

recursos naturales e infraestructura

First Europe-Latin America Dialogue on Promotion of Energy Efficiency

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Summary

This report contains a recap of the presentations given by the speakers at the “First Europe-Latin America Dialogue on Promotion of Energy Efficiency”, held in Brussels from 28 to 30 October 1998. The event was organized within the framework of the “Promotion of Energy Efficiency in Latin America” Project, which is cofinanced by ECLAC, through its Natural Resources and Infrastructure Division, and the SYNERGY Programme of the European Commission’s XVII Directorate-General of Energy. The project is under the direction of Fernando Sánchez Albavera, ECLAC Regional Adviser on Mining and Energy, and François Casana, head of the European Commission’s SYNERGY Programme.

The dialogue was sponsored by the European Parliament’s Committee on Research, Technological Development and Energy and the European Union’s Economic and Social Committee, as well as the European Energy Foundation. It falls within the overall context of the activities carried out under the ECLAC/European Commission Project and the statements issued at the conclusion of the Interparliamentary Conferences on Mining and Energy in Latin America (CIMEs 97 and 98), which stressed the importance of studying legislative measures to promote the sustainable development of the energy sector and called for a dialogue with the countries of the European Union on this subject.

The objective of the meeting was to promote a dialogue among legislators, energy policy-makers, regulators, representatives of power companies, specialized agencies and experts from Europe and Latin America, so that they could share their experiences with legislative measures, regulatory mechanisms, and programmes to promote energy efficiency.

In the first chapter, approaches to energy cooperation between Europe and Latin America are analysed. The second chapter takes a look at the development of energy policies in the European Union since the 1970s, with special emphasis on energy efficiency policies. In the third chapter, legislative measures and regulatory efforts adopted in the European Union are discussed, whereas the fourth chapter deals with the roles of the players involved, the programmes developed in the Member Countries at the Community level, and some important private initiatives. Chapter five analyses European experiences with energy efficiency services, and chapter six covers the progress that has been made in Latin America. The last chapter deals with ECLAC's course of action and conceptual approach with respect to the role of energy efficiency in the sustainable development of the energy sector.

Introduction and acknowledgements

This report is the record of the First Europe-Latin America Dialogue on Promotion of Energy Efficiency: Parliamentary Dialogue and Workshop, organized by the United Nations Economic Commission for Latin America and the Caribbean (ECLAC), through its Natural Resources and Infrastructure Division, and by the SYNERGY Programme of the European Commission's XVII Directorate-General on Energy. The dialogue was part of the activities carried out under the project jointly financed by the two institutions, "Promotion of Energy Efficiency in Latin America".

Mr. Humberto Campodónico, consultant to ECLAC, served as rapporteur of the Dialogue with the assistance of Mr. Wolfgang Lutz, European consultant to the ECLAC/European Commission Project.

It is important to highlight the active participation of European legislators in the organization of the Dialogue, in particular that of Mr. Umberto Scapagnini, Chairman of the European Parliament's Committee on Energy, Research, and Technological Development (CERT); and Mr. Rolf Linkohr, Chairman of the European Energy Foundation and member of the aforementioned committee of the European Parliament. In addition, the support of Mr. José Ignacio Gafo Fernández, Chairman of the Transport, Energy and Information Partnership Section of the European Union's Economic and Social Committee, and in general, that of the officials and advisers of the committee chaired by Mr. Umberto Scapagnini, are greatly appreciated.

Special mention should be made of Mr. Pablo Benavides, Director of the European Commission's XVII Directorate-General of Energy, and François Casana, head of the SYNERGY Programme, for their support. In addition, we are grateful for the participation of Mr. Francisco da Camara Gomes, Director of the European Commission's I Directorate-General of Foreign Relations, and that of Mr. José Antonio Ocampo, Executive Secretary of ECLAC, who gave the closing address.

The organizers would also like to thank the chairmen of the Energy Committees of the Senates and Chambers of Deputies of countries in the region for their support during this First Dialogue. We are especially grateful to the Latin American legislators, Juan Melgarejo and Osvaldo Sala of Argentina; Amylkar Acosta, Pepe Gnecco and Luis Ferney Moreno of Colombia; Ignacio Pérez Walker and Jaime Mulet of Chile; Manuel Antonio Bolaños of Costa Rica; Alex Aguirre Guevara, Oscar Ortiz Asencio, and Olga Ortiz Murillo of El Salvador; and Gustavo Flores of Peru.

It should be noted that only the parliamentary delegations of the countries that are considered case studies were invited to participate on this occasion. The II Europe-Latin America Dialogue will be held in conjunction with the III Interparliamentary Conference on Mining and Energy in Latin America (CIME 99), which will be organized by the Mining and Energy Committees of the Argentine Senate in June 1999. It is hoped that in this second dialogue, the legislators of all countries in the region will be involved.

We would like to express our appreciation for the participation of Mr. Carlos Robles Piquer, member of the European Parliament, who spoke on the subject of "Policies and Strategies for Energy Efficiency in the European Union". Similar acknowledgement goes to Mr. Francisco de Camara Gomes, European Commission Director for Latin America, who spoke about the significant contribution the Latin America for Rational Energy Use (ALURE) programme is making in promoting cooperation among European and Latin American companies to boost energy efficiency in the region; and to Mr. Randall Bowie and Mr. Paolo Bertoldi, officials of the European Commission's XVII Directorate-General, who were speakers at the conference.

We are also grateful to Mrs. Concepción Canovas del Castillo, Director of the Institute for the Diversification and Saving of Energy (IDAE) of Spain and chair of the Network of Energy Efficiency Agencies in the European Union, who gave a presentation on the role of those organizations in promoting the rational use of energy. Further recognition goes to the officials of government agencies and institutions of European Union Member States who shared their experiences: Enrique Ocharan of the Spanish Ministry of Industry and Energy's Directorate-General of Energy; Yves Lambert of the Agency for the Environment and Energy Economy and Efficiency (ADEME) of France; Wolf-Dieter Glatzel of the German Federal Environmental Agency; David Vincent of the Department of Environment, Transport and Regions of the United Kingdom; and William M. Mebane of Italy's Energy Efficiency Programme.

We would like to acknowledge those who shared their experiences in managing the efficient use of energy, including both public and private entities: Ingemar Hahn of the ELECTROLUX Company; Bernard Hillebrand and Hans Georg Butterman of RWI Essen; and Willem C. Nuijen of the Dutch Agency for Energy and the Environment (NOVEM).

The significant contribution of the European officials who gave speeches in which they analysed the development of energy efficiency markets in Europe deserves special recognition: José Donoso of Spain's IDAE; Freerk J. Bisschop of Energie Noord West of the Netherlands; Michael Brand, Director of Saarlandische Energie-Agentur Gmbh of Germany; and Tim Curtis of the United Kingdom's Energy Savings Trust.

We should point out that a number of European consultants associated with European Commission cooperation programmes played an important role in the dialogue. Among them are the members of RED ENSTRAD, Alberto Cena, Aad Correlje, Cuno van Geet, Hermann Herz, Michel Labrousse, Wolfgang Lutz, and Paul Waide.

We would like to express our appreciation for the work of the consultants to the ECLAC/European Commission Project who were responsible for the national reports from Colombia and Peru, Mr. Francisco Ochoa and Mr. Jorge Aguinaga, respectively, who had helped draft the corresponding legislative proposals to promote energy efficiency in their countries. We are also grateful to their national partners in the project, Germán Corredor, Angela Cadena, and Omar Prías of the Colombian Ministry of Mines and Energy's Mine Energy Planning Unit; and José Dellepiani Massa and Pablo Morey, Chairman and General Manager, respectively, of Peru's Energy Conservation Centre (CENERGIA). Important contributions to the debate and commentary on the presentations were made by Mr. Pedro Maldonado, Director of the University of Chile's Energy Research Programme (PRIEN).

And finally, special recognition goes to the national partners in the ECLAC/European Commission Project in Argentina, Monica Servant and Omar Arza of the Argentine Department of Energy; and to the adviser to the Argentine Senate's Energy Committee, Mrs. Mirta Gariglio, and her counterpart in the Costa Rican Senate, Energy Sector Director Gloria Villa.

I. Energy efficiency and cooperation between Europe and Latin America¹

The European Commission's Communication on new relations with Latin America is viewed as a means of supporting democracy and the rule of law. We believe that gatherings of this type contribute to the parliamentary strengthening of democratic systems and of political and social stability in Latin America.

Latin America is undergoing a profound transformation with respect to the use of energy, primarily within the context of the law and its adaptation to a liberalized market. This process is accompanied by increased cooperation and integration in the energy market, especially in the framework of the Southern Common Market (Mercosur).

Initial experiences in Europe show that eliminating price subsidies is a necessary step, but it is not sufficient by itself to boost energy efficiency. It is a necessary step because it ensures that power is sold at a price that reflects actual costs, and because rising costs will prompt users make an effort to save energy.

Energy efficiency is to play a key role in Latin America, but the opening of markets and increased competition, by lowering prices, may result in disincentives for energy efficiency.

¹ Summary of the presentations given by Mr. Umberto Scapagnini, chairman of the European Parliament's Committee on Energy, Research, and Technological Development (CERT); Mr. Pablo Benavides, director of the European Commission's XVII Directorate-General of Energy; and Ignacio Gafo Fernández, chairman of the Transport, Energy and Information Partnership Section of the European Union's Economic and Social Committee.

Saving energy is associated with greater stability of energy supplies, and it can therefore help ensure that economic development is not hampered in the future by the lack of energy resources.

Our growing awareness of the environmental problems stemming from the use of energy and gas emissions that lead to the greenhouse effect provides us with additional motivation for saving energy. Energy efficiency contributes to the control or reduction of greenhouse gases without curbing development.

Another reason for the importance of energy efficiency in Latin America is investment financing. It is well known that energy consumption in this region is on the rise, and that financial resources will be needed to develop the infrastructure associated with this development.

The European Commission has estimated that between 1990 and 2020, energy consumption in Latin America will more than double. This growth will require a tremendous financing effort. The Latin American Energy Organization (OLADE) has calculated that the energy sector (electricity, petroleum, and gas) will need \$453 billion in financing between 2000 and 2010, of which electricity will account for 60%.

It has been felt in Latin America that liberalization and the opening of markets would be enough to attract foreign capital. The recent financial crisis that has hit some countries in the region shows that things are not so simple. Energy efficiency can help reduce the need for external financing. Energy efficiency is, for all intents and purposes, a “source of energy”, plus a potential financial resource to develop. Thus, for example, OLADE figures indicate that efficiency measures such as improved electrical interconnectivity and reduced power outages in Latin America will lower the capital deficit from \$10 billion to \$1.6 billion per year.

International cooperation from Europe has supported energy efficiency measures in Latin America, and thus has helped strengthen sustainable development in the region.

To move beyond mere projects with no lasting effects, however, a legal framework and a national or even regional policy are needed to promote energy efficiency. Precisely because the current pricing situation does not encourage the implementation of such programmes, a decisive political and legislative will must be brought to bear. Hence the great interest shown by Latin American legislators in this gathering, which will make possible a fruitful exchange of experiences in the coming years. This sharing process will spark interest and legislative resolve in Latin America, and it is in keeping with a number of international commitments and agreements into which our countries have entered.

Europe has experience with energy efficiency at the national and community level, in both the public and the private sectors. This experience dates back to the first oil shock in the early 1970s. It will be important to study the situation in Latin America and see how it differs from Europe. Latin America and Europe have some fascinating parallel experiences in their energy sectors: deregulation, liberalization, market integration, energy and environment, renewable energy, and of course, energy efficiency and savings. Hence it is all the more logical and necessary to share national and integrative experiences.

It should be noted that the European Parliament is aware that in the next millennium the demand for energy in Latin America will proliferate. The population explosion and accelerated economic growth will bring about major energy consumption and added CO₂ emissions. Therefore, issues related to the modernization of energy structures, improved energy efficiency, and environmental protection must be central to cooperation between the two regions.

A strategic and forward-looking vision of long-term global demand should have a broader economic and social context in which energy plays a fundamental role and energy issues are approached from an international perspective.

It makes no sense to define an energy policy at the level of Europe if the other regions of the world do not do so at the same time. Energy development planning now requires a greater extent of cooperation than ever before. In this regard, the European Union should take the lead because of its cumulative experience in defining and implementing energy integration policies.

The orientation of Europe's current energy policy requires that it cooperate with Latin America for sustainable development, and energy efficiency is a key element. Cooperation among nations and among integration blocs will be important in this effort, to ensure the transfer of specific experiences and knowledge. That is why the European Union programmes (SYNERGY, JOULE-THERMIE, SAVE, and ALTENER) have been working hard to establish major cooperation schemes.

The experience of developed countries like those of Europe shows that energy savings and the rational use of energy can be the basis of a strategy that developing countries, such as those in Latin America, can adopt for the future if they think in terms of limited energy resources and rising concern for environmental protection. The rational use of energy will mean lower costs and a lessened adverse impact on the environment. It is a matter, then, of finding a strategy that allows for lower energy consumption without undermining economic and social well-being.

For several years now, the European Parliament has been pursuing a sustainable energy policy that takes long-term interests into account. Europe can help Latin America avoid the mistakes it has made in energy management. We must reduce our dependence on non-renewable, polluting sources and expand the use of new technologies that strike a balance between those sources and renewable, non-polluting sources. In this transition to an increasingly sustainable use of energy, technological cooperation is indispensable.

Since the European Energy Charter was signed and the first application treaty was implemented, the European Parliament has issued numerous reports on the subject, and the European Union has laid the groundwork for developing closer ties with Europe's energy partners. This is why the European Parliament advocates closer cooperation with the countries of Latin America, using the approach taken in agreements such as the Mercosur accords. This parliamentary gathering should mark the beginning of an ongoing dialogue to identify the tools available to us for achieving greater energy efficiency.

Market liberalization, first with respect to electricity and then natural gas, has resulted in lower energy prices. Consequently, the prices of energy produced by fossil fuels are now the lowest in history. Moreover, they are expected to continue falling, which will affect energy investments and will hamper efforts to incorporate the externalities associated with energy use. All of this represents a difficult political task that we will probably have to debate in the near future.

Globalization means interdependence, which means that Latin America's problems are also Europe's problems. The international financial crisis, which was first unleashed in Asia and Russia and then had a ripple effect in Latin America, is a crisis that affects us all.

European business firms have committed to long-term investments in Latin America in energy and other sectors, and therefore Europe has an obligation to back up these investments and find shared solutions.

Economic integration is an essential tool in coping with globalization. Energy integration in areas such as Mercosur has brought about great advancements. The increased participation of the European private sector has been a key factor, above all in the electricity sector.

It is important to devise an energy cooperation programme to develop renewable energy sources, especially watercourses, wind, and biomass, while taking into account the need to protect virgin forests and other strategic ecological sites. Focusing energy cooperation on energy efficiency

will also require enhancing the role of cogeneration in order to make real progress in saving energy and reducing emissions of CO₂ and other pollutants.

Liberalization should not be an end in itself, but a means to achieve a sustainable energy system, an objective shared by Europe and Latin America.

II. Development and objectives of energy and energy efficiency policies in the European Union

When the oil crisis erupted in 1973, the countries of the European Union, like most developed countries, were consuming excessive amounts of energy and were largely dependent on imported oil. The crisis brought to the fore the need to devise an energy strategy that would minimize the impact of any future interruptions in supply. The three components of this strategy were: *a*) reducing dependence on imports of oil from members of the Organization of Petroleum Exporting Countries (OPEC); *b*) diversifying energy sources; and *c*) lowering consumption by making more efficient use of energy.

By the mid-1980s, the European Union had cut oil imports in half and reduced energy intensity by 20%. By the mid-1990s, less than half of its energy needs were met with imports (46.5%), compared to nearly two-thirds 20 years ago.

In the last two decades, the environmental aspects of power generation and consumption have become an important ingredient in energy policy. Since the late 1980s, the European Union has adopted a broad range of measures to limit environmental damage caused by energy consumption, the most noteworthy being the introduction of unleaded gasoline, the reduction of toxic emissions from automobiles and large combustion facilities, and the improvement of sulfur content in gasoil used for heating and locomotion.

A. Objectives of the 1995 white paper

The European Union still lacks a common energy policy, in the strictest sense, because of the difficulty in harmonizing the different aspects of national energy policies. One key reason is the fact that national Governments want to continue exerting control over a sector that is considered strategic. In addition, importing countries have different interests than exporting countries (such as England and Holland). It is worth noting that transparency in energy prices and coordination of tax policies are also top priorities.

One of the missions of the European Union in the area of energy policy is therefore to bring national policies in line with certain objectives. At present, the Member States are reviewing the general policy and the specific objectives set forth in the white paper “An Energy Policy for the European Union”, published by the Commission in late 1995.

That report states that energy policy must focus on these three objectives in the coming years:

- overall competitiveness
- security of energy supplies
- environmental protection

In keeping with these objectives, a number of proposals are already being drafted. The integration of EU countries’ energy markets and the liberalization of the natural gas and electricity markets are of the utmost importance. Furthermore, competitiveness rules must be enforced with transparency and consistency, ensuring fair competition among all forms of energy.

The Commission believes that the key to any sustainable energy development policy is to guarantee that prices more accurately reflect the environmental impact of different forms of energy. A fundamental step in this direction could be a change in the way the tax burden is distributed, transferring taxes to natural resources. Any negative impact on competitiveness that might result from higher energy prices could be offset by lower indirect taxes on labor.²

B. Principal instruments of energy policy in the European Union

The white paper provides guidelines that can be followed in the next few years regardless of whether the Intergovernmental Conference decides to introduce more specific energy provisions into the Treaty.

This white paper is, in turn, the result of a wide-ranging debate among all interested parties based on the Commission’s green paper on the same topic, published one year earlier. The green paper produced, among other things, a resolution adopted by the Council in June 1995, in which it accepted in general terms the need to set new guidelines for EU energy policy. These new guidelines would replace those approved in 1986 for the target date of 1995.

