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ENERGY IN EUROPE

LA ENERGÍA EN EUROPA

ENERGIE IN EUROPA

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ENERGY POLICIES AND
TRENDS IN THE EUROPEAN COMMUNITY

26

DECEMBER 1995

SPECIAL FEATURE

European Community Gas Supply and Prospects
Commission Communication,
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CONTENTS

GUEST KEYNOTE ARTICLE

ENERGY IN THE EUROPEAN UNION

ENERGY IN EUROPEAN UNION PROGRAMMES

THE EUROPEAN UNION AND THE ENERGY WORLD

SELECTION OF TRANSLATIONS FROM NO 25

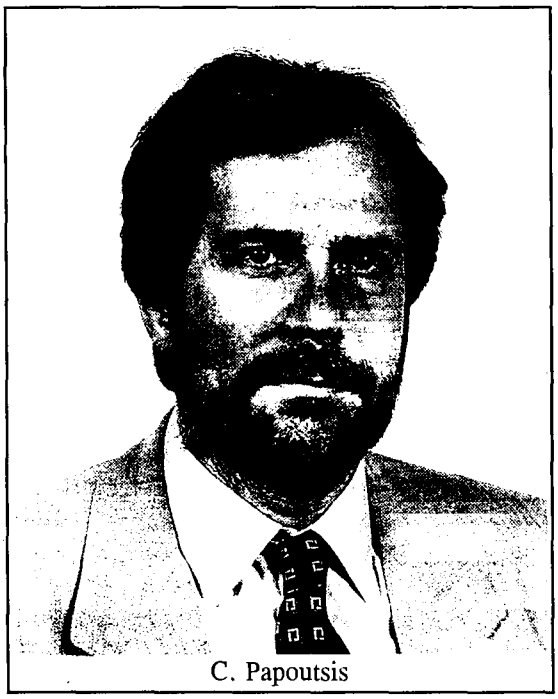
ADDRESS TO THE 4TH INTERNATIONAL ENERGY CONFERENCE

Puerto La Cruz, Venezuela, 25-27 September 1995

C. Papoutsis, Member of the Commission

Mr. President of the Republic,
Mr. Chairman,
Ministers, Ladies and Gentlemen,

The European Commission is pleased to share the patronage of the 4th International Energy Conference with Venezuela and Russia.
On behalf of the Commission, I would like to thank the Venezuelan Government for hosting this important event.
Patronage, by the Commission itself, is "restricted to exceptional events which are of broad and genuine European significance".
I think this patronage, emphasises the importance the Commission places on this event, and the producer-consumer dialogue in general.
The Commission, as you know, has been a strong supporter of the "producer-consumer dialogue" since the early 1980s. At a time when the idea was not very developed.
It is pleasing to see how support, for this initiative, has grown and strengthened over the years. Today, we have among us many distinguished speakers from countries in every continent.
The Commission has participated in all three previous Conferences, in Paris in 1991, in Bergen Solstrand in 1992 and in Cartagena in 1994.
I am particularly pleased, that it should be on the occasion of Venezuela hosting the conference, the first OPEC producing country to do so, that the Commission shares this patronage.
Our host His Excellency Dr. Erwin José Arrieta, Minister of Energy and Mines of Venezuela, holds the office of President of the Organisation of the Petroleum Exporting Countries. A recent appointment to whom I should like to offer my most sincere congratulations.
The European Union is currently going through a challenging period.
Preparations are already under way for the forthcoming Inter-Governmental Conference in 1996.


C. Papoutsis

The Conference will consider, among other topics, such major "internal" issues as Monetary Union, extension of membership to countries of Central and Eastern Europe, Cyprus and Malta, as well as the revision of the Treaty.
At the same time, we in the Union do not forget that the world economy is constantly evolving. That the most persistent trend has been that of globalization.
Regional markets are giving way to global markets, as developments in communications, transport and technology, demand global, rather than regional responses.
At the same time, we have to take into consideration the tendency towards deregulation, the need to increase competitiveness and the general pressure on public budgets. Today, the framework, within which an energy policy must operate, is constantly changing. Environmental protection and management have

become important issues - both for the general public and for political and industrial decision-makers.
Indeed, the trend of globalization also applies to the environment, as pollution has no national boundaries.
It is within this new international context that our own present work on energy issues is developing.
As an area, the European Union is, principally a consuming region, despite its own producing interests.
As you know, the European Union, is the biggest net importer of energy in the world. Mainly of oil, with an average of 9 million barrels a day.
Cooperation with countries outside the European Union is therefore of paramount importance.
I would like to assure you that the Commission will continue to seek closer links and cooperation with its immediate neighbours. To the South in the Mediterranean region, and to the East and North with the countries of Central and Eastern Europe and the Commonwealth of Independent States respectively.
We will continue also to seek closer links with the outside world at large, mainly with possible new partners in Latin America.
In this context, we are particularly pleased with the developments of the Energy Charter Treaty. With 50 signatories to date, and still open for more , this represents the first major Treaty of its kind to have both producer and consumer country signatories.
I would like to say just a few general words on the three topics to be covered by this Conference, and how the Commission views these in relation to energy policy.
On the subject of world energy prospects, which will be addressed during the first session, one thing is clear:- These prospects are uncertain but promising.
The Commission published at the beginning of the year a Green Paper on the European Energy Policy.
This policy discussion has been launched, and, the first phase has only just been completed.
We are now in the process of drafting a White Paper. This paper will propose broad policy objectives to the Member States and a framework programme of action to develop and implement policy initiatives.
The Green Paper has led to a great deal of debate, both within the Commission and the Council, and with the interested external actors - industrialists, economists, environmental pressure groups and others.
It is clear that in the past our ability to forecast the future has been less than perfect, both with regard to energy demand and to supply.
For our White Paper, we have been developing, with the aid of many able participants, a series of economic scenarios, right up until the year 2020.
It is an attempt to identify these uncertainties, and develop a strategy, able to cope with the various possible and probable outcomes.
Within the different scenarios developed there are common themes. For example, the increasing importance of the environment as an issue, the forecast in the growth of overall world energy demand of around the 2% per annum, and the promising prospects for the energy sector as a whole.
Within the different scenarios there are however areas where there are a range of possibilities:-

- *Firstly the balance between different fuels - coal, oil, gas, nuclear, renewables and others.*
- *Secondly the different rates of economic growth and demand,*
- *and thirdly in particular, the contrasts between the mature economies of the European Union and the emerging developing nations, such as China and India.*

And here of course, I am particularly pleased to see that we have representatives from these countries participating in this Conference.
For the European Union, a question has been subject to fierce debate. I am referring to the liberalisation of the electricity and gas markets, and of security of supply, and how this issue should be approached.
Competition and the market can provide key elements of support for supply security.
This is becoming clear as more and more prospects open up, and more nations support the liberalization of energy markets, competition and the market can provide key elements of support for supply security.
How this general move to greater transparency affects the prospects for oil and gas in particular, is pertinent to the first part of our sessions.
***Environment and technology** is an area in which we have a keen interest. The Commission has been supporting initiatives over many years, in particular through its technology programmes.*
The Commission is also promoting the rational use of energy, through support for energy efficiency and energy saving, both at the level of technology and of dissemination.
Some environment issues are more local, such as the problems relating to emissions of sulphur dioxide, hydrocarbons and nitrogen oxides. Others, such as carbon dioxide emissions are global issues, demanding an integrated global approach to resolving the problems.
In this context, the issue of the future energy use patterns is an important one.
Within the context of economic forecasting, advances in technology present perhaps one of the most difficult areas to predict. I look forward to hearing how the conference covers this topic.
On the environment specifically, I think it is also worth highlighting the developments in public opinion in the consumer countries, and how they affect energy policy.

The recent example of the disposal of the "Brent Spar" oil storage platform in the North Sea, was indicative of how consumer pressure and public opinion is a force. A force which has to be taken into account when preparing and implementing any policy.

Recent developments in the European Union, such as the "Auto - Oil Programme", show how fruitful cooperation between different industrial sectors and government can be in achieving environmental objectives.

This programme deals with future motor and fuel specifications, with an emphasis on cost benefit analysis. The Commission, the motor industry and the oil industry are all actively working together on this programme. The aim is to find the optional solution for further environmental improvements.

How the energy sector overall responds to public opinion on environmental issues will have broad consequences. The concept of "achieving" public acceptability, a "licence to operate", has become a key factor in determining policy.

We are going through a period of change in a developing world.

We, producers and consumers, have basic common interests. At the same time, we have differences of opinion and of approach in some areas.

However, we are able to discuss and work together. This has been shown by the discussions at the Berlin Climate Change Conference and our earlier cooperation with the Gulf Cooperation Council on the Energy Environment Report (March 1994).

We can seek common ways forward. We can search for the necessary longer term solutions and resolve these differences and difficulties.

There are no easy solutions, but then the subject of sustainable development is not an easy one.

The reintegration of the oil and gas industries, and the future investment requirements in the sector, go to the heart of any debate on energy. I see a number of interesting and important themes developing in this area.

The European Union welcomes the developments in the oil and gas industries, which are achieved within the open market. Integration as strengthening links between consumers and producers, should lead to long term stability.

Venezuela, Kuwait and Saudi Arabia have all made major downstream investments in Europe. Signs of upstream possibilities are particularly welcome.

An example, here in Venezuela, is the recent announcement of developments in the proposed call for international tenders, under the recent 4 July Law.

Future investment, under any economic scenario, will be required, and will be large.

At a recent workshop in Brussels the investment requirement was estimated, on a global basis, as up to $ 300 billion per annum, for the next 20 years!

How to create a climate to further stimulate investment is one of the aims of energy policy.

From a consumer country perspective, it is seen as a key part of the security of supply issue.

We should also not forget that producers are concerned about a certain security of demand. The interdependence of producers and consumers is clear. Just as the consumers need access to energy, the producers need secure access to energy markets to develop their own economies.

Hence the importance of the consumer/producer dialogue should be underlined.

The Energy Charter Treaty is an important development in this respect. It seeks to produce the necessary legal framework and security for promoting investments in signatory countries. As I have already mentioned, it has 50 signatories and we hope it can be extended to other countries over the coming months.

I hope I have not taken up too much of your time with my introductory comments.

The Commission places great importance on strengthened, improved relations between producer and consumer countries.

To this end we will continue our policies of cooperation and support for new technologies, through technical assistance programmes.

Our common objective is to promote the transfer of technologies for sustainable economic growth.

The conference has identified these major issues and I look forward to hearing, and contributing to the debates which follow.

I believe that the main messages of the Conference should be the following :

- *There is a clear need for continuing dialogue with all parties concerned,*
- *A global approach is a condition for success.*
- *We are ready and willing to work together in order to go forward.*
- *We need stability, and to remain stable we need to create a suitable climate for investment. We need a strategy aiming to support socio-economic growth for our partners. We, also need to give clear signals to industry to encourage the necessary and appropriate investments.*
- *The European Energy Charter Treaty is a positive start. Let us continue the good work.*

I would like to assure you that the European Commission will continue to work towards this direction, in partnership with the Member States of the European Union.

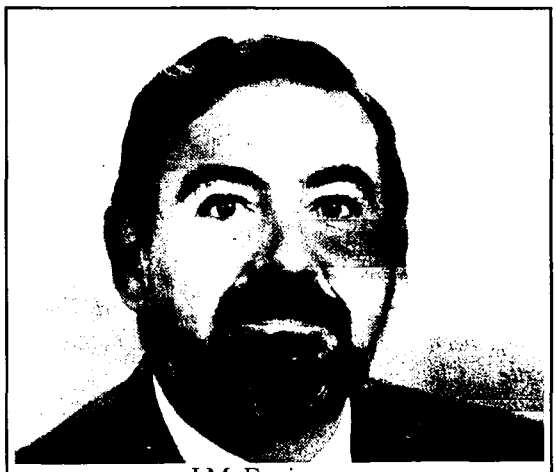
ENERGY AND THE SOUTH : THE VIEW FROM SPAIN

BY J.M. Eguiagaray
Former Spanish Minister of Industry and Energy[1]

The guidelines laid down by the European Councils in Lisbon (June 1992), Corfu (June 1994), Essen (December 1994) and Cannes (June 1995) attest to the European Union's resolve to build a durable framework for its relations with the countries of the Mediterranean basin. The opening up towards the East needs to be matched by an ambitious cooperation policy for the South.

The European Union and its Mediterranean partners face the same challenges and these require an overall, coordinated response, taking account of the specific features of each individual country around the Mediterranean. At the same time, the creation of a multi-lateral framework embracing Europe and the countries of the Southern and Eastern Mediterranean will clearly enhance the bilateral relations the EU already enjoys with each of those countries individually.

The Union's main objective in its relations with the Mediterranean countries should be to underpin social stability and economic prosperity. This means being ready to support them in their efforts to achieve these ends. This, I believe, will require political dialogue alongside sustainable and balanced economic and social development and greater intercultural understanding, with the emphasis on the human dimension of such exchanges.


J.M. Eguiagaray

One of the most obvious areas for cooperation at the moment is energy. In recent years a number of energy connections have been established between EU Member States and Mediterranean non-member countries, and there are plans to extend these and to undertake joint action on technological development and energy efficiency.

The Union must prioritize international energy cooperation, because of the international nature of the energy markets and the EU's growing dependence on external markets. Cooperation is also warranted by the important role energy will play in maintaining stability in the various producer and consumer countries and by its implications for economic development and the environment, due chiefly to growing energy consumption.

Thus the EU's approach to Mediterranean cooperation, approved by the General Affairs Council of June 1995, is one of global cooperation based on reinforced democracy and respect for human rights - essential elements of Europe's relationship with the Mediterranean countries.

[1] *J.M. Eguiagaray was Chairman of the Energy Council from July 1995 to December 1995.*

This partnership will cover political, security, economic, financial, social and human matters.

THE UNION'S INTENATIONAL ENERGY PRIORITIES

Energy is an economic issue. It is a priority area for cooperation, the aim being to boost economic activity, possibly by creating a legal framework similar to that existing with the countries of Eastern Europe and the former Soviet Union (the European Energy Charter) but also by participating jointly in research programmes, developing renewable energy sources and promoting energy efficiency.

With regard to financing, the European Summit in Cannes on 26 and 27 June of this year confirmed the Foreign Ministers' decision to earmark ECU 4 685 million for cooperation with the Mediterranean countries over the period 1995-99.

Meanwhile, the consolidation of the European Union and the globalization of markets will have a stimulating and liberalizing effect on our entire economic system, impacting also on the energy sector. Energy offered to the ultimate consumer will have to be internationally competitive in terms of quality and price, as will the energy companies themselves.

SUSTAINABLE COMPETITIVENESS AND SECURITY THROUGH ENERGY PLANNING

Though global market mechanisms will have to be tailored to the specific features of the energy sector as a whole and of each subsector, the trend towards more open and competitive market structures is irreversible.

This will alter the way the various players function. For one thing, a growing number of decisions will result from the free play of market forces, and businesses and consumers will enjoy a greater say in things. At the same time, supranational approaches will become increasingly important.

All these factors increase the need for flexible planning and, above all, the institution of exchanges of technical and business knowledge between countries with similar geopolitical profiles.

The basic aim of all strategic energy planning is to secure supplies - and ensure quantity, quality and prices meet economic policy requirements - without losing sight of the three chief factors underlying any energy policy: competitiveness, the environment and energy efficiency.

Greater businesses competitiveness in the energy sector is a precondition for developing energy-related activities, as the experience of the last few years has shown.

Similarly, environmental protection must be integrated into the framing and guiding of energy policy to reduce the environmental impact of energy production and consumption. It also helps inject impetus and innovation into the Community economy, which in the long term generate new activity and more competitive industrial processes.

We must continue to work on energy efficiency, both by controlling demand and through R&D, and always with an eye to protecting the environment, making the Community economy more competitive and improving security of supply.

Energy policy is geared towards achieving a proper balance between the abovementioned objectives and finding a satisfactory compromise between their sometimes conflicting requirements.

TRANS-EUROPEAN ENERGY NETWORKS

One of the most important instruments for attaining EU energy policy objectives is the creation of trans-European energy networks. For this we need to encourage the adoption of agreements to develop these networks and interconnect them with the countries of the Mediterranean basin. This will not only help us complete the internal Community market in energy, but will also facilitate any future extension of that market to the entire Mediterranean basin.

To this end, the European Union, and Spain in particular, aware of the importance of trade in the energy sector, have drawn up proposals for supplying electricity to various countries in the Mediterranean basin, including Morocco, Algeria and Tunisia.

Spain has signed an agreement to supply electricity to the Kingdom of Morocco from 1996 at a power ranging from 300 to 600 MW. The electricity will be supplied through an underwater cable stretching 26 km from the Spanish town of Tarifa to the Moroccan town of Tetuan, crossing the Straight of Gibraltar at depths of up to 615 m.

There will be scope for increased electricity interconnection in future, providing a useful spring-board for Spain, and indeed the rest of Europe, to trade with Morocco and the rest of the Maghreb, if not all the countries in the Mediterranean region.

This agreement is helping promote cooperation between Western Europe and the Maghreb, supporting both prices and security in the two electricity systems.

As for gas, the common feature of international moves is that they are geared towards developing markets and infrastructure to cope with the predicted increase in gas penetration into the energy markets of the developed and developing countries.

This policy of developing infrastructure is being applied initially to extending the piped supply of imported gas. Existing domestic gas grid connections

will be internationalized, connecting countries, markets and even continents. At this point I must mention the construction of the Maghreb-Europe gas pipeline, which will connect Algerian wells firstly with Spain and subsequently with other European countries. This trend has been established once and for all: Portugal has expressed interest in receiving Algerian gas in this manner and indeed a project is already under way to provide a gas connection between Spain and Portugal, to be fed from the Maghreb-Europe pipeline.

Nor should we forget the new Algeria-Tunisia-Italy gas pipeline, which is helping provide a greater degree of gas interconnection and security of supply between the countries of the Maghreb and the European Union.

These connections will bring about full integration of the European and North African gas systems (though the N. African network needs upgrading) and the opening of a new North-South commercial axis with enormous potential for future cooperation.

This type of interconnection will also help even out the cost of access to natural gas for the countries of southern and northern Europe (the latter currently enjoy the benefit of the proximity of supplies from Norway and the former Soviet Union).

This brings me to the work of the Cairo Conference last October to determine which major projects could be carried out in the Mediterranean basin within the framework of the trans-European networks.

All in all, the projects thus identified represent a total of $ 20 000 million investment in the gas sector and $ 1 800 million investment in electricity interconnection.

THE SOUTH - A HUGE POTENTIAL IN CLEAN ENERGY FOR THE UNION AND ITS NEIGHBOURS

With regard to renewable energies, our aim must be to conclude agreements between Mediterranean countries which are similarly concerned to develop renewable energy technology.

These agreements should envisage joint efforts in such important areas as solar technology (photovoltaic, high temperature, etc.), cogeneration and water desalination, as well as specific cooperation in the fields of wind energy and biomass.

North Africa has enormous potential in terms of renewable energy resources and technology. For instance, studies in Spanish energy research centres have shown that in terms of solar energy the North African region of the Mediterranean has around 90 % of the potential of the Mojave desert (USA), one of the sunniest regions on the planet.

As a step towards Euro-Mediterranean cooperation in this field Spain favours producing a detailed report on renewable energies in the Mediterranean basin, with help from the European Commission and the World bank.

Developing these clean and environment friendly technologies is one of the most important environmental challenges facing the Mediterranean region.

To sum up, there is no doubt that energy can be an important stimulus to the Mediterranean economy and that cooperation with the countries of the European Union needs to be stepped up in order that both sides can pursue commercial relations through relations between the energy companies themselves. We should not forget, though, that financial aid must be provided for certain activities which will otherwise be unable to develop autonomously.

This cooperation between the European Union and the countries of the eastern and southern Mediterranean must also include transfer of technology and a system of guaranteed investment to help promote regional integration projects, achieve sustained social development and protect the environment, all of these being basic objectives of cooperation aimed at consolidating a climate of on-going dialogue in the Mediterranean basin. ◻

SWEDEN AS AN ENERGY NATION AND A UNION MEMBER

BY Jörgen Andersson
Swedish Minister of Housing and Energy

SWEDEN HAS NOW BEEN A MEMBER OF THE EUROPEAN UNION FOR A YEAR.

From a population point of view, Sweden is a small country. In spite of the special character of the country, with a small population living on a large area, "the Swedish Model" has become a well-known concept. It embraces ambitious goals with regard to social and economic welfare and equality. Nowadays, the "model" also includes high environmental standards. The means employed to attain these goals have been a mixture of political decisions and decentralised decision-making.

Minister Jörgen Andersson

As an energy nation, however, Sweden is hardly a small country. Energy has been a decisive factor in the country' s development. The rapid economic growth of the past century has transformed Sweden into a rich and highly-developed nation. This development is to a large extent due to our vast resources of forests and ore, which in combination with good supplies of hydro-electric power have transformed Sweden from a nation of farmers and woodmen into a modern industrialized nation. At the same time, it is important to recognize that Sweden has no indigenous fossil fuels, and it is this fact which has to a large extent determined our energy policy.

But the earth, the forests and the water have been important preconditions not only for Sweden's economic development, but also for the Swedish and Scandinavian way of life. We live close to nature, and have learnt to take care of it. Thus, our country keeps up high standards with regard to the environment, within Sweden as well as within the international community.

SWEDEN'S ENERGY SYSTEM

Sweden has a severe climate, is sparsely populated and has a successful but energy-intensive processing industry. Our life-style is thereby dependent on energy, in spite of extremely tight standards for energy-efficiency, for example for new buildings and retrofitting of dwellings, premises and industrial buildings.

By tradition, Swedish households and enterprises have had good access to electricity, at prices which have been low compared to those of other countries. Evidently this is a major explanation for the high energy consumption and for the fact that Sweden is one of the most energy-intensive countries of the world.

Total energy supplies have not changed much since the beginning of the 1970's. During the seventies and eighties, though, major changes occurred within the Swedish energy system. One way of expressing this

fact is to say that Sweden was electrified during the period. Electricity production based on hydro power almost doubled and to that was added a large nuclear capacity. The share of electricity in total energy supply increased from 10 % to 30 %.
At the same time, oil's share of total energy supply decreased dramatically, from over 75 % in 1970 to only 42 % in 1993. This development is due to the - in this respect - very successful energy policy followed during the 70´s and 80´s, which aimed at reducing the economy's heavy dependence on imports, particularly of oil.

