information strategy through more targeted information networks.

Since the 1980s, DGXVII had also operated another programme, with a strong energy efficiency bias, in support of energy planning in regions, towns and islands (PERU). Unlike SAVE, though, PERU had no legal base and it relied on a budget line of Ecu2-4m each year approved by the European Parliament.

### Six categories of action for SAVE II

In May 1995, the Commission put forward a proposal for a second SAVE programme (SAVE II), incorporating the old PERU programme as one of nine categories of action. It suggested a budget of Ecu150m for 1996-2000. The Council, though, in its December 1996 Decision, cut the budget to Ecu45m and reduced the number of categories to the following six:

- a) studies and other actions leading to the implementation and completion of Community measures taken to improve energy efficiency (such as voluntary agreements and mandates for developing standards) and studies concerning the effect of energy pricing on energy efficiency and on establishing energy efficiency as a criterion within the EC programmes;
- b) sectoral targeted pilot actions aimed at accelerating energy efficiency investment and/or improving consumer energy use patterns, to be carried out essentially by EC-wide networks;
- c) measures proposed by the Commission, or (d) by others, to foster the exchange of experience aimed at fostering better coordination between Community, international, national, regional and local activities by appropriate means for information dissemination;
- e) monitoring of energy efficiency progress in the EC and individual States, and ongoing evaluation of the programme;
- f) specific actions in favour of energy management at the regional and urban level, (i.e. the PERU programme).

Projects in categories a), c) and e) are eligible for 100% grants, and those in categories b), d) and f) are eligible for 50% grants. The programme was also opened up to the CEEC and EFTA countries, and to Cyprus and Malta.

*Row in Council  
over funding for  
SAVE II*

Within the Council, there was a row over the funding. Nine Member States signed a statement in the Council minutes which read as follows: “Belgium, Denmark, Spain, Finland, Greece, Ireland, Luxembourg, Portugal and Sweden regret that it has not been possible to reach an agreement on a more substantial budget as they deem a budget of Ecu45m for the implementation of SAVE II insufficient to meet the important objectives set out for the programme. These countries find this particularly regrettable since it results in a seriously reduced contribution to energy efficiency and to the attainment of the established objective of stabilising the EU’s CO<sub>2</sub> emissions.” The Commission, too, said it deeply regretted the decision and that the Council’s budget was so low as to seriously put into question the achievement of the programme’s objectives for energy efficiency improvement and for the stabilisation of CO<sub>2</sub> emissions.

*Targets for  
improvements in  
energy efficiency*

In its deliberations on the draft SAVE II Decision, the Commission had considered a target of a 15% improvement by 2005, but this was dropped in favour of a more modest aim: “Over the next five years we expect the reinforced SAVE might contribute as much as 1% point more than expected as an improvement to the energy intensity of final demand. This quantifiable goal will be agreed with the Member States and will represent a yardstick against which SAVE II and individual programmes of the Member States can be judged.” The Council declined to give such a target any formal status. Instead it simply noted, in its Decision, that an extra 180-200mt of CO<sub>2</sub> emissions could be avoided by 2000 by an improvement of 5% in the energy intensity of final demand.

### Developing a strategy for cogeneration

In recent years, the Commission has paid increasing attention to the role that cogeneration or combined heat and power (CHP) can play in energy efficiency and reducing CO<sub>2</sub> emissions. In October 1997, it adopted a Communication suggesting a doubling of the share of electricity being produced by cogeneration, from 9% at present to 18% by 2010. It calculated, using “rough

estimates” that achievement of this target could reduce CO<sub>2</sub> emissions by 150mt per year, or approximately 4% of the EU’s total CO<sub>2</sub> emissions in 2010. The strategy proposed a range of elements, many of which were approved by energy ministers.

In a rather positive Resolution, agreed in December 1997, the Energy Council said the aim “should be to establish a strategy that would lead to improved use of CHP, taking into account the varying situation of the Member States”, and that “the indicative target to double the overall share of CHP in the Community as a whole by the year 2010 . . . could give useful guidance for increased efforts at all levels”.

The Council warned that, at present, “the penetration of CHP varies significantly between Member States and that regard must be had to these different situations” such as the use of CHP for district heating and/or CHP for industry purposes. Furthermore, it insisted that assessment of country situations must be based on relevant data on fuel efficiency, and that notice must be taken of the economic differences between various CHP technologies. The Council stressed that “while there is scope for action at Community level, the main responsibility for promoting CHP lies with the Member States”.

*Council Resolution  
on cogeneration*

The Council Resolution mentioned some possible actions:

- *Increased use of existing Community programmes within the budgetary limits;*
- *encouraging negotiated agreements with industry and in the service sector;*
- *internalisation of external costs and environmental benefits;*
- *financial and/or fiscal instruments, where appropriate;*
- *monitoring the impact of the liberalisation of the Community’s energy markets;*
- *measures encouraging market participants to buy energy produced from CHP plants;*
- *arrangements to promote district heating and cooling schemes;*
- *measures to support research and technological development.”*

The Resolution concluded by stating that “the liberalisation of the energy markets and the internalisation of external environmental costs and benefits should take into account the development of CHP under fair market conditions, but that measures might still be needed to support CHP, including district and industrial heating and cooling, and to make sure that it is not discriminated against”. (However, in 1998 the Council failed to open up fully the prospects for CHP in the gas liberalisation Directive - Chapter Three B.)