The objectives established in these guidelines were only partially achieved during the decade to which they applied. One reason for this unsatisfactory result is the lack of clear coordination of the different Member States’ jurisdictions with respect to energy policy, both among the States and, in some cases, between them and the European Union.

² In accordance with this approach, the Commission has proposed a tax on CO₂ emissions, although it recognizes that it may be difficult for Member States to reorient their tax revenues in this direction, especially if their industrial competitors in other Member States do not follow suit.

The European Union's jurisdiction is also based on different legal provisions contained in the three founding treaties and in the Treaty on European Union, rather than a clear set of definitions, as is the case with foreign trade and farm policy, to cite two obvious examples.

The main purpose of the debates on energy issues that are taking place simultaneously at the Intergovernmental Conference on Treaty Revisions and the Council of Energy Ministers is to adopt clear guidelines based on the specifications set forth in the white paper.

With respect to the objectives of reducing dependence on external supplies, using energy more efficiently, and limiting the environmental impact of certain fuels, special attention should be given to three EU initiatives:

i) The Energy Charter. Signed in The Hague in 1991, the Charter is an important initiative in the area of international cooperation. It is essentially designed to transfer technology and investment to the countries of the former Soviet Union. In 1995, the signatories approved a basic agreement establishing legally binding standards for matters such as energy exchanges, terms of competition, and investments and access to capital. A complementary treaty on terms of investment is currently being negotiated. The European Union is also lending support for energy investments that promote economic and social development in the countries of the former Soviet Union and Central and Eastern Europe, the Mediterranean region, Asia, Latin America, and the countries of Africa, the Caribbean, and the Pacific.

ii) Trans-European power grids. The development of cross-border gas and electricity grids, which are vital to the creation of a single energy market, is one of the objectives set forth in the Treaty on European Union. Among the projects approved by the Council of Ministers and the European Parliament in 1995 and targeted for completion by the end of the century are electricity links between France and Italy and between France and Spain, and natural gas mains in Greece and Portugal.

iii) Energy technology research and development. The European Union supports a wide range of programmes designed to promote the continual technological progress that is necessary for the supply, conversion, and utilization of energy. JOULE/Thermie, for example, promotes a great variety of key energy technologies, while SAVE and ALTENER intend to improve their coverage of energy markets (see table).

1. The role of energy efficiency in cooperation between the European Union and Latin America: the SYNERGY Programme³

The European Union's international energy cooperation policy addresses the energy aspects of international relations, including the bilateral economic cooperation of the Member States and the ALURE Programme, which is designed to improve the efficacy of investments and energy consumption in the new approaches being taken in the Latin American energy sector. It also addresses the international aspects of energy strategy, and it is in that context that the SYNERGY Programme is being carried out in the area of energy policy and the THERMIE Programme in the dissemination of new technology.

SYNERGY is a cooperation programme administered by the Directorate-General of Energy (DG XVII) of the European Commission. The European Union became involved in international energy cooperation projects after the oil crisis of the 1980s through the "International Energy Cooperation Programme", which later became SYNERGY.

³ Taken from the paper "The Role of Energy Efficiency in Cooperation between the European Union and Latin America", presented by Mr. François Casana, head of the SYNERGY Programme, D-G XVII of the European Commission.

SYNERGY finances projects for international cooperation with third countries to develop, formulate, and implement energy policy in areas of mutual interest. These projects can contribute to meeting the objectives defined in the European Union's white paper.

Unlike other EU programmes that are more general in scope and include the energy sector among their areas of application, SYNERGY is a specific programme for energy policy that covers the external dimension of the European Union's actions with respect to energy policy. Insofar as SYNERGY is not an aid programme but one of cooperation, its projects are carried out in accordance with the guidelines of the organizations of the European Commission.

SYNERGY is in the forefront of the coordination initiatives that the European Union is pursuing in the energy sector, and it is closely linked to the European Commission's Directorate-General for Foreign Relations and other programmes of DG XVII (such as THERMIE). This ensures that support for the projects is coordinated with other programmes in the Community.

The general objectives of SYNERGY are: secure supply, overall competitiveness, and protection of the environment. SYNERGY's actions are primarily oriented toward:

- energy policy education and training
- analysis and forecasting of energy-related issues
- organization of seminars and conferences; and
- support for regional, cross-border cooperation on energy matters

SYNERGY carries out cooperation activities in all countries. Nevertheless, it gives priority to relations with Eastern and Central Europe, the new Independent States (former USSR), and the Mediterranean countries, Latin America, Asia, and Africa.

In 1997 and 1998, SYNERGY's budget was 6.6 million and 8 million ECU, respectively. In 1997, 20% of SYNERGY's budget allocations were earmarked for Eastern and Central European countries, while 17% went to the former Soviet Union and 13% was allotted to Latin America.

Among SYNERGY's cooperation activities in Latin America in 1997, the following are worthy of mention:

- Complementarity of energy resources in Latin America, cofinanced with the Latin American Commission of Regional Electrical Integration (CIER);
- Postgraduate courses in energy policy and economics, with the Bariloche Foundation (Argentina);
- Urban Energy and Environmental Issues, with Mercosur;
- Institutional cooperation with Mercosur;
- Promotion of geothermal resources in Latin America, cofinanced with ECLAC;
- Energy Efficiency in Latin America, implemented with ECLAC.

C. Council of the European Union's decision on the energy framework programme

In the last two years, the European Union has made considerable progress in defining the Community's energy policy, particularly with regard to Rational Energy Use. Thus, for example,

we have the Communication from the Commission in May 1998 and the Decision of the Council of the European Union on the Energy Framework Programme (Annexes 2 and 3).⁴

In November 1998, the Council of the European Union adopted the Basic Decision related to the Energy Framework Programme (Multiannual Framework Programme of Activities) for the 1998-2000 period, as well as decisions regarding the ETAP, SYNERGY, CARNOT and SURE Programmes.⁵ The Council also reached a provisional political agreement on two other related decisions, concerning the ALTENER and SAVE Programmes.⁶

The objective of the Framework Programme is to establish a framework for a more appropriate and integrated community energy policy. The Framework Programme is intended to improve the transparency, coordination, and coherence of the various energy programmes and also make them more effective. In addition, improvement is needed in coordination with other programmes that have an energy component, for example in the area of research.

The Basic Decision allocates 170 million ECU for the execution of the Framework Programme. Before the end of 2000, the Council intends to revise the Framework Programme for the remainder of its term, based on a communication from the Commission setting forth priorities in the activities in the energy sector, and in particular in the SAVE and ALTENER Programmes.

With respect to the programmes, the Council has approved the following:

1. ETAP is a specific programme of studies, analysis, forecasts, and other related tasks aimed at the future development of Community energy policy. The budget allocation for this programme is 5 million ECU.

2. SYNERGY is a specific programme designed to promote international energy cooperation. The budget allocation for its application is 15 million ECU.

3. ALTENER is a specific programme intended to promote renewable energy sources and to support the formulation of a Community strategy and plan of action on renewal energy for the period ending 2010. A total of 74 million ECU has been allotted for it.

4. SAVE is a specific programme set up to promote the rational and efficient use of energy resources. Its allocation amounts to 64 million ECU.

5. CARNOT is a specific programme aimed at developing clean solid fuel technologies. The amount budgeted for this programme is 3 million ECU.

6. SURE is a specific programme of activities in the nuclear sector concerning safety in the transport of radioactive material, efforts to monitor safety, and industrial cooperation for promoting certain safety aspects in nuclear facilities in the countries currently participating in the TACIS Programme. A total of 9 million ECU has been allocated for this purpose.

⁴ Recently, in November 1998, the Economic and Social Committee also expressed support for the Commission's Communication of April 1998.

⁵ See Table 2.

⁶ The delay in the adoption of two parts of the programme —SAVE and ALTENER— is strictly for procedural reasons, that is, the fact that the European Parliament has not issued its opinion on these proposals. Consequently, the Council and the Commission have emphasized the importance of consistency in the content of the Basic Decision and all of the specific programmes.

D. The role of national energy and environmental agencies in the promotion of energy efficiency⁷

The Network of European National Energy Agencies (EnR) was founded eight years ago for the purpose of promoting the sharing of experiences in the application of energy efficiency policies and increasing the collaboration among all members. It is still pursuing that mission. EnR is based on the premise of an informal forum in which constructive dialogues can take place among the members and between them and third parties.

The activities of the Network revolve around the constant exchange of information, which is organized through several working groups. These groups represent an opportunity for our organizations' experts on each subject to confer with each other, and they clearly constitute the backbone of the association. At this time, the working groups in operation are: *a)* Energy Efficiency Indicators, *b)* Renewable Energies, *c)* Transport, *d)* Non-technological Aspects of Energy Efficiency, and *e)* Efficient Equipment.

These working groups not only provide for the internal exchange of information, but they also organize international seminars. They have joined forces with the European Commission to implement a variety of Community programmes, such as SAVE and ALTENER. They have also drafted reports of particular significance, such as ATLAS, on future trends in energy technology; SENSER, on the synergies between the research and development efforts of the Member States and of the European Commission, or on the international comparison of energy efficiency indicators.

EnR has always shown a willingness to support and share experiences with similar structures in other regions of the world. In addition to collaborating on activities with agencies of Eastern and Central Europe, it has given outstanding support to the establishment of the MEDENER Association, which encompasses the National Energy Agencies of countries on both sides of the Mediterranean. In the future, there may be an interest in creating a similar association grouping the national agencies and institutions that promote energy efficiency in Latin America and Europe, which will help foster closer cooperation between us and promote the sharing of experiences.

The members of the EnR are very diverse, in terms of both their competencies and their resources, as well as the composition of their government agencies, their policies, etc. But one common feature of them all is their Governments' political will to enhance the rational use of energy.

The role of the agencies is to serve as instruments for the implementation of energy efficiency policies. Their ways and means of acting have been adapted over time to keep up with the changes taking place around them, which have been considerable since most of the agencies were founded in the mid-1970s. Back then, rising oil prices were a major cause of concern and reliable supplies of fuel were being sought.

Now, energy prices are 40% lower, in real terms, than they were 25 years ago. On the other hand, energy markets have been liberalized and the concern now is to reduce the environmental impact and cut CO₂ emissions derived from energy production and consumption. Furthermore, global economic integration has heightened business firms' interest in competitiveness. For this reason, the challenge facing these agencies at present is to find effective tools for promoting energy efficiency in this new context.

Thus, for example, the results of the study called International Comparison of Energy Efficiency Indicators, conducted recently in a collaborative effort between the EnR and the

⁷ Taken from the paper presented by Mrs. Concepción Canovas del Castillo, president of the Network of European National Energy Agencies and general manager of EDAE in Spain.

European Commission, clearly show how the intensity of energy use in Europe, which improved significantly during the decade following the mid 1970s, later became stable or even worsened.

To reverse this trend, the European national agencies responsible for promoting energy efficiency have used a variety of instruments and measures to encourage saving in the various sectors of economic activity. Among the most common tools are long-term agreements with industry, fostering the establishment of energy service companies, energy standardization and labelling, and training and information activities.

We believe that the National Energy Agencies have proven to be an efficient and flexible instrument for applying energy policies, as they are able to adapt their approaches to a constantly changing situation. Working close to the market, they play an important role in demonstrating new technologies to the market, paving the way for private businesses to open up markets for rational energy use.

Table 1
THE KYOTO COMMITMENTS

The international community's concern about the damage to mankind caused by global toxic emissions from gases that cause the "greenhouse effect" led to an international conference held in Kyoto, Japan, in late 1997. More than 100 countries were represented at the conference, whose most important achievement was a commitment by all countries to specific goals for reducing emissions of carbon dioxide and other gases. Since the countries responsible for most of the gas emissions are industrialized, their reduction targets are greater.

The European Union has committed to reducing overall emissions, including those of greenhouse gases, by 8% for the 2008-2012 period, using 1990 as a base year. CO₂ is the gas that causes by far the most pollution, and most of the emissions derive from the use of fossil fuels as energy sources. It should be emphasized that, even before the Kyoto Conference, there were already CO₂ reduction targets in the European Union.

***National commitments for reducing greenhouse gases
Kyoto Agreement***

Germany	-21%	Ireland	+13%
Austria	-13%	Italy	- 6.5%
Belgium	- 7.5%	Luxembourg	-28%
Denmark	-21%	Netherlands	- 6%
Spain	+15%	Portugal	+27%
Finland	0.0%	United Kingdom	-2.5%
France	0.0%	Sweden	+4%
Greece	+25%	EU Total	-8%

The individual figures are the result of an internal agreement within the European Union after the Kyoto Conference, as a result of the commitment to cut emissions by 8%.

The European Union and the Member States are more than justified in their concern about stepping up policies to reduce emissions of greenhouse gases in response to the Kyoto commitments, considering that there is a gap between the CO₂ reduction and energy conservation targets and what has been accomplished so far.

As the Commission says, "Covering this distance (between the increase and the reduction targets) will require the adoption of ambitious measures and policies, especially in the area of energy, and all in all, it may involve a reorientation of the objectives of society as a whole. A true political will to carry out these very necessary steps will be needed". (Commission on the Energy Dimension of Climate Change).

The central questions for the future are: whether the European Commission and the Governments of the Member States are in a position to implement the necessary policies, and whether the liberalization of energy markets that the Commission is promoting is compatible with the "new needs" for energy efficiency and reduced emissions.

Source: Lutz, Wolfgang F. (1998) "The Role of Legislation and Regulation in the Energy Efficiency Policies of the European Union and the Member States", paper presented at the I Europe-Latin America Dialogue Promotion of Energy Efficiency.

Table 2

EUROPEAN UNION PROGRAMMES WITH AN IMPACT ON ENERGY EFFICIENCY*JOULE-THERMIE*

The Community's programme for Research, Development and Demonstration (RD&D) of non-nuclear energy technologies in the European Union. The Joule Programme is more devoted to research, while the Thermie programme subsidizes the development of technology demonstrations incorporating energy efficiency. The JOULE-THERMIE budget for 1995-1998 was 464 million ECU for research and development projects (JOULE) and 566 million ECU for projects and activities involving the demonstration and dissemination of innovative technologies (THERMIE) in the areas of (i) strategies for energy technology research and development, (ii) rational energy use, (iii) renewable energy, (iv) fossil fuels, and (v) dissemination of energy technology.

SAVE I and SAVE II

The SAVE I and SAVE II Programmes ("Specific Actions for Vigorous Energy Efficiency") are aimed at fostering energy efficiency in the Community through (i) the application and development of community-wide measures to improve energy efficiency (such as voluntary commitments, energy normalizing, and cooperative purchases), (ii) sectoral pilot projects designed to speed up investments in energy efficiency and improve energy utilization habits, (iii) promoting the sharing of experiences at the international, Community, national, regional, and local levels, (iv) improving the management of energy resources at the regional and urban levels and favoring greater cohesion among Member States and the regions with respect to energy efficiency, and (v) reinforcing energy efficiency infrastructures in the Community.

The SAVE II Programme (1996-2000), with a budget of 45 million ECU, is the continuation of the SAVE I Programme (1991-1995), which had a budget of 35 million ECU. It incorporates the previous PACE (Programme to Improve Efficiency in the Final Use of Electricity) and PERU (Regional and Urban Energy Programmes). The SAVE II budget indicates that it is a small programme (software) intended to prepare and support pilot projects and draft energy efficiency legislation.

ALTENER

This programme is aimed at expanding the market for renewable (alternative) energy sources and integrating them into national energy markets. Thus, ALTENER helps achieve the objective of cutting CO₂ emissions from fossil fuels (traditional energy sources). These programmes are relatively small. Thus, ALTENER I (1993-1997) had a budget of 40 million ECU, and ALTENER II will be allocated 30 million ECU for its first two years.

AUTO-OIL

In the transport sector there is an Automobile-Petroleum (AUTO-OIL) Programme, which the Commission has been carrying out since 1992 in conjunction with the European petroleum and automotive industries. The programme provides for improving the quality of fuels, introducing advanced motor technologies on the market, developing the transport infrastructure (including public transit) and alternative fuels (among others). Within the framework of the new "Community Strategy for Reducing Automobile CO₂ Emissions and Average Fuel Consumption," the Commission has proposed specific objectives for the average consumption of new autos as of 2005. The RD&D activities promoted under the JOULE-THERMIE Programme, "The Car of Tomorrow" and "The City of Tomorrow", should be mentioned in this connection.

Table 3

ALURE: A METHODOLOGY FOR PROMOTING ENERGY EFFICIENCY

In the Commission's Communication "Orientations of Cooperation with Latin America 1996-2000", adopted in the fall of 1995, emphasis was placed on the need to promote real participation by players in civil society in all stages of the formulation of activities and projects. In this regard, the following points should be noted:

- Civil society is playing a new role in Latin America and is an element in the strengthening of democratic systems;
- Direct ties between the players in civil society in our two regions should be established or strengthened;
- New methodologies should be put in practice to allow civil society to intervene from the beginning of a project's cycle.

These considerations have led to the emergence of decentralized methodologies such as AL-INVEST (which is aimed at small and medium-sized industrial and commercial enterprises), ALFA (relationships among universities for academic training); URBAL (relationships among cities), and in 1995, ALURE (Latin America for Rational Energy Use).

ALURE is an energy cooperation programme between the European Union and Latin America. In two years, there have been invitations for tender for two projects, with companies from 13 Member States and 15 Latin American countries participating. All together, 212 companies participated in the bidding, and 50 were awarded contracts. The total financing amounted to 16 million ECU for the 1995-97 period, of which 8 million ECU was provided by the European Commission.

The total cost of ALURE for 1998-2002 will be a minimum of 50 million ECU, of which 25 million ECU will come from the Commission. Thus, we believe that the ALURE Programme has attained cruising speed. The most important firms in the energy sector are partners in the project, especially in the gas and electricity sectors. I would also like to point out that one in four projects are approved, that is, 25%, which is quite reasonable.