Energy Policy in Sweden

This factor of heavy external dependence means that energy policy is important in Swedish politics. Like most of the industrialized world, Sweden was badly affected by the oil shocks of the 70´s and early 80´s. During this period, the acute problem of security of supply was a focus for political interest. Huge efforts and resources were devoted to programmes for energy conservation, substitution of oil by other energy sources, energy security and support for the development of new energy technology. This policy was, in all essential respects, successful, resulting in more efficient energy use of energy, strong reduction in the use of oil and the development of new, energy-efficient technology.
The oil reduction policy of the 70´s and 80´s meant a large and deliberate increase in the use of electricity. A large share of the stock of one-family houses was converted from oil-based to electrical heating and as regards district heating, which accounts for the lion's share in multi-family accommodation, a rapid switch-over also took place, as in other parts of the economy in general.
The formerly heavy dependence on oil has thus been replaced by a dependence on electricity. Per capita production of electricity amounts to 17000 kWh per year. This is twice as much as in France and three times the level in Spain. The average Swede currently consumes more electricity from nuclear plants than his French counterpart, while nuclear power in Sweden only covers half of the country's electricity needs. Against this background, it is clear that Sweden is highly dependent on an efficient and well-functioning electricity supply.
The first all-encompassing Swedish national energy policy saw the light as a result of the first oil shock. Energy policy was initially aimed primarily at increasing security of supply through energy conservation and substitution of oil by other forms of energy. Due to changing conditions - i.e. the stabilization of oil markets, a shift in the public perception of nuclear power, and increased consciousness with regard to climate and environment - the conception of the problem has gradually changed.
As soon as the acute oil supply crisis seemed to be have been warded off, environmental issues came into focus. Among these were the negative impact on the environment of the use of fossil fuels and the risks connected with the use of nuclear power. The latter question became a major political issue at the time of the nuclear accident at Three Mile Island, USA, indeed the immediate consequence for Sweden was a consultative referendum. But I shall return to the nuclear issue in a moment. In this same period, the debate on the greenhouse effect got under way.
Generally speaking, the 1980´s in Sweden were characterized by a series of partly independent Parliament decisions which in different respects resulted in constraints on the future supply of energy. So it was that in 1985, Parliament decided that no further exploitation of the large rivers could be permitted. Three years later it was decided that CO2-emissions to the atmosphere from indigenous sources were not to be allowed to increase. But at the same time, one the pillars of our industrial policy was that electricity prices had to be kept low to ensure that Sweden's competitive situation would not deteriorate.
The current guidelines for Swedish energy policy date back to 1991. These guidelines were based on an agreement between three of the major political parties, and represented an attempt to strike a balance between the conflicting aims which existed, and which then have gradually become even more obvious since.
According to the guidelines, the aim of energy policy is to secure the long-term and the short-term supply of electricity and other energy on internationally competitive terms, thereby furthering good economic and social development in Sweden. Energy policy must be based on what is naturally and environmentally sustainable.
National electricity supply is to be secured by means of an energy system based as far as possible on lasting, preferably indigenous and renewable, energy sources, and on efficient conservation. The use and development of all energy technology must conform to strict requirements concerning safety and care of the environment.
The interpretation of these goals and guidelines makes it clear that the Swedish energy policy puts strong emphasis on security of supply, care of the environment and competitiveness. These three words of honour also form the basis for the Commission´s Green Paper on a common energy policy, and I shall return to the Swedish view of a common European energy policy in a moment.

THE NUCLEAR ISSUE

Nuclear power plays, as mentioned above, an important role in the Swedish energy system, and thereby also in the energy debate. Altogether, Sweden has twelve reactors with a total output of some 10 000 MW. Nuclear power currently accounts for around half of Swedish electricity production.
The Sweedish nuclear power capacity was constructed predominantly in the 70's and the beginning of the 80's. The consultative referendum on the future role of nuclear power was held in 1980 as a consequence of the Three Mile Island accident has already been mentioned. Guided by the outcome of the referendum, Parliament decided also in 1980 that nuclear power was to be phased out at a rate compatible with electrical power requirements for the maintenance of employment and well-being. At the same time Parliament stipulated that Sweden's last reactor was to be closed down not later than 2010. Today, when only 15 years remain to the closing date, this timetable seems very difficult, and maybe even unattainable.

CONSIDERATIONS ON ENVIRONMENT AND CLIMATE

Another important point of departure for energy sector measures are of course considerations of environment protection and climatic change. Parallel to the adoption of the guidelines for energy policy, Parliament also adopted a strategy for climate change, in which the need for international cooperation featured strongly.
Sweden has signed the so-called Rio Convention, which aims at protecting the Earth's climate. In 1993, Parliament decided on a national strategy which stipulates that CO2-emissions from fossil fuels should be stabilized, in accordance with the UN Climate Convention, in the year 2000 at the 1990 level, and should be further reduced thereafter. The measures chosen for the attainment of the goal were research, development and demonstration activities, and also measures for improved energy efficiency and a change-over to renewable energy sources in the Baltic states, Poland and the rest of Eastern Europe.
An important factor in energy and environmental policy is the national CO2-tax which was introduced in 1991 and which has since been increased on several occasions. Today Sweden has a high - maybe even the highest in the world - CO2-tax, and what is more it is high for all consumer categories. Obviously, this has resulted in strong efforts to improve energy efficiency and reductions of emissions in all parts of society. But despite the high tax levels, we still see great difficulty in attaining the goals. It is a great challenge for policy-makers to formulate a policy for climate change with ambitious and explicit goals, but with one consideration the cost-effectiveness of the measures and other energy policy objectives. The work in the climate field calls for global solutions and international cooperation, and Sweden's commitment in the Baltic states should also be seen against this background.
Sweden thus faces a multi-facetted task: To stabilize CO2-emissions, to avoid exploitation of the hitherto untouched rivers, to phase out nuclear power at a pace compatible with employment and well-being, and to maintain a competitive price of electricity. For a country where material welfare is largely based on energy-intensive processing industry, this is of course a challenge of a magnitude rarely seen elsewhere. The Swedish energy debate is lively, and many people ask themselves whether it is possible and indeed sensible to continue to adhere to the present guidelines for energy policy.
In this context I want to emphasize that energy policy is also subject to strong economic restrictions. The Swedish have, since the present Government came into office, under gone what they refer to as a "steel bath", resulting in a forceful cleaning-up of State finances. The result is now clearly visible in the form of a decreasing budget deficit, a stronger currency and falling interest rates. The Government will not allow this development to be jeopardized by any inappropriate energy policy.

THE ENERGY COMMISSION

In 1994, a Parliamentary Commission was appointed, with the task of making a broad analysis of Swedish energy policy. Thus, the Commission is to scrutinize current energy policy programmes and analyze the need for changes and additional measures. Furthermore it is to propose a program with a schedule for reform of the present energy system.
An important prerogative for the work of the Commission is that reform and development of the energy system should be based on sustainable, long-term political agreements. The Commission was to submit its report in December, 1995, and as I write (November 1995) the content of the report is not known. It goes without saying that the report will be met with great interest. After the necessary submission to the public for consideration, political negotiations at the highest level will take place. Hopefully, these negotiations will end in an long-term and stable agreement on future Swedish energy policy.

THE ELECTRICITY REFORM

In order to achieve the goals for energy policy while maintaining or strengthening the competitiveness of

Swedish industry, it is important that the measures undertaken in the energy system be cost-effective. This in turn calls for markets which run smoothly and for energy prices which give correct signals. The existence of efficient energy markets is a pre-requisite to increase efficiency of energy use.

The discussions on electricity market reform started a the early the 1990´s. In 1992 Statens Vattenfallsverk, the dominant (and state-owned) electricity producer, was transformed into a public enterprise. At the same time, all activities connected with high-voltage transmission were organized in a separate public body, Svenska kraftnät. The aim of these changes was to improve the administration of state capital and to create the necessary conditions for trade in electricity. On October 25, 1995, Parliament made the final decision, and the new rules will come into force on January 1 1996.

The reform has been preceded by extensive investigatory work, and has been inspired by the reform already undertaken in Norway. The rationale behind it is the satisfaction of consumer demands and increased efficiency of the electricity system. The general idea is that the introduction of competition will lead to a downward pressure on costs and prices, and to higher service levels for consumers.

The basic idea is to make a clear distinction between, on one hand, production of and trade in electricity, and on the other hand transportation of electricity (grid services). Production and trade are to take place on a competitive basis, whereas grid services, which constitute a natural monopoly, should continue to be regulated and monitored. To ensure free of price formation and free electricity trade, anyone who has the right to perform grid services is obliged to connect anyone who so wishes to the grid. Furthermore he has to transport electricity subject to a fair charge. This is of course usually known as "full third-party access", TPA.

Electricity trade is thus to take place under market conditions and with free competition. However, the systems adopted for the electrical sector is complex, and it has been deemed necessary in order to introduce a number of safety arrangements.

An authority has been appointed to maintain the balance between production and consumption, and to guarantee the operational security of the national electricity system. Furthermore a further special authority has been assigned the responsibility for regulation of the conditions for access to the networks.

To ensure smooth transition there are special rules for small consumers. Under a transitional period, anyone who wishes may get deliveries of electricity without special requirements of metering and settlements. The supplier responsible for these deliveries is subject to price regulation but on the other hand has an exclusive right to deliver to these customers. Small-scale power production, e.g. wind power plants and small hydro power plants, is also subject to special rules.

As I mentioned in the introduction, Sweden is a sparsely populated country, particularly in the North. In order to protect consumers in rural areas from excessive prices, the possibility of leveling out grid tariffs has been introduced.

Optimization of current operations hitherto was arranged through a cooperation agreement between the largest power producers. This task has now been assigned to Svenska kraftnät, which has the system operating responsibility. A special investigator has been appointed to determine special legislation is needed for organized trade with electricity (a "power pool"). Such a pool could contribute to more price efficient formation prices and to rational use of production capacity. The investigator also analyzes the consequences of free transborder trade with electricity. I shall return a matter to which in a moment.

NORDIC COOPERATION

In the European perspective, the Swedish reform constitutes an important departure from the tradition. Europe's electricity systems are still - with few exceptions - closed and characterized by extensive regulation and public intervention. The electricity-intensive countries of Scandinavia however form a significant exeption.

The Nordic countries have long and fruitful experience of cooperation and electricity supply is no exception. Common operational optimization has been a rule for many years. It has thus become natural that we, in reforming our national markets, have made efforts to achieve a common Nordic market.

This work has now progressed significantly, and I and my Nordic counterparts in Norway, Finland and Denmark last summer signed an agreement in principle to set up a common Nordic electricity market. We recognized that there is a need to establish an organized trading place, where the price for short-term exchanges can be determined. Norway and Sweden intend to create a common "power pool" already at the beginning of 1996. Finnish and Danish enterprises will be able to trade in the pool or within the framework of long-term business agreements. Thereby, a common Nordic electricity market will successively become a reality.

The new Nordic market will be the largest electricity market in Europe. In Sweden, production in 1994 was some 140 TWh. When the Nordic market has developed we shall dispose over some 340 TWh. My hope is that the function of this market can be an important source of inspiration for the work in the rest of Europe.

SWEDEN IN THE EUROPEAN UNION

The forgoing overview leads me to the issue of Sweden's participation in the work of the EU.
Almost a year has passed since Sweden, together with Finland and Austria, became a member of the European Union. Being responsible for energy policy in my country, I am both impressed and disappointed: Impressed by the ambitions and all the to thorough work already done , and let me say also by the degree of openness and accessibility which characterizes the work. But I must also confess to some disappointment at the difficulties showing substantial progress, particularly as regards to the internal market for electricity.
Energy supplies are of fundamental importance for every society. A safe and sufficient supply of electricity at reasonable prices has a strong impact on all social and industrial development.
The electricity sector is by nature complicated, and it goes without saying that any reform must be carefully considered, so that efficient operation and adequate new investment are not jeopardized. Nevertheless I am convinced that a reform of Europe's electricity markets is not merely desirable but in fact absolutely necessary. By free trade and good investment opportunities we can realize a huge potential for efficiency improvements which can forcefully contribute to the attainment of high levels of environmental protection and to restoration of competitiveness for European industry.
In my view there are large profits to be gained by introducing competition and freedom of establishment on the electricity markets, and by enlarging the market beyond national borders.
During the transitional period, when many countries markets will still be characterized by over-regulation and absence of competition, the differences between national systems could entail problems with regard to transborder trade. In the European debate the concept of "reciprocity" has been introduced, calling for fair and equal conditions. From the Swedish point of view, it is an imperative that common rules be formulated in such a way that reciprocity and an equal degree of access to markets are guaranteed to all Member countries. To us, the idea of a choice between two distinctly different "models" for the organization of the electricity sector is rather alien. Only when we have a common and uniform set of rules, can the full potential of integration be realized, and in a way that is beneficial to all Member countries.
I am aware of the fact that there are large institutional differences between Member countries as regards to the structure and organization of their electricity sectors. This fact has sometimes been used to justify a lack of dragging the feet in the search for common solutions. I am convinced that these fears are exaggerated. In this context, I could to point out that the Nordic countries also differ markedly between themselves as regards structure, organization, political conditions and ownership. In spite of these differences, we expect to arrive at a common and balanced solution, incorporating the best features of our electricity systems. It is my hope that the Nordic example way form an important source of inspiration for the process towards an internal European electricity market.

THE GREEN PAPER ON ENERGY POLICY

Today, the Member countries of the Union face vast and common challenges, where measures within the field of energy could play a decisive role. The agenda comprises far-reaching measures to protect environment and climate, restoration of competitiveness to the European economies, and secure energy supplies. The magnitude of these problems implies that each Member country in many cases cannot find an efficient solution on its own. The energy sector thus of necessity calls for joint measures.
In the constructive debate currently taking place within the Union, a number of measures seem to be of prime importance for joint initiatives :

- Liberalization of electricity and gas markets is imperative to maintain and strengthen the competitiveness of Europe's industry. Today, the European energy industry is marked by isolated markets with large variations in costs and prices and sometimes less -than - efficient systems for production and distribution ;
- Trans-european networks could play a significant role in facilitating the unhampered flow of energy in Europe. However of equal importance in my opinion is freedom of establishment, in other words real competition between producers ;
- joint funding of research, development and demonstration must be continued, as a crucial factor for the goal of an environmentally acceptable and efficient energy system, and in order to stimulate European industry.

These are of course not the only areas which there is a vast potential for enhanced cooperation in the field of energy. But personally I feel that it is still too early to discuss a common energy policy; the differences remaining between the energy systems in the Member States are simply still too large. Before any substantial action can be taken, there is a need for a "convergence plan" for the energy sector as elsewhere. As long as the national markets for electricity and gas are closed, there can be no real foundation for a common energy policy.

However even in the absence of a formal common energy policy, I am convinced that cooperation between Member countries will by necessity and in the mutual interest increase over the coming years. Sweden, being a new Member country, has a lot to learn about the working methods of the Union. But I am also confident that we can make real contributions in the energy field. These few lines started by making it clear, I hope, how highly dependent Sweden is on energy, and this naturally means that we have accumulated an extensive knowledge and experience in energy matters. We have entered the European Union with the aim to actively take part in and influence developments within what for Sweden is one of its priority fields of concern.

THE COMMISSION APPOINTS RAMÓN DE MIGUEL AS ITS NEW DIRECTOR GENERAL FOR ENERGY

On 18 October 1995 Mr Ramón de Miguel was appointed the Commission's Director General for Energy. Mr Ramón de Miguel was previously the Head of Mr Marcelino Orejas' private office. Mr Oreja had succeeded Mr Abel Matutes, elected in the European Parliament at the time of the 1994 elections, as Commission Member responsible for energy.

A career diplomat, Mr de Miguel has been closely associated with the processes and development of building the European Union, in key-positions since 1983, when he became Secretary to the Negotiation Conference which prepared Spain's accession (1985).

Mr de Miguel took up his new responsibilities on 10 November 1995. We are pleased to publish his biography below :

Born on 3 May 1947 in Madrid, married.

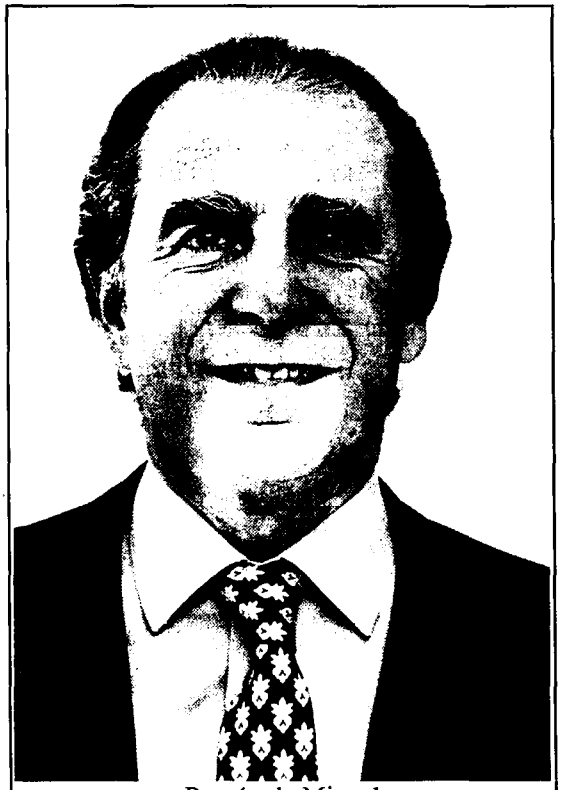
Second lieutenant in the Spanish Army Reserve

Grand Officer of the Order of Isabel la Católica and bearer of numerous other Spanish and overseas civilian and military decorations.

Degree in law from the Complutense University of Madrid, 1969

Doctor of Laws and further study at Cambridge, Paris, and Munich.

Spanish diplomatic school 1971-73: graduate in higher international Studies.



Ramón de Miguel

SUCCESSIVE RESPONSIBILITIES

1970-1973	Assistant-Professor of International Public Law, Law Faculty of the Complutense University of Madrid
09/1973	Secretary in the Ministry for Foreign Affairs
01/1974	Secretary at the Spain Embassy in Nigeria
10-12/1975	Chargé d'affaires of Spain in the Cameroon and also accredited to Chad and the Central African Republic

01-10/1976	Chargé d'affaires of Spain in Nigeria
10-09/1980	Spanish Deputy Permanent Representative of the Organization of the American States and to the inter-American Development Bank in Washington (United States)
09/1980-04/1981	Director of the diplomatic Information Office of the Ministry for Foreign Affairs, Madrid.
06/1981	Chief Adviser in the Ministry of Foreign Affairs
04/1981-04/1981	Deputy Director for International Fisheries Relations in the Ministry of Agriculture, Fisheries and of Food, Madrid.
04/1983-10/1985	Secretary to the Negotiation Conference for Spain's accession to the European Communities, within the State Secretariat for relations with the European Communities, Ministry for Foreign Affairs.
11/1985-08/1986	Adviser to the Secretary of State for the European Communities, Ministry for Foreign Affairs
09/1986-03/1990	Director responsible for international relations and for markets in the Directorate-General for Fisheries of the Commission of the European Communities
04/1990-12/1992	Head of Private Office to Commissioner Abel Matutes, responsible for Mediterranean Policy, relations with Latin America and Asia, and North-South relations
01/1993-04/1994	Head of Private Office to Commissioner Abel Matutes, responsible for Transport policy and for Energy and the EURATOM Supply Agency.
05/1994-01/1995	Head of Private Office to Mr Marcelino Oreja, responsible for Transport policy, and Energy, and the EURATOM Supply Agency.
01/1995	Head of Private Office to Mr Marcelino Oreja, in the present Commission, responsible for relations with the European Parliament, institutional Affairs and for the intergovernmental Conference, and for Information, Culture and audio-visual policy.

In addition to his native Spanish, Mr de Miguel has a command of French, English, and German, Italian and Portuguese.

SPECIAL FEATURE:
EUROPEAN COMMUNITY GAS SUPPLY AND PROSPECTS

Communication from the Commission

FOREWORD

by Ramón de Miguel
Director General for Energy

At the level of the European Union, the past months have been spent in widespread consultations designed to draw up an EU energy policy. The result has been a proposal which identifies the three main pillars to EU energy policy as overall competitiveness, security of energy supply, and environmental protection. The key to a successful European energy policy is to find the right balance between these three elements. Natural gas makes a vital contribution to each of these core areas. It provides a much-needed boost to industrial competitiveness, ensures a growing element of diversification to Europe's fuel mix, and contributes to a cleaner environment.

Given its rapid growth, you might say that natural gas has now 'come of age'. It is no longer the junior member of Europe's energy family but has now reached a point where it accounts for around one fifth of total European energy supply, a share which is expected to rise to around one quarter by the year 2010. With growing maturity come increased responsibilities, not least in the area of security of supply. Not only is the relative size of the natural gas market growing, so too is the proportion of total gas supply coming from outside the EU's borders.

The paper presented in this special edition of Energy in Europe is the Communication of the Commission on Natural Gas Supply and Prospects[1] and was prepared by the Gas Unit of DG XVII's Fossil Fuels Directorate. The paper is an important policy document which makes an evaluation of the future outlook for natural gas demand and supply in Europe, possible market developments and their impact on supply security, and finally assesses security of gas supply in Europe, putting forward a number of ideas to reinforce the situation in the coming years. The main thrust of the paper is to argue the case for increased co-operation at EU level in order to make full use of the added value of the EU dimension. We have chosen to publish the paper in *Energy in Europe* in order to bring it to the attention of a wider audience.

The Communication represents the start and not the finish of a process to strengthen security of gas supply in Europe. The paper will be discussed in depth by Member States and the Commission with a view to drawing ministerial conclusions at the Energy Council. Concurrently, the work will begin, in consultation with the Member States, the gas industry and other interested groups, to build upon the platform provided by the paper. The common aim will be to explore and develop the ideas put forward in the Communication, and to work together towards guidelines which will reinforce the security of gas supply for the common good of all Europe's citizens.

EXECUTIVE SUMMARY

INTRODUCTION

1. Natural gas is increasing its market share in virtually all EC Member States. For the EC as a whole, it is expected to grow from around 19% of today's energy balance to around 26% in 2010. At the same time, as indigenous EC production declines, so dependence on imports from third countries is likely to rise significantly from almost 40% today to around 60% by 2010, and as high as 75% by 2020. Moreover, the uncertain political situation in certain of these major supplying countries gives rise to some concern.

1 *COM(95) 478 final*

2. The EC's natural gas industry has to date an exemplary record in the area of supply security. There is no reason to believe that this will change in the future. Member States have a responsibility for security at national level and the European Community has a responsibility at the level of the Community, especially in view of the Single Market.

3. This Communication is part of the framework set out in the Commission's Green Paper[2], and subsequent White Paper[3], in which security of supply is highlighted as one of the three pillars of EC energy policy. While this Communication is not intended to pre-empt further development of the legal framework related to other EC energy policy issues, such as the Internal Energy Market and Trans-European networks, it will help to inform the debate in regard to these policy matters.

4. The objective of the Communication is twofold:
(a) to provide a platform on which to debate the future direction of the gas sector in the EC; and
(b) to examine the issue of security of supply and to assess what may be done at EC level to enhance security of supply well into the next century.

5. The Communication is divided into three main chapters. The first looks at the gas demand and supply outlook to the year 2020, the "supply gaps" which emerge and the critical question of external relations. The second chapter examines certain market developments with reference to their possible impact on supply security. Finally, chapter 3 looks at the security measures currently available to the gas industry and assesses their effectiveness in the event of a major shortfall in supplies. There are no implications for the Community budget arising from this Communication.

6. The International Energy Agency recently carried out a study on Gas Security which covered the three main regional OECD gas markets i.e. OECD Europe, North America and OECD Pacific. This study shows there are substantial differences between these three regional gas markets, in terms of gas supply and demand and security of supply. Any conclusions specific to the European Community can only be drawn based upon a detailed analysis of the European situation of the kind contained in this paper.

7. In preparing this Communication, extensive consultations have taken place with industry, individual gas companies and Eurogas, and also with the Member States. These consultations have served to add value to the final paper.