### **A new energy efficiency strategy for the 21st century?**

In April 1998, the Commission put forward its first general policy paper on energy efficiency of the decade. It said the focus for the next years has to be the full realisation of the economic potential for energy efficiency which exists in the EU, estimated to be, by 2010, as much as 18% of 1995 energy consumption.

The main purpose of the Communication, the Commission said, was to promote a renewed commitment and higher profile for energy efficiency at EU as well as Member State level, and ensure an increased focus on energy efficiency in other policies such as regional development, and international cooperation. It proposed that the existing SAVE omnibus Directive should be amended and improved. Specifically it suggested priority should be given to energy efficiency in the building sector which accounts for over 40% of all EU energy use. This would involve addressing areas such as energy certification of buildings (old and new), insulation and inspections/audits.

*Measures to  
improve energy  
efficiency of  
buildings*

The Communication also said the Commission would continue promoting the introduction of energy-efficient household appliances and other energy-using equipment through the extension of the present EU labelling scheme and through the increased use of measures such as negotiated agreements with manufacturers. A wider use of voluntary agreements will also be sought with energy-consuming sectors and these will be evaluated, so that if they fail to deliver the expected results, mandatory standards will be sought, it said.

Other measures mentioned in the report included: the encouragement of demand-side management policies in utilities and better energy management in the public sector; the promotion of cooperative technology procurement methods; strengthened efforts to remove financial barriers to the rational use of energy; and the setting up of an appropriate forum to follow and review progress at EU and Member State level. This Communication should be seen as a first step towards an EU strategy for the rational use of energy, and an action plan will follow, the Commission said.

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### RENEWABLE ENERGY SOURCES - ENERGIES FOR THE FUTURE

Political and practical support for renewables followed a few years behind that for energy saving. In September 1993, a Council Decision set up a five year scheme (1993-97) - Altener - for the promotion of renewable energy sources with a total budget of Ecu40m. The categories of action were similar to those for SAVE:

- studies and technical evaluations for defining standards and specifications;
- measures to support Member States' initiatives;
- support for an information network;
- measures aimed at the exploitation of biomass for energy purposes, in particular heat and electricity production.

Funding varied according to the type of activity, ranging from a maximum of 30% to 100%.

#### *The objectives of the first Altener programme*

A list of indicative objectives were annexed to the Altener Decision. It said an 180mt reduction in CO<sub>2</sub> emissions could be achieved in 2005 by:

- increasing the share of renewables in the energy matrix from 4% to 8%;
- trebling production of electricity from renewable sources excluding large hydro;
- securing for biofuels a market share of 5% of total fuel consumption by motor vehicles.

In 1997, the Commission presented some initial results of the programme (only a few of the pilot projects had been completed by then). In general, the Commission said, Altener had "played an important role in raising awareness about the role of renewables sources of energy in the Community". Moreover, it added, the programme had contributed to filling the gap between research and the commercial application of renewables. Two-thirds of the Ecu44m (around Ecu4m was added to the budget for the new Member States) had been used to finance measures in the second category (in support of Member States' initiatives). The Commission noted that, because of pre-selection by the Member States, the projects were of very high quality, but that, unfortunately, there had only been sufficient funds to support half of the proposals.

#### *The market prospects for renewables*

The European Renewable Energy Study (Teres) was one important action carried out in the first years of Altener. It provided a detailed study of the market prospects for renewables in 2010. A follow-up, Teres II, also sponsored by Altener, focused on the wider impact of the expected contribution of renewable energies in an expanding European Union. Other typical projects included an atlas of European small-scale hydro potential; a development plan for biomass in Ireland; the use of renewables in Danish holiday housing; a plan for increased use of renewables in district heating in Finland; and creating biofuels from used vegetable oil in Austria.

About Ecu4.4m was spent on information and dissemination measures (the third category) which included the setting up of a network through the national energy agencies (EnR) group and the provision of information on events and publications. Around Ecu3.4m was utilised under category four to set up three biomass information networks in the areas of agriculture and forest waste, liquid biofuels, and energy from waste.

### **The Altener II programme agreed for two years only**

In March 1997, the Commission proposed a new five year Altener II programme (1998-2002). As it did with SAVE II, it proposed more categories of actions than in the first programme, but for general budget reasons, only proposed Ecu30m funding for the first two years. The legislative process to approve the new Altener II, though, got caught up in discussions over rationalisation of the energy programmes (Chapter Two). It was not until after the Commission had put forward its proposal for an Energy Framework Programme, that the Council reached political agreement on a two year programme, in December 1997, with funding of Ecu22m.

#### *Ecu22m for Altener II over two years*

The energy ministers formally adopted the Altener II Decision in May 1998. It permits grants for the following five categories of projects:

- actions and measures to develop the potential of renewables;
- pilot actions of interest to the Community aimed at creating structures and instruments for the development of those energy sources;
- measures intended to develop information, education and training services;
- targeted actions facilitating the market penetration of renewables;
- monitoring/evaluation actions.