The overall objective of ALURE is to facilitate relations between energy operators in the European Union and their counterparts in Latin America for their mutual benefit. Specifically, the goals are:

- to improve the services provided by Latin American power companies in several respects (technical, economic, financial), and to promote commercial ties with their European counterparts, particularly with small and medium-sized enterprises (SMEs);
- to contribute, if necessary, to the improvement of political, regulatory, and institutional frameworks;
- to take these actions with a view to sustainable development.

ALURE was launched in conjunction with the changes in approach that have occurred in Latin American energy systems, especially the restructuring, decentralization, and commercialization of these systems, and greater participation by the private sector. ALURE was designed to allow Latin American organizations to learn from the European experience and to encourage European companies to maintain a presence in this process of change.

Source: Paper presented by Mr. Francisco Da Camara Gomes, Director for Latin America, Directorate-General of Foreign Relations, European Commission.

Table 4

SPECIFIC CONSIDERATIONS OF THE COUNCIL OF THE EUROPEAN UNION ON THE ENERGY FRAMEWORK PROGRAMME

The Framework Programme in the energy sector is intended to increase the transparency, coherence, and coordination of all actions undertaken at the Community level. One of the objectives of the Energy Framework Programme and its six specific programmes (ETAP, SYNERGY, ALTENER, SAVE, CARNOT, and SURE) is to guarantee that the development of energy production and energy consumption are compatible with environmental protection.

In this context, the Council "attributes special importance to the ALTENER and SAVE Programmes. The Council recognizes that the energy sector can make a decisive contribution to environmental integration and sustainable development, with respect to the commitments included in the Kyoto Protocol on Climate Change, for example, along with contributions to sectors such as transport, agriculture, and industry".

In addition: "The Council observes that activities on Community policies in other areas, including the Fifth Framework Programme on research, technological development, and demonstration activities, can have direct repercussions on the ability of the energy sector to contribute to the achievement of environmental objectives. The Council reaffirms the role of the Community as a complement to the national measures, and recalls that it has urged the Commission to present specific proposals for the development of coordinated, common policies and measures when appropriate.

"The Council takes due note of the fact that in the Commission's working document, the list of possible measures for action included adequate fiscal measures, economic incentives, and other similar economic measures tending toward the reduction of emissions. It takes note of the fact that the debate in the EU is developing in the relevant formation of the Council.

"The Community's objectives with respect to energy policy are also being pursued in its foreign policy. Important steps have been undertaken. For example, within the Treaty on the Energy Charter is a protocol on energy efficiency and the related environmental effects; the Euro-Mediterranean energy association has agreed upon a plan of action; and a technical commission on energy has been formed in the Baltic region. As for the expansion, the Council recalls that the adherence strategies related to the environment encompass elements of energy policy.

"The Council believes it is necessary to further develop and continue this strategy of integrating energy and environmental objectives, bearing in mind the principle of subsidiarity. Greater integration of environmental and sustainable development considerations in energy policy entails, among other aspects:

- reinforcing the internal dimension, as appropriate, through specific energy measures and programmes, such as those related to climate change; making sure existing policies and measures, such as the Energy Framework Programme, are enforced effectively and studying other initiatives in the areas of renewable energy sources and energy efficiency; and drawing up energy sector indicators that reflect the manner in which Community actions contribute to achieving energy policy objectives;
- ensuring close coordination with other Community policy initiatives and among the different levels of the Council, to include future debates on environmental issues such as climate change, in relation to matters such as commitments to reduce greenhouse gas emissions and especially the application of flexible mechanisms, which are of particular importance to the energy sector;
- further developing the external dimension of actions in the area of energy.

"The Council intends to place more emphasis on this strategy 'for making environmental integration and sustainable development a reality in the context of energy policy, based on the activities mentioned in this report, and after examining the Commission's Communication on 'Strengthening the Environmental Integration of European Energy Policy' with a view to presenting a more detailed strategy document in 1999.

"The Council states that this strategy will include its own clearly defined objectives for facilitating the establishment of priorities. The processes and procedures will be monitored and studied in order to evaluate progress, and any modifications that may be necessary will be made".

Source: Council of the European Union, Basic Decision on the Energy Framework Programme for the 1998-2002 Period, November 1998.

Table 5

EUROPEAN UNION: SUSTAINABLE ENERGY DEVELOPMENT

- It is essential that there be a commitment at the level of the European Union to promoting energy efficiency, which should encompass all institutions. This commitment should be extended to the Governments of the Member States, and should be considered a priority.
- This commitment should result in closer cooperation among EU and national energy efficiency programmes.
- Voluntary agreements and commitments should come from Governments, industry, consumers, and other participants in the energy market. The terms and conditions of these commitments can be coordinated by the programmes of the European Union, such as SAVE II.
- A growing concern among consumers for the need for a sustainable energy system should be encouraged and reinforced. Consumers should demand greener products and services, as well as more efficient energy services.
- The monitoring and evaluation of the results of measures designed to promote energy efficiency will be increasingly important in the wake of the Kyoto Conference.

Source: Paper presented by Randall Bowie of the European Commission's DG XVII.

THE NEED FOR A COMMON FRAMEWORK FOR ENERGY EFFICIENCY IN THE EUROPEAN UNION

A common framework is needed in the European Union for considering the development of all sustainable energy technologies, including renewable sources, energy efficiency, and energy saving. This framework should make it possible to set forth adequate measures to give these technologies equal access, without restriction, to energy markets.

A framework that takes all of these sustainable technologies into account will benefit from the synergies that result from a common approach, given the characteristics they share. This common framework could be based on the following objectives:

- 1) Reducing the impact on the environment;
- 2) Limiting the consumption of conventional energy, and therefore increasing the security of supplies;
- 3) Investing more in locally produced equipment to reduce the costs derived from imported fuels, with the consequent rise in employment;
- 4) Orienting activities toward decentralization and quality rather than centralization and quantity, favoring economic and social cohesion;
- 5) Recognizing the important potential of international technological cooperation.

Thus, it is necessary to take advantage of the benefits offered by sustainable technologies as a whole. This approach to energy policy in the European Union leads to a strategy based on the following directives:

- 1) Use of efficiency and energy saving to reduce consumption as much as possible;
- 2) Increasing use of renewable energy sources to cover as much demand as possible;
- 3) Use of conventional sources to cover the remainder.

These directives are currently the basis for various energy strategies in the nations of the European Union, such as the Energy Plan for the Upper Austria Region and the energy programmes in Holland.

Source: Paper presented by Mr. Carlos Robles Piquer, member of the European Parliament's Commission on Energy and Technology Research and Development.

III. Promotion and regulation of energy efficiency in the countries of the European Union

A. Energy efficiency legislation and programmes in Spain⁸

Energy projections for the 1991-2000 period are contained in the National Energy Plan (PEN-91), approved by the Government in July 1991. This plan also contains the Energy Efficiency and Saving Plan (PAEE), a framework within which criteria and measures are established for consideration during the decade. The objective is to ensure lower energy consumption for the same levels of economic activity and social well-being, while at the same time promoting new ways of supplying energy. Through the PAEE, the Ministry of Industry and Energy is promoting and supporting an energy efficiency policy as a means of bringing about economic growth without higher energy consumption.

In the middle of the 1990s, as a consequence of the Electricity Protocol (an agreement signed between the Ministry of Industry and Energy and electricity companies), a Demand Management Programme was established to flatten the energy demand curve, among other objectives.

⁸ Taken from the paper "Legislation and Programme on Energy Efficiency in Spain", presented by Mr. Enrique Ocharan, Chief of the Directorate General of Energy, Ministry of Industry and Energy of Spain.

a) The National Energy Saving Plan (PAEE)

The National Energy Saving Plan proposes to cut final energy demand by 10.4% by the target year 2000, which means reducing demand by more than 8 million tons of oil equivalent (TOE). In addition, electricity production is to be boosted by 13,700 Gwh/year. Achieving these targets will require investments of more than 1 trillion pesetas (US\$7.14 billion), as well as the application of public resources valued at approximately 190 billion pesetas (US\$1.35 billion).

From this standpoint (Kyoto), it is clear that energy policies should move in the direction of diversifying energy sources, saving energy, and using it more efficiently. It is in this context that the current PAEE is being implemented. For purposes of management and follow-up, actions taken to meet the proposed objectives are divided into four programmes according to their purpose: *i) Saving, ii) Substitution, iii) Cogeneration, and iv) Renewable Energy Sources.*

The Saving, Substitution, and Renewable Energy Sources Programmes have two sources of financing: direct subsidies investment, and financing by third parties under the Institute for the Diversification and Saving of Energy (IDAE). The Cogeneration Programme has two sources of financing: a premium on electricity sales to the grid, and financing by third parties under the IDAE.

Public funds amounting to about 3.7 billion pesetas (US\$26 million) will be spent each year, complemented by an overall subsidy under the European Union Framework of Community Support, charged to the European Regional Development Fund, for energy and environmental activities related to the rational use of energy, the rational substitution of energy sources, and the development of renewable energy sources.

i) Energy Saving Programme. The purpose of the Saving Programme is to reduce final energy demand without affecting levels of economic activity. It is based on replacing current energy-consuming equipment with more efficient units, which is primarily a function of technological and feasibility criteria. The rate of replacement is directly related to both access to available technology and possibilities for financing and amortizing the new equipment, and it is the industrial sector that is in the best position, given its enhanced sensitivity to energy costs and its concentrated consumption.

Since 1993, subsidies for energy use projects under this programme have been regulated by a Ministerial Order setting forth specific activities eligible for subsidies in industry, the service sector, and the substitution of energy sources:

- Projects designed to make substantial reductions in energy consumption in industrial plants, thereby cutting the specific energy use of processes.
- Projects involving the application of innovative technologies in industrial sectors such as food processing, tanning, auxiliary industry, paper, red tile, glass containers, and chemicals. The maximum subsidy will be 40% for SME projects and 20% for other applicants.

Thus far the Ministry of Industry and Energy has spent more than 19 billion pesetas (US\$135 million) on subsidies to projects accepted in the PAEE's annual calls for proposals.

ii) Substitution Programme. The purpose of the Substitution Programme is to introduce natural gas as a direct replacement for coal, petroleum products, and electricity, which will result in savings of 123,000 equivalent tons of petroleum due to better quality combustion. It should be noted that the industrial sector accounts for over 70% of the programme's objective.

iii) Cogeneration Programme. In the mid-1980s, cogeneration in Spain was centered in industries that made intensive use of energy, especially refining and food production, but it was regarded more as a backup than as a permanent source of energy. Since the early 1990s, however,

these technologies have expanded into other sectors, and at the same time, they have been used more intensively as permanent operating systems. The high yields of electricity produced by turbines and motors, coupled with the strong development of gasification and the legal framework encouraging self-production, have been key factors in the expansion of cogeneration.

Cogeneration is excluded from PAEE subsidies under the National Energy Plan's own definition. Public support is limited to financing, most noteworthy being Financing by Third Parties (FPT) under the IDAE, which has given a major impetus to this sector (see below).

The legal framework for electricity self-production has been modified recently under Law 54/1997 of 27 November, governing the electricity sector. This law provides that for cogeneration facilities with a capacity of up to 10 MW, power exported to the grid will receive an additional premium during the first 10 years of use, so that the sales price is in a band between 80% and 90% of the average price that will be set. Right now, regulations are being drafted for the Special Electricity Production System, which will determine the parameters of this band.

The cogeneration market is still large in our country. Recent trends show that it is gradually making inroads in industrial sectors where cogeneration has not been seen before. This is accompanied by the penetration of natural gas as an alternative source of fuel, and the expansion of process integration techniques.

b) The Electricity Demand Management Programme

This programme, with a yearly budget allocation of 5 billion pesetas (US\$35 million), was launched by the Ministry of Industry and Energy in conjunction with the electricity companies in 1995. In fact, it is a series of programmes that are revised from year to year. The first time a call for proposals was issued, there were 10 different electricity demand management programmes.

The programme is based on the use of energy planning techniques that emphasize overcoming obstacles to investment in energy efficiency in sectors that consume large amounts of power. The resulting energy savings and the environmental benefits lower energy costs and increase the competitiveness or buying power of energy consumers.

In Spain, the Electricity Demand Management technique is implemented through power distribution companies as a means of promoting energy efficiency, primarily because these companies have direct access, through their energy efficiency activities, to a wide variety of consumers, such as those in the building sector and SMEs.

Electricity Demand Management refers to a series of actions taken to alter demand (customers). They are taken either directly or indirectly by electricity companies, which intervene in the market to change the configuration or magnitude of the load curve, either by introducing more efficient technologies or techniques, or by influencing consumers' habits.

Demand Management is part of a broader concept known as Integrated Resource Planning (Lowest-Cost Planning), in which electricity companies bring to bear a variety of resources and actions to minimize future investments and costs (in many cases the promotion of Demand Management measures entails a lower current cost than what future power generation needs will cost). Demand Management has the added effect of improving customer attention and service.

The traditional activities of the electricity company (production, transport, and distribution of power) are thus expanded to include the new role of customer service.

The programmes that have been implemented will yield significant benefits for all players: consumers, thanks to the savings in energy costs; the industrial sector, owing to the demand for new equipment; electricity companies, which will see improved management and commercial ties

with their customers; and most definitely, the country as a whole, because of the improvement in the environment and the increased energy efficiency of its production and services systems.

B. Regulatory frameworks and administration of energy efficiency by public agencies in France⁹

France's energy policies in the 1970s and 1980s were conceived in response to the oil shocks of 1973-1974 and 1979-1980. The principal objectives were to reduce dependence on oil from the Middle East, giving priority to developing nuclear power plants; to diversify the power supply, developing new sources of energy, especially renewable ones; and to improve energy efficiency among end-users, and particularly among power generators.

In 1986-1987, the energy policy was revised once again, this time as a consequence of the significant drop in oil prices. State support for energy policy was reduced, as were subsidies for direct investment. Given this state of affairs, in the ensuing years, economic growth was not accompanied by improvements in energy efficiency.

Officials began emphasizing, however, that there should be a closer relation between energy policy and environmental preservation, especially in light of the international commitments that had been made to cut CO₂ emissions. In 1992, the Agency for the Environment and Energy Economy and Efficiency (ADEME) was established to unify the three agencies that had until then been dealing separately with the issues of air quality, energy conservation, and the elimination of residues.

Now it can be said that energy conservation is an integral and specific feature of French energy policy. Decision-makers, both public and private, are convinced that the efficient use of energy goes hand in hand with overall economic efficiency.

a) Lessons learned

i) The need for a wide variety of instruments. One of the unique aspects of French energy conservation policy is the use of a variety of intervention methods, including regulatory and economic actions and campaigns to inform the public and raise awareness of the issue. This policy is the product of an interministerial declaration led by the Interministerial Evaluation Committee (CIME). It is fair to say that the Government becomes concerned about energy problems when prices rise. Thus, every time that problem arises, financial measures are stepped up. When energy prices fall, however, the measures are cut back. Nevertheless, it is difficult to quantify whether it was the price factor or the method used that brought about the results attained (whether good or bad).

ii) Sometimes development patterns have hindered technological advancement. Advances in energy conservation in France illustrate the fact that nothing can be considered finally concluded (achieved) in this field. The strong correlation between economic growth and energy consumption, which was practically dogma for 25 years, was seriously questioned in 1973. Between 1973 and 1990 there was no longer parallel growth of the GDP and energy consumption, but since 1990 it can be said that the increase in energy efficiency (EE) has not been related to economic growth. This is important, because it contradicts assertions that continuing improvements in EE are a spontaneous product of free market policies, regardless of any intervention by the public sector. In other words, this is another dogma that contradicts the one that prevailed 25 years ago.

⁹ Taken from the paper presented by Mr. Yves Lambert, Manager of International Projects of the Agency for the Environment and Energy Economy and Efficiency (ADEME).

iii) There have been technological changes, but they have been counteracted by consumer decisions. This has happened in different industrial sectors, particularly in transport. For example, consumers are now demanding more comfort and power in automobiles. Recent observations therefore confirm the negative impact that low long-term prices have on energy efficiency. This should be taken into account.

b) Priorities

The two priorities of the conservation policy are the transport sector and the reduction of demand for electricity. The current debate on energy conservation has changed considerably, however. We are moving away from the debate on the energy trade balance and achieving energy independence (which are fully justified) to focus much more on the “greenhouse effect”, especially since the Kyoto Conference.

The challenges in France are enormous, as the problem we face is the following: If electricity production in France in the future depends increasingly on fossil fuels, what can we do to reduce CO₂ emissions among the many consumers of energy, who are operating in an increasingly competitive market at a time when prices are lower than ever?

The problem is not simple, and it is growing worse. Indeed, a report published recently by the government planning agency (Planning Commission) shows CO₂ emissions stabilizing in only one out of three scenarios described, the environmental scenario. The report, more than a year in the making, contains projections for the period 2010-2020, and it shows these emissions rising in the other two scenarios evaluated.

For this reason, the Government is thinking of intervening, and it has proposed two measures for Parliament to vote on in 1999:

- The introduction of an environmental protection tax. The tax would cover waste products, lubricants, air pollution, and airport noise. Although revenues from this tax would be limited (2 billion francs, or about US\$400 million), the important thing is that it paves the way for a future ecology and energy tax in Europe.
- ADEME’s budget has been quintupled by adding another 500 million francs (US\$100 million) for the purpose of devising new energy conservation policies and developing new renewable sources of energy.

C. Energy efficiency in a free energy market: the approach of the United Kingdom¹⁰

Energy efficiency programmes in the United Kingdom have had different focuses in the last 20 years. Between the mid-1970s and the early 1990s, the focuses were:

- a) economic competitiveness;
- b) privatization of state power companies, liberalization of energy markets; and
- c) reduction of energy prices by increasing competition

These objectives were achieved in large measure by enforcing the provisions of the energy policy and by taking advantage of the international situation. As a result, energy prices were brought down significantly.