DEMAND AND SUPPLY PROSPECTS

8. Contracted gas supplies are more than adequate to meet projected demand in 2000. Assuming existing supply contracts are extended, there is at present a shortfall of up to 20% in contracted supplies to meet expected demand in 2010. New supply contracts, in excess of the total amount of gas presently consumed in the EC, will be required to meet expected demand in 2020.

9. However, gas supplies potentially available to the EC, both internal and external, are abundant and sufficient to meet demand well into the next century. Incremental supplies are most likely to come from the three main external suppliers, Russia, Norway and Algeria. All three suppliers have major projects to increase substantially gas exports to the EC.

10. There is no shortage of additional gas reserves accessible to the EC, for example from the Middle East and Central Asia, but it will have to be developed and transported by pipeline or LNG, over long distances with implications for cost and, in the case of pipelines, potential transit difficulties. In the long term, these factors may put pressure on gas prices which in turn could slow down the rate of increase in gas demand.

EXTERNAL RELATIONS

11. The EC is currently discussing strategies for the development of closer relations with some important energy producers in the FSU and issues like the conditions for access to energy products and for the construction of export outlets form part of the dialogue with these countries. The European Energy Charter Treaty provides a significant framework to encourage east-west gas trade and co-operation with existing and potential supplying countries. The construction of a framework similar to the Energy Charter, southwards, or an initiative by the Energy Charter Conference to extend the Charter process to cover other regional gas suppliers could reinforce supply security. The forthcoming Euro-Mediterranean Conference offers an opportunity to take this a stage further.

12. The consumer-producer dialogue provides a further framework to encourage closer ties with suppliers. The EC's growing import dependence and its strategic need for closer links with external suppliers should inform and motivate external relations policies with those countries. EC co-operation and technical assistance programmes, for example TACIS, PHARE and Mediterranean programmes, in the energy sector

2 *COM(94)659 final, published as a supplement to Energy in Europe*

3 *COM(95)682, 13.12.95,published as a supplement to Energy in Europe.*

should be increasingly governed by such strategic imperatives.

13. The countries of Central and Eastern Europe face serious problems in the gas sector, not least a fragile security of supply situation stemming largely from dependence on a single supplier. These countries will look to the EC for increased trade, co-operation, integration and diversification of supply, especially with EC membership in prospect.

MARKET DEVELOPMENTS

14. Over recent years, there has been a tendency towards vertical integration along the gas chain, especially in the form of downstream investment by some external suppliers. This development is to be welcomed as it demonstrates an added commitment to EC markets by the suppliers in question and represents a factor for stability and security. At the same time, however, diversity of suppliers should be ensured.

15. There are a number of economic advantages which favour gas for power generation. When substituting other fossil fuels, natural gas also has important environmental advantages. As a result, the power generation sector may account for over 50% of the increase in gas use to 2010, representing almost one third of total EC gas consumption at this time. The increased demand for gas in power generation and the drive to reduce costs may encourage further direct links between power generators and gas producers as well as new price formulae reflecting the fact that coal is the main competitor to gas in this sector while the development of gas markets will allow new gas pricing concepts.

SHORT TERM SECURITY OF SUPPLY AT EC LEVEL

16. It is estimated that at the present time the EC could withstand an interruption from the main non-OECD exporters, Russia and Algeria, for periods of 9 and 20 months respectively. Even if a shortfall in supplies occurs simultaneously from both these non-OECD sources, the security period is almost 5 months. Full cross-border cooperation between Member States' gas industries using existing security measures is needed to ensure this level of security.

17. However, the supply situation differs considerably between Member States in terms of the natural gas share in primary energy consumption, domestic gas production, diversification of imports, degree of integration into the European gas grid, storage volumes and characteristics, market segmentation, share of interruptibles and dual-fired capabilities, LNG terminals and cross-border back-up cooperation with other gas companies. Security measures taken at national level vary as a function of these very different supply and demand situations.

18. The use of the EC dimension improves security of supply. EC gas companies already cooperate through cross-border back-up agreements on the basis of commercial considerations. The elements of an EC cooperation policy, geared to minimising the effects on consumers of a major interruption involves the use of a range of measures. These include demand reduction through the use of interruptible contracts; production flexibility, both in terms of a country's own production and imports from other EC producing countries; and use of the available storage at EC level. When applied in unison these measures increase the gas available for internal trade at EC level as a consequence of the greater import diversity of the EC as a whole as compared to single countries.

LONG TERM SECURITY OF SUPPLY AT EC LEVEL: NETWORK INTEGRATION

19. To exploit fully the security measures mentioned above, the integration of the EC gas system is a prerequisite and therefore, the interconnection of the EC gas system is crucial to maintain and assure an adequate security level.

20. While the EC grid is to a large extent integrated, thanks to the achievement of the European gas industry, there are a number of further interconnections which would enhance security. 80% of European gas reserves are located in the North Sea and the Netherlands. Pipeline projects joining the Continent from the North Sea as well as interconnections on the Continent between several Member States will provide critical improved deliverability of North Sea and Dutch supplies in the event of an interruption of supplies from Russia and/or Algeria.

21. In the event of a major shortfall in supplies, the most vulnerable Member States are Finland (Russian interruption), Greece (Russian interruption) and Portugal (Algerian interruption). However, Greece is constructing LNG facilities which will provide valuable additional security while the problem will be partially offset in Finland by dual firing capacity. Portugal may be able to cope with an Algerian interruption without LNG facilities but only if the planned new Spanish interconnection is completed and capacity in the French mainline system is increased. A long term solution for Finland would be a connection with Sweden as Nordic markets develop and any eventual development of gas supplies from the Barents Sea.

22. Also vulnerable to a lesser degree are: Spain (Algerian interruption), Austria (Russian interruption)

and Italy (Russian or Algerian interruption). However, if the interconnections mentioned in section 5.3.1. are constructed and there is effective use of all the load balancing instruments, swap possibilities and reverse flows, as well as alternative LNG in the case of Italy and Spain, these Member States could maintain supplies for a considerable period.

23. In the worst case scenario and unlikely eventuality of a simultaneous interruption of both Russian and Algerian supplies, Spain, Italy and Austria become much more vulnerable. Moreover Belgium and France might also be vulnerable especially if the interconnections mentioned above do not exist.

Transeuropean Gas Networks

24. Certain of the strategic interconnections mentioned above are common interest or priority projects under the Transeuropean Energy Network programme. The development of the TEN policy will permit the enlargement of the list of common interest projects to include, as market conditions change, some of the "missing" pipeline links and storage projects identified in this report, including the needs of the most vulnerable Member States, helping to bolster EC security of supply.

Storage and interruptibles

25. Bearing in mind the long lead time required for the development of new underground gas storage, an analysis of the costs and benefits of creating more storage capacity should be undertaken to cope with the increased demand, reduced flexibility resulting from declining EC internal production and increased external dependence. This is particularly important for Member States with less mature gas markets.

26. While global figures are available, an in-depth investigation of the actual amount of industrial and power generation interruptibility among Member States is required in order to determine the true level of interruptibility and the implications for security of supply in case of a major crisis.

27. Gas and electricity utilities could share energy during periods of shortage for either gas or electricity, as it is very rare that simultaneous gas and electricity peaks occur throughout the entire EC. With the potential large increase in interruptible power load, this instrument could significantly reduce long term vulnerability of almost all Member States.

Co-operation at EC level

28. Efforts should be made to ensure that EC co-operation is at its most effective in the event of a major gas crisis. A number of ideas may be worth developing in this context. One approach could be to agree security targets for Member States which could be differentiated provided the overall security objective is assured and there is an adequate degree of burden sharing. The security targets could be established using the optimal mix of security measures available to each, including improved cross-border co-operation.

29. Whilst security of supply does not present a major problem at present, there is no room for complacency. Emergency guidelines may be drawn up at EC level to establish a common language and emergency priorities when dealing with a major gas interruption.

30. Work should continue on analysing in-depth the evolving balance of all factors affecting security of gas supply at EC level and by Member State. This should take into account the costs and benefits of the various options, and cover not only developments on the supply side but also the implementation of TENs, completion of the Internal Energy Market and developments in external relations such as the European Energy Charter.

Conclusions

On the basis of the analysis presented in this Communication, the Commission invites the Council to note and endorse the following conclusions:

1. Gas markets are intrinsically regional in character and the EC's security of gas supply can only be properly assessed therefore on the basis of in-depth analyses of the gas situation specific to the European region.

2. Security of gas supply does not present an immediate problem at the level of the EC although there are important differences in supply security among the Member States. The mix of security measures developed by the European gas industry, that is network interconnections, storage, production flexibility, interruptible contracts, and cross-border agreements, differs from one Member State to another. However, co-operation at EC level could enable measures to be applied in a co-ordinated manner exploiting the flexibility of the gas system to the full, and thereby improve European security of supply.

3. The EC external dependence will increase progressively over the period under review with a large share of the incremental gas coming from non-OECD countries. While there is no shortage of gas reserves potentially available for the EC to meet the large increase in gas consumption expected to the turn of the

century and beyond, the incremental supplies, which may be marketed economically, are most likely to come from the present three main external suppliers, Russia, Norway and Algeria. In case new suppliers emerge, these will also be outside and increasingly distant from the EC.

4. The completion of the internal market will facilitate the integration of gas markets and thereby reinforce security of gas supply. Co-operation and solidarity at EC level will give a signal to external suppliers and transit countries, and provide further reassurance to existing and potential gas consumers in the EC, thereby strengthening the EC's security position. This will reinforce co-ordinated responses to supply difficulties, maintain and improve the image of natural gas as a reliable fuel, facilitate the realisation of the large-scale projects needed to bring gas to European markets in the years to come, and act as a deterrent to possible shortfalls in supplies.

5. The flexibility of the gas system in the EC, enhanced by the development of the Trans-European Networks, should be kept under regular review, and strengthened when necessary, in order to be prepared over time to tackle potential shortfalls in supplies within the framework of the single, integrated EC energy market.

The Commission together with the Member States, the European gas industry, and other interested organisations, will examine the various issues raised in this Communication, keep a close watch on gas developments affecting security inside and outside the EC, and report again to the Council.

PRESENT AND PROSPECTIVE EC GAS SUPPLY AND DEMAND AND EXTERNAL RELATIONS

The table below summarises EC gas supply and demand trends in the years to come.

	1994	2000	2010	2020
1. Demand (mtoe)	254	311/320	392/411	432/496
2. Indigenous Production %	61	56	41	25/32
3. Import Dependency %	39	44	59	68/75

Sources - see tables in annex

EVOLUTION OF EC GAS SUPPLY AND DEMAND OVER THE PAST DECADE

In the last ten years natural gas consumption in the EC has risen significantly, growing by more than 38%, from 184 Mtoe in 1985, to 254 Mtoe in 1994. The share of gas in the total EC energy demand currently stands at around 19%.

Indigenous EC production grew by 25%, from 126 Mtoe in 1985, to 157 Mtoe in 1994. Demand has therefore risen more sharply than production, the balance coming from imports from the three main external suppliers, Algeria, Norway and Russia. Imports rose by 62%, from 61 Mtoe in 1985 to 100 Mtoe in 1994. External dependence thus grew from 33% in 1985 to almost 40% in 1994.

Imports from Russia increased by 150%, from 21 Mtoe in 1984 to 53 Mtoe in 1994, representing 80% of the increase in external supply requirements. In 1985, the EC relied on Russia for 34% of total gas imports. By 1994 this dependence had grown by more than one third to 52%.

Imports from Algeria increased by over one third, from 17 Mtoe in 1985 to 23 Mtoe in 1994, following roughly the same growth rate as EC demand. EC dependence on Algerian imports slightly decreased during this decade, from 28% in 1985, to around 25% in 1994.

Imports from Norway increased by just 5%, from 22 Mtoe in 1985 to 23 Mtoe in 1994. In relative terms Norway's share of EC imported supplies dropped, from 36% in 1985 to 25% in 1994.

Table 1

BE - Belgium	---
DE - Germany	342
DK - Denmark	121
EL - Greece	---
ES - Spain	20
FR - France	35
IRE - Ireland	17
IT - Italy	301
L - Luxembourg	---
NL - Netherlands	1874
O - Austria	21
P - Portugal	---
SF - Finland	---
S - Sweden	---
UK - United Kingdom	630
EUR 15	3361

Source Oil and Gas Journal 1995

PRESENT EC SUPPLY AND DEMAND

In 1994, total EC natural gas demand was 254 Mtoe. Germany and the UK are the largest consumers (around 60 Mtoe each); Italy, the Netherlands, and France, consume 30-40 Mtoe each, while Belgium, Spain, Denmark, Ireland, Austria, Finland and Sweden each consume less than 10 Mtoe. Luxembourg's

consumption is only 0.4 Mtoe, while Greece and Portugal plan to introduce natural gas in the years to come.

The share of natural gas in the total EC energy balance in 1994 was around 19%. The Netherlands has the highest gas penetration (49%) followed by a group of countries situated around the EC average: Italy, UK, Ireland, Belgium, Germany and Austria. France, Denmark and Finland are below the EC average, while Luxembourg, Spain and Sweden are situated well below the EC average. In 1995 estimated proved reserves of natural gas in the EC stand at around 3,360 Mtoe (see table 1) although the potential exists to increase these reserves through new discoveries and advanced E & P techniques. The Netherlands and the UK between them possess more than 73% of total EC reserves. A large part of the EC's natural gas reserves is therefore concentrated in N.W. Europe.

Total EC natural gas production was 157 Mtoe in 1994. EC's natural gas producers can be divided into three groups. The first is composed of the Netherlands, and the UK, each producing over 55 Mtoe each. Italy and Germany produce around 15 Mtoe each, while another group consisting of Denmark, France, Ireland, Austria and Spain, are much smaller, producing less than 5 Mtoe each. Other Member States have no indigenous natural gas production.

Current figures show a reserves to production ratio for the EC of over 20 years. However, reserves are not evenly distributed within the EC, indigenous production does not cover demand and Europe does not have a fully interconnected gas network. Some Member States, particularly those at the periphery, find themselves in a relatively isolated position.

Table 2A : EU gas balance 1994

	BE	DE	DK	EL	ES	FR	IRE	IT
1. Natural gas demand (Mtoe)	9.5	61.2	2.7	-	6.2	29.2	2.2	40.7
2. Share of natural gas demand %	19.2	18.0	12.9	-	6.6	13.0	21.6	27.6
3. Indigenous production in Mtoe	0	14.0	4.3	-	0.1	2.7	2.2	16.4
5. External dependency	5.3	33.5	0	-	6	22.7	-	20.6
a) mtoe	56.8	54.7	-	-	96.7	80	-	50
b) %	3.5	-	-	-	4.0	6.9	-	8.9
of which in mtoe	-	-	-	-	1.1	-	-	-
Algeria, Libya, Norway, Russia	1.9	9.4	-	-	0.9	6.3	-	-
	-	24.1	-	-	-	9.5	-	11.7

	L	NL	O	P	SF	S	UK	EUR15
1. Natural gas demand (Mtoe)	0.4	32.6	4.9	-	3.3	1.3	60	254
2. Share of natural gas demand %	3.5	49	19.1	-	10.3	2.5	26.7	19.4
3. Indigenous production in Mtoe	-	59	1	-	-	-	57.9	157.6
5. External dependency	-	2.3	3.9	-	3.3	-	2.4	100.1
a) mtoe	-	7	80	-	100	-	4	39.4
b) %	-	-	-	-	-	-	-	23.3
of which in mtoe	-	-	-	-	-	-	-	1.1
Algeria, Libya, Norway, Russia	-	2.3	-	-	-	-	2.4	23.2
	-	-	3.9	-	3.3	-	-	52.5

Totals do not add up due to storage

Sources : Eurostat, EC Commission, IEA

Regarding intra-EC natural gas trade, virtually no gas is exported outside the EC. The total amount of natural gas traded within the EC in 1994 was 30 Mtoe. The Netherlands is the one large gas supplier with Denmark supplying small quantities to Germany and Sweden. The Netherlands supplies Germany, Belgium, France and Italy. The UK, the other large producer, is for the time being not connected to the Continental European gas market[4]. This will change once the UK-Continent Interconnector is completed and in operation.

The EC(15) imports 100 Mtoe in total, from four external suppliers: Russia is, the largest, supplying 53 Mtoe in 1994. Algeria and Norway have an almost equal share, around 23 Mtoe each while Libya is a very small supplier, 1 Mtoe. Germany is the biggest importer of natural gas from external suppliers, accounting for around 30% of the EC's total imports. France and Italy also import substantial volumes, while Belgium, Spain, Austria, and Finland import much smaller quantities from third countries. The Netherlands and the UK, although largely self sufficient import small volumes from Norway.

Dependence for the EC stands at almost 40%, but this varies significantly between Member States. Finland and Spain are almost 100% dependent while Austria and France are 80% dependent on imports from third countries and Belgium, Germany and Italy are between 50%-55% dependent. The Netherlands and the UK are below 10%, due to their large self-sufficiency. Denmark, Sweden, Ireland and Luxembourg do not import at all from outside the EC.

Dependence on non EC suppliers does not tell the whole story from a security of supply point of view. Consideration must be given to the sources of supply and to the diversity of sources.

FUTURE SUPPLY AND DEMAND PROSPECTS

The following projections are intended as a backcloth to the chapters which follow. What is important is not so much the figures themselves but rather the trends which are revealed, especially levels of external dependence and supplies still to be contracted in the future. Data on demand is drawn from the Commission services' energy scenarios to 2020.

These scenarios explore energy futures according to different potential worlds. What is significant for the purposes of this paper is that the fundamental issues of strong gas demand growth and increased import dependence remain constant in all of these scenarios.

The environmental impact, particularly the level of CO_2 emissions does however differ according to the scenario used. Discussions of the scenarios in relation to Community energy policy, taking into account the EU's international obligations with regard to greenhouse gas emissions, will take place in more specific fora dedicated to this key issue. Moreover, it goes without saying that energy and environmental policies which emphasize greater energy saving and increased use of renewable energies will ease the problem of import dependence and hence improve the EC's security of supply.

Table 2B : EC Gas Demand and Supply Scenarios

	2000	2010
1. Natural Gas Demand (mtoe)	311/320	392/411
2. Share of Natural Gas in total demand (average)	22%	26%
3. Estimated Indigenous Production (mtoe)	175	165
4. Intra EC Gas Trade (mtoe)	30	28
5. External Dependency		
- mtoe	136/145	227/246
- %	44/45	58/60
6. Contracted Volumes*		
- Russia	66	66
- Algeria	39	40
- Norway	48	57
- Others	5	5
- Total	158	168
7. Deficit mtoe	-	-59/-78

Sources : EC Commission (2020 analysis), Member States, IEA,

* mtoe

For the object of the Communication which concentrates on gas supply issues, average figures or ranges have been used in order to draw out the main messages.

2000

Demand is estimated to rise by 22-26% to 311-320 Mtoe. By this time natural gas will have been introduced in Greece and Portugal. Gas penetration may increase in Germany, Spain, Italy, the UK and Sweden. Gas will represent around 22% of the EC's total primary energy consumption.

EC natural gas production is projected to increase by 11% to around 175 Mtoe. Production thereafter may start to decline. The Netherlands may still be the largest producer, followed by the UK, these two countries representing together around 80% of the EC's total production. Denmark may also increase its production while production in Italy, Ireland, Germany, France and Austria is expected to decline.

The total amount of natural gas traded within the EC could be around 30 Mtoe, with the Netherlands still accounting for the vast majority. By this time the UK-Continent Interconnector should be in operation, potentially supplying up to 18 Mtoe annually to markets on the Continent.

The EC is projected to need to import at least 136 Mtoe from third countries, representing a 36% rise. Contracted supplies for the year 2000 show that for the EC, as a whole, there may be a gas surplus at this time. In 2000, EC dependence will have risen to

4 *With the one small exception of the UK offshore Markham field*

around 44%, with marked differences still apparent between Member States. Ireland, Sweden and Greece for the time being do not have contracted supplies to meet fully projected demand levels in 2000.

2010

Demand is estimated at between 392 to 411 Mtoe, representing an average rise of 27% from 2000. Natural gas may replace obsolete nuclear power generation in the UK, Sweden and Germany. Spain and Italy may also sharply increase gas use in power generation. Gas could represent as much as 26% of the EC's total primary energy consumption.

EC natural gas production may decline by 6% from 2000 to around 165 Mtoe. The UK may continue to increase its production, to reach more than 50% of total EC production. It is likely however that by this time UK production will be used exclusively for domestic purposes and may not entirely cover projected demand. Dutch production may be in decline by this time.

The total amount of gas traded inside the EC, may fall to around 28 Mtoe, with the Netherlands still supplying almost all of it, while Denmark may provide small volumes to Germany and Sweden.

The EC may by this time have to import at least 227 Mtoe, representing a 70% rise over 2000. The EC will still have three main external suppliers. For the purposes of this assessment, the assumption is made that supply contracts expiring between 2000 and 2010 will be renewed. In this case the total amount of contracted supply will be about 168 Mtoe; Russia may account for 66 Mtoe, Norway for 57 Mtoe, Algeria for 40 Mtoe.

By this time EC external dependency may have risen to nearly 60% with Finland, Greece, Portugal and Spain totally dependent on external supplies and, France, Germany, Italy, Austria and Belgium heavily dependent. By this time it is possible that the UK-Continent Interconnector may be being used to bring imports into the UK.

In the case of Ireland and Sweden almost all gas has yet to be contracted to meet projected gas demand, while Greece presents a 50% deficit. In the case of Portugal one third of the demand has still to be contracted, while for Italy, Germany and the UK demand may be between 10%-20% higher than contracted supplies and indigenous production. For the EC as a whole, up to 20% of expected demand will have to be filled by new import contracts, either from traditional or new suppliers.

Beyond 2010

All EC Member States face a shortfall to a greater or lesser extent in contracted supplies. For the EC as a whole, declining indigenous production combined with an expected large increase in demand may lead to an EC import dependence of up to 75% by 2020. The new supply contracts required to meet expected demand in 2020 could well be in excess of today's total EC gas consumption level.

THE EXTERNAL DIMENSION

Relations with external suppliers

The potential of the EC's three main external suppliers (Russia, Norway and Algeria) is large enough to cover much, if not all of this incremental demand. In addition, new suppliers will sooner or later enter the EC gas market. Small LNG quantities have already come from as far afield as the Gulf countries and Australia. By 2010 Nigeria may be providing Italy and Spain with LNG. In addition there are pipeline and LNG projects which might eventually bring gas to Europe from the Middle East, Central Asia, and even Central and Latin America. It has been estimated that some 200 mtoe per year of gas is available to European markets under these various new projects.

In any case, in the future more and more gas will have to be transported increasing distances to EC markets. Large investments, in the order of several billion ecus, will have to be made in order to establish production facilities and create the necessary pipeline and/or LNG infrastructure. As distances increase, so do costs and the security risks associated with transit across national borders. These factors may eventually put pressure on gas prices which in turn could affect gas demand in the long term.

The EC's import dependence will in any case increase considerably, making the EC dependent for an increasing share of its total gas demand on non-EC countries. Norway, a member of the EEA and the OECD, will remain a major EC gas supplier in the years to come. It is important to encourage close ties and friendly relations with the main non OECD suppliers, Russia and Algeria and also any new suppliers. Downstream integration in EC gas markets by external suppliers may strengthen security of supply (see chapter 4).