Whether partly due to the awareness-raising of Altener, or more likely because of a widespread concern about climate change, the mid-1990s saw a rapid increase in interest in renewables at the

EU level. The Parliament, in particular, lost no opportunity to press for more EU action, both in terms of the research programmes, and in terms of more political initiatives. In mid-1996, for example, it held two hearings, one on overcoming barriers to the use of renewables and cooperation with developing countries, and the other on biomass. Subsequently, in July, it adopted a Resolution calling urgently for an action plan for the exploitation of renewable energy sources.

*Parliament's wish list for actions to promote the use of renewables*

The Resolution, which fixed on a target of increasing renewables' share of the energy matrix to 15% by 2010, made some general requests for stepping up the attention to, and coordination of, action in favour of renewables in Community programmes. It also listed a number of specific initiatives. These included the following, each involving the Commission and/or Member States:

- implementing a one-stop-shop approach to all renewable energy information and its dissemination and financing methods;
- investigating the possibility of a 100,000 roofs programme to encourage photovoltaics;
- considering the use of fiscal instruments to promote renewables production and their use;
- organising systems that improve the support of financial institutions for renewables projects;
- establishing conditions of access to networks for independent producers which are not unfair;
- developing Europe-wide standards for renewables products that are traded;
- accounting of renewables by the Member States in legislation on town and country planning and building regulations, and in laws governing the professions of architects and engineers;
- requesting public authorities to set an example in their use of renewable energies;
- investigating the introduction of a major annual prize for renewable energy promotion;
- identifying the most important instances of discrimination against renewables and launching proposals to remedy the situation.

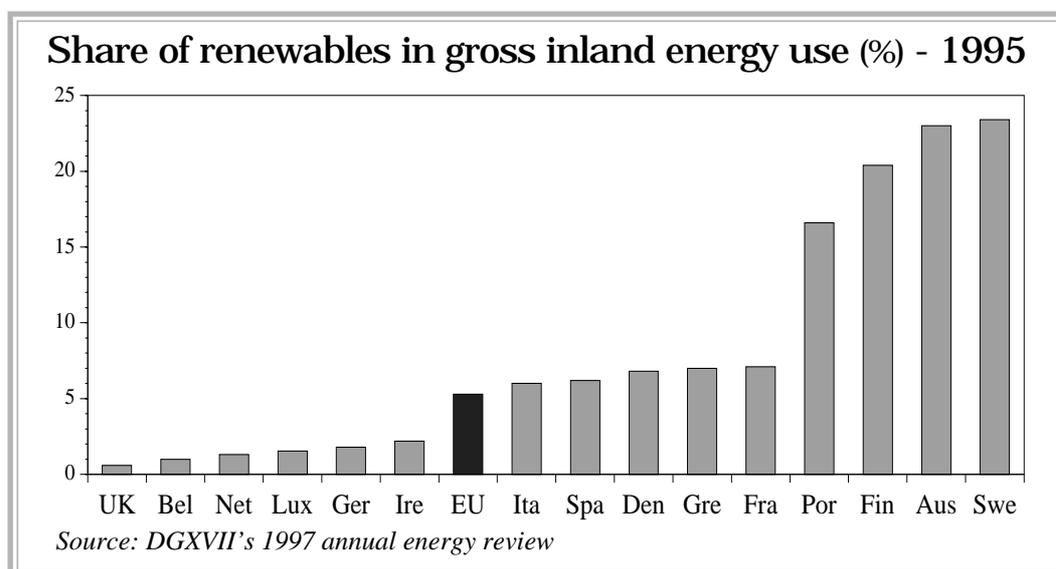
**Towards a Community strategy for renewables**

Later the same year, in November, the Commission put forward its first ever green paper on renewables. It proposed a strategy aimed at doubling the share of renewables in the EU's energy balance, from 6% to 12% by 2010, and offered a wide range of potential policy developments. These included the use of renewable energy credits, excise tax advantages, and a reassessment of the agricultural policies that restrict the development of energy crops. In response to the green paper, the Commission received more than 70 written replies as well as formal reactions from the Council and the Parliament.

*European Parliament's response to the green paper*

In its response, the European Parliament reaffirmed its commitment to a 15% target and listed yet more specific initiatives. These included the setting of targets for each Member State, broken down by type of renewable energy; the concept of an energy tax model incorporating the principle of internalisation of external costs and exempting renewables; quantitative commitments by utilities to buy renewable energy, ensuring current costs are covered; and a European fund for renewables which could be financed by a surcharge on the harmonised mineral oil tax and on the price of electricity.

Energy ministers were far more cautious. A Resolution, agreed in May by the Energy Council and formally adopted in June 1997, said: “[The Council] notes that within the framework of liberalisation of energy markets an active governmental policy on the level of Member States and



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- taking into account the principle of subsidiarity - on Community level is necessary to improve the competitiveness of renewables.” Four areas were considered to have a Community dimension “to be applied in a pragmatic manner”: R&D; market conditions; actions to promote consumer information and confidence; coordination and monitoring.

Council's hesitant endorsement of a 12% target

The Council did, also, hesitantly endorse the Commission's 12% target: “The aim should be to establish a strategy that would lead to improved competitiveness and a substantial share of renewables in the long term because renewables are of major importance to achieve a sustainable economic growth. Member States and the Community should formulate indicative targets as an orientation for this share in the medium (2010) to the long term (2020), to strive for and to measure progress in this field. The indicative target to double the overall share of renewables in the Union by 2010 as mentioned in the green paper could be a balance between ambition and realism.”