¹⁰ Taken from the paper presented by Mr. David Vincent, Programme Director of the Department of the Environment, Transport, and Regions in the United Kingdom.

Under these economic conditions, the market itself does not offer strong incentives to invest in energy efficiency, as only investments that yield a rapid return are carried out.

In addition, since the early 1990s, the problems of global warming have changed priorities. Now, efforts to reduce CO₂ emissions have taken the front seat. The focuses of the programme now are:

- the need to respond positively to the threat of global warming;
- the liberalization of the energy supply market;
- improved economic competitiveness; and
- attacking problems of social inequality.

In terms of social policy, the problems of energy poverty are the main focus. The causes of these problems are:

- low income;
- homes with deficient heating and temperature controls;
- high energy bills as a proportion of family income;
- deficient home appliances; and
- little understanding of energy efficiency in households.

In the future, energy efficiency programmes will also aim to help the poorest families achieve acceptable heating standards in their homes and efficient use of energy in their appliances (washing machines, refrigerators). Providing simple but effective information on household energy efficiency can help poor families significantly.

a) Energy efficiency programmes

These are programmes financed by the Government and administered through the Energy Savings Trust (EST). The EST is an independent organization that was founded by the Government and the privatized electricity companies in 1993. It receives 25 million pounds sterling a year from the Government to stimulate the power services market and implement energy efficiency programmes. The main programmes currently under way are:

i) “Performance Standards” donation programmes, carried out by the privatized electricity companies. The electricity service regulatory agency makes companies boost their energy efficiency through performance standards schemes. The agency allows the costs of these efforts, up to a total of 25 million pounds a year, to be recovered through charges to consumers.

ii) Household Energy Efficiency Programme, a government programme with an annual budget of 75 million pounds that undertakes energy efficiency measures in low-income households, thus enabling residents to cover the costs of keeping their homes warm in the wintertime.

iii) Energy Efficiency Best Practices Programme, which provides energy professionals and decision-makers with impartial data on energy efficiency performance and access to improvements.

iv) Market transformation, technology acquisition, minimum mandatory standards, and labelling programmes. These programmes, aimed at improving the energy efficiency of household appliances, are increasingly common.

v) Programmes to raise energy efficiency standards through regulations governing building energy usage.

Among the actions taken in this regard, an increase in the gasoline tax should also be considered, as a way of encouraging drivers to be more economical.

b) Prospects for the 21st century

The United Kingdom's view on the best approach to take toward energy efficiency in the context of combating the greenhouse effect is:

i) There is not a single "correct" response. No programme, by itself, can guarantee compliance with the reduction of greenhouse gas emissions.

ii) A wide variety of complementary approaches must be explored: regulation, donation schemes, market transformation initiatives, information campaigns, etc. A synergy should be created among them, including both producers and consumers.

iii) Programmes that provide incentives for energy consumers and respond to their needs should be developed.

iv) We must build a culture that promotes success. This is an essential step, as it creates models of efficiency that then encourage others to invest in energy efficiency measures.

D. Decentralization of regulation and energy efficiency programmes in Germany¹¹

The point of departure for energy policy in Germany is the fact that climate changes are threatening the future of humanity. Therefore, an important component of energy policy is promoting energy efficiency, which should be considered a winning strategy. Since 1990, Germany has cut its CO₂ emissions by 14%, and this figure includes the former GDR. Germany has confirmed that it intends to meet the goals set forth in the Kyoto Protocol for the year 2010.

Our energy efficiency policy takes into account multiple players and strategies. Basically, the policy is to decentralize efforts to promote energy efficiency among the Federal states (Länder), counties, municipalities, industries, NGOs, and individual consumers. There are 13 energy agencies at the level of the Federal states, most of them involving direct or indirect participation of the State.

The 16 Federal states have a high degree of autonomy. In particular, energy legislation is the responsibility of the Federal Government and those of the Federal states. Therefore, there are several different institutions (and laws) concerned with efficient use of energy and renewable sources at the state, regional, and municipal levels.

These institutions, public and semi-public, behave like "classic" energy agencies, following the model of EMSEs. There are also institutions established by industrial trade groups, power companies, etc., which are devoted to promoting efficient energy use.

E. Energy efficiency programme in Italy¹²

The objectives of the New Energy Technology and Environment Agency (ENEA) are to: a) improve energy efficiency in the country, respecting European policy and the new environmental commitments undertaken in the Kyoto Protocol; b) encourage efficient energy use in industry,

¹¹ Taken from the paper presented by Mr. Wolf-Dieter Glatzel of the Federal Environment Agency in Germany.

¹² Taken from the paper presented by Mr. William Mebane of the New Energy Technology and Environment Agency (ENEA) in Italy.

residences, transport, and public administration; and c) promote the production of highly energy-efficient technologies and products.

The ENEA's strategy for meeting these objectives is to:

- develop initiatives with a high potential for dissemination;
- integrate the various energy and environmental objectives;
- promote high quality services and products;
- implement long-term projects;
- promote synergies with regional and local initiatives.

a) Target sectors for applying the energy efficiency strategy

These sectors include:

- **Small and medium-sized enterprises (SMEs).** There are direct energy initiatives (environmental audits) and feasibility studies for industrial districts. A synergy is being created among the industrial associations, local governments, financial institutions, and the ENEA.

- **Services by and for the public sector at the national level.** More than 28 national and regional seminars have been held under Law 10/1991. An Annual Information Campaign is also conducted.

- **Schools and general public.** Pamphlets are published and exhibits are put on to share energy saving experiences. There are also videos and compact discs, as well as radio, TV, and newspaper campaigns.

- **Experts in the construction industry.** Manuals for the inspection of industrial plants' heating systems and building insulation have been produced. In addition, a list is maintained showing the prices of the most commonly used energy efficiency components. Training is also provided in the design and construction of plants, conducting building audits, and managing energy use in the residential and service sectors. Seminars are offered on the installation of thermal power plants and on maintenance personnel.

- **Services for public administration.** Mechanisms for clarifying standards and administrative decrees are in place. Studies on the improvement of energy efficiency are conducted, and proposals are submitted. Standardized service contracts are awarded, and procedural manuals are published.

- **Local level public administration.** Innovative urban lighting techniques are being introduced. City beautification objectives are achieved with an emphasis on history and architecture, night-time tourism, job creation, better use of public space, etc.

- **Producers of energy-intensive goods.** "Testing" services are offered for refrigerators and cooling laboratories, lighting system laboratories, and electric vehicle laboratories. Pre-regulatory studies are also carried out on water heating and air conditioning systems in the European Union, and on refrigerators and cooling systems in Eastern Europe.

- **Small energy producers.** Technology and services are offered for small, advanced cogeneration systems, including design, testing and administration of plants, and testing of components.

b) Guidelines for complying with the Kyoto Agreements

Finally, the importance of the Kyoto Agreements is being emphasized, while recognizing that policies and programmes will be necessary to comply with the agreed-upon objectives. Among them are:

- preparation of guidelines and programmes in the sector;
- creation of a national environmental protection fund;
- compliance with programmes in the sector, with an emphasis on voluntary agreements; and
- use of standards and regulatory measures where voluntary agreements fail.

F. General considerations on energy efficiency policies in Europe¹³

To understand the development of energy efficiency policies in Europe, it is important to recall the interactions between national and Community policies, both historically and at present.

Member States such as Germany and France have implemented aggressive policies to diversify energy sources and make efficient use of energy since the 1970s and 1980s. In Germany, the programmes of the Federal Government's energy sector have declared energy efficiency to be one of the pillars of energy policy, under the slogan "Conserving energy is our greatest energy source". In France, the "energy management" policy was developed, focusing on "incentives" for both consumers and suppliers of energy.

Also during this period, the European Community devised the first initiatives to intervene in the areas of secure supply, research and development, and energy conservation.

These Community initiatives have taken the form of legal measures (regulations, directives, decisions, recommendations with different degrees of mandatoriness and direct and indirect consequences on national legislation); programmes to foster research, development, and demonstration of technology; non-technology projects for the efficient use of energy and renewable sources (JOULE-THERMIE, SAVE, ALTENER, AUTO-OIL); and, more recently, Community policy strategies.

The Commission's legal measures have also given rise to a large number of national regulations, for example in the areas of thermal insulation of buildings, boiler and heating system efficiency standards, building temperature monitoring, etc. Among the most recent European regulations are the directives for labelling household appliances (Framework Directive 92/75/EEC of September 1992, plus various implementation directives) and Directive 96/57/EC of September 1996, concerning the energy performance requirements for cold storage plants, freezers, and household refrigerator-freezers. These directives establish a labelling system and mandatory, uniform standards for all Member States.

The Member States have similar energy efficiency policies, but there are differences in the priorities given to the various aspects of legislation, persuasion, and voluntary agreements among consumers and other players.

In general terms, these differences can be attributed to the different socioeconomic traditions of (i) the Anglo-Saxon countries (minimal regulation, self-regulation through interaction of

¹³ Taken from the paper "The Role of Legislation and Regulation in Energy Efficiency Policies of the European Union and Member States", presented by Mr. Wolfgang Lutz.

economic actors); (ii) the countries of Northeastern Europe (selective State intervention based on agreements among economic and social actors); and (iii) the countries of Southern Europe (legalist tradition, based on the enforcement of laws, decrees, etc.).

Thus, there are a large number of legal provisions on very specific subjects in the area of energy efficiency, especially in Southern Europe (in Greece, for example, there are laws and decrees on matters such as mandatory energy audits, shifting electricity usage to off hours, replacement of incandescent lightbulbs with fluorescent lightbulbs, etc.), whereas there are few legal provisions in Northeastern Europe. It can be stated generally that it is not the number of legal provisions that determines success, but the quality of them, and above all, the institutional capacity to effectively implement and enforce legislation.

Based on an analysis of the legal and regulatory frameworks in the European Union, the following conclusions can be reached:¹⁴

i) The proportion of legal-regulatory measures in the range of instruments available to promote energy efficiency is larger in countries with a legalist tradition, and such measures are nearly non-existent in countries with an Anglo-Saxon tradition.

ii) The “success factor” of an energy efficiency policy is not the existence of many regulations, but the capacity and political will to implement them on the part of the authorities and the players involved: consumers, power companies, energy agencies, etc.

To illustrate typical situations in different European countries, the following examples can be cited:

- The Spanish (1982) and Italian (1991) Energy Conservation Acts, which have led to strong State intervention in these countries’ energy sectors, including standards enforcement and subsidies, and even intervention in the rate structure to give preference to cogeneration and renewable energy sources.

- The Energy Conservation Act of Germany (1976), which defines the legal basis for the Federal Government’s implementation of ordinances and regulations, as a complement to the Energy Sector Law, energy price legislation, energy efficiency legislation passed by the federal states, and environmental legislation.

- The Netherlands model, characterized by few specific regulations but a wide variety of instruments and programmes based on agreements among the players and administrative measures at various levels of the public administration.

- The situation in the United Kingdom, characterized by the absence of a specific energy conservation law and selective Government intervention through specific regulatory instruments and programmes.

¹⁴ ECLAC/European Commission Project: “The Role of Legislation and Regulation in the Energy Efficiency Policies of the European Union and Member States”, report written by consultant Wolfgang Lutz, December 1998.

IV. Energy efficiency policies and programmes and the players involved

A. European Commission programme to encourage energy efficiency in finished goods in the household, tertiary, and industrial sectors¹⁵

Since 1989, under the PACE and SAVE Programmes the European Commission has researched different types of instruments to foster energy savings in finished goods in the household, tertiary, and industrial sectors. These activities have been carried out by means of pilot programmes, studies, conferences, and policy actions. The purpose of such actions is to spur the supply of more efficient products for the end-user.

At present, the efficiency of household appliances on the EU market varies considerably; in some sectors, the products that are most popular are also those with the least energy efficiency.

The European Union's energy efficiency policies for finished goods and equipment are the following:

¹⁵ Taken from the paper presented by Mr. Paolo Bertoldi, European Commission, DG XVII, SAVE Programme.

- Energy labelling/classification. Used across the entire market, for both producers and consumers. Examples are the EU Energy Label for household appliances and the CELMA classification system for fluorescent tube lightbulbs.
- Quality brands for purchase, applied to the market as a whole, both producers and consumers. An example is aggregate buying power; and
- Minimum efficiency standards, imposed through legislation (Directives) or negotiated agreements for transactions on the retail market and among producers.

a) Policies and programmes for finished goods

- Policies and programmes are more effective to the extent that they apply to producers, since energy efficiency is not yet a high priority in the purchasing decisions made by consumers.
- Policies and programmes should have an impact on the components of products and byproducts early in the design and manufacture process, through the specification/standardization method.
- Policies and programmes are carried out at the EU level, since goods are sold in the European Union as a single market.

b) Actions undertaken for household appliances

- Compulsory energy labelling for major household appliances: refrigerators and freezers, washing machines, clothes dryers, dish dryers, lamps.
- Minimum efficiency standards for refrigerators and freezers. This is a very powerful instrument used in many countries. It was introduced for the first time in the European Union in 1996 for refrigerators and freezers.
- Negotiated agreements for washing machines, televisions, and video recorders.

B. Long-term agreements with the government on energy efficiency: the case of The Netherlands¹⁶

In recent years a unique type of Voluntary Agreements, called Long-Term Energy Efficiency Agreements (ALPEE), has been developed in the Netherlands. This type of agreement, which is closely monitored, was first applied in the industrial sector and then in the commerce and services sectors.

The agreements are made between the Government (Ministry of Economic Affairs) and representatives of the various sectors of the economy. Generally it takes several years to carry out an ALPEE. Once it is put into practice, the agreement places energy efficiency in the spotlight for other companies in the sector.

Under this programme, the various players agree to work towards the same objective, although each party may have different reasons for doing so. For the government, the main objective is to reduce carbon dioxide emissions, while for the business the goal is to cut costs and possibly prevent future regulation by becoming actively involved. In Holland, nearly 90% of energy consumption is covered by ALPEE agreements.

¹⁶ Taken from the paper presented by Mr. Will Nuijen, Directorate-General of Energy, Ministry of Economic Affairs in The Netherlands.

The intensive monitoring process ensures that the results are publicized widely. Thus, in 1997, EE was 14.5% higher than in the base year 1989, which meets the goals of the programme. Nevertheless, CO₂ emissions are rising rather than falling. This is because economic growth in the last few years has been greater than had been projected when the ALPEE targets were set.

It is expected that savings of 1.5 billion florins (US\$1 billion) will be recorded by the industry in 2000, which is an improvement in terms of international competitiveness. ALPEE agreements provide a framework that can continue after the end of the first target year (2000), when new issues will undoubtedly be identified.

a) The legal framework

The National Policy Plan on Environment of 1989 formulates the national policy for the reduction of greenhouse gas emissions. The national objective is to reduce CO₂ emissions by 3 to 5% by the year 2000, compared to 1989 levels. One of the tools for achieving this objective is the ALPEE. It is estimated that the reduction in energy consumption is highly compatible with emission reduction, this because most part of energy consumption is based on fossil fuels. For other greenhouse gases, like methane and PFC, other instruments are applied for the achievement of said objective.

The main regulating instrument is the Environmental law, which determines the framework for industrial operation permits. Based on this, the objective of the ALPEE policy consists in stimulating energy efficiency further than the existing tendencies, in a low energy price context, without having to appeal to new regulations.

The document signed by the parties begins with an acknowledgement of the importance of fighting the “greenhouse effect” and of the national objective of CO₂ emission reduction. Based on the memorandum on Energy Conservation, the industry's objective is to achieve an improvement of 20% in energy efficiency, compared to 1989 emissions. Each ALPEE is a legal contract and has concrete objectives.

b) Basic elements of the ALPEE

An ALPEE is a contract governed by civil law. Its principal characteristics are:

- Quantified objectives for each period and an EE improvement plan for each company;
- A well-structured monitoring process;
- Confidentiality of “sensitive” information; and
- A liaison organization to facilitate the process.

The steps for signing an ALPEE are the following:

- The Dutch Agency for Energy and the Environment (NOVEM) makes contact with businesses in the industrial sector in question;
- A letter of intent is signed;
- An inventory of viable measures is conducted;
- The ALPEE is signed;
- An Energy Saving Plan is drawn up for each company;
- Annual monitoring is conducted; and

- Possibilities for expanding the ALPEE are examined.

The Ministry of Economic Affairs provides support for the programme, including:

- Financial instruments related to the industry; tax breaks may be granted if investments are made in energy-efficient technologies. This plan applies to all companies, however, whether or not they have signed an ALPEE;
- Financial assistance within the framework of the ALPEE, including various subsidy schemes;
- Increased financial support if the programme is more successful than expected;
- Support for companies in the form of a detailed audit of machinery (including energy-consuming equipment), specification of energy usage, and identification of energy-efficiency investments that can cut costs; and
- Coordination of regulatory measures aimed at industrial energy efficiency, including energy permits and taxes.

c) Current situation and measurement of ALPEEs' impact

- At present there are 32 ALPEEs in place in industrial sectors;
- There are six ALPEEs in the services sector;
- Nearly 1,000 industrial firms (out of 30,000 total) participate in ALPEEs;
- ALPEEs cover 90% of the (energy) industry; and
- The target for the year 2000 is a 20% improvement in EE. By the end of 1997 it had improved 14.5%, which suggests that the goals for 2000 will be met.

According to the Dutch experience, the conditions for successful implementation are the following:

- There should be mutual trust among the parties;
- The participating sectors should be homogeneous and well-organized; and
- Progress reports should be made available without threatening the confidentiality of information that is "highly sensitive" to the company.

The impact of the ALPEEs can be measured in broad terms. A 20% improvement in EE in primary energy inputs means a savings of 1.5 billion florins (US\$1 billion) for industry at current energy prices. This saving to the national economy will be repeated every year after 2000. The approximate costs for the programme for the 1998-2000 period show that the savings far exceed the costs.