The European Energy Charter Treaty provides a significant framework to encourage energy trade and cooperation with signatory gas supplying countries, such as Russia, the New Independent States of Central Asia and of course Norway. The provisions of the Treaty on transit are especially important in the light of the EC's growing gas import dependence. The construction of a framework similar to the Energy Charter southwards, or an initiative by the Energy Charter Conference to extend the Charter process to cover other regional gas suppliers could reinforce supply security. The forthcoming Euro-Mediterranean Conference offers a suitable forum to take this a stage further. In addition, the on going consumer-producer dialogue provides a further framework for stability and the establishment of closer ties.

The way to long-term security of supply is the diversification of supply sources and routes together with an external relations policy which encourages close links and mutual dependence between the EC and its external suppliers. The EC's growing import dependence and its strategic need for close ties with certain key external suppliers should motivate the EC's external political and commercial external relations policies with those countries, including technical assistance programmes. These programmes already include EC projects aimed at the rehabilitation of gas production, for example, projects launched under the TACIS programme for the Newly Independent States, and the promotion of energy efficiency.

Central and Eastern European Countries (CCEE)

In the time horizons considered in this report, many of the CCEE should become members of the EC. Excluding large international transit pipelines, it is estimated that CCEE countries will require at least 3 billion ecus of investment funding for transportation and storage projects over the next 15 years as well as around 100 million ecus for technical assistance associated with these projects. Moreover, CCEE countries will remain heavily dependent on gas imports from Russia, especially as indigenous gas production in the region declines in absolute terms, bringing the question of supply security sharply into focus. CCEE countries will be looking increasingly westwards to the EC to help solve their problems in the form of increased gas trade, integration and co-operation as well as economic assistance. The CCEE countries occupy a strategic location on the main transit routes linking eastern reserves with EC markets which should not be overlooked.

Table 2c : Gas supply and Demand - Countries of central and Eastern Europe[1] in Mtoe

	1993	2000[2]	2005[2]	2010[2]
Demand	62	67	71	81
Production	28	22	18	16
Import Req.	34	45	53	65
Supply[3]	41	41	41	41
Total gap		4	12	25

Source : EC Commission

1) Includes Albania, Bulgaria, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, Slovakia and Slovenia

2) The central scenario between high and low scenarios

3) assuming a long term supply commitment of 41 Mtoe/yr of CIS gas imports through the existing infrastructures.

Market Developments and Implications for Security of Supply

This chapter aims to touch upon some present market developments which may affect security of supply.

Developments in the Power Generation Sector

According to most projections, the power generation sector will account for over 50% of the increase in gas to 2010. It is thus useful to examine this phenomenon in more depth.

An EC Directive prohibiting the use of gas for power generation, giving instead priority to domestic and industrial uses, was withdrawn in 1991. The use of gas for electricity production in recent years has increased due to the economic and environmental advantages of gas.

New developments in technology and the introduction of advanced materials have resulted in the introduction of Combined Cycle Gas Turbines (CCGT) in power generation. CCGT power plants have a much higher production efficiency, above 50%, than conventional gas turbines (around 35%), or coal fired plants (around 40%).

Table 3 : Gas in power generation

	EUR 15
mtoe **PRESENT**	39.0
% of PG in total gas demand	15.3
mtoe **2000**	83-102
% of PG in total gas demand	27-32
mtoe **2010**	150-154
% of PG in total gas demand	37-38
mtoe **2020**	161-216
% of PG in total gas demand	37-43

Sources : EC Commission (2020 Analysis)

The cost of building and maintaining the gas-fired power plants is another advantage. Small and compact preassembled gas fired units, can be built in a much shorter time span than coal fired, or nuclear plants. This enables power generators to monitor and match electricity supply and demand more closely and therefore in a more cost effective manner.

The use of natural gas for power generation substituting other fossil fuels, presents a number of important environmental advantages as well, including lower CO_2, SO_2 and NO_x emissions, while dust emissions and waste are negligible. Natural gas is

itself, however, a "greenhouse" gas and therefore particular attention must be given to the reduction of leakage at all stages of the production, transmission, distribution and utilisation chain.

Due to these advantages, gas use for power generation may increase from around 15% of total gas demand today to 32% in 2010 and perhaps even higher by 2020.

This increased share of gas in power generation and the drive for cost efficiency may encourage further direct links between power generators and gas producers as well as new price formulae to reflect the fact that coal is the main competitor to gas in power generation while the development of gas markets will allow new gas pricing concepts.

A precondition for direct purchases of this kind will be access to the transmission infrastructure to ensure reliable deliverability and the availability of surplus capacity in that transmission system. A few such direct contracts are already in place, mainly involving Norwegian gas suppliers on the one hand and the electricity undertakings, SEP in the Netherlands, Scottish Power and National Power in the UK on the other, but also between the Algerian producer Sonatrach and the Italian electricity utility ENEL.

Developments in the large industrial sector

For energy-intensive industrial undertakings environmental charges account for an increasing share in their cost structures and are therefore an important factor in the drive to remain competitive. Minimising environmental costs by the increasing use of natural gas, is already common in Member States which have strict environmental standards. The more mature the market, the less the geographic location of the large consumer will constrain the choice of supply. Contractual relations other than long term could develop which could add flexibility and diversity to the market. The opportunity to build pipelines and the benefits of more competition upstream may give possibilities for large industrialists or groups of industrial undertakings to participate financially in supply projects which in turn might enhance diversification of supply sources.

Vertical integration along the gas chain

External suppliers are increasingly investing downstream. Downstream investments take the form of joint ventures of various kinds, participation in transmission companies, investments, direct sales to end users, and agreements on transfers of technical know-how. The most notable current examples are the Norwegian gas suppliers and Russia's Gazprom.

Norwegian gas suppliers' downstream activities allow them to accommodate new gas export volumes. Examples of this policy are the Netra joint venture and the small stake taken in the VNG transmission company, all in Germany, and the emergence of a gas marketing joint venture, Alliance Gas, with BP, in the UK. The increased role of Norwegian suppliers should enhance the deliverability of gas to European markets, which in turn will have a positive effect on security of supply.

Recent years have seen an increased presence of Gazprom in the markets of Western, Central and Eastern Europe. Examples of such joint ventures are Wingas in Germany, Prometheus in Greece, Gasum in Finland, the UK-Continent Interconnector, EuroPolGas in Poland, Panrusgas in Hungary and Volta in Italy. The formation of joint-ventures of this type is assisted by the opportunities created in these countries for external suppliers, and by Gazprom's historical links with Eastern Europe. Gazprom also owns assets in Moldova and Belarus. Whether Gazprom can fulfil its apparent strategy of increasing its downstream involvement in European gas markets will depend upon a number of factors including political developments in Russia, future revenues from gas sales and the availability of investment funds.

Sonatrach, the Algerian gas supplier, appears to be concentrating more on attracting the technological and financial resources needed to develop production, and not for the time being on downstream investments.

While the upstream involvement of EC gas companies is less common than the downstream involvement of gas producers, there are cases where the transmission companies are looking to gain access to gas reserves. There are also indications that oil companies are devoting more attention to gas projects than in the past. Implementation of international treaties like the Energy Charter Treaty and/or financial needs of external suppliers will, in the future, facilitate such a development.

It may be argued that security of supply benefits from the vertical integration, downstream and upstream. The added value derived from downstream and upstream investment indicates a greater commitment to the market in question and therefore to providing it with a regular and reliable supply of gas. However, downstream investment by external suppliers could carry risks if not counterbalanced by the presence of alternative suppliers.

Horizontal integration in the gas market

The process of horizontal integration at the distribution level, in particular in the smaller Member States (examples are the Netherlands, Denmark, Belgium) was prompted by the Single Market. It is forcing utility service companies to economies of scale in the form of mergers or other forms of co-operation, enhancing efficiency and cost control in combining their gas, electricity and in some cases other public

services. In other Member States, there has been a tendency towards fewer but bigger and more diversified and integrated regional or local utilities.
Differences in the industrial and commercial culture between the European electricity and the gas industries has been a reason why cross shareholdings or joint activities, for example in new gas fired generation capacity or gas transmission lines, have been slow to develop. The increase in gas-fired generating capacity could well lead to change in the next few years, given the potential mutual benefits and risk limitations for both industries. In the UK, for example, electricity distribution companies have taken advantage of the liberalised environment to secure direct access to North Sea gas supplies for power generation and to enter the gas supply market, often in the form of consortia.

Gas pricing mechanisms

Gas prices to final consumers in continental Europe are determined by using two approaches, the cost-based pricing method and the market value pricing system, with indexation mechanisms linking gas prices to the prices of the alternative competing fuel(s).
In a number of contracts for gas sales in the electricity generation sector, new pricing formulae have been used. Indexation clauses, for example against coal, electricity, general inflation have been developed as an alternative or in addition to oil-linked indexation and new pricing concepts could develop. Any decoupling of gas from oil prices in the power generation sector with the present market structure may not necessarily lead to lower gas prices. To avoid the greater volatility of oil-linked gas prices, power producers may be inclined to pay a premium for gas when the price of this is linked to a more stable fuel like coal. Moreover, the alternative fuel for electricity generation in the case of CHP and CCGT is light oil distillates which means gas is priced at a premium in this instance. These developments could facilitate the implementation of new gas supply projects.
In the UK gas prices are decoupled and determined by market forces of gas supply and demand for commercial, industrial and power generation users. Competition among suppliers determines the gas price, while the alternative for consumers is a wide range of competing gas suppliers. In addition to oil, other forms of indexation can now be found. Spot market deals have emerged and it seems only a matter of time before reference to spot market prices for longer term gas contracts will occur.

Security of supply at EC level

Introduction

Gas security of supply may be defined as the ability of the gas system to provide a continuous and reliable supply of gas to customers on an economic basis and to cope with interruptions whether of a technical, economic or political nature.
Despite its advantages as a fuel, gas would not have won its significant position in the energy market if customers had not been able to depend on it for their needs. Demonstrated security of supply has ensured the growth of the industry to its present importance in a number of European countries and will help markets to develop in other countries of the EC.
Over the years, companies have developed packages of measures, geared to the requirements of their business, for both the long and the short term. Security of supply has a price. The challenge of the gas industry is to ensure the optimal balance between risk-minimising measures and the price which the market is prepared to pay. Long term measures include forward planning of markets and supply volumes, diversification of supply, storage and interruptible customers[5]. Negotiations on import contracts and the undertaking of large construction projects with long lead times are also part of a company's regular activities to maintain supplies.
In the shorter term, security of supply is achieved through efficient management of the transmission and distribution networks and operational decisions to meet changing demand levels. Decisions to secure supply to customers are as much part of routine management as of long term strategy.
The increasingly interconnected grid and the integration of markets will tend to result in natural gas markets in Europe with a dimension larger than a national one. The Commission, in its Green Paper, has stated that this increasingly interconnected European gas grid and the diversified nature of the gas infrastructure and sources of supply among Member States require that advantage should be taken of the Community dimension to enhance security of supply. The Green Paper goes on to say that short-term security of supply in the gas sector requires a careful and in-depth examination of the specific measures necessary to respond to a gas supply crisis. This chapter is a first attempt to do this, analysing security of supply from the point of view of the EC single market as a whole.

5 *Gas companies supply to some of their bigger customers on the basis of interruptible contracts which allow them to reduce the demand during periods of peak consumption. These interruptible customers are generally industries and power generation plants which, in exchange for a lower gas price, have backup fuels and facilities with which to face the gas interruptions.*

SHORT TERM ASPECTS OF SECURITY OF SUPPLY IN THE EC

A diversified situation

The supply situations differ considerably between countries in terms of levels of indigenous natural gas production, diversification of imports, degree of integration into the European natural gas grid, storage volumes, market segmentation, share of interruptible supplies etc. Security measures taken at national level, in order to safeguard gas supplies, vary as a function of these very different demand and supply situations within the EC. As a result, short-term shortfalls in supplies in all European Community countries can be prevented or coped with in one way or another. Information collected and consultations with the gas industry demonstrate, at least qualitatively, that the current operational practices, contractual arrangements and supply infrastructure are adequate to cope in the short-term with a major shortfall in supplies to one external supply source, at least in the more mature European gas markets. Over time this will also be the case for the newer markets where similar infrastructures and practices are developing.

The measures available to ensure supply security vary widely between Member States as shown in table n°4 in annex.

Crisis simulation

In the case of a major shortfall in supplies, a combination of measures can be taken with the object of minimising the effects on consumers. Such measures include the use of interruptible sales contracts, flexibility of supply from both indigenous production and imports, underground storage and mutual assistance and co-operation between neighbouring gas companies. A study undertaken by the Commission services in consultation with the gas industry takes into consideration the effect of these individual security measures on the overall security of the EC. When evaluating the EC dimension, it has been assumed that full cross-border co-operation between gas industries which are interconnected has been fully utilised. The demand and supply conditions prevailing during the first quarter 1994 were taken as a basis, being the most recent year for which detailed information is available. This period is not representative of the most severe weather conditions so that results should be considered as indicative only.

The risk of supply shortfalls from Norway, an EEA and OECD member, has not been considered.

According to the origin of the shortfall in supplies, the results of the exercises are as follows:

- *shortfall in supplies from the FSU*

The application of the security measures concerned (interruptibles and production flexibility) only by the countries directly affected by the shortfall in supplies, have an effect equivalent to a 29% reduction of the EC imports from the FSU.

Co-operation and joint implementation on a Community-wide basis of the same security measures to use the added value of the EC dimension, increases this figure to 36% of the EC imports from this source. The EC storage cover is, in this case, 283 import days[6].

- *shortfall in supplies from Algeria*

Under the same assumptions the effect of the security measures is equivalent to a 26% reduction of the EC Algerian imports when applied individually by the countries concerned by the supply cut but a 56% reduction when the added value of the EC is taken into consideration. The corresponding EC storage cover is 625 import days of Algerian gas.

- *shortfall in supplies from all non-OECD suppliers*

Co-operation on a Community-wide basis would reduce the overall non-OECD import needs by 21% and the EC storage cover would be of 136 import days.

Conclusions from the analysis may be drawn as follows:

- The interruption of supplies from a main non-OECD supplier are solved more effectively when there is co-operation at a European level to cope with the supply shortfall. Therefore, the use of the EC dimension improves security of supply.
- EC gas companies already co-operate through cross border back-up agreements. However, there is little available data on them and it is not possible to establish if they would exploit the EC dimension to the full in the case of crisis affecting several Member States.
- The elements of such EC co-operation involve the use of measures such as demand reduction through the use of interruptible contracts; production flexibility, both in terms of a country's own production and imports from other EC producing countries; trade of gas made available as a consequence of the greater import diversity of the EC as a whole as opposed to single countries; and use of available storage at EC level.
- To exploit fully the measures mentioned, the full interconnection of the EC system of transmission lines linking the different EC sources of supply is crucial.
- As an example, the effects of the planned UK - Continent Interconnector on security of supply have been analysed. During the reference period, in the case of a FSU cut in supplies, the Interconnector would allow for a partial substitution of the supplies lost from this source. In that way, the EC imports from the FSU could be reduced by half and the EC storage cover increased a further 6 months.

6 *Cover days are calculated by dividing the estimated strategic storage capacity by the volume of FSU imports per day needed after applying the security measures.*

- Use of the measures referred to above, exploiting the EC dimension to the full, would take place in the normal commercial and operational environment in which the gas industry functions. However, though higher prices will ensure that markets clear, even in a crisis situation, this may create political strains. Consideration should be given to emergency guidelines at EC level which might help to tackle such problems in an orderly manner.

LONG TERM ASPECTS OF SECURITY OF SUPPLY IN THE EC

The supplies available at any given time are a function of the deliverability of all available sources to the EC. The actual proven reserves of gas available to the EC from the EC's own production plus Norway provide security, but proven reserves are no indication of current deliverability. Short term security of supply is dependent on deliverability and available pipeline and storage capacity. Long term security of supply is more a function of marketable proven reserves and long term planned increments to pipeline and storage capacity.

To maintain security of supply in an expanding market, strategic decisions to develop new sources of gas and to enhance the pipeline and storage infrastructure must be made years in advance. The short term and long term perspective of gas security are in fact interrelated. The following analysis examines the security of supply implications of further interconnections within the European network and alternative sources of supply as well as the load balancing needs and potential in terms of storage and the interruptibles market. The information provided by Member States on gas transport and storage infrastructure under Council Regulation 1056/72[7] is a starting point in such an analysis.

Network integration possibilities

Additional interconnections between European transmission grids and alternative interconnections with sources of supply will improve the transmission deliverability and will provide additional diversity of supply. Further integration of the European grid will improve the key elements of security of supply - improved gas market interruptibility, increased storage capability, improved economic feasibility of distant supply sources and potentially improved flexibility in producer contract negotiations (see map in annex of existing network and pipeline projects).

There are a number of key interconnections which will be vital to increased security of supply. Approximately 80% of European reserves are located in the North Sea and the Netherlands. Therefore, the critical issue is the ability to deliver these reserves. The two most important elements of this deliverability are production capability and pipeline capacity.

The EC is well placed with regard to the geographical distribution of world reserves: 70% of all known gas reserves are less than 4000 to 5000 kms from the centre of Europe. In addition to the three largest suppliers, others are starting to emerge in the Middle East, Latin America, Africa and Central Asia.

The analysis in Annex I emphasises interconnections which maximise transmission deliverability from the North Sea and the Netherlands which are considered the most reliable sources in case of a shortfall in supplies from Russia, Algeria or both. It also reviews the most significant new supply projects.

Producer Incentives on Security of Supply

Sufficient transmission deliverability is only useful if there is adequate supply potential. The proven reserves of the North Sea production area appear to be more than adequate to meet any shortages for a substantial period. However, proven reserves do not necessarily imply supply deliverability which requires that the reserves are "onstream", with production capability in place.

Production deliverability from the North Sea has been expanding in recent years. In particular, production from the UK offshore has been expanding at a rapid pace. Norway is about to bring the massive Troll platform into production, significantly enhancing Norwegian deliverability.

However, some exploration and production policies currently inhibit producer incentives. Policies requiring state participation in exploration and production, the landing of gas onshore, the national transmission company right of first refusal, and exclusive rights over a gas production area are examples of policies which may hamper overall supply deliverability.

The EC Exploration and Production Directive (94/22/EC)[8], and the implementation of the European Energy Charter Treaty will assist in providing producers with greater opportunities to explore and produce within Western Europe.

Storage and Interruptibility

Another important ingredient of security of supply is swing deliverability which comes primarily from storage and interruptibility. These associated instruments in the sales and transportation of gas are utilised to make up differences in the production and consumption streams.

The development of **storage** in Western Europe has largely tracked the development of gas markets in each of the individual countries. Countries which have domestic supplies have a different approach from

7 *OJC L120 25.05.72, p. 7*

8 *Directive 94/22/EC of the European Parliament and of the Council of 30 May 1994 on the conditions ofr granting and using authorizations for the prospection, exploration and production of hydrocarbons (OJC L.164)*

countries which rely heavily on imports as the former can rely on the production flexibility of their own gas fields.

Member States in the EC rely extensively on storage to meet winter peak demands. Current storage can at maximum cover two months of peak winter demand. However, storage capacity alone does not necessarily demonstrate which countries are most vulnerable. Member states have different approaches to security of supply as discussed in the sections above.

Historically, Europe's own large gas fields provided both short and long term supply security. In the long term as the fields begin to decline, this cushion of security will progressively diminish.

The future storage plans of the gas industry will almost double the total existing working storage volume of the EC in a time horizon from 2000-2015. However, while this expected increase is higher than the expected gas demand increase, the level of storage relative to external import dependence will be lower in 2010 than today.

Storage projects are long term projects and therefore an analysis of the costs and benefits of creating more storage capacity should be undertaken to cope with the increased demand, reduced flexibility inherent in declining EC internal production and increased external dependence. This is particularly important for the less mature gas countries.

Similar to storage, **interruptibility** plays a key role in swing deliverability, and as such, interruptible customers provide a critical role in meeting security of supply needs.

Most European transmission companies maintain a significant amount of industrial and power generation interruptible customers. Interruptible contracts typically vary in length from one week up to three months or the entire heating season.

Transmission companies tend to aim to maintain a high quality of service to large industrial users in order to convince them not to switch to fuel oil. Different types of interruptible contracts exist in the Member States and the use of them also seem to vary greatly among them. Industrial sectors affected would be different from country to country and so priorities of interruption need to be analysed. In order to determine the true level of interruptibility and the implications for security of supply in case of a major crisis, an investigation of the actual amount of interruptibility among Member States would be required.

Mutual support of gas and electricity systems

Power generation gas use could play a future role in improving security of supply in the EC. For example, if a significant percentage of the power generation market was equipped with long term dual fuel capability, such that a large number of power generation users were capable of performance without gas for a portion of the winter season, the security of supply implications would be significant. The forecast increased share of CCGTs in the generating system may however limit this flexibility as in the case of CCGTs the alternative fuel used is higher value gas oil.

The power generating capacity of electricity utilities usually includes a reserve margin necessary to ensure system reliability. This excess generating capacity allows flexibility in the choice of individual generating units. Therefore, if the availability of natural gas to a particular region is reduced it is usually possible to reduce the load on gas fired generating units and shift the load to non-gas powered units so as to accommodate the reduced gas availability or to make more gas available for end users other than electricity generation. Thus, significant substitution exists within each power network.

Another consideration is the lack of constant demand for electric power. Demand varies both on a seasonal, daily and hourly basis. Such variations are also not identical from region to region in Europe due to a number of factors such as weather, regional primary fuel mix, levels of industrialisation and the local prevailing utilisation of technologies. Therefore, if one region in the EC is experiencing a reduced availability of natural gas, the electric transmission system can allow for power to flow into that region from other regions which may have a more secure gas supply or excess non-gas powered generation capacity. By utilising the electric transmission system, a local reduction in gas availability may be accommodated to some extent by the substitution of electricity from one region to another. The role of energy sharing combined with the anticipated gas fired power generation growth appear to be powerful tools to be utilised in addressing security concerns, and should be investigated further.

Transeuropean Gas Networks

The above section has put in evidence the importance of an integrated EC gas system (networks and storage) to improve supply security.

The EC Treaty introduced, in Art. 129B, a new Community policy on Transeuropean networks including energy networks.

Some of the strategic projects of network interconnection and storage projects mentioned in the above section have in fact already been agreed by the institutions of the Community as common interest or priority projects as they fulfilled the criteria set down in the implementing TEN regulations, including the economic viability requested.

The continuation of this policy in the future will allow the Community's institutions to set priorities on other projects which are equally important from a security of supply point of view, and may include some of those projects referred to above.

Co-operation at EC Level

The above analysis shows that the Community dimension could have added value when dealing with potential major gas supply shortfalls. It seems, therefore, appropriate to consider ways to verify and improve existing co-operation in this area.

- Work should continue on analysing in-depth the evolving balance of all factors affecting security of gas supply at EC level and by Member State. This should take into account the costs and benefits of the various options, and cover not only developments on the supply side but also the implementation of TENs, completion of the Internal Energy Market and developments in external relations such as the European Energy Charter.
- A number of ideas may be worth developing in this context with Member States, the European gas industry and other interested organisations, namely:

(i) The United States, which is largely self-sufficient with regard to gas supplies, has a curtailment plan, used by the US Federal Energy Regulatory Commission, which provides useful guidance on an equitable approach to interrupting customers according to priority of need. A similar plan may be appropriate as EC Emergency Guidelines which each Member State is encouraged to implement, taking into account national characteristics.