### The white paper on renewable energy sources

A year after the green paper, at the end of 1997, the Commission adopted a white paper “Energy for the future: renewable sources of energy”. It argued that the Community should indeed aim to reach a target of 12% for the contribution of renewables to the EU's gross inland energy consumption by 2010, and it proposed a comprehensive action plan (see table) and “A campaign for take-off”.

In order to assist a large-scale penetration of renewables and make progress towards the objective of doubling their share by 2010, the Commission said its campaign for take-off would consist of four key actions to be promoted and cofinanced by the Union:

The Commission's proposed campaign for take-off

a) An EU-wide initiative to install 500,000 PV roof and facade systems in the domestic market (schools, public buildings, tourism, sport and recreational facilities) and an export initiative for 500,000 village systems to help start decentralised electrification in developing countries. The total investment necessary is estimated at Ecu3bn for the period 1997-2010.

b) The installation of 10,000 MW through large wind farms - representing 25% of the feasible overall wind energy penetration by 2010 - in locations with favourable conditions. The total investment for the period until 2010 is estimated to be in the order of Ecu10bn.

c) 10,000 MW of biomass installations for CHP plants, which could range in scale from a few hundred kW to multi-MW and combine different technologies. The 10,000 MW of biomass installations represent one sixth of the total estimated contribution biomass could make by 2010. The total cost of this initiative is estimated at around Ecu5bn.

d) The development of renewables in 100 communities, in order to use them in integrated systems for local power supply or in dispersed schemes for regional supply. A number of pilot communities, regions, cities and islands would be selected from those which could reasonably aim at 100% power supply from renewables. They would be of varying size and characteristics. The cost of this initiative is difficult to define, the Commission said, but could be in the order of Ecu2.5bn.

A saving of Ecu21bn in fuel costs

The overall strategy, the Commission calculated, should lead to the creation of a significant number of new jobs, a saving of Ecu21bn in fuel costs, and a reduction in CO<sub>2</sub> emissions of 402mt/yr by 2010. Moreover, it said, there would be an important economic benefit in the potential growth of the European renewable technologies industry in international markets - an Ecu17bn annual export business by 2010. On the cost side, the Commission estimated the necessary net extra investment (over and above the expected investment in fossil fuels) to implement the strategy would be Ecu95bn. In May 1998, the Energy Council welcomed the idea of the campaign, but asked for more details on how the funding was to be mobilised.

### A Directive expected on fair access for renewables

In March 1998, the Commission adopted a first report on harmonisation requirements linked to the internal electricity market (Chapter Three A). It said that Member States were already using or considering a large number of schemes to support renewables, and that it was necessary to look at how they would fit into the scope of the Directive. In fact, the electricity Directive has only one useful mechanism for the favourable treatment of renewables and that is contained in the provisions allowing the Commission to accept certain public service obligations. The report offered some initial guidance to Member States which might wish to apply for favourable treatment of renewables through these provisions.

Firstly, the Commission said, it would always ask if the underlying objective for the scheme is legitimate. Secondly, it would question whether the measures are reasonable and proportionate. Thirdly, it would consider at which level (production, transmission, or consumption) a levy should be imposed. On this third point, the Commission said it had yet to reach a conclusion, although “it

does appear that a number of significant advantages attach to the imposition of a levy at consumer level". The Commission also signalled its initial support for schemes such as 'green certificates' which encourage competition between producers of renewables.

The Commission said it would launch a series of cost-benefit and cost-effectiveness studies "to provide clear information, with respect to each Member State as well as a number of third countries where such schemes are operating, on the following issues":

- the manner of support;
- costs for consumers, producers and the state;
- CO2 emission reductions;
- effectiveness in promoting renewables.

*Cost-benefit studies on certain policies for renewables*

With the results of these studies, the Commission said it would propose, before the end of 1998, a Directive establishing common rules for the treatment of renewables in the light of the electricity market Directive.