C. Voluntary commitments in Germany¹⁷

The businesses in the German industrial and commerce sectors agreed to make a Voluntary Commitment (VC) to reduce CO₂ emissions and to cut their energy consumption by 20% between the base year (1990) and 2000. To verify the commitments, a CO₂ emissions monitoring system was set up and the results were presented at annual meetings, to determine whether the objectives were being met. This task was assigned to the Renano-Westfalian Institute for Economic Research (RWI).

¹⁷ Taken from the paper presented by Mr. Bernard Hillebrand and Mr. Hans Georg Buttermann, RWI Essen, "CO₂ Monitoring in German Industry: Lessons from 1995 and 1996".

a) The General Declaration of the German Federation of Industries

The voluntary commitment made by German industry was based on declarations issued by a number of associations, which are organized under the German Federation of Industries (BDI): the Federal Association of the German Gas and Water Industries (BGW), the Association of German Electricity Companies (VDEW), the Association of Industrial Autogenerators (VIK), and the Association of Municipal Enterprises (VKU). These associations account for more than 70% of final energy consumption in industry, and thus cover almost the entire range of public and industrial power generation. They also represent many of the suppliers of electricity to the commercial and residential sectors.

The General Declaration of the BDI is a compilation of 14 individual declarations. The reduction commitments are formulated as specific variables, in some cases with an additional promise to cut CO₂ emissions. The energy consumption reduction commitments contained in the General Declaration (which amount to 20%, as mentioned previously) vary among the industries (from approximately 16% in the iron and steel industry to 66% for the Potassium Association).

The goals for reducing energy consumption and CO₂ emissions are listed as specific variables. The reference variable is usually the specific production output of the industry, measured in physical units. Only in the chemical industries is the index given in terms of net production, because of the peculiarities of the industry.

b) Results obtained

A number of methodological and statistical problems have been identified in the evaluation of the voluntary commitments. The associations' reports on the monitoring in 1995 and 1996 describe a significant number of actions that reveal a special effort to reduce CO₂ emissions. Indeed, even if many of these actions cannot be attributed to the Voluntary Declaration, it is still apparent that major efforts have been made to make more rational use of energy and to cut CO₂ emissions.

A comparison of the declared objectives and the results obtained, in terms of both EE and CO₂ emissions, shows that in some cases the objectives were achieved before 1995. This indicates that it is possible to obtain good results, and even that the objectives could be modified to set higher targets for reducing energy consumption and CO₂ emissions.

D. Efficiency standards: the case of the private firm ELECTROLUX¹⁸

Until a few years ago, companies in the household appliance industry undermined the credibility of policies recommending a reduction in emissions of the gases causing the "greenhouse effect". That attitude has changed notably in recent years, as attested by directives issued by ELECTROLUX, a leading business in the development of environmentally clean technology in production processes and in finished goods. This company also promotes the consumption of products that help preserve the environment.

ELECTROLUX must also comply with EU legislation, which requires mandatory energy labelling for refrigerators and freezers, washing machines, and other household appliances. In addition, there are efficiency limits for refrigerators and freezers and voluntary agreements for washing machines. According to ELECTROLUX, the limits are good for getting rid of less efficient products, but this is not an appropriate policy for promoting the purchase of the most efficient products.

¹⁸ Taken from the paper "Efficiency Standards for European Energy Efficiency and Labeling, from an Industrial Firm's Point of View", presented by Mr. Ingemar Hahn, ELECTROLUX.

The potential for reducing CO₂ emissions in the area of household appliances is very great. ELECTROLUX estimates that if old appliances are replaced with new and efficient ones, the resulting reduction in CO₂ emissions will amount to 25% of the total commitment made by the European Union at Kyoto (let us recall that the EU has committed to cutting these emissions by 8% in 2005, using 1990 as a base year).

a) The Lifetime Cost label

ELECTROLUX believes it is important for consumers to know how much money they can save if they pay less for electricity after buying a more efficient product. This can be achieved with a label showing the cost of electricity during the lifetime of the appliance. Thus, for example:

	Efficient product	Less efficient product
Sales price	2,890 FF	2,601 FF
Electricity cost (10 years)	3,880 FF	4,670 FF
Lifetime cost	6,770 FF	7,271 FF
Savings	501 FF	

Notes: Number of years needed to equalize costs: 3.6; FF = French francs

This is a strategy that makes everyone a winner: consumers, efficient producers, and the environment as well. The product may initially be more expensive, but the difference is made up in 3.6 years. And in 10 years (the lifetime of the appliance), it yields a savings of 500 francs.

Given these considerations, ELECTROLUX invites the European Commission, consumer organizations, the household appliance industry, and verification institutions to:

- Reach an agreement to determine the method of calculating the Lifetime Cost of household appliances. If possible, this methodology could be standardized for use by all producers.
- Determine energy costs and other variables in each country.
- Inform the consuming public in the mass media.

b) Some conclusions

- The transformation of the market should be driven by improvements in product performance and by voluntary agreements and legislation.
- Now is the time to jump into the market, to boost consumer demand for low-impact products.
- Efficiency limits cannot promote the purchase of more efficient products.
- The Lifetime Cost label should be introduced at household appliance sales outlets.

V. Energy markets and institutions in some EU countries

A. The experience of Spain: energy services and third-party financing¹⁹

The basic functions of the Institute for the Diversification and Saving of Energy (IDAE) in Spain are to promote energy efficiency and the rational use of energy, diversify sources of energy, and promote renewable sources through publicity campaigns, technical advice, and the development of innovative projects under directives from the Ministry of Industry and Energy.

IDAE is a government enterprise founded in 1986. It enjoys financial autonomy, and operates in the energy saving and diversification market. It also provides technical and financial services with a view to improving energy efficiency and the planning and implementation of renewable energy sources.

Objectives

- Introduce technologies for energy saving and substitution in industry, agriculture (biomass crops and desalination of irrigation water), services, housing, buildings, and transport, boosting their profitability and competitiveness.

¹⁹ Taken from the paper “Third-Party Financing as an Instrument for Promoting Energy Efficiency in Spain”, presented by Mr. José Donoso, Institute for the Diversification and Saving of Energy (IDAE), Spain.

- Provide incentives for adding renewable sources to the energy supply, cutting emissions of polluting gases, and contributing to the safety and diversification of primary energy sources.
- Promote technological innovation in energy production and consumption processes and systems.
- Push for the rational and efficient use of energy in the various consumer sectors.
- Work toward meeting policy objectives for energy efficiency and saving and renewable sources.
- Collaborate with the European Commission on developing energy programmes and supporting Spanish companies in their efforts to obtain funding for such programmes.

Activities

- Technical support for the design, implementation, and monitoring of energy efficiency and saving policies.
- Technical services.
- Publicity and information activities.
- Direct investments.
- Third-party financing.
- Participation in Temporary Business Unions (UTEs), Economic Interest Groups (AIEs), and private corporations.
- Providing investment funds through participating loans.
- Developing instruments with market impact.
- Subsidies under the Energy Efficiency and Saving Plan (PAEE).
- Community support-FEDER Funds.

Third-party financing (FPT) is a technical and financial instrument that can provide a more appropriate technical solution and the financial resources needed to carry out an energy project. FPT projects in the area of renewable energy sources are aimed at participants in the following categories:

- Public entities: local municipalities, associations of local authorities, farmers' irrigation associations, irrigation boards, and others
- Private entities and individuals whose activities include energy diversification and saving
- Individual projects that merit financing because of their particular characteristics

Projects that apply for IDAE financing are evaluated and selected according to the following criteria: *a)* they must be related to the energy field, *b)* they must be projects with sufficient financial return, and *c)* they must provide comprehensive solutions.

The IDAE provides the projects with technical and management solutions as well as funds amounting to 80% to 100% of the investment. The Institute acquires ownership of the installed equipment until the investment and the cost of services are recovered from the saving generated by the project, at which time the equipment is transferred back to the industrial firm. This mechanism is used primarily in saving and substitution projects in the manufacturing sector and in small-scale hydroelectric projects and low-temperature solar energy facilities in the services sector.

The technical advantages of third-party financing are:

- Maximum technical guarantees backed by ESCO
- Better technical-economic solutions
- Technical guarantee of follow-up
- Technological renovation of equipment

The projects currently being financed by IDAE include small hydroelectric plants, biomass heating facilities, windmills, and solar thermal energy projects.

B. The experience of energy saving contracts in Germany²⁰

a) General situation

There are 13 Regional Energy Agencies in Germany, in which the regional governments participate directly or indirectly. They can be divided into two groups: a) those that concentrate on motivation, information, and consultation, and b) those that are more oriented toward carrying out projects. The agencies in the first category receive public financing to offer their services, whereas those in the second category are for-profit enterprises. They usually offer a range of services, including design, implementation, and financing, and sometimes the management of power plants. There are other agencies that are a mixture of these two categories.

The differences among them illustrate the fact that there is no uniform solution. The variety of approaches taken in Germany is advantageous, in that we have data for empirical comparisons.

The first regional energy agency, SEA, was founded in 1987 in Saarland. It is a limited liability company with a capital of 3.15 million marks. Shareholders are the State of Saarland (21%), four utility companies with 19% each, and one utility company with a 3% share.

SEA was founded for the purpose of demonstrating that EE projects can earn profits, all the way from design, engineering, and financing, to implementation.

b) Lessons from the German experience

The German energy agencies were the first companies in Europe to use energy saving contracts. Today a wide range of companies offer these services. There are 400 companies in Germany that offer third-party financing or energy saving contracts. At present, 16,300 contracts have been signed, covering 60,000 buildings. The estimated volume of investments is 5.2 million marks. It should be noted that only a small share of these contracts focus on energy saving, as the majority involve providing heat with modern burners and/or cogeneration plants.

A survey of 108 German firms reveals, however, that only 30% of the potential for these services has been met. It is also important to point out that the current framework makes energy saving contracts rather difficult. Oil and natural gas prices have fallen to the lowest levels in 20 years. When the new Energy Act takes effect, electricity prices for large consumers will decline by 10% to 20%.

C. Energy services in the United Kingdom: the experience of Energy Savings Trust (EST)²¹

a) The UK energy market

In the United Kingdom there is free competition in the gas and electricity market. All customers will be free to choose as of the middle of 1999. At present there are 14 utility companies supplying

²⁰ Taken from the paper "Energy Savings Contracts by German Energy Agencies", presented by Mr. Michael Brand, Director of Saarlandische Energie-Agentur GmbH.

²¹ Taken from the paper "Energy Services in the United Kingdom: Are We Providing Sustainable Energy Efficiency?" presented by Mr. Tim Curtis, Energy Savings Trust, United Kingdom.

electricity and six supplying natural gas, which will compete in the household and small business sectors. It should also be noted that in some large business sectors, there are Energy Administration Contracts.

b) The role of the EST and forms of financing

An ESCO is a company that provides full energy service, meaning that it combines supplying power with measures to ensure the efficient use of energy (heating systems, insulation, lighting, etc.).

Energy Savings Trust conducts market studies by exploring potential savings and surveying utility companies. It also holds conferences and issues publications to promote energy efficiency. EST seeks to become a financing source for projects that will yield important advancements in the area of EE.

EST finances projects are based on the following criteria:

- Promotion of power supply and EE measures
- Household and small business sectors
- Support for innovations to aid in the development of pilot projects
- Support for low-income housing in the form of feasibility studies and/or business plans
- All for a total of 500,000 pounds in 1998-1999.

c) Lessons learned and difficulties encountered in ESCO activities

There are some EE measures that appear to be good but in fact do not yield good results. One of these, for example, was the Energy Club, which was formed for the purpose of providing free advice, guaranteeing quality contracts, giving discounts on EE measures, and supplying electricity and gas at better prices. Officials worked with local authorities and sent 900,000 letters to potential customers offering a loan from EST for any successful pilot project.

The problems encountered by the Energy Club were serious: The timetables were too rigid, there were problems with software, and the initial response was so great that it could not be handled. There were delays in the processing of responses received, and the company did not have sufficient capital to meet the demand. As a result, the company was unable to attain its objectives. Among the lessons learned are the following:

- Customers accept free advice because it is free, but few follow it.
- Difficulties are underestimated, while returns are overestimated.
- The “lead” customers were not followed by other customers as quickly as expected.
- Customers are skeptical of the ESCO concept, and do not understand it.
- Utility companies generally lack enthusiasm for using the ESCOs’ services.
- Customers are reluctant to change providers, but if they do so, they are interested in better rates, not value-added services.
- Often agreements can be reached with local authorities for social, economic, and environmental reasons, but the lack of financing is a constant problem.
- In the household sector, ESCOs can only operate in market “niches”.

D. The experience of The Netherlands²²

In the Netherlands, the generation and distribution of electricity have been separate functions since 1989. Four companies hold a 75% share of the market for electricity generation; these companies are owned by local authorities and by some electricity distribution companies. A while ago, they tried to merge into a single company, but their efforts failed. In the distribution of electricity, 22 companies account for 100% of sales. These companies are owned by local authorities, and often they are integrated with natural gas companies. They also have decentralized generating plants, which account for 25% of the electricity generation market in the Netherlands.

A single company, GASUNIE, purchases and distributes all natural gas for domestic consumption. The company is owned by the State and the private sector in equal shares. GASUNIE sells natural gas directly to large customers (more than 10 million cubic meters). Thirty-four companies, owned by local authorities, distribute natural gas to smaller customers. There is a fixed margin with an attractive pricing formula. Natural gas is used primarily for heating.

There is a National Energy Efficiency Programme designed to reduce greenhouse gases. The Netherlands has had a strong national energy policy in place since 1990, now known as the National Environmental Policy Plan (NMP).

In addition, an Environmental Action Plan has been set up in all power distribution companies for the 1990-2000 period, with the goal of reducing emissions by 3% during the period. Among the activities and programmes carried out by the distribution companies are:

- **Energy efficiency in households.** This programme includes efficient public lighting and the use of vehicles with low CO₂ emissions, which involves switching from autos that run on gasoline to those powered by natural gas or electricity;
- **Combined Heat and Power (CHP).** This technology saves money and is also very effective in cutting CO₂ emissions.
- **Energy service market.** Energy saving publicity campaigns. On the consumer market, subsidies are offered (with third-party involvement) for insulation programmes (windows, walls), lightbulbs, and appliances. Service teams also provide advice and carry out power consumption audits. National campaigns are conducted to promote energy saving. In the business sector, subsidies are given to companies that adopt efficient lighting technology. In the industrial sector, the Government makes direct approaches, with distribution companies playing a limited role.
- **Promotion of renewable energy sources.** Renewable energy sources currently meet only 1% of the demand in the Netherlands (of which wind energy accounts for 19%, waste 65%, and others, 16%). The policy goal is to bring this portion up to 10% by 2020.

The future of EE will face increasingly difficult challenges, as market liberalization brings with it the elimination of subsidies for certain energy sources. Moreover, the easiest measures have already been taken. There are also positive aspects, however, such as better approaches to the provision of services and new technologies that have been developed.

Finally, it should be emphasized that the two most important factors in Dutch policy are: a consistent policy that provides a general framework for market-oriented products and services, and changing market conditions that require new and imaginative approaches.

²² Taken from the paper presented by Mr. Freerk J. Bisschop, Energie Noord West, "Energy Efficiency Services Provided by Utility Companies in the Netherlands".

VI. Advances in energy efficiency legislation in Latin America: the cases of Argentina, Colombia, Costa Rica, Chile, and Peru

The rational and efficient use of energy is an issue that is becoming increasingly prominent in the discussions regarding energy development and its impact on the environment. The United Nations has sponsored several worldwide conferences on this matter, and most of the Member States of the UN have signed pacts to promote energy saving and environmental preservation measures.

Among them, the following conferences are worthy of mention: Vienna Convention for the Protection of the Ozone Layer (1985), United Nations Framework Convention on Climate Change (1992), Programme 21 of the United Nations Conference on Environment and Development (1992), and Plan of Action for the Summit of the Americas (1994). The majority of Latin American countries have signed these agreements and have committed themselves to achieving the stated objectives.

ECLAC, with cofinancing by the European Union, structured the Promotion of Energy Efficiency in Latin America Project, which seeks to foment energy efficiency in the region by adopting appropriate regulatory frameworks and strengthening the institutions that deal with these matters.

This project is striving to mobilize all the players involved (legislators, cabinet officials, trade and business associations, academic and research institutions, and non-governmental organizations) to make energy efficiency one of the central elements in the “second generation reforms” that Latin American countries should pursue in the wake of the market liberalization of the 1990s.

The specific objectives of the ECLAC/European Commission programme are:

- i) to analyze energy efficiency policy;
- ii) to discuss and evaluate the advantages of regulating energy efficiency;
- iii) to channel, coordinate, and systematize suggestions from institutions and players regarding the efficient use of energy;
- iv) to lay the foundations for and draw up a proposal for a regulatory framework; and
- v) to identify the key elements and actions in a technical cooperation program for implementing the regulatory framework.

During the first phase of the project, “public hearings” were held in Argentina, Colombia, Chile, Peru, and Venezuela, involving legislators, cabinet officials, business executives, business organizations, academics, and non-governmental organizations (NGOs). An interactive and participatory approach was taken to the work, thus contributing to the democratization of energy policy- and decision-making.²³

In this manner, authorities were able to delve into civil society’s concerns about the pros and cons of regulating and promoting energy efficiency. This broad mobilization of participants has enabled political leaders to foster or strengthen, as the case may be, issues related to energy efficiency, so that they can push needed legislation through Congress.

At the end of the first phase, Colombia and Peru have drafted bills that are now being studied by the respective Energy Committees of their legislatures. Costa Rica has completed a study on how to improve current laws on the rational use of energy, and Argentina, Chile, and Venezuela have undertaken legal diagnoses in this regard. It is hoped that the legislation can be approved in 1999.