(ii) Some national transmission companies already have what are known as Mutual Assistance Agreements which could be structured in order to meet a recommended curtailment plan. However, it would be desirable to investigate how to optimise these Mutual Assistance Agreements from an EC perspective and to ensure that such agreements are enforceable at times of crisis.

(iii) Another approach could be to establish Security Targets. For example, a target might be that each Member State would ensure that they have either sufficient storage, interruptible capability, production/import flexibility, internally or through back-up or other arrangements for access to supply in other Member States to cope with an interruption of supply from the non-OECD suppliers during the 6 winter months. Another target could be to establish the provision of "x" days of total gas consumption. These targets could be differentiated provided the overall security objective is assured and provided there is an adequate degree of burden sharing. The Security Targets approach would require an investigation into which are the most vulnerable Member States and what are the potential damages in case of a gas loss. The analysis could then concentrate on the most economically feasible mechanisms for each Member State, including the added value offered by full use of the EC dimension.

These various approaches need to be discussed fully with Member States, the gas industry and other interested organisations before any EC guidelines could be drawn up.

Table 4 : Diversity of Supply Situations and of Security of Supply Measures Applied in EC Member Countries

	Austria	Belgium	Germany	Denmark	Spain	France	U.K.
Natural gas sales in Mtoe	4.9	9.5	61.2	2.7	6.2	29.2	60
Natural gas share in PEC (%)[1]	19.1	19.2	18	12.9	6.6	13	26.7
Domestic gas production (%)[2]	20	0.0	22.9	100.0	3.2	9.2	96.5
Net non-EC import dependency (%)[2]	80	56.8	57.7	0.0	96.7	80	4
Number of supply countries, incl. inland production	4	3	5	1	5	5	2
Number of inlet points for cross-border/shore supply	3	6	some 15	1	4	5	5
Share (%) of gas sold for power generation	33.4	26.7	21.2	6.4	7	2.9	7.3
Share of interruptible sales in 1993(%)	na	27%	na	industry 25% All power pls.	17%	Industry 20%	16%
Formulated security of supply policy?	yes	yes	yes	yes	yes	yes	yes
Number of storage facilities	6	3	33	2	1	15	7
Maximum working volume, mill m^3	2,500	527	10,314	440	460	10,300	3,566
Maximum withdrawal capacity, mill m^3/day	23.3	appr. 19	262	18	3.6	170	141.8
Storage volume in % of 1993 sales	33.8	4.7	14.4	15.3	5.1	28.1	5.6
Extension of storage capacity planned[2]	yes	1,100	19,000	1,200	4,500	14,000	yes in function of market
Back-up cooperation with other companies?	yes	yes	yes	yes	yes	yes	yes
Special features	Large storage capacity in depleted fields	Gas grid increasingly interconnected	Well integrated. Balanced supply	Self sufficient. Storages	Increasing storage capacity	Large storage capacity in aquifer structures	Well integrated. More than 50 fields

	Italy	Ireland	Netherlands	Sweden	Finland	Average/ Total
Natural gas sales in Mtoe	40.7	2.2	32.6	1.3	3.3	253.8
Natural gas share in PEC (%)[1]	27.6	21.6	49	2.5	10.3	20.5
Domestic gas production (%)[2]	40.3	100.0	100.0	0.0	0.0	62
Net non-EC import dependency (%)[2]	50	0.0	0.0	0.0	100.0	39.4
Number of supply countries, incl. inland production	4	1	3	1	1	14
Number of inlet points for cross-border/shore supply	many	2	5	1	1	many
Share (%) of gas sold for power generation	20.3	45	26	16.8	51.2	15.3
Share of interruptible sales in 1993(%)	Industry 25% Some power pl.	na	Some power pl.	10-20%	90%+	na
Formulated security of supply policy?	yes	yes	yes	yes	yes	yes
Number of storage facilities	8	0	1 (LNG)	0	0	77
Maximum working volume, mill m^3	14,000	0	appr. 75	0	0	42,200
Maximum withdrawal capacity, mill m^3/day	appr. 250	0	appr. 31	0	0	appr. 920
Storage volume in % of 1993 sales	28.0	0.0	0.2	0.0	0.0	13.9
Extension of storage capacity planned[3]	21,000	under study	7,000	R&D in lined rock caverns	Has been studied	73,900
Back-up cooperation with other companies?	yes	yes	yes	yes	yes	yes
Special features	Large storage capacity in depleted fields	Interconnected with UK system	More than 130 fields + Groningen	Small market with dual firing back-up	Few but large customers. SNG plants	

1) PEC = Primary Energy Consumption
2) In % of total gas supply
3) The future storage volume referred to in this line is the expected working volume at different points in time over the 2000-2015 time horizon.
Sources: Eurostat and Eurogas

ADDENDUM

POTENTIAL INTERCONNECTIONS TO IMPROVE NORTH SEA AND NETHERLANDS DELIVERABILITY AND SIGNIFICANT NEW SUPPLY PROJECTS.

The potential interconnections, ranked in terms of probability of construction, are the following:

NORTH SEA SUPPLY INTERCONNECTIONS

- Europipe***
- UK/Continent Interconnector***
- Norwegian pipeline to Dunkirk***
- Interconnections between the Dutch offshore and the UK offshore*
- Interconnections between Zeepipe and Dunkirk to the UK and other places on the continent*

Continental Europe interconnections

- Interconnections between Spain and Portugal***
- Looping and further interconnections between Belgium and German, French and Dutch systems***
- Additional French/Spanish interconnections (Maghreb II)*
- Enhancement of TENP (Trans Europa Naturgas Pipeline) from the Netherlands to Italy or Italian/French interconnection in the north*
- Southeast France/Northwest Italy interconnection*
- Finland/Sweden interconnection*
- Extension of Maghreb II to Germany or increase capacity in the French mainline system*
- Additional Austria/Germany interconnections or looping*

*** Under construction or planned with a high probability of construction

** Planned construction but still in the development stage

* No firm plans for construction

NORTH SEA INTERCONNECTIONS

The Europipe, due to come onstream this year with an annual capacity of 12bcm[9], will increase the flow of North Sea gas to Germany.

The proposed UK/Continent interconnector will allow up to 20 Bcm annually to be delivered to the Continent with economically viable access to most of the North Sea. It is anticipated that surplus deliverability will be available from the North Sea via the Interconnector from 1998. The UK/Continent interconnector is a strategic pipeline. The parties constructing the line are providing the capacity prior to assurances of dedicated downstream markets, thus taking the risk that they will find a market once the pipeline is built.

The planned pipeline from the Norwegian sector of the North Sea to Dunkirk (France) with an annual capacity of 12 Bcm will increase the availability of North Sea gas supplies to France and other EC countries.

The connections between the Dutch and UK offshore which are only under discussion, would further enhance North Sea deliverability. Other interconnections could link the existing Zeepipe line and the planned Norway to Dunkirk pipeline and the UK offshore system at Bacton.

These interconnections would all create surplus deliverability.

CONTINENTAL EUROPE INTERCONNECTIONS

Additional interconnections in Continental Europe would enable this surplus deliverability to move downstream to the most import-dependent markets in the European Community. Some Dutch/Belgian/German/ French interconnections are planned, as are two interconnections between Spain and Portugal. However, currently unplanned additional strategic capacity would assist France, Italy, Austria and Finland.

For example, gas coming in from the Maghreb line (a TEN pipeline whose first phase will be operational by 1996) via a potential new interconnection between

9 *1 billion cubic metres (bcm) is equivalent to 0.9 billion toe.*

Spain and France (Maghreb II) would be a critical security of supply interconnection for the Southern EC. In the case of a Russian shortfall in supplies, volumes from this line could serve not only southern France, but, if an interconnection were constructed between Southeast France and Northwest Italy, volumes could also be transported along the French coast to Northern Italy. Pipelines normally supplying Western Italy from Austria could be reversed to supply Austria from Italy. German interconnections could assist Austria in the northern part of the country.

This Maghreb II pipeline is also of strategic importance in the case of an Algerian cutoff. Without this pipeline or an LNG terminal, Portugal would be left in an extremely vulnerable position. The only source of supply would be the Lacq, France to Zaragoza pipeline which is insufficient to meet the needs of Spain and Portugal. However, the loss of Algerian supplies might be handled by reversing the flow of the Maghreb II to serve Spain and Portugal using Russian and North Sea supplies.

In the highly unlikely worst case scenario of a simultaneous interruption of Russian and Algerian supplies, the interconnections discussed above would be vital to prevent major shortfalls in supplies in some EC Member States.

This worst case scenario would present an extremely difficult situation for Finland, Portugal, Greece, Spain and Austria. Also, in the short-term, until the UK/Continent Interconnector and the Norway to Dunkirk lines are in service, Belgium, France and Italy might be vulnerable. The Spanish/French, French/Italian, German/Austrian interconnections referred to above and some looping of the French mainline system would all be necessary. An unplanned line linking Dunkirk/Zeebrugge to Lyon and Turin could extend secure North Sea supplies to Italy. The full use of all security measures, referred to in section 5.2. would also be required. Spain, Italy, France and Greece could seek out possible alternative LNG sources. Finland would have to rely on its interruptibility and dual-fuel system. A long term solution for Finland would be a connection with Sweden which may be a possibility as the Nordic market develops and any eventual development of gas supplies from the Barents Sea.

These scenarios indicate that it would not be possible for a very large portion of the gas available from the North Sea through the various pipelines to be transported through the southern French system. A potential solution would be to extend the proposed Spanish/French interconnection to near Strasbourg and the Midal System (already linking supplies from Russia and Norway). This interconnection would complete a strategically significant pipeline link between the three main external EC gas suppliers.

Additional Pipeline Capacity via Swaps, Displacement and Exchange

In addition to the potential capacity from additional construction, capacity is also made available by cooperative efforts among traders. If and when the interconnections mentioned above are realized the potential for swaps or transportation by displacement of gas supplies in the EC will increase significantly.

Long term potential sources of supply

The proposed Yamal-Europe pipeline from Russia through Belarus and Poland has been identified as a TEN project. It will provide a second major export route for Russian supplies to the EC and an alternative to supplies through the Ukraine. The construction of the Yamal pipeline system will take place in stages with the sections in Germany, Poland and Belarus to be finished first. When finally completed in the next century, planned capacity of the pipeline to Europe may reach over 50 bcm. In the long term it is possible to imagine a new East/West line which, crossing the Central and Eastern European countries, would extend the gas from Yamal to southern markets in France, Italy and Spain.

A pipeline from Turkmenistan through Iran or the Caspian Sea has been under discussion for some time although the distance to EC markets may give rise to economic and transit difficulties. The only Member state which may be within economically feasible pipeline reach is Greece.

LNG from Nigeria, Trinidad & Tobago, Venezuela, Yemen and Qatar are all potential sources to Europe. The realisation of these projects would increase the flexibility of supply available to the EC.

The bringing on stream of new supplies is limited principally by economics (either project costs or price levels in Europe) and will not be realised unless justified by market development. In the case of long distance pipeline projects, transit across several national borders may present a further difficulty.

ROLE AND TASKS OF EURATOM IN THE FIELD OF PEACEFUL USES OF NUCLEAR ENERGY[1]

BY F. Caccia Dominioni, DG XVII
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THE PLACE OF NUCLEAR ENERGY IN THE EU

Tasks of the European Commission in the nuclear sector have as their legal basis the Euratom Treaty signed in March 1957. Other actions have, as a legal basis, the provisions of the Treaty establishing the European Economic Community, its extension by the Single European Act (1986) and, of course, the Treaty on European Union (more frequently known as the Maastricht Treaty) which entered into force on 1 November 1993.

Actions can therefore also be decided in the framework of the Common Foreign and Security Policy (CFSP) including actions in the nuclear area and, mainly, in the nuclear non-proliferation area.

It may be noted that the preamble to the Euratom Treaty records the objectives of creating the conditions necessary for the development of a powerful nuclear industry which will provide extensive energy sources, lead to the modernisation of technical processes and contribute, through its many other applications, to the prosperity of peoples. These conditions should be regarded as now fully established as Euratom occupies today a preeminent place in the peaceful use of nuclear energy in the world.

A few figures illustrate this:

- there are some 427 power reactors in the world of which the largest number (132) is in the European Union;
- about 35% of all electricity in the European Union is from nuclear energy : at 107 GW installated capacity,this is the highest proportion in the world ;
- complete nuclear fuel cycles including all types of nuclear installations starting from mining up to waste disposal and also including Plutonium fuel cycles.

The magnitude of the tasks as regards nuclear safeguards may be judged by considering that:

- All civil nuclear material on the territory of the Member States must be placed under Euratom safeguards;
- In 1994, the stocks (provisional figures) under Euratom safeguards comprised :
  - 154 400 t of Depleted Uranium
  - 52 300 t of Natural Uranium
  - 39 800 t of Low Enriched Uranium
  - 12 t of Highly Enriched Uranium
  - 342 t of Plutonium
  - 4 600 t of Thorium;

THE NUCLEAR INDUSTRY

- The nuclear materials shown above were used, processed, handled or stored in:
  - 380 major nuclear installations including nuclear power reactors, enrichment plants, fabrication plants, reprocessing plants, conversion plants and stores;
  - more than 400 installations where smaller quantities of nuclear materials are customarily used including carriers, intermediaries, waste conditioning and others.

As far as nuclear investments are concerned it should be noted that despite its nuclear promotional vocation the terms of the Euratom Treaty do not include, as such, provisions for a role of entrepreneur. This is the task of investors operating under the control of Member States. In fact the Treaty gives a limited role to the Community which is summed up as follows :

"in order to stimulate action by persons and undertakings and to facilitate coordinated development of their investment in the nuclear field, the Commission shall periodically publish illustrative programmes indi-

[1] *Based on an address given at the International Conference on Nuclear Safeguards, St Petersburg, 10-11 April 1995.*

cating in particular nuclear energy production targets and all types of investment required for their attainment".

In addition the Euratom Treaty states that "the Commission shall discuss with the persons or undertakings all aspects of investment projects which relate to the objectives of this Treaty. It shall communicate its views to the Member State concerned". Three illustrative programmes (PINC) and an update have been published by the Commission since the adoption of the Treaty. A fourth PINC will be published shortly.

The Commission attaches considerable importance to an internal consensus being achieved on the nuclear question in the light of the fundamental criteria for a Union wide energy strategy and to it being founded on the recognition of the state of development of this form of energy *and on the respect of the political choices on that subject made by Member States, which, nevertheless, remain free, of course, to go or not to go nuclear at their national level.* This consensus at Union level should give, hopefully, a new impetus to nuclear programmes which are in a state of moratorium virtually everywhere in Western Europe except in France. Problems related to nuclear trade since they are strictly interwoved with the safeguards and non proliferation aspects, will be discussed further on.

SAFETY

All nuclear activities, based on fission or fusion, require highly effective safety effective measures. Euratom established, Community legislation with respect to radiological protection and verifies its implementation by the Member States. The fundamental point is the establishment in the Union of basic standards for the protection of the health of workers and the general public against the dangers arising from ionizing radiation. The expression "basic standards" means:

- Maximum permissible doses compatible with adeguate safety;
- Maximum permitted level of exposure and contamination,
- The fundamental principles governing the health surveillance of workers.

These basic standards were first fixed in 1959 and amended several times since to take account of the development in scientific knowledge concerning radioprotection. A new version has been proposed by the Commission to the Council in July 1993. The basic Union standards have always taken full account of the recommendations of the International Commission on Radiological Protection (ICRP), which represent the state of the art in this field at world level.

In addition to applying the basic standards, all installations liable to produce radioactive discharges are subject to a prior opinion by the Commission assisted by a committee of experts with a view to certifying that installations are not liable to cause radioactive contamination of the water, soil or airspace of another Member State.

As to technological safety and licensing matters the Euratom Treaty does not contemplate any specific competence for the Community. Already in 1975, a Council resolution committed Member States and the Commission to a process of progressive harmonization of Community safety rules and practices. A resolution in June 1992 not only confirmed these objectives and recommended intensifying cooperation between the safety authorities of the European Union but also added the need to transfer the know-how and experience acquired at European Union level to the Central and Eastern European States and to the former Soviet Union. Currently progress is mostly satisfactory as regards the first objective, and measures taken towards achieving the second objective are going in the right direction.

Finally the nuclear safety convention concluded under the auspices of the International Atomic Energy Agency (IAEA) constitutes a fundamental step forward towards a worldwide regime for nuclear safety.

NUCLEAR R & D

The Commission has also the duty to promote and facilitate nuclear research in the Member States and to complement it by carrying out its own programme of research and training.

The Fourth Framework Programme for Research, Technological Development and demonstration is for the years 1994-1998. The programme is in two parts :

- the European Economic Community and Euratom. The total budget adopted is 12.3 billion ECU (an ECU is approximately U.S $ 1.15).
- The EC programme (some 11 billion ECU) includes actions in the areas of information and communication, industrial technologies, the environment, life sciences, transport, social-economic research and non-nuclear energies.

The Euratom part of the programme (some 1.3. BECU) concerns the areas of nuclear fission and thermonuclear fusion; some of the research is carried out by the Joint Research Centre. Nuclear fission areas comprise both safety and safeguards projects (a total of 414.000 ECUs). They include work on reactor safety, severe accidents, radioprotection, geological storage, actinides, the plutonium cycle as well as safeguards work on seals, sampling including non-destructive sampling, surveillance, . on-site laboratories and of

course inspector training both for Euratom, the IAEA and more recently for participants from the CIS.

Thermonuclear fusion is at present one of the most important example of nuclear research in the European Union. The Union is in the forefront of research in this area. Given the dimension of the technological challenge that fusion represents, the Union has chosen to work in cooperation with world partners. This is the object of the ITER agreement (International Thermonuclear Experimental Reactor) signed in July 1992. Currently detailed tasks of conception and study of the project to define the technical and methodological choices are divided between the United States, Japan, Euratom and Russia. The definitive choice for the ITER site will be made in 1998. The reactor should produce its first plasma around 2005/2007 and make way in the years 2015/2020 for a demonstration reactor (DEMO). In this context Euratom has decided to extend the activities of JET The (Joint European Torus). The JET reactor is located at Culham in the U.K. and has been in operation since 1983. JET was established as a joint undertaking under the Euratom Treaty in which all Member States participate as well as Sweden and Switzerland. In 1996 JET will operate using a mixture of deuterium and tritium.

The very presence of nuclear material calls, as already mentioned, for strong safeguards and non-proliferation regimes. Such safeguards and non-proliferation regimes apply in the European Union in accordance with the Euratom Treaty and the Commission is responsible for their implementation.

Nuclear material imported into, produced, used or stored in, or exported from the European Community is subject to international nuclear non-proliferation and safeguards regimes. Within a multilateral framework, Member States of the European Union, and in some cases the European Community itself, are parties to the following:

- the Treaty on the Non Proliferation of Nuclear Weapons (NTP);
- the international guidelines for nuclear suppliers (INFCIRC 254 as amended). These include the requirement for full-scope IAEA safeguards in case of nuclear exports which the European Commission itself also follows (e.g. for exports from the Joint Research Centre);
- the international Convention on the physical protection of nuclear material (which entered into force in 1987) to which the European Community is also party; such an instrument is, of course, necessary to help in combating illicit traffic of nuclear material;
- moreover, there are three safeguards agreements in force with the International Atomic Energy Agency (IAEA) to which the European Community is a party i.e. INFCIRC's 193, 263 and 290 respectively with Euratom non-nuclear weapon states, the UK and France.

In addition to the instruments already noted, the following apply within the Euratom Community:

- the provisions of the Euratom Treaty (particularly Chapter VII - safeguards) - to all civil use of nuclear material;
- the specific obligations arising from the terms of nuclear agreements between the European Community and third countries such as the USA (1960 agreement and amendments), Canada (1959 agreement and amendments), Australia (1981 agreement), for material falling under those agreements;
- the safeguards obligations stemming from other Community agreements and arrangements. In addition some Member States have bilateral agreements for some activities, which are fully compatible with the application of the Euratom Treaty.
- The above apply according to the provisions of each instrument and, as the case may be, to nuclear items other than nuclear material.

NON-PROLIFERATION

As regards the nuclear suppliers guidelines, the parties to those guidelines adopted (at the plenary IAEA meeting in Warsaw in April 1992) an export control regime covering exports of nuclear-related dual-use equipment, material and technology. These dual-use items are listed in an annex to a new set of guidelines which apply to exports of such goods and technologies.[2]

Euratom safeguards are carried out by the Euratom Safeguards Directorate based in Luxembourg. Euratom inspectors work in cooperation with IAEA inspectors in implementing the IAEA/agreements in the European Union.

With respect to the application of the provisions of INFCIRC/193 the Commission and the IAEA concluded in April 1992 a new partnership approach. This was to improve cooperation during the planning of and carrying out of inspections to enable the IAEA to economize resources in the non-nuclear weapon States of the Community and take account properly of the Euratom regional safeguards system. The reduction in IAEA inspections will reflect the European Union's very high non proliferation credentials and will enable the IAEA to continue to draw its own independent conclusions.

At international level, and as a result notably of the events in Iraq, the IAEA Board of Governors adopted measures in line with proposals made inter alia by the

2 *The nuclear dual-use regime was published as IAEA document INFCIRC/254/rev.1/part 2 in July 1992.*

Member States of the European Union for strengthening safeguards by improved reporting. The work carried out under the IAEA tasks called '93+2' promises to further strengthen the international non-proliferation regime and the Commission is looking forward with interest to the resulting proposals.

With respect to CIS, the Commission is a party to the International Science and Technology Centre (ISTC) agreement and in this context is moving forward with a proposed project on the civil use of ex-military nuclear material.[3]

At international level a number of other important proposals in the nuclear non-proliferation area are also being pursued such as the

- International Management of Plutonium
- the comprehensive test ban Treaty
- the prohibition of production of fissile material for nuclear explosive purposes.

These are expected to lead to important developments.

The Conference of the parties to the Treaty on the non-proliferation of nuclear weapons (NPT) took place in the Spring of 1995 in New York. The Conference bore the responsibility to decide the extension of the Treaty. The European Union has called for the indefinite and unconditional extension of the NPT as indeed has the Russian Federation. The European Union is working steadfastly towards this goal. It further encourages all States that have not yet done so to accede to the NPT and bring into force thereunder a safeguards agreement with the IAEA.

As can be readily observed from the foregoing description, the safeguards and non-proliferation credentials of the European Union are of the highest order. This means that full confidence may be placed in these credentials by external suppliers of nuclear material. Chapter VI of the Euratom Treaty stipulates that the supply of ores, source materials and special fissile materials shall be ensured in accordance with the provisions of the Chapter by means of a common supply policy on the principle of equal access to sources of supply. For this purpose the Euratom Supply Agency was set up with a right of option over nuclear material produced in the Community and an exclusive right to conclude contracts for supply.

The non-proliferation safeguards and nuclear material supply regimes in the Community are, of course, duly reflected in nuclear agreements in these areas made between the Community ad third countries.

THE EU'S MAJOR PARTNERS IN THE CIVIL NUCLEAR FIELD

The Community has, in the past, concluded a number of important agreements with third countries, examples being those with the USA, Canada and Australia. The agreement with the USA expires on 31.12.1995 and a new agreement was recently been finalized. An agreement between the European Community and Russia, known as the Partnership and Cooperation Agreement has also entered into force. It is in this context that E.C. and Russian negotiators are also seeking to complete the text of a nuclear agreement which is intended to deal specifically with trade in nuclear material.