<b>The Commission's action plan for renewables</b>	
<u>Policy</u>	<u>Community Action</u>
<b>Objectives and strategies</b>	
EC strategy and overall objective of 12% share up to 2010	white paper
Member States setting objectives and strategies to 2005 and 2010	-
<b>Internal market measures</b>	
Fair access for RES to the electricity market	proposal for a Directive (1998)
Restructuring EC framework for energy tax	proposal for a revised Directive (COM/97/30)
Start-up subsidies for new production plants; SMEs and new job creation	-
Development and/or harmonisation concerning 'golden' or 'green' funds	1998: Promotion; 2000: Communication
Progressive increase of market share of liquid biofuels	-
Promotion of biofuels in low-sulphur liquid fuels	proposal for a Directive (COM/97/88)
Extend SAVE Directive to solar systems in buildings for heating and cooling	proposal for Amendment of Dir. 93/76/EC (1998)
Extend Directive to building materials with a low intrinsic energy content	proposal for Amendment of Dir. 89/106/EC (1998)
<b>Reinforcing Community policies</b>	
Inclusion of actions on RES in overall strategy for combating climate change	Communication (COM/97/481)
Adoption, implementation of the 5th RTD Framework Programme	Decision of the EP and the Council to be decided in 1999
RES in 2000-06 Regional Fund priorities with employment, environment	
Promotion of biomass in CAP and rural development proposals 2000-06	CAP proposals/Agenda 2000 Decision in 1998
Review of Reg. 2078/92 in context of Agenda 2000, possible further harmonisation	review of Reg. 2078/92 and other instruments
Definition of energy cooperation with ACP countries emphasising RES	Communication
Sufficient funding from Tacis and Phare for RES to help with Altener and Synergy	specific proposals and Communication
<b>Strengthening cooperation between Member States</b>	
Organisation of cooperation around Agreed Community Energy Objectives	proposal for a Council Decision (COM/96/431)
<b>Support measures</b>	
EU programme to promote RES, open to CEECs and Cyprus	proposal for Altener (COM/97/87) and Energy Framework Programme 1998-2002
Consumer information campaigns	EU actions
Development of European standards and certifications	CEN and Cenelec actions under Altener
Better positioning for RES on finance market	agreements and projects
Creation of a virtual centre 'Agores' for collection and dissemination of information	action under Altener
<b>Campaign for take-off</b>	
1,000,000 PV systems, half in EU, half in third countries	EU promotion and financial contribution
10,000 MW of large wind farms	EU promotion and financial contribution
10,000 MWth of biomass installations	EU promotion and financial contribution
Integration of RES in 100 Communities	EU promotion and financial contribution
<b>Follow-up</b>	
Scheme to monitor progress	EU action under Altener
Improvement of data collection and statistics	Commission action
Inter-services coordination group	Commission action
Creation of a working group involving Commission and Member States	Commission action
Regular reporting to the Union's institutions	Commission action
RES - Renewable energy sources	
<i>Source: 1997 white paper - COM/97/599</i>	

NB: this table is considerably abridged from that in the white paper.

## Chapter Four B RELATED DEVELOPMENTS IN TRANSPORT AND OTHER POLICIES

Although the transport sector has been subject to a variety of environmental laws over the years - controls on engine emissions (Chapter Four), for example - these have been aimed at the problems of urban air pollution and acidification. Despite the increasing awareness of transport's contribution to the climate change problem, there have been few real policy measures enacted. In December 1992, the Commission issued a white paper on the future development of the common transport policy which placed a new emphasis on "sustainable mobility" and stressed that, given the expected growth, new demand-side measures would also be needed, involving changes in public behaviour and a shift to collective forms of transport.

In response to the Commission's growing emphasis on sustainable mobility, the Environment Council said, in 1994, that there was a need to consider the following measures (taking into account the costs and benefits):

*Environmental measures needed in the transport sector*

- "- To further optimise technology (vehicles, fuel) on a regular basis;*
- to take measures in all policy fields to limit and to reduce as far as possible and feasible environmentally damaging transport;*
- to work towards a shift from road and air traffic to rail and waterways, and from motor cars to public and non-motorised transport, taking into account geographical and socio-economic factors;*
- to work as far as possible towards the payment of infrastructure costs and external costs by the users of the transport infrastructure taking also into account fair competition, e.g. through road pricing;*
- to take measures to increase public awareness for sustainable mobility."*

The Council also said that high speed on roads was synonymous with excessive energy consumption, increased noise and air pollution and unsafe traffic.

*Fuel efficiency targets put forward*

The Council considered it necessary to exploit, as far as possible, potentials for CO<sub>2</sub> reductions in the transport sector, for example through motor vehicle technical optimisation measures, traffic avoidance, traffic guidance and traffic shifting. It also suggested an investigation of lower fuel consumption for newly registered cars by 2005. Twelve delegations, including the three new States, but excluding Spain, Italy and Greece, signed a declaration asking the Commission "to consider the achievement, as far as possible, of an average gasoline and diesel consumption of 5 litres/100km and 4.5 litres/100km respectively (120g CO<sub>2</sub>/km) for newly registered cars by 2005, taking a gradual approach to begin in 1997, and to work to greater efficiency in other means of transport".

### **Reducing CO<sub>2</sub> emissions from passenger cars**

A year later, in December 1995, the Commission adopted the same fuel efficiency targets in a Communication on reducing CO<sub>2</sub> emissions from passenger cars. The paper said that action in the transport sector was vital but that there were no easy solutions while car use remained so strongly linked to both the economy and personal mobility and when traffic growth had been facilitated in the past by the insufficient internalisation of the external costs of transport. The Commission said it was necessary to consider a global approach to the reduction of CO<sub>2</sub> from the transport sector involving measures aimed at reducing the use of motor vehicles, influencing driver behaviour (e.g. speed) and achieving a higher vehicle fuel efficiency by a combination of technical and non-technical measures. When introducing the Communication, Bjerregaard summed up the argument: *"There are many things which we will have to do to curb CO<sub>2</sub> emissions from traffic. But moving from gas-guzzling to gas-sipping cars is the most attractive option."*

*The need to move from gas-guzzling to gas-sipping cars*

Using a very basic analysis, the Commission calculated, in the paper, that a 40% improvement in fuel economy would increase vehicle costs by Ecu940-2,270, but that the life-time fuel savings would be higher, in the region of Ecu3,200. This 40% improvement between 1996 and 2005 would reduce total CO<sub>2</sub> emissions from passenger cars in the EU by 17.5% as compared to current trends or 30% by 2010. The Communication also looked at a range of policy options. A strong incentive could be given to consumers, the Commission said, to demand more fuel-efficient cars by differentiating the price through purchase or registration taxes.