A. Substantive aspects of the energy efficiency debate in Latin America²⁴

The ECLAC/European Commission Project assumed the mandate of the Declarations of Santiago and Cartagena de Indias of the 1997 and 1998 Interparliamentary Conferences on Mining and Energy in Latin America (CIME), respectively. That is why it convened the First European-Latin American Dialogue on Promotion of Energy Efficiency.

This section will provide an overview of the principal topics on the agenda of the Latin American parliamentary debate in public hearings, workshops, and the drafting process of the regulatory frameworks. This debate goes hand in hand with the activities that ECLAC and the European Commission are carrying out through the SYNERGY Programme, with respect to the Promotion of Energy Efficiency in Latin America.

The need to adopt legislative and regulatory actions to promote the efficient use of energy stems from the basic premise that energy efficiency is at once a right and an obligation of society and the State. In the majority of the constitutional frameworks in Latin American countries, natural resources, both renewable and non-renewable, are considered to be part of the national heritage. In

²³ Legislators from Venezuela could not attend this dialogue because they were immersed in the congressional and presidential elections.

²⁴ Taken from the paper presented by Mr. Fernando Sánchez Albavera, ECLAC Regional Adviser and Director of the ECLAC/European Commission Promotion of Energy Efficiency in Latin America Project.

keeping with that legal tenet, it is up to the State to define policies for the preservation and sustainable use of the natural heritage and the protection of the environment.

In the debate, there has been an insistence on distinguishing between energy assets and other assets, not only because of their origin, but also due to the nature of the market. This approach is based on the notion that energy comes from sources that are in the public domain, and that its consumption generates “externalities” that can have a negative impact on the environment, which is part of the nation’s heritage.

Because environmental conservation and protection are in the public interest, government regulatory action is necessary. Another reason for this assertion is that energy is a mass consumer good that is indispensable for the well-being of society.

An increasingly strong theme in the debate is the idea that “the efficient use of energy” should be understood as the right of users and of the general public to be informed of ways of meeting their energy needs and of gaining access to goods manufactured with technology that makes rational use of energy. The drafting of standards and the certification of energy efficiency are corollaries to this principle.

In this regard, the State should protect consumers’ rights, requiring suppliers of energy and of goods manufactured using energy to provide information on rational consumption practices and on the energy rating of goods available on the market.

It is true that market economies, the final combination of goods, and the actual manner in which people or businesses consume energy will ultimately be determined by their free will; but in any case, that freedom cannot be allowed to work against the constitutional precepts that protect individual welfare, the environment, and the general interests of society.

This approach to the debate is interesting in that it includes the right to energy efficiency among the economic rights of individuals and the realities of market economies. In this connection, it has been noted that one of the most important aspects of market freedom is guaranteeing full access to information.

Just as energy suppliers have the right to choose the best way to produce energy at a decent profit, they also have an obligation to provide efficient service in terms of the ratio of quality to price, market coverage, and safety and security of supplies. The consumer, for his part, has the right to be informed of the different options available for meeting his needs rationally.

In a competitive market, this information is provided by the suppliers themselves, who highlight their own comparative advantages so that consumers will choose their products and thus give them a share of the transactions that are freely undertaken among individuals.

It has been emphasized in the debate, however, that there are asymmetries of information and barriers to effective competition in energy markets. Indeed, suppliers in these markets do not need to use information to stress their comparative advantages, because this is a product for which it is difficult to find substitutes. Moreover, in some segments of the energy production chain, there are natural monopolies.

Information about energy products does not lead people to make choices, because it is not possible for all users to select or replace their suppliers. What information does is allow consumers to realize that if for any good there is a point of saturation, when purchases are interrupted because the marginal utility to the consumer becomes negative, there is also a certain point in energy consumption when everything begins to be a cost and there is no utility. This is valid from the perspective of the individual as well as society’s interest.

It has been noted in the debate that the point of saturation, in the case of users, is subjective, and therefore depends on the type or level of well-being consumers choose to achieve. This is not the case, however, when energy is a cost component in any product or service.

In that case, the point of saturation is essentially rational, and it leads the user to seek the optimum consumption of energy within the production function. In this regard, energy efficiency favors business competitiveness by reducing costs.

It has also been emphasized in the debate that the idea of energy efficiency as a consumer right is consistent with the defence of the individual and the need to guarantee his or her free development and well-being, which is the supreme goal of society and the State.

Based on this line of reasoning, it has been argued that the efficient use of energy benefits people to the extent that it reduces the weight of energy in a given spending budget, thus helping free up resources for other needs. This makes it possible to maximize people's well-being and also achieve objectives related to social equity.

Thus, regulations that encourage people to satisfy their energy needs in a rational manner are compatible with the necessary protection of individual well-being and development, and with the right to live in a healthy environment, free of impediments to the functioning of natural systems.

In this approach, well-being is defined as the state or circumstance in which a given combination of goods and services consumed by a person enhances the quality of life. Although each person chooses a combination of goods subjectively, there is no doubt that information is needed to select the optimum combination possible within the individual's level of income.

Based on this analysis, it has been stressed in the debate that if market imperfections induce people to consume energy irrationally, their prosperity is undoubtedly undermined, and in this circumstance correcting the imperfection requires regulations and some kind of State intervention, as the well-being of individuals is in the public interest.

It has also been argued that because energy is a good that is available for the well-being of society, no one should suffer discrimination because of his or her economic condition, or for any other reason. If electricity supply contracts, for example, are standard-form contracts, their clauses should not violate people's right to be informed of the best way to meet their needs.

In the energy market, discrimination on the basis of economic condition could result from the scale of energy consumption. Large-scale consumers can negotiate the terms of their transactions directly, while small-scale ones are not in a position to do so.

Hence the need for the State to intervene and regulate the market to protect the interests of small-scale consumers. In fact, depending on the characteristics of the market, it is possible that State intervention might be necessary for large-scale consumers, if the supplier dominates the market in a way that can harm users. In that case, State regulatory action would be in order.

This conceptual approach is consistent with the express constitutional precepts of Latin American countries, which provide that the State must defend consumers' interests. For this purpose, the right to information on available goods and services should be guaranteed.

Participants in the debate have emphasized that users have a right not only to receive information to improve the way they use energy, but also to be informed about how the service is provided.

Service should be provided efficiently, at the lowest possible cost. The regulatory body must guarantee efficiency of service. Otherwise, the user will suffer harm, because any inefficiencies on the part of the service provider will constitute a cost. Moreover, the regulatory body should see that provider efficiency benefits the user, which in concrete terms means that the provider should systematically improve the price/quality ratio of the service.

This is consistent with current legal precepts in Latin America that the State should facilitate and oversee free competition, combating any practice that limits competition, such as the abuse of dominant market share or monopolies.

Effective application of the right to be informed requires that there be a public authority that can guide and mediate relations between suppliers and recipients and correct any market imperfections that arise, within the framework of laws protecting the interests of both sides.

Effective application of the constitutional mandates currently in place in Latin American countries undoubtedly requires regulatory action by the State. This arises out of a shared interest on the part of the State and the citizenry. Because the State controls the exploitation of natural resources, it must determine the conditions under which private parties are allowed to use these resources, while protecting the right of consumers to be informed so that they can make rational use of energy and select energy-efficient goods on the market.

It is interesting to note that it has emerged clearly from the parliamentary debate that the right to the efficient use of energy can be inferred from existing constitutional precepts related to individual rights, and is consistent with the full and effective functioning of the market economy as well as the concern for sustainable development.

Establishing this right has positive effects on the growth and competitiveness of the economy, as it cuts costs and optimizes investments, enhances market economies by overcoming information asymmetries, protects the rights of users by improving social equity, and allows for a more harmonious relationship between energy and the environment.

In short, this notion of energy efficiency that has guided the ECLAC/European Commission Project makes it possible to view energy-related problems as one of the most important aspects of the effort to achieve sustainable development in our societies while ensuring the well-being of future generations.

B. Argentina

The paper presented by Congressmen Javier Melgarejo and Osvaldo Sala made the following points:

a) Background

Relatively little progress has been made in Argentina with respect to standards, programmes, and other aspects of Rational Energy Use (URE) in recent years. The first decisions on URE were made during the administration of Dr. Raúl Alfonsín in 1985, under Decree No. 2,247. That decree created the Rational Energy Use Programme, made up of three subprogrammes: Energy Conservation, Fuel Substitution, and Evaluation, Development, and Application of New Energy Sources. The programme had a term of five years (1985-1989), and annual budgets were allocated.

Later, various bills were sponsored by different political parties, but they were not enacted into law. Provinces and municipalities also undertook a number of initiatives in this regard, with varying degrees of success.

When a new administration took office in 1989, a policy of deregulating the national energy sector was implemented, and some references to URE were introduced into national laws.

For example, in the Framework Law Regulating the Electricity Sector, Point e) of Article 2 defines the objectives of national policy on the supply, transport, and distribution of electricity,

including “Encouraging the Efficient Use of Electricity in supply, transport, and distribution, establishing the appropriate rate-setting methodologies”.

Afterwards, Decree 1500 of 1993 established the Rational Energy Use Directorate, under the auspices of the National Promotion Directorate. Its objectives are to promote actions associated with the conservation and rational use of energy, update the current body of regulations on this matter, and supervise specific projects carried out in this sphere.

URE is also mentioned in concession contracts for energy distribution in the federal jurisdiction. Article 25, clause ñ), states: “Advocate and promote, for itself and its customers, the rational use of energy”.

b) General principles of reform in the energy sector

- 1) Elimination of government monopolies.
- 2) Introduction of market forces where possible.
- 3) Regulation of activities characterized as natural monopolies.
- 4) Large-scale transfer of State assets to the private sector, in a context of development of risk transactions.
- 5) Natural resources owned by the provincial governments.

c) Recent developments

In July 1998, it was reported that the National Institute of Industrial Technology (INTI) was going to open a Centre for Rational Energy Use (CIPURE) as a result of an agreement with the Japan International Cooperation Agency (JICA), with additional financing from the national Secretariat of Science and Technology.

The objectives of the Centre, according to the information released, are to provide diagnoses for improving industrial equipment, to carry out monitoring activities to optimize procedures, and to offer training courses for rational energy use, among other functions.

It is also worth noting that a Wind and Solar Energy Promotion Law has just been enacted by unanimous vote of both houses of Congress.

d) The Rational Energy Use bill

The Senate Energy Committee is currently working on a bill for rational energy use, which will be considered as a case study in the second phase of the ECLAC/European Commission Project.

- 1) Regulatory: Appropriate and modern national and provincial legislation for URE.
- 2) Economic: The law should provide reasonable benefits for the players involved in the context of the rules established by economic policy.
- 3) Technological: A policy of research and development of alternative energy sources and efficient production systems should be implemented.
- 4) Financial: Businesses should be provided with assistance for technological reconversion.
- 5) Social: Citizens have a right to a constant supply of clean, high-quality, economical energy.
- 6) Institutional: A political decision should be made to apply regulations based on consensus at all levels, sustainable over time.

- 7) Federal: Due consideration should be given to the interests of the provinces that own natural resources.

e) Benefits of URE legislation to Argentina

- 1) Legal stability
- 2) Delay in the exhaustion of non-renewable energy sources
- 3) Savings of foreign reserves
- 4) Savings of public spending
- 5) Reduction of production costs
- 6) More time allowed for the development of alternative technologies
- 7) Cleaner environment
- 8) Contribution to the decline in the production of greenhouse gases

This legal text, which is so important for the steady development of Argentina's energy sector in the future, should be incorporated into a body of laws, some of which already exist and others are being drafted. This will ensure that our country makes the transition from a state of indifference in the management of natural resources, both renewable and non-renewable, to a modern approach that draws on the experience and the environmental standards of other countries that have successfully rationalized the use of their natural resources and adapts them to our own objective conditions in order to push forward in our own sustainability projects.

Finally, it is important to emphasize the importance to our countries of URE programmes, but also to warn that to be successful, we must have not only the regulatory framework, but also a strong political resolve to bring about the necessary transformations. Because of their impact on future generations, these transformations must begin now.

C. Colombia

Colombia has a proposed regulatory framework for promoting the rational and efficient use of energy, which was drawn up under the auspices of the ECLAC/European Commission Project with the Mining and Energy Planning Unit (UPME) as an executive partner.²⁵ Senators Amylkar Acosta (former president of the Colombian Senate), Pepe Gnecco (president of the Fifth Commission), and Luis Ferney Moreno presented a paper addressing the following points:

a) Background

Since the early 1980s, actions have been under way to promote the rational and efficient use of energy in Colombia. In the majority of cases, they have been ad hoc responses to situations that have arisen, in particular, to weather phenomena that have put the national electricity system on alert. In addition, educational handbooks have been designed, but they have not been published due to a lack of political will. The electricity companies have been the most active in pushing energy saving programmes.

With the new rules of play adopted for the development of the electricity industry, however, the various players involved have behaved differently: Suppliers have viewed them as part of a strategy for meeting their customers' needs; generators are interested in selling all the power they have available; and transporters consider these rules a marginal aspect of their business.

²⁵ This information is taken largely from the document "Proposed Regulatory Framework for Promoting the Rational and Efficient Use of Energy in Colombia" drafted by the consultant to the ECLAC/European Commission Project, Mr. Francisco Ochoa of the Mining and Energy Planning Unit (UPME), Ministry of Mines and Energy (Bogota, Colombia, August 1998).

On the other hand, international organizations, especially the European Union and the Inter-American Development Bank (IDB), have provided financing for energy efficiency projects. The Congress of the Republic has also expressed interest in this issue. The Government in 1995 defined a policy and adopted long-term strategies for fostering the rational and efficient use of energy. The proposed strategy has two components: orientation of the demand for electricity, and energy substitution.

In 1996, as a result of a parliamentary initiative, a bill “promoting the rational use of energy, encouraging the use of alternative sources of energy, and setting forth other provisions” was introduced. It was passed by the Senate and sent to the Chamber of Representatives, but the Government made objections to the approved text.

Despite the advancements made in energy and environmental regulation, the functions of the entities involved in these matters have not been coordinated. Furthermore, there are no tax or tariff incentives to encourage the conversion of equipment to make it more energy-efficient, and there is no specific mechanism for financing energy efficiency projects (loan payments can be made with the savings from the resultant enhanced efficiency).

Nor are there norms requiring the incorporation of energy issues into comprehensive education programmes. Also lacking is a true “sufferer” who would constantly and systematically promote programmes and support the efforts of the key players in the management of energy resources.

In 1998, under the auspices of the ECLAC/European Commission programme, the “Proposed Regulatory Framework for Promoting the Rational and Efficient Use of Energy in Colombia” was developed, with the Colombian Ministry of Mines and Energy’s Mining and Energy Planning Unit (UPME) as a partner.

To ensure the maximum representation of the players involved in the rational and efficient use of energy, a Steering Committee was formed, coordinated by the UPME Efficiency Group, with representatives from different public and private entities in the energy sector.

The committee reached the conclusion that a specific law was needed to promote the rational and efficient use of energy and non-conventional sources. The committee therefore set out to draft and discuss a bill, which was unanimously approved by all participating entities.

b) Content of the bill

The bill drafted by the committee has six (6) chapters: The first one contains general provisions, the second one describes the national system for fostering the rational and efficient use of energy and non-conventional sources, the third describes the promotion entity, the fourth describes the instruments for promotion, the fifth sets standards for educating the citizenry, and the sixth contains final provisions.

The bill declares that the rational and efficient use of energy is a matter of public interest and national benefit, in order to guarantee the people’s constitutional right to have a healthy environment and be educated about the energy features and efficiency of finished goods, and to ensure an efficient supply of energy to meet the population’s needs and Colombian industry’s competitiveness goals.

The reasons for State intervention in the promotion and efficient use of energy are specified: to make possible the efficient supply of energy goods, to stimulate the rational and efficient use of energy by means of economic incentives, to set standards for equipment to guarantee a healthy environment, to promote energy and environmental labelling of equipment, to foster training in the community, to promote the creation of a market for energy services, and to provide and attract capital for scientific and technological research.

A national system for promoting the rational and efficient use of energy and non-conventional sources is being organized in order to coordinate the functions of different public and private agents that are involved in these issues.

The UPME is given the task of establishing a private, non-profit corporation within one year, to promote the rational and efficient use of energy. It will be called the Corporation for Promoting the Rational and Efficient Use of Energy and Non-conventional Sources.

The main function of this corporation is to promote the rational and efficient use of energy throughout the country and to follow up on various programmes. Although no law is required for the creation of this entity, a law is necessary to relieve the UPME of the promotional functions that were entrusted to it under Decree Law 2740 of 13 November 1997. The idea is for this corporation to concentrate on the energy situation as a whole and to compile, process, and disseminate information on mining and energy.

The administrative tasks involved in promoting and following up on specific projects will be carried out by the corporation, which will include among its associates the same public and private entities that have a stake in its activities. It was decided that a private corporation would be best, because creating new State entities was deemed inappropriate and inconsistent with the policy of reducing the size of the State.

An Energy Efficiency Promotion Fund is proposed, its resources to be administered by the FEN under a fiduciary contract. The objective of the fund is to finance, with both reimbursable and non-reimbursable resources, projects for energy efficiency, rational energy use, and non-conventional sources.

The fund's resources will come from the following sources: national budget allocations; resources of national and international entities; fines imposed by environmental authorities, except for the portions earmarked for the National Environmental Fund or the environmental authorities themselves; financial returns on the fiduciary agreement (except for the portion corresponding to the nation); and interest on loans. The fund will have an Executive Committee, which will be responsible for approving the use of resources, overseeing the channeling of those resources, and supervising the fiduciary contract with the FEN.

The basic premise is the need to create a culture of rational and efficient energy use to change the population's behavior patterns. For this reason, the concept of rational and efficient energy use and non-conventional sources should be incorporated into comprehensive education programmes in all schools. At the same time, the Government should devise strategies to educate the public through the mass media, public utility bills, and other appropriate channels.