It is furthermore expected that negotiations will open for Euratom nuclear agreements with other Republics of the C.I.S. in a not too distant future.

In all these agreements including those concluded bilaterally by Member States, it is incumbent on the Commission to ensure that the provisions of the Euratom Treaty are respected, and that the free movement of material in the single market is ensured.

As can be seen, the Commission's role is both to implement current tasks and to provide for future development. As the Russian Federation knows full well, the world has changed dramatically in recent years, nowhere more than as regards the nuclear area, as progress in cooperation especially with the Russian Federation illustrates most vividly. The need for strong and universal safeguards and non-proliferation regimes remains crucially important for the entire international Community.

3 *See* Energy in Europe *N° 25, p. 61*

ESTABLISHING RATIONAL ENERGY PLANNING TECHNIQUES IN THE EUROPEAN UNION - THE ROLE OF INTEGRATED RESOURCE PLANNING

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On the 20 September 1995, the European Commission adopted a draft Directive aimed at requiring electricity and gas distribution companies to adopt new planning techniques (such as Integrated Resource Planning) which make direct economic comparisons between investment opportunities in increasing supply and in reducing demand. The proposal which the Commission has made is perfectly compatible with its Internal Market proposals and will, if implemented, imrpove the economic efficiency of the electricity and gas distribution sectors. The Commission proposal envisages the development of an energy services market where consumers' energy needs are provided for with perhaps lower commodity consumption. In all cases the Commission suggests only economically justified investments and leaves the question of energy taxes and energy efficiency subsidies to individual Member States.

INTRODUCTION

In September 1986, the Council of Ministers set a series of energy objectives to be achieved by 1995[1]. Among these was energy efficiency objective of improving the energy intensity of final demand (measured as Final Energy Consumption/Gross Domestic Product) by at least 20%. This figure had been set following a similar energy efficiency performance by the EUR-10 during the period 1973-1986. This Community drive to a more rational use of energy was given a new dynamic by the Council's decision in 1990 to set a CO_2 stabilisation target for the year 2000. A Community's response to contribute to the attainment of the Council's energy and CO_2 objectives was the launching in 1991 of the SAVE programme[2] aimed at re-establishing energy efficiency as a priority for both the public and the private sector. The core of the SAVE programme is the removal of the major institutional and market barriers which prevent the necessary energy efficiency decisions and investments that could bring about considerable energy and environmental benefits. The communication proposing the SAVE programme[3] re-stated the Commission's view that the energy utilities have a vital role to play in assisting the Community achieve its ambitious energy and environmental objectives by adopting planning systems which treat energy efficiency investments on the same basis as energy supply investments. The Community's CO_2 strategy document[4] underlined this effort by engaging the Commission to submit to Council a Communication on this subject.

This expanded role for the utilities is being suggested at a time when the utility sector is undergoing a significant examination of its own strategic position. The opportunities presented by the Community's internal market activity, which will give a new dynamic to EC industry by removing barriers to intra-community trade and by increasing competition in traditionally monopolistic industries, will assist

[1] *O.J. No. C 241 of 25.9.1986.*

[2] *O.J. No. C 23 of 30.1.1992.*

[3] *COM (90)365 final of 13.11.1990.*

[4] *COM (92) 246 final 1.6.1992*

utilities to develop strategies which are oriented towards satisfying customers while at the same time improving the operational efficiency and the integration of the supply and demand elements of their business.

This communication will propose that the use of new planning techniques will produce considerable economic, energy use and environmental benefits to the utilities, to consumers and to society as a whole.

CURRENT ISSUES

The utilities find themselves confronted by a new series of challenges. Firstly there is the question of limits to growth. A Commission study has estimated that EC electricity generating capacity will show a 27% increase in the period 1995 to the year 2005[5]. If this Commission forecast is correct, the rise in CO_2 emissions associated with this capacity increase will be of the order of 155 million tons. In the gas sector consumption will increase by some 35% in the same period which will lead to a CO_2 increase of 220 million tons[6][7].

However, there are several constraints on this future supply picture. The requirement for capital for new energy supply projects is significant. New energy supply investments compete directly with for demand reduction investments for the net industry capital requirement. Theerfore, it is important that energy projects (on either the supply or demand side) aimed at meeting demand be ranked in an economic manner so that the net capital available to the industry be optimally employed. Secondly, there is a more acute awareness of the environmental consequences of new energy supply facilities. This factor has led to a dearth of suitable sites and excessively long planning delays for proposed new capacity. These events are taking place against a scenario of increased construction costs. This process adds significantly to the heavy front end loading for the costs of new capacity with ultimate higher cost recovery requirements. The end result will be higher energy prices for the consumer.

Investment in new capacity by utilities has several societal effects. Firstly, such investments suck large amounts from an already restricted capital pool. In a period of severe capital shortage, significant demands from the energy supply sector will only exacerbate an already difficult situation. Secondly, the EC is a major net energy importer. A concentration of effort on increasing the supply of energy without due consideration of demand reduction will increase the EC's consumption and thereby increase the risks to the economy of future energy supply disruptions. There is also the argument that the EC's external energy dependency should make it more fastidious in ensuring the optimum utilisation of finite energy resources. Since new planning techniques aimed at removing barriers to energy efficiency investments also assist electricity and gas distributors to develop economically efficient energy services, the application of such techniques will, in fact, improve the competitiveness of the EU economy. Without putting the energy sector at a disadvantage it will be possible through cost-effective measures on the demand side which increase the energy efficiency in industry and the tertiary sector to realise energy savings which lower energy costs in production and, hence, improve directly and indirectly the price competitiveness of the EU economy. Additionally, lower expenditure in the household sector for energy services could lead to a positive purchasing power effect stimulating macroeconomic demand..

The achievement of the Council's CO_2 reduction objective, which aims at stabilisation of total CO_2 emission by the year 2000 at the 1990 level for the Community as a whole, will have consequences for the energy supply industry. Measures taken by energy distribution companies towards more energy efficient end-use will be regularly reported in the national programmes forwarded by the Member States to the Commission under the monitoring mechanism of Community CO_2 and other greenhouse gas emissions[8]. If the Community is to achieve its environmental objectives there is a need for a mutually reinforcing packege of various instruments, as emphasised by the Commission Communication[9] which was endorsed by the Energy/Environment Council of 13 December 1991. Therefore, besides instruments such as the proposed carbon/energy tax, which provide a general market incentive to reduce CO_2 emissions and increase energy efficiency, there is a need for sectoral measures designed to remove specific barriers to energy efficiency improvements. Electricity and gas distribution companies, therefore, must be specifically encouraged to play their full role in adapting their strategies to exploit economic energy efficiency opportunities and contribute to lower CO_2 emissions.

[5] *Energy in Europe, Special Issue- A View to the Future, September 1992.*

[6] *This figure includes 114 million tons of CO_2 already counted in the generation sector.*

[7] *Directorate-General for Energy, Consequences of the Proposed Carbon/Energy Tax, February 1993.*

[8] *Council Decision 93/389/EEC.*

[9] *SEC(91)1744 final of 14 October 1991.*

The Commission has consistently pointed out the disparity between the rate of return required by the utilities for energy supply projects and the rate of return required by consumers for energy demand reduction projects. Utilities generally accept rates of return on generation projects in the area of 5% real. This contrasts with consumers requirements of rates of return in excess of 35% of energy demand reduction projects. While such varying rates of return might be acceptable in widely differing industries, it is not consistent that energy suppliers and energy consumers should have such diverging financial criteria. Were consumers to adopt the utility's rate of return criteria, most energy efficiency projects would be accomplished by simple market mechanisms. Conversely, were the utilities to adopt the consumer's rate of return criteria new capacity would lead to enormous fluctuations in energy prices because of the shorter payback periods required. Since most consumers have neither the information nor the finance to make a rational energy consumption decision, planning techniques employed by the electricity and gas distributors should in some way reflect the disparity in supplier's and consumer's decision criteria.

The completion of the Internal Energy Market has as its objectives "greater integration, free from barriers to trade of the internal energy market with a view to improving security of supply, reducing costs and improving economic competitiveness"[10]. Improved security of supply, cost reduction and increased competitiveness are the natural consequences of the adoption of mechanisms which evaluate investments (whether in the areas of energy supply or demand reduction) and which develop economic optimums. A further impact of the Internal Energy Market will be to focus the mind of the energy supply industries on the needs of the consumer. The average energy consumer does not buy Kwh or cubic metres of gas. He buys the services (heating and cooling, lighting, motive power) which are the consequence of his energy purchases. The utilities have traditionally considered themselves as suppliers of a commodity, electricity or gas, while the consumer considers himself as the purchaser of a service. The traditional role of the electricity or gas distributor, who cares little for how the consumer uses its product beyond the meter, militates strongly against the rational use of energy. Electricity and gas distributors need to set strategic goals which concentrate more on satisfying the needs of the consumer in regard to servicing rather than simply responding to future demand forecasts.

[10] *COM(90)124 final, 18.5.1990.*

THE WAY FORWARD

The traditional role of the integrated utility in the generation, transmission and distribution of energy is already well established. However, the electricity and gas distributors, whether integrated or independent, have all the prerequisites to respond to an expanded role as a provider of energy services to its customers. Firstly, the distributor is the repository of up-to-date information on various energy technologies and possesses the requisite technical knowledge (which the consumers lack) to assess alternatives and to assist in rational energy demand reduction decisions. Secondly, distribution companies have access to finance. Since finance very often impedes consumers from making economic energy efficiency decisions, the distributor is ideally positioned to assist in overcoming this barrier. Finally, distributors have direct access to consumers allied to the marketing skills required to maximise the impact of rational energy efficiency programmes. The success of the electricity and gas distributors in this new expanded role has already been demonstrated in the United States, Canada and to a limited degree in the Community.

The application of modern planning techniques alters the role of the distributor from that of a commodity supplier to that of a service company. However, in general profits generated by distribution companies are based on the concept that the higher the volume of the commodity (electricity or gas) which can be sold, the greater the company profits generated. Therefore, the traditional commodity based distributor may be tempted to resist applying novel planning techniques which incorporate investment in demand reduction because, if lower volumes of sales result from the process, company profits might also be reduced. This rather limited view neglects the fact that the distributor will also make a profit from its energy efficiency operations and will gain economic advantage from the avoided cost associated with new capacity provision, provided electricity and gas regulations do not contain any obstacles for treating supply side and demand side options on an equal basis. Distributor profit under a novel planning scenario would be made up of two elements, one derived from the sale of the commodity (whether electricity or gas), and a second derived from the sale of energy services which is the real requirement of the customer.

Some studies carried out for the Commission point out the importance of regulation in establishing modern utility planning techniques.[11]. Certainly experience in

[11] *The Application of Least Cost Planning in the European Community, a study prepared for the Commission by the Association for the Conservation of Energy, 1989.*

the United States would tend to confirm this assertion. Regulation was certainly an important factor in pushing US utilities to adopt modern planning techniques in place of traditional planning methods. However, utilities who embraced the new techniques and who saw the shareholder, consumer and societal benefits which flowed from the application of new planning techniques are now among the most enthusiastic proponents of the mechanism. Many US utilities who are not subject to regulation concerning the use of modern utility planning techniques have also adopted the methodology simply because it represents a tool for developing strategic responses which are more in line with current market conditions. There has therefore been a phased evolution of modern utility planning techniques in the US which has produced a learning curve from which EC utilities wishing to adopt the concept can benefit, provided existing legislation in Member States do not contain any obstacles for doing so.

The proposal for a draft directive in the area of novel planning techniques in the electricity and gas distribution sector is consistent with the current internal market energy proposals since the onus for efficiency efforts is placed only on that element of the process which has direct contacts with the majority of customers. The purpose of the implementation of new techniques is to provide the distribution sector with the optimum economic mix of inputs (including demand side management) to satisfy demand. Therefore the directive will apply equally to situations where production, transmission and distribution are integrated and non-integrated.

In order to make modern utility planning techniques adaptable to EC market conditions Member States must devise mechanisms which decouple the volume of commodity sales (either electricity or gas) from profits. If this cannot be accomplished utilities will continue to concentrate on marketing and selling their 'commodity' instead of energy service. Gaining a return from energy efficiency activities is central to the distribution utilities embracing their new role as energy service suppliers and not simply 'commodity' traders. There are four steps which the Member States can take to encourage utilities to adopt new planning techniques:

- examine with the distribution utilities their role in achieving energy and environmental goals. Some Member States (notably Denmark and Holland) have already launched environmental plans which calls on utilities to reorient their market strategies towards demand reduction programmes rather than new capacity. Other Member States should follow this lead by creating a strategic partnership between Government and utilities aimed at attaining agreed energy use reduction targets with consequent CO_2 reduction targets.

- institute planning approval mechanisms for new capacity which insist that an integrated resource plan be drawn up as part of the planning procedure. While regulation certainly spurred the use of new planning techniques in the US it is to be hoped that EC utilities will draw on this experience and embrace the economic rationale behind these new techniques without regulation, but where this is not the case some State encouragement may be necessary.

- set up mechanism which permit the distribution companies to gain economic advantage from carrying out economic demand side management programmes. This will inevitably take the emphasis away from profit being associated with volume of sales and puts a premium on the provision of energy services. In order to convince electricity and gas distributors of the rationale of selling less 'commodity', yet continuing to make profits, public authorities will have to examine billing structures in order to permit distributors to run 'profitable' energy efficiency programmes. Therefore, a dialogue between the state and the distribution companies will be necessary to develop concepts of distributor service which can be charged to the consumer in the same way that the distributor now charges for the commodity. This process will not necessarily be easy but it is encouraging that several Member States are some way along this road and other Member States may benefit from this very valid experience.
- ensure that, whichever rules will be adopted for internal market liberalisation (including capacity tendering), demand side options are able to compete on equal footing with supply side options in meeting future energy demand.

WHAT WILL THE POSSIBLE IMPACT OF THE ADOPTION OF NEW UTILITY PLANNING TECHNIQUES IN THE EUROPEAN UNION BE?

In 1987 the IEA carried out a detailed examination of the possible savings in the electricity sector[12]. Although the savings potential varied with end-use (lighting, motive power, heating and cooling, etc.), the Agency estimated that overall savings of 15-20% in electricity end-use could be accomplished by investments in energy efficiency which had payback

[12] *De Almeida, Annibal, LCP in the European Community 1992.*

periods of three years or less. Although greater savings might be accomplished if longer payback periods were accepted, it might be more prudent to assume that aggressive demand-side management programmes could lead to overall electricity savings in the region of 10-20%. Such a level of savings would have the following consequences:

- a reduction of 4-8% of present consumption in primary energy consumption. This could lead to savings of 10-20 billion ecu in fossil fuel imports.
- an avoided electricity capacity of 40 000-80 000 MW, which would lead to a capital investment saving of 80-160 billion ecu (assuming an average capital cost of 2 000 ecu/kW for generation, transmission and distribution).

- a substantial reduction in the quantity of pollutant emissions, in particular a reduction of over 100 million tons of CO_2. The actual level of CO_2 savings is dependent upon the avoided generation mix.

THE COMMISSION PROPOSAL ON INTEGRATED RESOURCE PLANNING

The Commission proposal requires Member States to undertake a series of initiatives aimed at ensuring that utilities avail of the economic opportunities available from the provision of energy services (including demand side management).
The concrete steps that must be taken are:

a) the establishment of procedures whereby electricity and gas companies periodically present integrated resource plans. The integrated resource plan should evaluate all resource alternatives (including demand side management) on an economic basis.

b) the formulation of programmes which will ensure that economic energy efficiency measures identified by the integrated resource plan are undertaken.

c)ensuring that mechanisms are established which permit electricity and gas distribution companies to recover expenditure on energy efficiency programmes provided to consumers. Such mechanisms should ensure that distribution companies which undertake demand-side management programmes are not net revenue losers.

d) encouraging electricity and gas distribution companies to:
- set up comprehensive information programmes aimed at informing consumers on rational energy efficiency choices;
- provide, where necessary, incentives to consumers to carry out energy efficiency investments;
- set up demand-side management programmes targeted at low income energy consumers who spend a disproportionate amount of their disposable income on energy;
- invest in energy efficiency through the creation of subsidiaries offering third party financing facilities to consumers, or support the efforts of existing third party financing companies

e) promoting the integration of Demand Side Management options into capacity tendering procedures where these exist.

It should be stressed that the proposal gives a wide degree of descretion to the Member States as to how they accomplish the above requirements. The Commission recognises completely the very heterogeneous nature of the electricity and gas industries within the Member States and is therefore cognisant of the need for different modalities in different legislative situations. The proposal therefore sets out a framework aimed at instituting planning techniques which take into account all the possible economic opportunities in the utility sector.

CONCLUSION

The market for both electricity and gas has been estimated to increase significantly over the next twelve years with consequent impacts on the EC security of supply situation and on the environment. Traditional planning methods which concentrate on satisfying demand by increasing capacity no longer respond to market and societal conditions. New planning methods, which make rational economic assessment of the relative merits of new supply capacity and demand reduction programmes, can only lead to a maximisation of utility, customer and societal benefits. It is therefore important that both the Member States and the utilities promote the use of new techniques which have already been widely accepted in the United States, Canada and Australia. The EC has taken some initiatives in promoting these techniques and to date the response from the utilities has been positive. Within the framework of the SAVE programme twenty-five least cost planning/demand side management pilot project have been supported. Further steps will need to be taken by the Member States which will permit the utilities to expand their role to that of energy service companies with consequent economic and environmental benefits. ◻

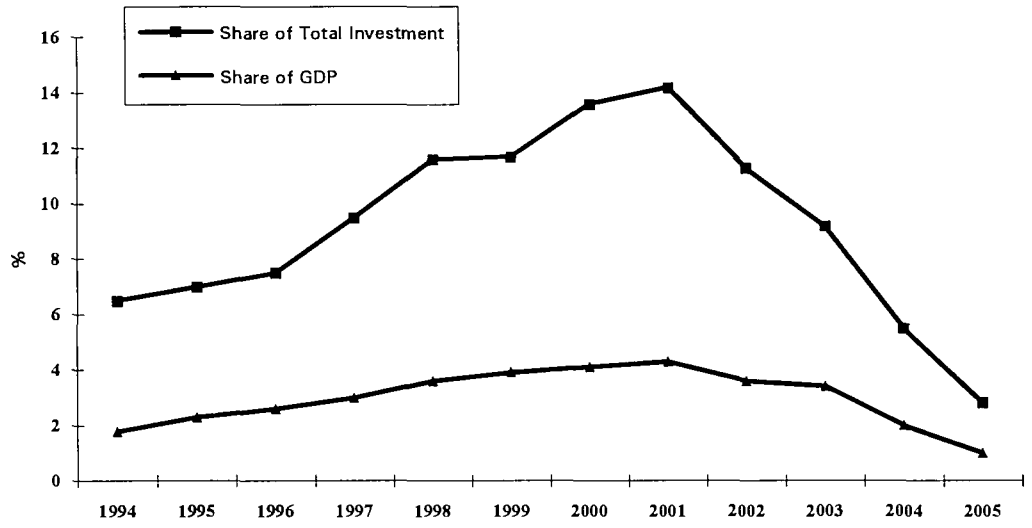
ELECTRICITY AND SUSTAINABLE DEVELOPMENT

BY P. Bertoldi, DG XVII
Electricity Unit

THE IMPORTANCE OF ELECTRICITY

We are all aware of the vital role of electricity for our society; indeed electricity is at the core of our economic and social activities. With Edison's invention of the light bulb and the ensuing rush of electric-based technologies that followed - from electric motors, telephones, and radios to televisions, computers and laser technologies - the way human beings live and work has been completely transformed. Electric lighting is found in virtually every household throughout the world; electricity is also essential for all modern communications and computing equipment as well as for home electronics entertainment goods. Electricity and its applications have become one of the drivers of progress around the world. Indeed it is sometimes said that electricity is at the crossroads of energy supply, since it can convert any source of energy to a form which can be used in every kind of application. On the other hand the electricity revolution has just started. In the future, new and innovative electricity-based technologies will certainly further transform our lives. Electricity will provide new ways to improve productivity and product quality, and will enhance the ability to communicate. More and more electricity should continue to improve comfort and quality of life.

Figure 1



In 2001, investment in powerplants will account for nearly 14% of total investment in the Philippines and 4% of national GDP. Both measures are extremely high for a developing country.

The great diversity of electricity use means that it is the form of energy with the fastest rate of growth in demand, particularly in developing countries. Although electricity is present in every nation around the world, we should not forget that today 2 billion people, almost 40% of the world population, still have no access to electricity. Therefore we should expect a fast increase in such demand from developing countries. In Asia, for example, electricity demand is growing at 8 % a year. This should be compared with Western Europe, where recent reports indicate that electricity demand is forecast to rise by about 40% between the years 1990 and 2010 - an average of 1.8% per year. However it is interesting to note two important trends for the Western Europe. The first is that total energy consumption has tended to remain static or grow only slowly over the last decade, while electricity consumption has continued to grow at about 3 % or more a year. This indicates an increasing role for electricity in providing the energy requirements for our society. The second is that the electricity demand increase will be lower on average than for the previous 20 years while economic growth will continue at the same rate. This demonstrates in particular the more and more efficient ways in which electricity will be used.

THE ENVIRONMENT

We are also all aware of the increased importance of environmental protection for our society. The environment is one of those rare political issues which tends to force themselves onto the agenda through grass roots public concern, rather than coming directly from political agendas. It is no fad - it will not go away, since every one of us is vitally concerned to maintain our planet in a healthy state, for ourselves and for future generations. The increased concern for the environment has a major impact on electricity. All sectors of the electricity industry are facing this challenge : production, transmission and distribution. This not only refers the debate surrounding nuclear safety and nuclear waste or to the issue of reduction of greenhouse gases, but rather every type of electricity generation, the siting of new power stations and transmission lines etc. Some Member States are already experiencing difficulties in constructing new power plants and transmission line, often due to the activities of environmental activist groups.

Electricity generation accounts for about 35% of total primary energy consumption in the European Union and about 30% of man-made CO_2 emissions, but is also responsible for SO_2 and NOx emissions. The reason is partly that electricity is a derived energy, so that for the most part, other fuels are consumed to produce heat and then generate electricity, with an overall efficiency which for thermodynamic reasons is on average only about 35%. Moreover, certain energy sources, such as hydropower and nuclear energy, can in practice only be exploited via the electricity route.

Because of the greenhouse effect and the need to limit CO_2 , SO_2 and NOx emissions to the atmosphere, and also given the cost, difficulties and environmental impact of building new capacity it is clear that action must be taken to stem the growth in electricity demand. The electricity industry itself has contributed to reduce SO_2 and NOx emissions, and thanks to the introduction of new technologies at the production stage, and a more balanced fuel mix (nuclear, natural gas) good results already have been achieved, although some technologies used may have actually reduced overall efficiency and therefore contributed to higher CO_2 emissions. The efficiency of electrical generation is also being continuously improved (up to 60% in combined cycle operation) and is introduced in particular through new gas-fired plant; special mention should also be made of cogeneration, which contribute to more rational use of the primary energy sources. Certainly renewable energy sources have also a very important role to play, thanks to almost zero gaseous emissions to the atmosphere, and of course they are inexhaustible. But for the time being only hydropower can make a significant contribution, currently providing 18 % of the world's electricity.