In June 1996, the Environment Council agreed unanimously to the fuel efficiency targets (as previously proposed by 12 States) with the aim "to reach this objective by 2005. . . Should it appear that it is not possible fully to achieve the objective by 2005, the phasing could be extended, but in no case beyond 2010". A voluntary agreement with industry and a monitoring mechanism were two key practical initiatives approved, in principle, by the Council. The Council asked the Commission to begin "without delay" discussions with the automobile industry on a voluntary agreement for reducing CO<sub>2</sub> emissions from new cars sold in the EU. Such an agreement, it said,

should seek to commit the industry in the EU as a whole, as well as importers. In addition, it should take particular account of the importance of an ambitious EU-wide commitment, and intermediate targets for monitoring the agreement, as well as contributions from each car manufacturer in reducing fuel consumption.

The Conclusions also called for a number of other actions: a report on possible measures that could influence driving behaviour (traffic management schemes, public transport, etc.) and on how to address other sources of CO<sub>2</sub> emissions in the transport sector; and a proposal on a “CO<sub>2</sub>-emission consumer information system” to influence consumer choice when buying a car. After the meeting, Bjerregaard expressed disappointment that the Council was not able to endorse fully the strategy put forward by the Commission with regard to vehicle-related fiscal measures.

The Commission’s discussions with the vehicle industry did not go well. In autumn 1997, Bjerregaard announced that the industry had made a proposal for a voluntary agreement “which is far away from what the Commission and the Council have in mind in terms of the fuel-efficiency objective”. Environment ministers meeting in December agreed and the Luxembourg Presidency concluded that the Commission should bring forth proposals for a Directive if no satisfactory result was forthcoming from the car makers. By March 1998, the industry had made an improved offer to reduce CO<sub>2</sub> emissions by 25% to an average of 140g CO<sub>2</sub>/km by 2008 compared with 1995. Environment ministers welcomed the offer but asked the Commission to negotiate further commitments with the industry.

*Unsatisfactory negotiations with the car makers*

### **A citizens’ network and fair pricing**

At the end of 1995, the Commission put forward two green papers designed to influence transport policy. The first, called “The citizens’ network”, explored ways of making public passenger transport more attractive and usable and reducing dependence on cars. A follow-up Communication, to be adopted in 1998, will outline a strategy based on the same general principles as the green paper and place a strong emphasis on subsidiarity. Drawing heavily on work carried out under the Fourth RTD Framework Programme and by an intermodality task force, it will take a twofold approach: looking at how existing EU policies can benefit public transport; and how the tools available to the Commission can be used to promote its development.

The other important green paper in 1995 concerned fair and efficient transport pricing. This included, for the first time, estimates on the external costs (accidents, noise, air/climate) of various forms of transport. It argued that transport prices should reflect underlying scarcities which would otherwise not be sufficiently taken into account. Possible initiatives either at national or Community level for the short-term included: adjusting Community laws on road charges for HGVs; electronic kilometre charging for HGVs based on infrastructure damage etc.; road tolls in sensitive/congested areas; differentiated fuel taxes reflecting differences in fuel quality; differentiated vehicle taxes. It said: “*The uncertainties surrounding external cost estimates do not invalidate the need to raise charges where appropriate: the direction and order of magnitude of the required changes is often known. A policy of gradually phasing in instruments and charges, where needed, as more information becomes available, is desirable.*”

*Fair and efficient transport pricing*

During the extensive discussions and consultations which followed the publication of the green paper, the Commission’s focus on road transport was criticised by a wide range of interest groups. Roads lobbies in particular felt that road transport was being discriminated against. Meanwhile, the Parliament, in a Resolution, criticised the lack of “a concept for charging full infrastructure costs for rail, inland waterway and air transport”. Anxious to avoid distortions in the transport market, the Parliament called for the apportioning of external costs to all modes at the same time. As a result of these pressures, the Commission is preparing a white paper, due in mid-1998, based on a broad intermodal approach taking account of the externalities of all transport modes.

### **First Communication on transport and climate change**

In March 1998, the Commission drew many of these themes together in a first ever Communication on transport and CO<sub>2</sub>. Without coordinated action on a European level, it said, CO<sub>2</sub> emissions from transport, which make up 26% of overall emissions, would increase to nearer 40% by 2010. On introducing the proposal, the Transport and Environment Commissioners, Neil Kinnock and Ritt Bjerregaard explained their approach: “*The measures outlined here will halve growth in CO<sub>2</sub> emissions from transport by 2010 at little or no cost to society as a whole. However this implies reviewing existing transport practices and patterns. Change will not be easy, but the alternative to the measures discussed in this Communication would entail significant costs without resulting in transport or economic benefits that this practical approach could generate.*”

**CLIMATE CHANGE  
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The Communication identified four broad categories of measures that would be crucial for the transport sector: action on passenger car fuel economy; progress with fair and efficient pricing; the completion of the internal market in rail transport; and measures to integrate the various modes of transport, in both the freight and the passenger sectors. It also noted that measures at a national, regional and local level - including better land-use planning - can play an important role by contributing to the development of traffic plans. Given the fact that there are limits to fuel efficiency improvements, the paper also briefly discussed the need for long-term solutions, especially alternative propulsion technologies, such as hybrid cars, the use of fuel cells and new fuels. In this respect, the Commission said transport RTD should be a priority.