D. Costa Rica

Costa Rica is one of the most advanced countries in terms of legislation to achieve energy efficiency. Indeed, the Rational Energy Use Regulation Act, Law 7447, was enacted back in December 1994. It clearly establishes the requirements that private and public enterprises must meet for rational use of energy and improved energy efficiency. Deputy Manuel Antonio Bolaños, First Secretary of the Legislative Board and Chairman of the Special Environmental Commission, presented the paper for Costa Rica, in which the following topics were covered:

a) Scope of the law

The purpose of the law is to bolster the State's role in promoting and gradually executing the rational energy use programme. In addition, the law establishes mechanisms to achieve energy

efficiency and to replace them when the interests of the country so warrant, taking environmental protection into consideration.

The mechanisms are based on three postulates:

- a) the obligation to carry out rational energy use projects in energy-intensive businesses;
- b) the monitoring of equipment and facilities that are in widespread use and therefore have an impact on the demand for power; and
- c) the establishment of a labelling system to inform customers of their energy consumption.

b) Energy-intensive businesses and energy efficiency

With regard to consumption limits, the Ministry of Natural Resources, Energy, and Mines (MIRENEM) has a mandatory but gradual rational energy use programme aimed at private businesses with annual power consumption of more than 240,000 kilowatt-hours of electricity, 360 000 litres of petroleum derivatives, or total energy consumption equivalent to 12 terajoules.

When a business has an energy index higher than that set by the MIRENEM based on international indices, the ministry informs it of the situation. The business has a period of three months to report to the MIRENEM on the rational energy use programme it intends to carry out, or to request technical advice for reducing the energy index. In either case, the business must adhere to the MIRENEM's technical recommendations.

The cost of investing in these measures, also called "low-cost or investment measures", cannot exceed 15% of the company's total annual energy cost.

Any measures with a cost or investment amounting to more than 15% of the company's annual energy cost are termed "high-cost or high-investment measures". Different types of incentive are offered to businesses to take such measures, jointly or individually, provided that the entity giving the incentives has determined that the measures are appropriate and beneficial to national interests. These incentives include 50% cofinancing of the "high-cost or high-investment measures", and discounts on electricity or petroleum derivatives amounting to 20% of the annual energy savings produced by the measures, for a period of two years.

c) Incentives for domestic industries that give priority to energy efficiency

Businesses located in the country that produce and assemble equipment, machinery, and vehicles designed to promote energy efficiency are eligible for the benefits provided in the Science and Technology Development Promotion Act (Law No. 7169, 1 August 1990). To qualify, they must sign a contract with the Ministry of Science and Technology and the MIRENEM, in which the technology to be used for this purpose is detailed.

d) Incentives for importing more energy-efficient vehicles

Any natural or moral person wishing to import machinery, equipment, or vehicles must submit an affidavit attesting to the energy efficiency of such goods, in accordance with MIRENEM specifications, to obtain their release from the country's customs warehouse. The MIRENEM may conduct an inspection at any time to verify the information contained in the affidavit.

The affidavit will be used to determine whether the item is subject to the surcharge on the selective excise tax, as provided by the law.

e) Use of mandatory labelling and plates

In keeping with the policy of informing the public and advising consumers, manufacturers, importers, and distributors of equipment, machinery, and vehicles, as specified in section 5.3.3 of the law, are required to place in a visible location on the item a clearly legible plate or card indicating the amount of power it consumes and the relevant characteristics of the product. Information contained in packaging or advertising materials is not considered a consumer warning for this purpose.

In the regulations drafted pursuant to this law, the MIRENEM specifies the information that is to be contained on the plates or consumer warnings and the methods of determining such information.

f) Regulations for importing buses and taxis and setting rates

If a public transportation provider intends to import a vehicle not included in the annual specification list for buses and taxis, in which the MINEREM will indicate energy consumption and environmental considerations, it must request that the MINEREM determine whether the vehicle meets the energy consumption requirements. The MINEREM will have up to three months to issue its decision.

If the decision is unfavorable, the provider will not qualify for the benefits of Law No. 7293 of 3 April 1992.

E. Chile

The paper presented by the representatives of the Chilean Congress, Senator Ignacio Pérez Walker and Deputy Jaime Mulet, can be summed up as follows:

a) Chilean energy policy

The ultimate objective of Chile's energy policy is to satisfy the country's considerable energy needs while protecting consumer interests and the environment.

These are the basic goals of the policy:

- To promote and facilitate investment, especially private investment, both national and foreign.
- To promote competition on the markets, both among businesses and among energy sources.
- To promote energy integration, which has been a mainstay of our present-day sectoral development, by diversifying the power matrix.
- To promote energy efficiency, based on the conviction that rational energy use helps to reduce environmental harm.
- To guarantee environmentally sustainable energy development.
- To strive for greater social equity, primarily by ensuring that all sectors in the country have access to reasonably priced, high-quality energy.

b) Efficiency actions undertaken by the government

In keeping with government policies on energy efficiency, the National Programme for the Efficient Use of Energy, which has been in place since 1992, has had an ongoing commitment to

informing the different types of energy consumers of techniques and practices they can employ to make better use of energy, reduce consumption, and minimize the adverse effects on the environment.

The programme has been supported by international institutions with an interest in this issue.

In the action areas of our programmes (Residential, Buildings, Municipal, Commercial, Industrial, Outreach, and Training), our policy has been to foster low- and medium-cost energy efficiency projects. Accordingly, various activities have been carried out to gradually reduce the country's energy consumption.

i) Residential sector. Keeping the community informed is essential for guiding its actions towards better energy use in the home. This is very important, since Chilean households account for about 20% of total national energy consumption.

For this purpose, the National Programme for the Efficient Use of Energy has organized, in conjunction with the regional governments, the "Regional Outreach Series". Informative talks are given throughout the country for residential users, neighborhood boards, and the general public.

ii) Building sector. Among the objectives for this sector are conducting energy audits of buildings, identifying potential savings, and recommending more cost-effective measures, with the overall goal of designing a comprehensive strategy to achieve energy saving.

iii) Municipal sector. To support the municipalities in this task, the National Programme for the Efficient Use of Energy is developing two major activities: the Comprehensive Energy Efficiency Management Programme, and the Public Lighting Modernization Project.

iv) Industry and mining sector. Because this sector consumes approximately 5 million tons of oil equivalent (TOE) per year (that is, about 30% of the secondary energy available to the country), it is vitally important that we undertake activities that encourage efficient energy use in this sector.

v) Education and technical training. The objectives are to disseminate and promote techniques and practices for energy conservation and efficiency in the various sectors, to advance efficient technologies that reduce the environmental impact, and to educate professionals and technicians regarding energy-saving practices. Activities such as courses, seminars, business conferences, and publicity campaigns are carried out.

vi) Outreach and awareness. The purpose is to sensitize and motivate the various sectors of production and energy users to pursue energy efficiency. Goals include promoting the concept of energy efficiency, publicizing completed projects, providing consumers with straightforward information, and offering incentives for carrying out projects.

c) Results

The programme has yielded the following results:

- In the mining and industry sector, energy diagnoses and audits have shown that the savings potential is 150.00 TOE per year, equivalent to about US\$20 million, for participating industries.
- At the municipal level, thanks to the Public Lighting Modernization Project, 230,900 lamps have been changed, equivalent to 45%. As a result, the 2 billion pesos saved each year can be used for the municipalities' other priorities.
- In the residential sector, information campaigns known as "Regional Outreach Series" have been conducted, bringing information to communities all over the country and promoting household energy saving.

- In the building sector, as in the industry sector, diagnoses and audits have been conducted, demonstrating that 3 billion pesos a year can be saved with minimal investments.
- In the area of training, a total of 22 training seminars have been offered to professionals and technicians in the industry and mining sector, both public and private, on the topics of thermal energy, electricity, and construction. In addition, talks and presentations have been given at numerous national events related to energy and the environment.
- With respect to outreach, support has been given for all the programme's efforts in the form of informational material. In this connection, 17 issues of the Energy Bulletin have been published, along with pamphlets and manuals aimed at schools, industry, and business. Among other activities, campaigns have been organized to target specific sectors.

d) Normative elements in energy efficiency

As a result of the energy crisis of late 1998, we have begun to study modifications in the regulations governing the electricity sector, and energy efficiency will be one of the fundamental considerations.

F. Peru

These are the highlights of the paper presented by Congressman Gustavo Flores, Chairman of the Congressional Energy Committee:

a) Advances in energy efficiency legislation

A bill has been drafted under the auspices of the ECLAC/European Commission project, with the Energy Conservation Centre (CENERGIA) acting as a partner. The bill was sponsored by the Energy Committee, which submitted it to the full house for debate. The bill is now being studied by the committee and is awaiting the opinion of the Ministry of Energy and Mines.

Previously, the Energy, Mines, and Fishing Committee heard testimony about the scope of the bill and solicited opinions from the following agencies: Ministry of Energy and Mines, CENERGIA, National University of Engineering (UNI), National Society of Industries, National Society of Mining and Petroleum, Electricity Rate Commission (CTE), Office of the Superintendent of Energy (OSINERG), National Institute for the Defence of Competition and Protection of Intellectual Property (INDECOPI), and the College of Engineers of Peru (CIP). The majority of these agencies expressed support for the bill, while suggesting certain modifications.

b) The Energy Saving Programme

The Energy Saving Programme (PAE) was created in October 1994 to promote rational energy use in all sectors of the country's economy, and the use of renewable energy (solar and wind). One of the PAE's principal tasks was to deal with a potential shortage of electricity that was expected to occur in 1995 and 1996 as a result of the revitalization of the country's economy and the likely rain shortage. This task was carried out by implementing a National Energy Saving Campaign, conducted jointly with CENERGIA.

The success of the 1995-1996 campaign required cutting demand at peak hours, from 6:00 pm to 11:00 pm. It was determined that household consumption accounted for 40% of electricity use during those hours, other sectors 60%. Thus, the campaign in the household sector focused on two objectives: a) to improve electricity consumption habits, especially with respect to lighting

(which accounted for 59%); and b) to encourage the population to use energy-efficient equipment, in particular to replace incandescent lightbulbs with more efficient ones.

Evaluations by independent consultants reveal that the energy campaign was effective in reducing energy and power requirements in Metropolitan Lima in 1995. Its impact on the administration of demand was limited, however, as no discernible shift away from peak hours was seen. This means that energy saving has been brought about both at peak hours and at off-hours.

c) Content of bill

The rational and efficient use of natural resources, especially energy, is a strategic consideration. It is possible to contribute effectively to laying the groundwork for revamping and developing the national productive apparatus by supporting an energy service industry that has a direct impact on the competitiveness of our economy while at the same time mitigating the negative impact on the environment and the ecological balance.

To achieve these ends, decisive action must be taken to solve the problem of the irrational, inefficient, uneconomical, and antisocial use of energy resources and energy itself, particularly in the production of goods and services, which affects not only the environment but also the people's quality of life.

The bill seeks to establish a legal framework for rational and efficient energy use. It is a Framework Law that will be developed gradually through secondary laws or provisions that deal with particular aspects of the proposed law.

The guiding thread is the notion that rational and efficient energy use is both an obligation and a right of energy consumers or users. To fulfill this obligation or exercise this right, it is essential to have accurate, timely, adequate, and appropriate information about practices to make possible the desired rational and efficient use.

Given the importance of rational and efficient energy use, Title I of the bill declares that it is in the public interest because it guarantees energy supplies, protects consumers, stimulates competitiveness, and lessens the adverse impact on the environment.

The responsibility to pursue these objectives through policies that promote rational and efficient energy use is assigned to the Ministry of Energy and Mines, as a representative of the Peruvian State. The Ministry is given the power to formulate and carry out these policies, coordinate with public and private entities, form technical commissions with them, and hire specialized agencies to conduct studies and draw up plans and programmes to promote the rational and efficient use of energy.

The bill foresees the employment of different methods (Article 5) for promoting rational and efficient energy use, similar to those adopted in countries that have gained experience in these matters. Examples include designing and implementing referral programmes, proposing and applying standards that encourage the efficient use of natural energy resources and promote new and renewable energy sources, conducting outreach and education campaigns to teach practices that demonstrate energy efficiency, supporting the creation of energy service companies, providing technical assistance to public and private institutions, working in concert with consumer organizations and business entities, and supporting the development of cogeneration.

The Ministry of Energy and Mines, which has jurisdiction over these matters, is given a number of functions under the bill (Article 6). These functions, which will achieve the stated objectives if carried out effectively, include fostering a culture oriented towards the rational use of energy resources to ensure sustainable development; pursuing improved competitiveness by promoting energy efficiency; encouraging more transparency in the energy market by constantly

diagnosing energy efficiency problems and drafting and executing the appropriate programmes, as well as disseminating information on processes, technologies, and computer systems consistent with efficient use of energy; and stimulating the reduction of energy losses through inefficient use.

Financial support for the ongoing execution of policies to promote the desired use of energy will come from the Energy Efficiency Promotion Fund (FONENERGIA), which would be administered by the Ministry of Energy and Mines under this law.

The FONENERGIA will be funded by allocations from the Ministry of Energy and Mines, national and foreign donations, domestic and foreign loans granted for the enforcement of this law, and the income generated by the fund as it administers its own resources.

Manufacturers and distributors are required by regulations to inform the consumer about the energy consumption of finished equipment. Public service providers in general would be required under this law to distribute information about rational and efficient energy practices to all users.

VII. ECLAC and the sustainable development of the energy sector²⁶

In the search for alternatives to ensure the sustainable development of the energy sector, energy efficiency is a fundamental element, both in terms of its direct relation to conservation and the appropriate use of energy sources, and in terms of the development of renewable energy sources, the protection of our natural heritage, international competitiveness, and social equity—all basic mainstays of sustainable development.

In Latin America and the Caribbean, important steps have been taken in the context of energy reforms aimed at guaranteeing efficient, secure, and timely supplies of good-quality energy at reasonable prices; but little has been done to make energy efficiency an integral component of these reforms. In other words, considerable progress has been made in restructuring the supply and deregulating markets, but to complete the reforms, we also need to adopt policies and initiatives on the demand side.

The efficient use of energy contributes to sustainable development to the extent that it boosts the productivity and competitiveness of economies. Indeed, by optimizing the per-unit consumption of products, efficient energy use generates saving through greater productivity. This saving can be quantified by looking at these resources as an additional source of energy.

²⁶ Taken from the speech delivered by Dr. José Antonio Ocampo, Executive Secretary of the United Nations' Economic Commission for Latin America and the Caribbean (ECLAC).

From ECLAC's point of view, energy efficiency should be regarded as a government policy in that it tends to cut businesses' operating costs, which improves their competitive position on the world market. The efficient use of energy is among what are known in current economic theory as acquired competitive advantages, that is, advantages that result from the "systemic" incorporation of technical progress and entrepreneurial talent.

This type of competitive advantage is of great importance not only to export firms, which in the case of commodity exports engage in energy-intensive activities such as mineral smelting and refining; but also to companies operating on local markets, which must face international competition thanks to free trade policies.

As for business management, energy efficiency often goes hand in hand with improvements in product quality, reduction of losses, and increases in productivity at the level of productive processes. From our perspective, the efficient use of energy is valued not only for cutting consumption, but also for contributing a byproduct that can be used by other players in the system. Thus, energy efficiency must necessarily be conceived on the basis of a systematic approach to the optimum use of available energy resources.

The reasons stated (product quality, management of processes, and general productivity), plus lower production costs as a result of less energy consumption, should all translate into a greater contribution to the value added in relation to the energy saving achieved. This, in turn, should contribute to the overall growth of the economy.

Moreover, given that the processes involved in generating, transforming, transporting, distributing, and using energy can cause environmental damage, this means that sustainable management of the energy system can improve the environment and mitigate undesired effects.

More specifically, using less energy per unit of product or service translates into less environmental deterioration, either by reducing (or at least postponing) the need to build power plants and oil refineries or to exploit coal reserves, or by cutting emissions of pollutant or greenhouse gases and of particulate matter resulting from combustion.

In addition, efficient energy use makes it possible to select less environmentally harmful energy sources, to the extent that this switch is not economically irrational, which in turn assumes that prices reflect the true cost to society of using a given energy source. This is an area that merits further exploration for the purpose of designing energy policies that will allow for more development of new and renewable sources of energy.

Elaborating further on arguments in favor of sustainable development, ECLAC notes that implementing energy efficiency is only part of the rational use of natural resources. From this point of view, energy efficiency is a requirement derived from the adoption of certain principles based on inter-generational equity. These principles suggest that we should turn over to the next generation a trove of natural resources at least as rich as the one our generation inherited.

Ever since ECLAC conceived of its proposal for "changing production patterns with social equity" in the early 1990s, it has emphasized the value of devising concrete actions that will lead to a better quality of life and social equity. Let me stress that energy efficiency can contribute to both objectives. It can give low-income sectors access to better quality energy and also reduce the huge share of their income that is spent on energy. It can further improve their quality of life by freeing up financial resources for other needs, while at the same time making housing more comfortable and lowering the incidence of pulmonary diseases caused by combustion-generated humidity.

The issues dealt with in the Dialogue between Europe and Latin America are of great importance due to the commitments our countries have made to sustainable development. In particular, they should help refute the misconception that energy efficiency is not a valid option for

developing countries. There are those who think that before cutting consumption, these countries should actually use more energy in order to modernize production.

From our standpoint, this is a false dilemma. There is a fallacy in the argument, in that energy efficiency does not consist of rationing or reducing consumption; on the contrary, it means using energy better. Rational energy consumption makes it possible to expand the available supply, which thus favors growth. The fact is that boosting productivity and lowering energy consumption per unit of production are two sides of the same coin.