CO_2 emissions to the atmosphere, the major cause of climate change, are a global problem and therefore measures to limit them must be adopted world-wide. This is of particular importance for developing countries such as India and China; these countries face enormous growth in electricity demand, and unless measures to enhance efficiency in the supply and use of electricity together with more environmentally friendly technologies are introduced urgently, the consequences in terms of pollution are potentially catastrophic.

EFFICIENT USER OF ELECTRICITY : THE WAY FORWARD

Electricity is not an end in itself, in fact it is less a "final product" than an "intermediate product". What the consumer, the industrialist, or the office worker wants is heating, or cooling, or motive power, or transport, or lighting. Yet, perhaps rather surprisingly, the efficiency (the amount of energy actually consumed with which each of these services can be provided) can vary enormously. Efficient use of electricity is therefore one of the key factors, which can make electricity contribute to a better environment.
Energy efficiency has many virtues : it slows as well as the pollution; the depletion of finite resources; reduces

dependence on external energy supplies; not to mention the purely economic advantages. Despite all this, the market mechanism above bring about the economically optimal level of investment in energy efficiency. The reasons for this are well known, but it is useful to look at some of them again. In the electricity sector, the main responsibility of the supplier is to meet future demand. If this is growing, new generation capacity is required the cost of which will only add imperceptibly to the price of electricity, even if a new plant is substantially more expensive. Thus the price the consumer pays is only weakly related to the cost of new electricity supplies.

Furthermore, even this incremental cost usually excludes the externalities associated with electricity production, such as pollution and the depletion of a finite resource. In fact there is considerable potential for measures to save a KWh, which are cheaper than building new capacity to generate an extra KWh. Part of the reason for uneconomic decisions is that decision-making is dispersed; normally no single entity is responsible for comparing and implementing actions based on new energy supply or on energy savings measures as alternatives. On the consumption side, for example, the consumer is often largely unaware of the costs and causes of his electricity consumption. How many domestic consumers, for example can accurately say where their electricity is consumed ? As a matter of fact the largest single electricity-consuming domestic appliances, refrigerators are now available in models which are far more economic, at little extra cost. Indeed it is estimated that if all efficiency improvements which are economic to the consumer, that is with a payback period of three years or less, were incorporated in domestic refrigerators, almost 40 Terrawatt-hours a year of electricity could be saved in the Union, which is about the total electricity consumption of Ireland and Portugal. No generation plant has a three year payback, but because of the divided responsibilities between generator, consumer, and appliance manufacturer, the optimal investment mix is not automatically pursued.

Several studies have demonstrated that large potential exists for improving efficiency of electricity end-use and that new efficient electricity-based technologies (for example heat-pumps) could be more efficient than equivalent fossil-fuel based technologies. Moreover electricity efficiency improvement are often very economical in themselves. For example, for private consumers the extra cost for more efficient domestic appliances is more than re-paid by electricity savings over a few years; the same goes for industrial consumers : for example, new methods of induction heating in industriai processes are much more economical than traditional fossil fuel-fired heating methods.

For improving the efficiency of electricity use in particular, a Community action programme, known as PACE (Community action programme for improving the efficiency of electricity use), was adopted by the Council in June 1989. Actions under the programme are lead either by the Commission at Community level, or by the Member States, if specific to the country in question. Dramatic improvements in efficiency could be achieved in lighting, office equipment, electric motors and other end-uses of electricity. In all these areas the Commission is investigating best policy options to improve efficiency in consultation with Member States, equipment manufacturers, consumers and last but not least utilities. The question now is, how should these technological improvements be diffused through the market?

How to achieve the Market Transformation

It is widely accepted that to enhance the average efficiency of electricity-using equipment present today on the market a range of different actions is needed, in order to exploit the full energy efficiency potentials of the available technology. Market transformation in terms of energy performance is the goal of any energy efficiency action. All the various instruments (minimum efficiency standards, labelling, incentives, procurement etc.) are intended to interact and influence the market, which, as we have seen above, in the case of energy efficiency does not function well enough on its own, because of the well known barriers. Labelling actions focus customers' attention on running costs and other environmental aspects of the equipment, thus enlarging the market share of efficient equipment. To eliminate the 'bad' equipment from the market minimum efficiency standards, setting the lowest acceptable performance level, are a well known and tried method. Technology procurement (which also includes incentives aimed at both customers and manufacturers) acts on the higher end of the market by accelerating penetration of new and more efficient products into the market place.

The electricity suppliers have also a key role to play: they have the expertise, and are by definition already in contact with every electric consumer, and they could often benefit from better control of demand growth. Already some electricity supply companies have recognised this and are running demand side management programmes, for example to promote the use of compact fluorescent lamps in households.

CONCLUSION : A BRIGHT FUTURE FOR ELECTRICITY?

There are great opportunities for the electricity industry to grow while contributing to a sustainable electric system. Electricity offers the largest opportunities for efficiency improvements and therefore the increased demand which this sector will experience in the next decade should be met primarily by more rational use of electricity. Use of electricity would certainly contribute to a better environment and higher standards of living : for example the use of electric cars in urban areas, and digital networks for computerized traffic information and control (including on-board user), both could reduce innercity pollution due to conventional cars. More and more utilities should promote demand side management services, meeting consumer demand for reliable and economic cooling, lighting, heating, etc.

To deliver all its potential, electricity use should expand further, becoming available both to entire population and in all the forms needed, such as for communication, transport, domestic use and so on, but at the same time contributing to sustainable development and to a better environment.

REVISED REPORT ON THE MARKET FOR SOLID FUELS IN THE COMMUNITY IN 1994 AND THE OUTLOOK FOR 1995

BY J. Piper, DG XVII
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At the beginning of October 1995, the European Commission published its revised report on the Community market for solid fuels (hard coal, coking coal, lignite and peat) containing the final figures received from the administrations of the Member States for 1994 and the forecasts for 1995. This report is required under the terms of Article 46 of the ECSC Treaty which states that, to provide guidance on the course of action to be followed by all concerned and to determine its own course of action, the European Commission must conduct a study of market and price trends.

While the text of the report and the figures contained therein do not refer to the three new Member States, the tables attached to the report do cover all fifteen Member States for the first time. All figures contained in the following summary, however, refer only to the twelve Member States as of December 1994.

The report indicates that total primary energy demand (in terms of gross inland consumption) in 1994 remained roughly steady compared to 1993, despite the fact that industrial production grew by 4.3% and GDP grew by 2.7%. When examining the different primary energy sources, it emerges that only natural gas, hard coal and hydro saw an increase in demand, whilst lignite, nuclear and oil saw decreases. Whilst hard coal demand increased by some 1.2%, lignite dropped by more than 6%, causing the gross inland consumption of solid fuels as a whole to fall by 0.6 % compared to 1993. The estimates for 1995 suggest a rise of around 2% in total energy demand, assuming normal weather conditions, with an expected growth in GDP of the order of 3.1%. Lignite and hydro are likely to be the only primary energy sources to witness a fall in demand, with hard coal expected to remain roughly steady and gas to see the largest increase.

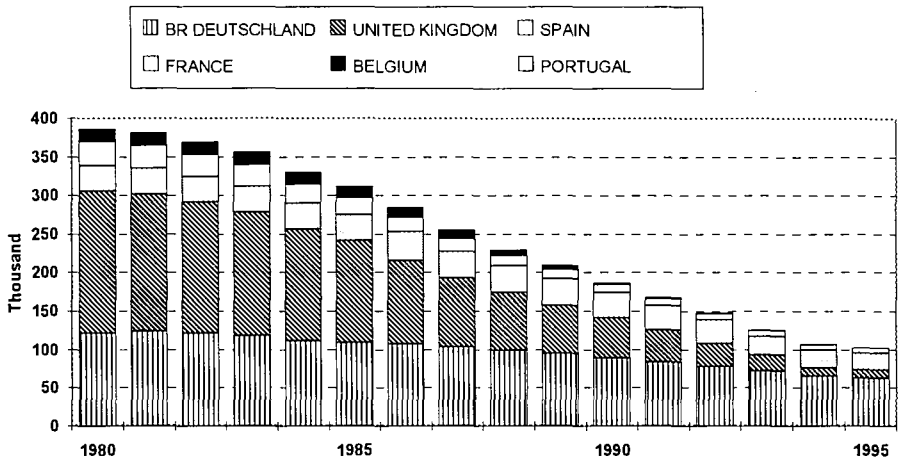
The policies aimed at restructuring, rationalizing, modernizing and to improve the competitiveness of the Community coal industry continue to reduce indigenous hard coal production. Total production in 1994 was 131.4 million tonnes, which was a reduction of 27.2 Mt compared to 1993. For 1995, current forecasts indicate a certain stability as production is only expected to decrease by 0.1 Mt to reach 131.3 Mt. Revised forecasts for production during 1995 have been adjusted upwards by 0.9 Mt, mainly as a result of the higher output expected in Germany and, to a much lesser extent, in France.

Production figures for lignite and peat have also been revised downwards by Germany, France and Greece for 1994 and revised upwards slightly by Germany and France for 1995. For 1994, production was nearly 1.5 Mt less than expected, at 282 Mt, whilst the 1995 estimates have been increased by some 245 000 tonnes to 269.2 Mt.

The final figures for Community coke production for 1994 were, at 38.3 Mt, some 0.6 Mt higher than previously expected. While the latest estimate of 37.3 Mt for 1995 represents a slight increase on the previous forecast, it still confirms the general downward trend in coke demand caused by technological changes being introduced into blast furnaces (pulverized coal injection) and by the increasing use of electric furnaces.

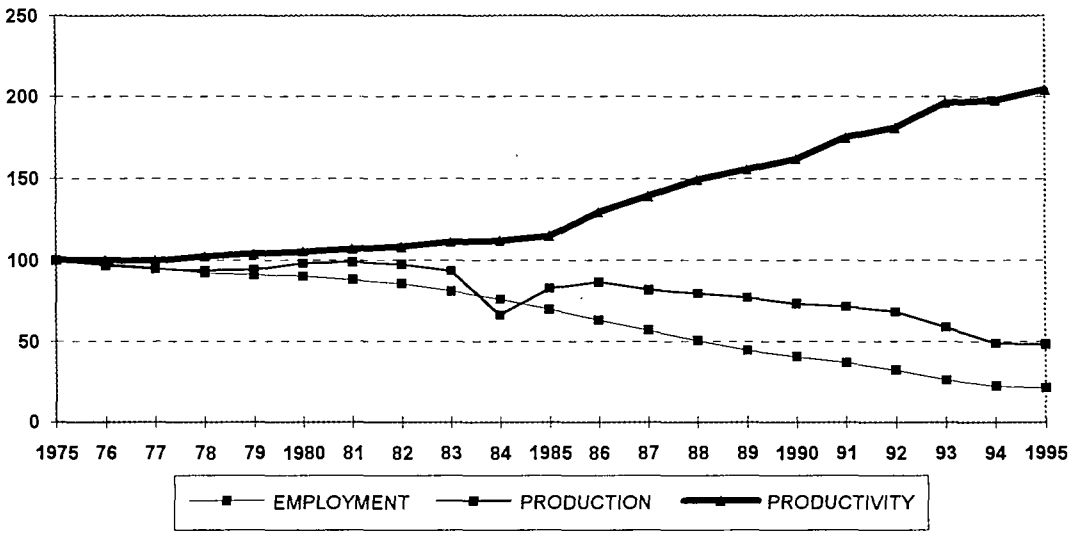
The decline in the annual average Community underground workforce during 1994 was less than previously estimated due to a revision upwards of the figure for Spain. However, over 16 000 underground jobs were still lost during 1994 and 1995 is expected to see a decrease of some 6 500 underground jobs to a new low of just under 103 000.

Figure 1 : Personnel employed Underground



Productivity continues to increase, a logical consequence of the restructuring measures adopted in all the coal-producing Member States which include closure of the least profitable and generally least efficient pits. For the Community as a whole, productivity could increase from 762 kilograms per underground worker per hour in 1993 to around 800 in 1995

Figure 2 : Trend fo the Coal Industry (EUR-12) : employment, production and productivity



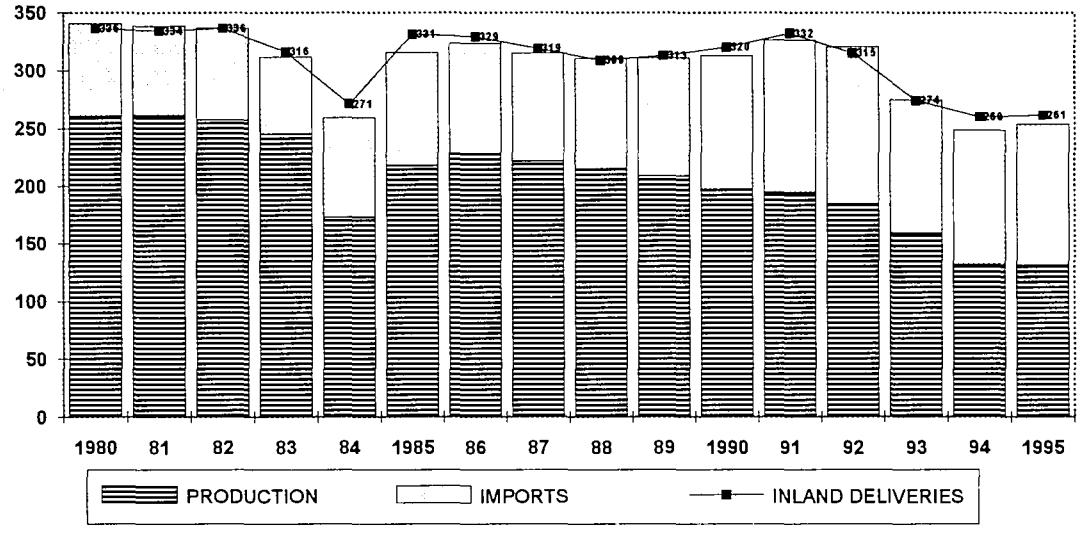
The decline in hard coal deliveries within the Community in 1994 was finally less severe than originally forecast. From a level of 272.8 Mt in 1993, deliveries fell to just under 261 Mt in 1994, more than 1 Mt higher than previously estimated. The figures for 1995 are similarly slightly higher, with internal deliveries estimated at 261.5 Mt instead of 260.8 Mt. The decline in deliveries would appear, therefore, to have bottomed out.

The decrease during 1994 was due to lower demand from all the consumer sectors, the only exception being for thermal coal deliveries to the steel industry and "other industries". The most marked reductions were in deliveries to public power stations and to cokeries.
With respect to coal delivered for public electricity generation, the most significant decreases have been in the United Kingdom and France. On the other hand, increases were to be seen in Germany, the Netherlands and Italy. Total stocks at power plants decreased by

more than 19 Mt during 1994, which implies that actual consumption of hard coal by the public electricity generating sector during 1994 was slightly higher than in the previous year.
The main reason explaining this trend is to be found in the increasing demand for electricity and lower production from nuclear plants. This gap has been covered by higher production from hydropower and conventional thermal power stations. However, when examining the latter, electricity produced from lignite, oil and oil equivalents fired plants decreased whilst production from hard coal and particularly natural gas fired plant increased.
For 1995, by sector, forecasts are for an overall increase in hard coal deliveries, the two exceptions being the two main consuming sectors: public power stations and cokeries. However, the anticipated rates of decline affecting these two sectors are rather small : -1.2 Mt (-0.8%) for power stations and -0.1 Mt (-0.1%) for cokeries.
By country, the decrease is expected to be particularly marked in the United Kingdom, with a decline of some 3.1 Mt (-4.7%), followed by Denmark with 0.8 Mt (-7.0%). On the other hand, most of the remaining Community countries are expected to increase their deliveries, the most marked rise being that of Italy with 1.3 Mt.
With respect to deliveries of coal to public power stations, the main decrease, of some 5.1 Mt (-10.9%), is expected in the United Kingdom. The other marked drop, of 0.8 Mt (-6.9%), is expected in Denmark. On the other hand, Spain is expected to increase its deliveries by 1.2 Mt and Italy by 1.1 Mt. Other variations, mostly upwards, are lower than 1 Mt.
Bearing in mind the volume of deliveries forecast for 1995, further significant tonnages could be taken from stocks at the public power stations.

With respect to the public power generation sector, the main fact to highlight is the change registered in net installed generating capacity. By the end of 1994 total generating capacity was 463 GW compared to 459 GW at the end of 1993. The main variations in maximum net generating capacity were in thermal monovalent plants, with a drop of 2.3 GW in hard coal-fired stations to 47.3 GW and the rise of 6.4 GW in natural gas-fired-stations to a new total of 34.3 GW.
Final figures for imports from third countries in 1994 indicate that the recovery was less strong than previously anticipated, with imports increasing from just under 116 Mt in 1993 to 117.3 Mt, instead of to nearly 120 Mt. This has been the logical consequence of the slight increase in demand for hard coal and the huge tonnages taken from existing stocks, even though the cutback in Community coal production for the year was 27.2 Mt. By type of coal, there was a significant increase in the volume of steam coal , whilst coking coal saw a reduction.

Figure 3 : Trend in the Production and Imports of hard Coal



As regards suppliers, the most marked change in 1994 was in the case of the United States with a decrease of 4.4 Mt to 27.1 Mt. The United States lost its leading place as main Community coal supplierto South Africa. The CIS also lost market share. All the other main coal exporters saw an increase in the level of exports to the European Union during 1994 compared to 1993.
For 1995, forecasts point to an increase in imports, of about 5.0 Mt (4.3%) to 122.3 Mt. As deliveries are expected to increase only very slightly, this increase is

accounted for by the anticipated slight cutbacks in production and a reduction in the amount taken from stocks, compared to 1994. By Member State, only Denmark forecasts a decrease in imports, whilst all other Member States foresee an increase.

Average CIF (cost, insurance, freight) prices for Community steam coal imports from third countries for power stations in 1994, all countries all origins, in US$, decreased to 43.71 US$ per tce (-2.5%) compared to the average price in 1993 of 44.81 US$ per tce. Total imports of steam coal for use in public power stations totaled some 58.4 Mt compared to 55.9 Mt in 1993. The share under long term contracts accounted for some 72%, which was some 13 percentage points higher than in the previous year.

In 1994, however, the combination of strong demand mainly in the Far East and supply problems in Australia, South Africa, Russia and Colombia, firmed up the world market. At the same time, freight costs also increased. By the end of the year this had resulted in a situation in which most coal for 1995 was committed under contract. Very little coal, especially of the higher qualities, was available on the spot

Table 1 : Main features of the Solid Fuel Market (Million tonnes)	1994 previous	1994 latest	1995 previous	1995 latest	1995 latest/ previous (%)	1995/94 (%)
HARD COAL						
Resources						
- Production	132.0	131.4	130.4	131.3	0.7	-0.1
- Recoveries	1.5	1.7	1.7	2.4	45.2	43.8
- Imports from third countries	120.0	117.3	122.4	122.3	-0.1	4.3
Total	**253.5**	**250.4**	**254.4**	**256.0**	**0.6**	**2.2**
Deliveries						
- To coking plants	50.4	50.2	50.9	50.1	-1.5	-0.1
- To power stations *	172.0	174.7	172.2	173.7	0.9	-0.5
- To others	37.3	36.1	37.7	37.8	0.4	4.7
- Exports to third countries	0.3	0.4	0.3	0.3	0.3	-18.3
Total	**260.0**	**261.3**	**261.0**	**261.8**	**0.3**	**0.2**
COKE						
Resources						
- Production	37.7	38.3	37.0	37.3	0.9	-2.4
- Imports from third countries	3.7	3.6	3.8	4.5	18.8	24.7
Total	**41.4**	**41.9**	**40.8**	**41.8**	**2.6**	**-0.1**
Deliveries						
- To steel industry	39.4	39.5	38.3	39.4	3.1	-0.2
- Other deliveries within the Community	4.1	4.0	3.8	4.0	6.1	0.7
- Exports to third countries	0.7	0.6	0.6	0.5	-27.8	-18.4
Total	**44.2**	**44.1**	**42.7**	**43.9**	**2.9**	**-0.4**
LIGNITE AND PEAT						
Resources						
- Production and imports	284.0	285.4	271.7	272.1	0.1	-4.7
Deliveries						
- To briquetting plants	38.4	39.2	33.4	33.4	-0.1	-14.7
- To power stations	229.9	230.6	221.8	222.1	0.1	-3.7
- Others (including exports to third countries)	18.8	16.8	16.5	16.2	-1.5	-3.1
Total	**287.1**	**286.5**	**271.7**	**271.8**	**0.0**	**-5.2**

Sums may not add up due to rounding

* Including industrial and pithead power stations

market. With the sole exception of US coal, for which export prices have been falling during 1995 as a result of low domestic demand in the USA, supplies from other sources remain tight and prices remain strong. In some cases, such as South Africa, prices are now even stronger than at the beginning of the year. This situation is expected to continue during the rest of the year and well into 1996, unless demand weakens due to weather or slowing economic activity.

With respect to coking coal, 1994 began with price cuts but, as demand for coking coal increased during 1994 (as a result of good performance by the steel industry) and shortages of supply became apparent due to mine closures in the USA over the last 4 years of declining prices, the market became increasingly tighter as the year progressed. Contract prices for Fiscal Year 1995 have shown increases which have reversed the decline of the last four years and have returned prices to their 1990/91 levels. For 1995 the coking coal market remains tight and set to continue that way as long as steel production remains strong.

CONCLUSIONS.

The report concludes that the expected increase in Community GDP during 1995 is likely to lead to an increase in total energy demand, assuming normal weather conditions. However, solid fuels as a whole are likely to be the only primary energy source which will remain unaffected and may, in fact, witness a significant decrease due to falling Community demand, in terms of consumption, for lignite. This loss of market share is occurring, inspite of coal in the excellment long term guarantees which coal offers for secure supplies in terms of diversity, availability and price stability. ◻

TRANS-EUROPEAN ENERGY NETWORKS : THE EU AND COUNTRIES OF CENTRAL AND EASTERN EUROPE

BY I. Gowans, DG XVII
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BACKGROUND

A year ago, it was agreed that the Black Sea Regional Energy Centre's work programme for cooperation in energy with the EU should include project-related activities in areas including energy networks.

GENERAL

The Trans-European energy networks (TEN) initiative (gas and electricity) constitutes an important feature of EU energy policy, contributing to the improvement of competitivity, the increasing of energy efficiency, security of supply and social and economic cohesion. Its importance has been recognised at European Councils and at the recent OSCE Summit at Budapest, where the participating States expressed their support for the principle of establishing Trans-European Energy Networks for Europe.

In the EU, the main consideration for electricity networks is the increasing and improving of interconnections between national grids; for the CCEE, the consolidation and good functioning of electrical systems following their connection with the UCPTE. For gas in the EU, the objective is the extension of the grid to new regions and the strengthening of the transport and storage infrastructures to meet expected growth in demand which will be covered by imports. The contribution of a new gas pipeline system from Russia and the upgrading of the existing ones, through the CCEE to the countries of Western and Southern Europe, is a priority. These developments will benefit both the EU and the transit countries concerned.