### The control of methane emissions under investigation

Finally, it is worth noting that the Commission has begun to look at other greenhouse gases apart from CO<sub>2</sub>. In a strategy paper, presented in late 1996, the Commission argued that methane emissions could be reduced 30% by 2005 and 40% by 2010 with measures in three areas - agriculture, waste and energy. The energy sector contributes about 23% of man-made methane emissions in the Community, it noted, of which 12% originate in coal mining and a further 8% come from the use of natural gas.

*Action on pipeline leakages and use of BAT in coal industry suggested*

Given the decline of the coal industry, the Commission said it would be difficult to justify costly methane recovery techniques, but it did suggest an EU initiative to encourage Member States to generate programmes promoting the use of best available techniques for those coal mines "which will still be in operation beyond a certain time frame (10 years for instance)". As far as natural gas emissions were concerned, the Commission recommended an EU minimum leakages standard. This could be defined in such a way as to order the replacement of less efficient parts of the transmission and distribution networks, and be used in conjunction with a second initiative, taken at Member State level to increase the pipeline networks' control frequency.

*Parliament's Opinion on methane report*

The European Parliament responded to the Communication in April 1998. It called for the introduction of a package of legislative, economic and social measures, with a view to achieving a substantial reduction in methane emissions through practical proposals within a definite timescale. In particular, it suggested methane should be recovered for use as a source of energy, from coal-mining, landfill and animal waste; and it recommended the use of education and media to increase public awareness of the need to reduce emissions. It would also like to see tax concessions for European firms which help cut methane emissions in third countries, and the use of EU funds to repair old pipelines leaking methane in the former Soviet Union. Furthermore, the MEPs reiterated a call made in previous Resolutions and Opinions for a European Climate Agency to coordinate public and private climate protection measures.

### ASSESSMENT

Of all the environmental policies under discussion and development at the European Union level, it is the climate change issue which most directly concerns energy and those involved with energy production and consumption - that is to say everyone. Carbon dioxide is the most important greenhouse gas by far, and most of it comes from the burning of fossil fuels. Any real attempt to deal with the problem of global warming must tackle fossil fuel use, whether by industry, transport or in the home. So, how effectively is the Community tackling the CO<sub>2</sub> issue? Not very - there is a yawning gap at the EU level between talk and action.

The first milestone for the Community came as a result of the 1992 UNCED in Rio. It agreed to stabilise CO<sub>2</sub> emissions at 1990 levels by 2000. The Commission put forward four measures to help meet the target: a monitoring mechanism, a Directive on energy saving, a programme of actions in support of renewables, and a CO<sub>2</sub>/energy tax. The first of these has no direct impact on CO<sub>2</sub> emissions; the second has almost been forgotten about and is hardly relevant at the EU level; the third was a small programme of grants and can only have had a very slight impact on CO<sub>2</sub> emissions; and the fourth measure was never agreed.

*Community likely to meet 2000 target*

Fortunately for the Community, it looks as though the stabilisation target will be met. The latest figures, for example, show that the Community's CO<sub>2</sub> emissions were about 1% less in 1995 than in 1990. The Commission explained that this mid-term stability in CO<sub>2</sub> emissions came about as a result of the increased contribution of nuclear energy, and the greater penetration of natural gas. But there was also a significant contribution from Germany as a result of the winding down of energy-intensive industry in East Germany (a reduction equivalent almost to the total emissions of Finland and Sweden); and a mild winter can also have a significant impact on the figures. Clearly,

it is not possible to detect the influence of any deliberate Community policies where the emission reductions achieved so far are concerned.

The next significant milestone was the Kyoto negotiations. The Community managed to agree, almost by sleight of hand, on an ambitious target - to reduce emissions of three gases (including CO<sub>2</sub>) 15% by 2010. But it was a reasonable wager they would not have had to stick to it, once Japan and the US had failed to follow suit. A few weeks prior to the Kyoto meeting, the Commission put forward a Communication detailing how the EU could meet a 15% reduction target and listing a range of measures and ideas, many of them reiterated from previous papers. It also put forward some speculative figures on the costs and benefits of meeting a 15% target - these

varied from one extreme in which the benefits could outweigh the costs by six to one, to the other extreme in which the costs could outweigh the benefits by roughly 100 to one. Although these figures seemed to attract limited attention, they were a little disturbing.

In December 1998, amid massive publicity, the Kyoto Protocol was agreed. It appeared to be a successful outcome to the talks with an agreed overall average reduction in CO<sub>2</sub> emissions, and with the US and Japan accepting more difficult targets than appeared possible prior to the meeting. Despite the EU's failure to win an agreement for its own proposed level, all the Community's institutions welcomed the agreement as a success. However, a very basic analysis of the deal suggests it may prove, if not worthless, then certainly cheap.