ECLAC believes that efforts to make efficient use of energy, as an essential part of public policy, should aim to:

- meet society's energy requirements at the lowest possible cost in money and energy;
- boost energy productivity and revitalize low-productivity activities; and
- replace energy sources with alternatives, as a function of their relative social costs.

All of this requires long-term planning and vision, in contrast to the emergency, short-term programmes that have been implemented in the face of natural disasters or shortages, as has largely been the tradition in Latin America.

ECLAC emphasizes the difference between the advantages of energy efficiency and the rationing associated with these emergency programs. Rationing has a product cost, shortages, which translate into lower productivity; whereas energy efficiency cuts costs and enhances the productivity of invested capital, both in companies that generate and distribute power, and among users.

The problem does not lie in the quantity of energy used, but in the most economical form of ensuring business productivity; good heating and a quality environment in the home; adequate lighting in production, recreation, and living areas; efficient transportation of goods and people; and sufficient power for equipment and machinery.

Energy efficiency makes sense only insofar as it helps lower production costs and spending on public utilities. Although efficient equipment may sometimes cost more than conventional equipment, the difference in operating and maintenance costs between efficient and traditional equipment leads to a significant improvement in productivity.

The project that ECLAC has undertaken together with the SYNERGY Programme of the European Commission to promote energy efficiency in Latin America is aimed at overcoming the barriers that still exist in the region.

Annexes

Annex 1

Energy efficiency in the European Community: towards a strategy for the rational use of energy - COM (1998) 246-29 April 1998

1. This Communication reflects the political commitment to energy efficiency. It focuses on what is economically and realistically feasible in the short and medium terms.

The Commission's objectives are: to emphasize the economic potential for energy efficiency and barriers to investment in this area; to take into consideration the policies implemented to date; to highlight the significant actions that have been taken at the Community, country, and regional levels; to stimulate discussion with a view to forging a detailed Plan of Action; and to lay the groundwork for common policies and actions along the lines of the Kyoto Agreements.

2. According to estimates, the economic potential for promoting energy efficiency between 1998 and 2010 for all sectors as a whole is approximately 18% of all energy consumed in the year 1995.

3. However, this cost-effective potential is not being fully realized, because barriers to energy efficiency investments persist. The price factor is important, in that energy efficiency will penetrate the market fully only if energy prices adequately reflect energy costs. This can be achieved by: internalizing external costs through taxes and royalties, and liberalizing the gas and electricity sectors, which will improve the efficiency of energy production, bringing down prices.

There are also numerous institutional and legal obstacles that continue to stand in the way of any improvement in EE, such as: the continued practice of selling energy in the form of kWh rather than energy services such as heating, lighting, and power; and the practice among builders and landlords of installing facilities with initially low costs but with high long-term energy costs, which then have to be assumed by the home buyer or renter.

The lack of information for consumers and producers, as well as technical barriers and financial obstacles, also militates against investment in EE.

4. This Communication reviews the various energy efficiency measures, which are of different types: technological programmes such as JOULE-THERMIE; the SAVE programme, with the drafting and adoption of legislation such as that requiring energy consumption labels on refrigerators; support for investment through the European Regional Development Fund (ERDF) and the Cohesion Fund; and international cooperation, mainly through the Poland and Hungary - Aid for economic restructuring (PHARE), TACIS, and SYNERGY programmes.

5. In addition to these programmes, the Communication proposes a strategy for Rational Energy Use.

In general terms, efforts must be made to promote Rational Energy Use in other policies, most notably in those governing regions, transport, taxes, research and development, and international cooperation.

More specifically, the following areas of action are proposed as priorities for the short and medium terms: energy-efficient buildings; a revision of Directive 93/767/CEE to limit carbon dioxide emissions; promotion of energy-efficient household appliances and other finished goods; expanded coverage of negotiated and long-term agreements for minimum efficiency requirements; greater dissemination of information; third-party financing, guaranteed results, and other creative financing schemes; EE in the gas and electricity sectors, as well as combined heat and power (CHP); and proper management of energy, government procurement, and cooperative technology.

6. Finally, the Communication emphasizes that decision-makers and interested parties must make a greater commitment to achieving significant energy saving. The Member States should develop their own national strategies to parallel Community strategy.

7. In light of the reactions by Community institutions to this Communication, the Commission will proceed to devise an Energy Efficiency Action Plan.

Annex 2
Energy efficiency in the European Community
(Decision of the European Union Council, November 1998)

THE COUNCIL OF THE EUROPEAN UNION,

Having regard to the Council resolution of 8 July 1996 on the White Paper, "An energy policy for the European Union",

Having regard to the Council resolution of 8 June 1998 on renewable sources of energy,

Having regard to the Council resolution of 18 December 1997 on a Community strategy to promote combined heat and power,

Having regard to the Council conclusions of 11 May and 16 and 17 June 1998 on climate change,

Having regard to the Kyoto Protocol to the United Nations Framework Convention on Climate Change,

Having regard to the Energy Charter Treaty and the Protocol on energy efficiency and related environmental aspects, and the pan-European energy conservation initiative,

Having regard to the Presidency conclusions of the Cardiff European Council concerning the integration of environmental considerations and sustainable development into all relevant policy areas,

Having regard to the SAVE II programme and to the discussions concerning the energy framework programme as well as the fifth framework programme of the European Community for research, technological development and demonstration activities,

Welcomes the general thrust of the Commission's communication on energy efficiency in the European Community, "Towards a strategy for the rational use of energy" as a basis for the development of actions at Community level complementary to actions undertaken by Member States.

Emphasizes the contribution of efficient use of energy to security of supply, economic competitiveness and environmental protection and **CONFIRMS** the important role of energy efficiency in the creation of business opportunities and employment as well as its global and regional benefits.

Reaffirms the importance of the further development and implementation of appropriate common and coordinated policies and measures (CCPMs) for the energy efficiency sector, as a complement to national policies and measures and taking into account specific national characteristics and priorities, in order to enable the Community and Member States to achieve their respective commitments under the Kyoto Protocol;

Confirms that such CCPMs should be developed in a manner which is consistent with the three key objectives of energy policy, which are to promote security of supply, competitiveness and protection of the environment.

Confirms the importance of an energy efficiency strategy at Community level, complementary to Member States' policies;

Stresses the crucial role to be played by Member States in achieving this strategy, and **recommends** Member States to develop and implement, in conformity with national procedures, national energy efficiency strategies, taking into account, if appropriate, the strategic approach at Community level.

Notes the Communication's assessment of an economic potential for energy saving available in the Community as a whole by the year 2010 at an estimated 18 % of 1995 energy consumption.

Considers that the Communication's indicative target for the Community as a whole up to the year 2010 to improve energy intensity of final consumption by a further one percentage point per annum, on average, over that which would have otherwise been attained is ambitious and provides useful guidance for increased efforts at Community level as well as in Member States, bearing in mind the need to reflect differing national circumstances and energy price levels.

Stresses that the profile of energy efficiency must be raised significantly and that a renewed commitment strongly made by the Community and Member States to the rational use of energy is necessary.

Believes that, inter alia in the context of the new commitments under the Kyoto Protocol, present Community and Member States activities with relevance to energy efficiency should be reassessed in order, if necessary, to adapt their focus, improve their effectiveness and monitor more closely these activities.

Notes that many different types of barriers persist which prevent the realization of the potential for energy saving, and that it is a challenge to public-policy makers to create a framework in which energy efficiency initiatives of economic operators can flourish, but **CONSIDERS** that appropriate measures are either already available or could be developed in order to reduce and eliminate these barriers, taking into account the principle of subsidiarity.

Considers that increased exchange of information and other cooperation between Member States and the Commission on energy efficiency policies, programmes, measures and results are necessary.

Confirms that the development of further Community activities in cooperation with Member States is desirable, for example in relation to CCPMs as referred to in point (3);

Recalls its conclusions of 11 May 1998 (energy) and 16 and 17 June 1998 (environment) in the field of energy efficiency;

Considers that those activities could, taking into account the principle of subsidiarity, consist for example of measures of the following types: the increased use of combined heat and power (CHP), including district heating and cooling, where appropriate; increased emphasis especially on the building sector, but also on energy use by industry and households; increased and extended use of labelling, certification and standardization; increased dissemination of best-practice information on the application of energy efficient technologies and techniques; increased use of negotiated and long-term agreements on energy efficiency on a voluntary basis; the revision of existing legislation and the development of new legal instruments, including the use of mandatory minimum efficiency standards, if necessary and if other measures are not appropriate; the use of instruments such as cooperative technology procurement in compliance with competition law and principles, and the taking account of energy efficiency in public sector procurement practices, as well as energy audition, if appropriate; and wider use of innovative financing instruments including third-party financing and guarantee-of-results schemes.

Recognizes the importance of spreading knowledge, experience and awareness throughout the Community in the field of energy efficiency, and of developing and supporting specific measures and legislation, where appropriate, and the need for continuous development of new and more effective measures and technologies.

Confirms in this context the importance of the SAVE II programme, which will become an integral part of the energy framework programme, and the fifth framework programme of the European Community for research, technological development and demonstration activities, inter alia, in relation to small and medium-sized enterprises.

Believes that it is highly desirable to build energy efficiency into other Community policies where it is appropriate to do so while respecting the basic objectives of these policies;

Recognizes that other Community policies, including regional policy, research and technology, transport, industry, external relations and State aid, could make a significant contribution to the promotion of energy efficiency.

Notes attentively in the Commission's working document the list of possible policy measures which include appropriate energy-fiscal measures, economic incentives and other similar economic measures to help reduce emissions;

Notes that the discussion at Union level is being pursued in the appropriate formation of the Council.

Considers that possible modifications in relation to energy efficiency during the revision of the Community guidelines for State aid must not have a distorting effect on competition.

Invites the Commission to come forward as soon as possible with a proposal for a prioritized action plan for energy efficiency, using as a basis the above items, in particular those included as examples in point (11). The action plan should also take account of the contribution that other Community policies can make to the promotion of energy efficiency. It should indicate Community and Member State responsibilities and contain, in particular, indications on financing and timetables.

Annex 3
Agenda of the “First European-Latin America Parliamentary Dialogue on
Promotion of Energy Efficiency”
 (Brussels, 28-30 October 1998)

PARLIAMENTARY DIALOGUE (28 October)	
OPENING SESSION	
Presentation	<ul style="list-style-type: none"> • Fernando Sánchez Albavera, Regional Adviser to ECLAC in Mining and Energy and Director of the ECLAC/European Commission Project “Promotion of Energy Efficiency in Latin America”
Speeches	<ul style="list-style-type: none"> • Pablo Benavides, Director General, European Commission DG XVII-Energy • Ignacio Gafo Fernández, Chairman of the Transport, Energy and Information Partnership Section of the European Union’s Economic and Social Committee
Opening Address	<ul style="list-style-type: none"> • Umberto Scapagnini, Chairman of the Energy, Research, and Technological Development Commission (CERT) of the European Parliament
I. WORKING SESSION: PROMOTION OF ENERGY EFFICIENCY IN LATIN AMERICA	
Topic	<i>Legislative Initiatives to Promote Energy Efficiency</i>
Speaker	<ul style="list-style-type: none"> • Fernando Sánchez Albavera, Regional Adviser to ECLAC in Mining and Energy and Director of the ECLAC/European Commission Project “Promotion of Energy Efficiency in Latin America”
II. WORKING SESSION: POLICIES AND STRATEGIES FOR ENERGY EFFICIENCY IN THE EUROPEAN UNION	
Topic	<i>Energy Efficiency in the European Community</i>
Speaker	<ul style="list-style-type: none"> • Randall Bowie, DG 17
Topic	<i>Promotion of Energy Efficiency in the European Union</i>
Speaker	<ul style="list-style-type: none"> • Carlos Robles Piquer, Member of the European Parliament
III. WORKING SESSION: LEGISLATIVE INITIATIVES AND ENERGY EFFICIENCY PROGRAMS IN SELECTED LATIN AMERICAN COUNTRIES	
Speakers from the “Case Study” Countries of the ECLAC/European Commission Project	
ARGENTINA	<ul style="list-style-type: none"> • Senators Juan Melgarejo and Osvaldo Sala, Senate of the Republic
COLOMBIA	<ul style="list-style-type: none"> • Senators Amylcar Acosta, Luis Ferney Moreno, and Pepe Gnecco, Senate of the Republic
COSTA RICA	<ul style="list-style-type: none"> • Deputy Manuel Antonio Bolaños, Legislative Assembly
CHILE	<ul style="list-style-type: none"> • Senator Ignacio Pérez Walker, Senate of the Republic; and Deputy Jaime Mulet, Chamber of Deputies
PERU	<ul style="list-style-type: none"> • Congressman Gustavo Flores, Congress of the Republic
Speech by the Observer Delegation from El Salvador	
Speakers	<ul style="list-style-type: none"> • Deputies Alex Aguirre Guevara, Oscar Ortiz Asencio, and Olga Ortiz Murillo, Legislative Assembly
MODERATION OF THE GENERAL DEBATE AND CLOSING SESSION SPEECH:	
<ul style="list-style-type: none"> • Rolf Linkohr, Member of the European Parliament, Vice President of DG 13, President of the European Energy Foundation, and Member of the Research, Technological Development, and Energy Commission of the European Parliament 	
WORKSHOP (29 and 30 October)	
OPENING SESSION	
Topic	<i>Presentation of the ECLAC/European Commission Project “Promotion of Energy Efficiency in Latin America”</i>
Speaker	<ul style="list-style-type: none"> • Fernando Sánchez Albavera, Regional Adviser to ECLAC in Mining and Energy and Director of the ECLAC/European Commission Project “Promotion of Energy Efficiency in Latin America”
Topic	<i>The Role of Energy Efficiency in Cooperation Between the European Union and Latin America</i>
Speaker	<ul style="list-style-type: none"> • François Casana, European Commission, head of the SYNERGY Programme, DG XVII of the European Commission.
Topic	<i>ALURE: A Methodology for Promoting Energy Efficiency</i>
Speaker	<ul style="list-style-type: none"> • Francisco da Camara Gomes, Director for Latin America, DG I, European Commission
I. WORKING SESSION: PROMOTION OF ENERGY EFFICIENCY IN THE EUROPEAN UNION	
Topic	<i>The Role of Energy and Environmental Agencies in the Promotion of Energy Efficiency</i>
Speaker	<ul style="list-style-type: none"> • Concepción Canovas del Castillo, IDEA, Spain

Topic	<i>The Role of Legislation and Regulation in Energy Efficiency Policies in the European Union and Member States</i>
Speaker	<ul style="list-style-type: none"> Wolfgang Lutz, European Consultant to the ECLAC/European Commission Project
II. WORKING SESSION: ENERGY EFFICIENCY LEGISLATION AND REGULATION IN THE COUNTRIES OF THE EUROPEAN UNION	
Topic	<i>Energy Efficiency Legislation and Programmes in Spain</i>
Speaker	<ul style="list-style-type: none"> Enrique Ocharan, Directorate General of Energy, Ministry of Industry and Energy of Spain
Topic	<i>Regulatory Frameworks and Administration of Energy Efficiency in Public Agencies in France</i>
Speaker	<ul style="list-style-type: none"> Yves Lambert, Agency for the Environment and Energy Economy and Efficiency (ADEME)
Topic	<i>Decentralization and Energy Efficiency Regulation Programmes in Germany</i>
Speaker	<ul style="list-style-type: none"> Wolf-Dieter Glatzel, Federal Environment Agency, Germany
Topic	<i>Energy Efficiency in a Free Energy Market: The Approach of the United Kingdom</i>
Speaker	<ul style="list-style-type: none"> David Vincent, Department of the Environment, Transport, and Regions of the United Kingdom.
Topic	<i>Energy Efficiency Programme in Italy</i>
Speaker	<ul style="list-style-type: none"> William M. Mebane, Director of the ERG/PROM Division, ENEA, Italy
III. WORKING SESSION: THE ROLE OF PLAYERS INVOLVED IN THE PROMOTION AND REGULATION OF ENERGY EFFICIENCY IN THE EUROPEAN UNION	
Topic	<i>Actions of the European Commission to Improve Efficiency in Final Energy Use</i>
Speaker	<ul style="list-style-type: none"> Paolo Bertoldi, Directorate General of Energy, European Commission
Topic	<i>Monitoring CO₂ in German Industry: Lessons from 1995 and 1996</i>
Speakers	<ul style="list-style-type: none"> Bernard Hillebrand and Hans Georg Buttermann, RWI Essen
Topic	<i>European Energy Efficiency Standards and Labelling, from an Industrial Firm's Point of View</i>
Speaker	<ul style="list-style-type: none"> Ingemar Hahn, ELECTROLUX
Topic	<i>Energy Policy and Long-term Energy Efficiency Agreements in Holland</i>
Speaker	<ul style="list-style-type: none"> Willem C. Nuijen, Dutch Agency for Energy and the Environment (NOVEM)
IV. WORKING SESSION: ENERGY EFFICIENCY MARKETS IN EUROPEAN UNION MEMBER COUNTRIES	
Topic	<i>Third-party Financing as an Instrument for Promoting Energy Efficiency in Spain</i>
Speaker	<ul style="list-style-type: none"> José Donoso, IDEA, Spain
Topic	<i>Energy Efficiency Services in Public Utility Companies in Holland</i>
Speaker	<ul style="list-style-type: none"> Freerk J. Bisschop, Energie Noord West, Holland
Topic	<i>Energy Saving Contracts by German Energy Agencies</i>
Speaker	<ul style="list-style-type: none"> Michael Brand, Director of Saarlandische Energie-Agentur GmbH, Germany
Topic	<i>Energy Services in the United Kingdom: The Role of Energy Savings Trust</i>
Speaker	<ul style="list-style-type: none"> Tim Curtis, Energy Savings Trust, United Kingdom
CLOSING SESSION	
Closing Address	<ul style="list-style-type: none"> José Antonio Ocampo, Executive Secretary of the Economic Commission for Latin America and the Caribbean (ECLAC)

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