First of all, it might be worth a bet that the Protocol is never activated. The terms of the agreement are that it will only enter into force when 55 parties, corresponding to 55% of total CO<sub>2</sub> emissions by developed countries in 1990 have ratified - in effect this will require the ratification by the US (which accounts for 35% of emissions) and Russia (accounting for 15%), which will be an emissions trading partner for the US. But, even as the Kyoto deal was closed, the US government said it would not send the Protocol to the Senate until the developing countries were prepared to make some commitments. Secondly, the incorporation of various systems to allow joint implementation - the clean development mechanism and emissions trading - threaten to undermine any requirement by developed countries to make progress themselves. The EU has certainly recognised this threat to the agreement, but it may be powerless to tighten up the hatches, so speak, at Buenos Aires.

Evangelising in the international arena is one thing, but taking action at home is another. The EU may be well advised to look more carefully at its own situation. The trends that allowed an almost automatic stabilisation in CO<sub>2</sub> emissions during the 1990s cannot be relied on to continue. The 21st century will see nuclear reactors come to the end of their natural lives with no plans for replacement. The penetration of natural gas for power generation will slow down. The large-scale energy efficiency savings in East Germany will have ended. Conversely, there is no stopping transport growth.

It is worth noting, moreover, that some experts dispute the way the Commission has based its CO<sub>2</sub> forecasts on unrealistically low growth rates - thereby downplaying the extent of the effort that will be needed. There appears to be a mismatch, for example, between the forecasts used in the pre-Kyoto paper (designed to bolster EU's international negotiating position), and the April 1998 paper on energy efficiency (designed to demonstrate how much impact energy efficiency measures could have on future CO<sub>2</sub> emissions).

But how will the EU cope with these negative impacts and still manage to cut back CO<sub>2</sub> emissions further? Energy efficiency improvements and substitution of fossil fuels with renewables are the two main answers that underpin all the Commission's climate change policies and the Council's statements of good intentions. But, on examination, there is not much there.

### CO<sub>2</sub> emissions (mt)

	1990	1995
Austria	55.0	56.7
Belgium	104.5	111.0
Denmark	52.7	59.9
Finland	51.6	56.4
France	352.4	345.7
Germany	956.1	849.0
Greece	70.9	77.9
Ireland	30.4	32.2
Italy	388.6	403.2
Luxembourg	10.6	8.8
Netherlands	153.0	170.7
Portugal	39.1	48.0
Spain	202.0	236.2
Sweden	50.0	53.6
UK	566.9	531.3
<b>EU</b>	<b>3,083.8</b>	<b>3,040.6</b>

*Source: DGXVII's 1997 annual energy review*

*Will the Kyoto Protocol ever be ratified?*

*EU needs to look at its own situation more carefully*

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The 1990s started with an ambitious legislative programme for energy saving, but it lost its way. The two attempts to bring in energy efficiency standards - for hot water boilers and fridge/freezers - proved less than successful. They both suffered from needing to accommodate wide technical differences across the Community and from political weaknesses among some Member States. The Commission is now exploring the use of voluntary agreements for other domestic appliances, but, by definition, they are unlikely to encourage radical developments. In the long run, the energy labelling Directive may be modestly effective. Consumer organisations will be able to demonstrate the cost-effectiveness of paying slightly more for energy efficiency appliances, and the energy labels will make it easier for customers to take energy efficiency into account when making their purchase choices.

### *The vanishing of the SAVE omnibus Directive*

The bulk of the original legislative programme, though, which was shovelled into the SAVE omnibus Directive, has all but vanished without a trace. It is nearly five years since it was approved by the Council, and the Commission has produced no progress report, no assessment, no analysis. If the Commission and the Council are serious about energy saving, they should revisit the SAVE omnibus Directive and look at how it can be revitalised to deliver some of the positive actions needed beyond 2000.

The two grant programmes for promoting energy saving and renewables - SAVE and Altener - are useful adjuncts to the main policy developments, such as they are. But with a budget which for each one is less than Ecu1m per Member State per year, they can hardly be expected to bear the brunt of the Community's climate change strategy.

Under some pressure from the Parliament and the need to bulk out the climate change strategy, the Commission has pressed ahead with strategies for cogeneration and renewables. It remains to be seen whether these policy statements will be the start of a real drive to improve the penetration of renewables and CHP or whether the few key ideas proposed will fall by the wayside, for want of political support from the Council, or initiative by the Commission.

### *Why has there been so little action to date?*

In summary then, the long-term task at hand is well recognised by the EU institutions. The Commission has not been slow to propose policy responses and to exploit international opportunities to give the Community more prowess. The Parliament has always supported the Commission and even chastised it on occasions for not being more ambitious. And the Council has agreed any number of statements on climate change; but, and it is a big but, there has been very little real action so far. Why? The answer must be because the Member States in the Council are not yet ready collectively to take the political and financial responsibility for a quantum leap in policy.

This reluctance on climate change issues is in contrast to the developments on more general environmental policies described in previous chapters, and it is therefore necessary to look for explanations. Firstly, despite transferring significant powers to Brussels on environmental issues, the Member States have retained key sovereign rights over energy policy (Chapter Two). This has crippled Commission attempts to develop an EU-wide energy efficiency policy with any teeth. They have also guarded jealously their control over taxation affairs, so that no progress at all has been possible, at the EU level, towards helping the Member States to shift the tax burden away from employment and on to natural resources.

But, perhaps at the end of the day, the most crucial element, is that the general public is not yet ready to make financial and behavioural sacrifices to stem the distant threat of global warming, and vote-minded politicians are not yet able to make the tough decisions that would have a real impact on energy use.