THE COMMISSION'S "GUIDELINES" AND PROJECT PROPOSALS FOR ENERGY TENS

The Commission adopted proposals for guidelines including projects of common interest for the EU and in some cases for some CCEE in the area of trans-European energy networks in January 1994. They are still going through the process of debate in the European Parliament and the Council of Ministers. Projects included could be eligible for the financing by the EU of feasibility studies, in the first instance, to confirm or not the economic viability of TEN projects which are considered to be of common interest. They include several projects requiring joint implementation with the CCEE, involving reinforcement of gas connections through Ukraine, Slovakia and the Czech Republic (central line), new pipelines in Belorus and Poland (northern line) and Moldavia, Romania and Bulgaria (southern line) to the EU; and electricity connections with several Eastern countries including the Baltic states (see below). The Commission proposals are essentially drawn up from the EU point of view, but they have implications for the CCEE, including the need for third countries to recognise the mutual interest of a project, and the need for extension of the "guidelines" concept to the CCEE.

EXTENSION OF THE "GUIDELINES" CONCEPT TO THE CCEE

For energy networks outside the EU, the results of studies supported in the PHARE (and TACIS) frameworks of gas and electricity interconnections will be an input for guidelines for the development of energy networks in the CCEE. Such networks should be considered not only from the point of view of the common interest of the CCEE, but also from that of

optimal interconnection to the systems of the EU. This approach of developing the CCEE networks is in line with the European Energy Charter, signed by EU and all the CCEE and CIS countries, which has as its main aim the creation of a favourable context for the development of investments, exchanges and cooperation in the energy field. It is also in line with Article 129 C, § 3 of the Treaty of European Union, which enables the Community to cooperate with third countries on projects of common interest and on network interoperability.

FINANCE

Support to feasibility studies might be provided from the TEN budget line, for those projects which would be mentioned as being of "common interest", under the Community Guidelines, or from the PHARE/TACIS resources, for other projects. As regards capital investment, while there are clear prospects that Commission programmes such as PHARE will in future be able to provide more (but still limited) funding for such developments (e.g. through co-investment projets) additional funding will also need to be sought from a variety of other sources, both public (CCEE own resources, EIB, World Bank, European Bank for Reconstruction and Development, etc) and own funds from the energy operators in CCEE (public or private).

ENERGY NETWORK PROJECTS INVOLVING CCEE

To date the Commission's concrete involvement in electricity interconnection projects involving CCEE countries has been limited to provision of technical assistance. This was given increased political weight in the conclusions of the Essen European Council, following which work has continued on the extension of the Trans-European Networks to neighbouring countries, with particular attention to those regions.

GAS

Gas network projects would be especially suitable for several of the CCEE, serving to increase security of energy supply and to improve social and economic cohesion in their regions.

Within the Balkans, by mid-1996 the main pipeline connecting the Athens area in southeastern Greece with the Bulgarian grid will become fully operational. Work is also progressing on bringing gas to the Former Yugoslavia (FYROM) through a connection with the Bulgarian grid. Then all Balkan natural gas grids (except Albania) will be connected with its main external gas supplier Russia via the Ukrainian and (for the southern Balkans) the Moldavian grids. Additional supplies for the region are projected from the south through the Greek LNG terminal planned for completion by end 1998, near Athens and through a possible new LNG terminal on the Croatian coast.

In the context of the PHARE multi-country Programme, a study has recently been completed of the options for the interconnection of gas networks between the CCEE and the European Union. The study concludes that, in the uncertain conditions prevailing at present and likely to prevail in the years to come, CCEE are faced with a number of choices which need to be evaluated and completed before decisions can be made. This is a precondition to the development and restructuring of the gas industry of the CCEE and to the design, financing and implementation of alternative and new supply schemes. Critical studies could be carried out to enable some of the projects currently considered to be approved and financed. This will facilitate discussions between CCEE and their Western and Eastern counterparts on future projects.

ELECTRICITY

Political and geographical considerations had led to the formation of a number of cooperative electricity organisations covering different regions. These included UCPTE (Western Europe) Nordel (Northern Europe), Centrae (see below) and IPS/UPS (Central Europe and the former USSR). Increasing attention has recently been paid by the Commission to the future development of interconnections between these systems, inter alia within the context of its work on Trans-European Networks, and, most recently, in the light of the accession of Austria, Finland and Sweden.

The Commission's PHARE programme has for some time been giving priority to the question of interconnection of the electricity systems of Central Europe to the West European UCPTE system. A series of study projects are being funded under the multi-country budget line of the PHARE programme.

Two of these have already been completed. The first was carried out by a consortium led by France, and including Greece, Italy and the Netherlands. Its object was to examine the power systems of Romania, Bulgaria and Albania with regard to compliance with UCPTE requirements. It concluded that, apart from the difficulties posed by the conflict in ex-Yugoslavia, interconnection of all these countries is technically possible. PHARE provides for follow-up work on how this could best be achieved.

The second project, carried out by a German and Austrian consortium was aimed at the earliest possible synchronous interconnection to UCPTE of the countries which are part of the Centrel organisation (Poland, Czech Republic, Slovakia and Hungary). This

interconnection was realised in October of this year, considerably in advance of the target date.

A third project, which was launched recently, will look into the longer term (post-2000) and the possibilities for developing the networks at the interface between the by then extended UCPTE system and the UPS. It may be noted that the Baltic countries will also be included in this work. Moreover, the "Baltic Ring" project is among those projects proposed by the Commission in the guidelines (no d14) and has also been put forward by the Christophersen Group and noted by the Council. It is among the projects for which the Networks Finance Committee's advice resulted in the Commission's Decision of 4 December 1995 to co-finance feasibility studies. Following on from these studies, it will be necessary to study specific investment projects in greater depth, in particular to consider their economic viability.

CONCLUSION

The Trans-European Energy Networks are vectors for the provision of secure energy supplies for the Eastern and Western parts of Europe, and their development is calculated to contribute to regional economic integration and social cohesion. The interconnection of electricity systems and improvements and connections of natural gas pipelines are among the tasks for which the Centre has been conceived. The Commission still awaits the adoption of its guidelines for TENs, however, and this necessarily limits the extent to which it can make commitments on specific network projects.

EMERGENCE OF A COMMUNITY ENERGY POLICY

BY Christian Waeterloos, DG XVII
Head of Nuclear Industries Unit

Our thanks to Christian Waeterloos who wrote this article as long-standing Head of the General Energy Policy Division before taking up his new responsibilities early in February 1996.

INTRODUCTION

On 13 December 1995, the Commission adopted its White Paper entitled "An energy policy for the European Union"[1]. The primordial purpose of this document was to demonstrate the need for a Community approach to energy as well as to other areas. The document sets out to define the limits of such an approach and tries to identify the instruments needed to implement it. It is accompanied by a work programme indicating the areas in which the Commission is proposing to step up its action. Such action is to be based on the institutional procedures in force.

The approach adopted by the Commission at this point in time does not prejudice in any way, therefore, the initiatives which it might be called upon to take in the context of the Intergovernmental Conference to take place in Turin on 29 March 1996.

WHY PRODUCE A WHITE PAPER ON A COMMUNITY ENERGY POLICY?

Two basic reasons justify this initiative on the part of the Commission. The first is institutional in character while the second relates specifically to the sphere of energy.

Institutional aspect

Article 3 of the Treaty on European Union (TEU)[2] stipulates that, in order to carry out its tasks (laid down in Article 2)[3] the Community's activities have to comprise common policies or activities. Among the latter there is a reference to "measures in the sphere of energy". The problem is that the TEU neither defines nor lists such measures, nor does it establish their possible scope. It is therefore up to the European institutions to define the content of such measures.

Two approaches are possible. The first would be for the 1996 Intergovernmental Conference to agree on the need to include a title on energy in the revised treaty, to specify the aim to be pursued and the means for its achievement. The second possibility would be for the Community institutions to continue developing secondary legislation on the basis of existing provisions.
Either of these approaches requires the Commission to take the initiative in putting forward political guidelines for energy on a Community scale.

Energy aspect

The most recent political developments in the Community include the achievement of the single market, the stepping-up of the Community's role internationally and activities aimed at better protecting the environment. The initiatives taken in these various spheres contain a significant energy component and

1 *COM(95)682 final.*

2 *"For the purposes set out in Article 2, the activities of the Community shall include, as provided in this Treaty and in accordance with the timetable set out therein: [...]*
t) measures in the spheres of energy, civil protection and tourism."

3 *"The Community shall have as its task, by establishing a common market and an economic and monetary union and by implementing the common policies or activities referred to in Articles 3 and 3a, to promote throughout the Community a harmonious and balanced development of economic activities, sustainable and non-inflationary growth respecting the environment, a high degree of convergence of economic performance, a high level of employment and social protection, the raising of the standard of living and quality of life and economic and social cohesion and solidarity among Member States".*

may entail the risk of affecting the security of supplies or of jeopardizing the ability of the public service to meet its obligations. Hence, it is appropriate to devise a general framework for an energy policy enabling us to minimize this risk by guaranteeing the necessary balance between the specific aims of an energy policy and those of other Community policies. The new guidelines for a Community energy policy must therefore deal with these concerns.

THE BACKGROUND TO THE WHITE PAPER

The White Paper is the outcome of an extensive debate started in 1993 and involving all actors in the energy sphere which had led to the adoption of a Green Paper[4] in January 1995. This Green Paper announced the Commission's intention to draw up a White Paper which would constitute the Community's work programme in the field of energy.

Quite apart from all the reflections and comments which this widespread debate solicited, the White Paper owed it to itself to draw its inspiration from the Community's current economic and political philosophy. In addition, it had to produce pertinent responses to trends emerging in the international energy market.

The Green Paper

Both during its preparation and after its publication, the document provoked a great number of reactions. Quite apart from the positions adopted by the Community institutions[5] discussions also took place in several Member States. Those active in energy (producers, consumers, and both sides of industry) in organizations at both Community and national level, were also anxious to express their point of view.[6]

Some key elements of this collective thinking deserve to be evoked here. Firstly, a great majority of those taking part in the debate recognizes that energy contains a Community dimension and that specific guidelines are therefore necessary. Most contributions observe, moreover, that the Community already has appropriate instruments for developing a Community energy policy, to be found in the existing treaties. It is also acknowledged that, out of respect for the principle of subsidiarity, the Community dimension should bring an added value to national policies, in particular in areas such as the internal market, international relations and environmental protection.

The more detailed and sustained dialogue regarding the Green Paper received a highly favourable reception. During this dialogue, a number of contributors also indicated quite clearly that, beyond the level of consultation, the political choices to be made in the context of the White Paper fell to the Commission's political responsibility and right to take initiatives.

The general context

The guidelines chosen are also a reflection of the prevailing socio-economic context and the politico-economic philosophy which encompass thinking about energy policy. Basically, compared with the situation in the 1980s, today's is characterized by a globalization of the economy, an increasing assumption of responsibilities with regard to the environment, technological progress and an increase in know-how, a trend towards the deregulation and liberalization of markets and an increase in responsibilities entrusted to the Community. It was inevitable that these general trends should find their counterpart in the energy sphere.

Various partnerships and forms of cooperation involving the energy sector are being developed, particularly with the countries of central and eastern Europe, with Russia and the CIS Republics, with the countries of the Mediterranean Basin and those of the Gulf. The signing of the agreement setting up the World Trade Organization constitutes a firm commitment to increasingly liberalize world trade, which is all the more important for energy since, as from the end of 1994, all energy products are covered by the common trade policy. Finally, the signing of the European Energy Charter Treaty guarantees that market economy rules and principles will be implemented and put into practice within the European continent. These concern, notably, access to energy resources, their use, their transport, transit rules, the safeguarding of investments and the settling of disputes.

The results of the Rio Conference on climate changes and the follow-up conference in Berlin, the concerns expressed by the public regarding oil spills, for example, or the risk of radioactive contamination or pollutant emissions of any kind are substantial proof that the man in the street and society as a whole take environmental questions very seriously. In the energy sphere, which is one of the most influential features affecting the environment, the search for a framework of sustainable development has become predominant.

Since the oil crisis in the middle of the 1970s and its economic aftermath, it has become more and more clear that research into and development of new

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4 *"For a European Union energy policy" - COM(94)659 final of 11 January 1995.*

5 *Council Resolution No 7802/95 of 13 June 1995.*
European Parliament Report No A4-0212/95 and Resolution of 10 October 1995.
Opinion of the Economic and Social Committee, ESC 804/95 of 5 July 1995.
Opinion of the Committee of the Regions, Cor 241/95.
Resolution of the ECSC Advisory Committee, Doc. 5342/3/95.

6 *The contributions received have been incorporated in a working document available from the Commission department (DG XVII - Energy).*

technologies and their penetration into the market are crucial factors for economic competitiveness, social welfare and job creation. This trend, which is highly apparent in the energy sector too, has been translated into substantial progress in terms of efficient energy use, whether in regard to its production, transport or consumption.

In recent years, more and more Western countries have committed themselves to liberalizing their markets. This trend has been accompanied inevitably by a tendency to deregulate but also by a strengthening of regulations whenever such a step is supposed to guarantee fair and transparent conditions for all competitors. The increase in the freedom of movement and the strengthening of competition have also highlighted the need to fix comparable standards for environmental requirements. The energy sector is participating in this process.

Finally, the adoption of the Single European Act, the implementation of the internal market and the entry into force of the Treaty on European Union have all given added emphasis to the Community's economic, monetary and political role. This tendency has also been reflected in the energy field where the negotiation of the Energy Charter Treaty confirmed the Community's increased ability to attain its objectives whenever it acts in concert.

The strengthening of Community responsibility has gone hand-in-hand with a firmer grasp of the principles of subsidiarity and proportionality. When it comes to energy, the Community's responsibility could be stepped up - as in the past - by centering on commonly agreed objectives whose achievement through national policies could be evaluated at Community level.

TRENDS IN THE CHANGING ENERGY MARKET

All the economic and prospective analyses which have been carried out by the Commission[7] indicate that the European Community, which nowadays depends on the outside world for more than half of its energy supplies, will see this dependence increase in the future. What is more, the bulk of this external supply will come either from regions which are further and further away from its territory (natural gas), or will be concentrated more and more in the same geographical area (oil). The most that can be hoped for from the coal and nuclear energies is that their contributions should be sustained at their current levels.

Generally speaking, European consumers will become more and more dependent on grids or networks for their energy supplies. This will be revealed in the preponderant role to be played by gas and electricity in the future. The impact of more efficient technologies on energy markets and the increased importance given to environmental concerns should in fact promote the penetration of the market by these energies.

The future of energy supplies globally should not constitute a stumbling block in years to come since all forms of energy will be called upon and increasingly developed. This trend is due, in particular, to the considerable technological progress made thanks to research and development efforts deployed following the oil crises of the 1970s and also to a growing awareness of the environmental impact of energy deployment.

THE AIMS OF A COMMUNITY ENERGY POLICY

As the need to devise guidelines for a Community energy policy has been established (cf. Part II) and as the context in which it must be brought to bear has been described (cf. Part III), it is necessary to determine the means that are required for its implementation, given that the aims to be achieved, identified in the Green Paper, are regarded as pertinent by all those involved in the energy sector and that the Community has a role to play in bringing about the achievement of these aims.

Objectives to be achieved

The main objective of the energy policy is to guarantee consumers regular, clean and high-quality energy supplies at competitive prices.

This was the main message of the Green Paper, which identified three major objectives:

- global economic competitiveness,
- security of supply,
- protection of the environment,

and observed that policy in the energy sphere should consist of promoting actions making it possible to attain each of these objectives or to arrive at an acceptable balance between them by making the right choices.

These objectives are therefore confirmed in the White Paper.

The Community's role in this context

Given the way the European Community currently operates, these aims will have to be pursued using a market economy approach and respecting the existing Community treaties and other international agreements to which the Community is a signatory.

The European Communities are generally recognized as having four specific responsibilities in this context which they should exercise fully, including in the energy sphere.

The priorities are, as indicated in the White Paper:

7 *"Energy in Europe until 2020: A scenario approach" SEC(95)2283 of 20 December 1995.*

- to enable the internal energy market to function properly by guaranteeing the free circulation of products in conditions of fair competition and respecting common standards;
- to take advantage of the European Union's importance internationally to step up dialogue and cooperation with our partners, whether they be the main suppliers of energy (eastern Europe, the Mediterranean, the Gulf), other industrialized countries (OECD/IEA) or members of the World Trade Organization;
- to promote all activities which are likely to contribute to a better environmental protection, both within and outside the European Union and from the standpoint of sustainable development;
- to strengthen solidarity in the Community and to create the means for facing together possible disruptions in supplies within the context of the internal market and having taken account of the European Union's role in the international arena.

INSTRUMENTS FOR IMPLEMENTING AN ENERGY POLICY

Having defined the purpose of a Community energy policy and determined the specific fields in which the Community is responsible, the time has come to examine whether or not we have the resources to implement such a policy. It is proposed therefore to review existing instruments to see whether they permit the achievement of the desired result or to establish whether specific additional instruments are necessary. The major existing instruments are the treaties and secondary legislation deriving from them.

The ECSC Treaty

When the ECSC Treaty was signed in 1951, coal was the prime energy source in the European market. This situation prevailed for a few years, then the predominance of coal was gradually eroded under the pressure of competitive energies: oil first, nuclear next and, lastly, natural gas. With the growing importance ascribed to environmental issues, this tendency to limit coal use can only continue in the near future. This does not alter the fact that world coal stocks have the longest life expectancy by far of all fossil fuels. In the longer term, therefore, coal should once again resume a dominant role in energy supplies.

A reversal of the current trend will, however, only occur if a deliberate policy to encourage it is introduced. In the short term, such a policy would consist of an information campaign aimed at altering the negative image of coal in the eyes of the public. In the longer term, it should comprise the utilization of coal-related technologies to encourage consumption and the use of technologies which facilitate the efficient mining and transport of coal in health conditions which are acceptable to the public and workers employed in the mining industry and which at the same time do not adversely affect the economy.

The ECSC Treaty has so far made it possible to devise the policies needed to promote the competitiveness of Community coal, to stimulate the investments required and to encourage technical and social research activities specifically devoted to this sector. The expiry of the ECSC Treaty in 2002 raises the question of how to maintain these incentives and promotional instruments.

Apart from the provisions which it will be possible to replace by corresponding and sometimes better adapted provisions from the EU Treaty, the Commission will examine how it can maintain the results obtained by other pertinent provisions in the ECSC Treaty.

These provisions, which are specific to ECSC coal, comprise, mainly:

- statistical instruments, information tools and prospective studies;
- industrial concentration aspects;
- technical, social and health research;
- the institutional dialogue between producers, workers and consumers.

What is more, the existing system for national aids to coal production will also draw to a close in 2002. This system has made it possible for a large number of national producers to attain the international market price. If such subsidies are maintained they will have become more transparent from being included in the budget.

A state aids system could be maintained after 2002, within a similar framework, adopted on the basis of the EU Treaty. In such a case, it could be extended to all solid fuels, or even other forms of energy, such as new and renewable energies.

The Euratom Treaty

The Euratom Treaty, signed in 1957, confers on the Community the task of encouraging the speedy establishment and growth of nuclear industries. In fact, the oil and political crises which occurred at the end of the 1960s and throughout the 1970s did more to boost the development of nuclear energy than the Treaty. Nuclear energy was in fact considered an alternative energy source to oil with features close to those of a national source, especially in countries which did not have any natural energy resources.

As a result, the proportion of electricity generated by nuclear means in the Community grew appreciably throughout the 1980s. This rise began to fall off following the Three Mile Island accident in 1979 and the growth of nuclear power slowed down considerably after the Chernobyl accident in 1986. This change of tendency is of course the outcome of fears expressed by the general public regarding the possible

radiological consequences of a nuclear accident. These fears led most States which had run electronuclear programmes to freeze them, directly or following a moratorium. In some States, a drop in demand for electricity compared with forecasts induced them not to revive their programmes, given that they had production capacity surpluses at their disposal.

The consensus which existed between the six founding countries of Euratom and which approved the development of a nuclear industry for civilian purposes in 1957 is no longer in favour nowadays. It is therefore up to each Member State to decide whether or not to opt for nuclear power. It should be recalled that those States which have opted for this solution have helped to relieve pressure on the international oil market, which has indirectly benefited everybody. Member States which have set up nuclear networks on their territories nevertheless have a responsibility to protect populations, a responsibility which goes beyond their territory alone. They must therefore bear in mind the legitimate concerns of neighbouring States. The entire Community, however, should be actively involved in helping to guarantee nuclear safety in the countries of eastern Europe and should contribute to the setting-up of infrastructures, equipment and know-how to bring this about.

As regards the nuclear option within the Community itself in particular, this will only remain feasible if public opinion as to its acceptability becomes more favourable. This will depend notably on the responses which political authorities make to concerns regarding nuclear safety, waste treatment and non-proliferation. In addition to research and the implementation of appropriate technologies, an information campaign aimed at the public could be a useful exercise. It is also essential for industrialists in the nuclear field to cooperate actively with those who run nuclear power stations in central and eastern Europe and in the CIS, especially where safety is concerned.

The Treaty on European union

The Treaty on European Union (TEU), in force since 1993, takes up and develops the main points of the provisions in the EC Treaty signed in 1957. The TEU contains a series of provisions which, while horizontal in character, also apply to the energy sector. These include, in particular, provisions regarding the internal market, free circulation, the right of establishment, competition, trade policy, taxation, standardization, technological research and development, consumer protection, economic and social cohesion and international agreements. In the past, provisions of this type have not always been applied with the same vigour to energy as to other sectors of the economy.[8] This will not be the case in the future.

The Community should concentrate its efforts in order to achieve, as quickly as possible, an internal market for electricity and natural gas. Technological innovation demonstration programmes are now included in the RTD Framework Programme. A scheme for State aids makes it possible to contribute to improving energy efficiency and to develop renewable energies. These are examples which show that nowadays energy policy is better integrated into other Community policies.

This tendency should be strengthened in future. Accordingly, the Commission is thinking about the possibility of extending the remits conferred on the European standardization institutes in order to devise standards for energy efficiency. Indirect taxation on energy will also be studied with a view to bringing closer together, if not harmonizing, the various systems. The search for greater transparency in prices and for more balanced and fair conditions governing competition will also be pursued. A more extensive harmonization of environmental standards should also be envisaged.

Apart from its provisions applicable to the entire economic system, the TEU does not specifically address the question of energy, except insofar as the Trans-European networks are concerned, and the right which remains derogated to Member States to choose between various energy sources and the structure of their supply balances. The TEU therefore makes it possible to boost the way the energy market operates by developing major networks for transporting gas and electricity. It also enables Member States to preserve diversity in energy supply and to maintain their options depending on their natural resources, technologies or traditions.

WHAT OTHER INSTRUMENTS ARE NECESSARY?

The developments described above give a picture of the existing instruments making it possible to act, if necessary, on the various aspects of our energy policy. None of these instruments, however, makes it possible to guarantee coherence of action, whether between the various sources of energy, or between the Member States themselves For the internal energy market to function harmoniously and equitably, however, the minimum requirement would be that there is a coordinated approach in national energy policies. What is more, in order to implement monetary union,

[8] *This can no doubt be explained by fears which arose after the various oil crises experienced by the European economy in the 1970s.*

economic policies will have to be converged. As energy is one of the vital components of any economy, we may wonder whether it is possible really to converge economies without a parallel conversion of energy policies.

A first step in the direction of a convergence of this type would be to develop with the Member States a common analysis of the energy market and its prospects in the future. With this as a basis, the Community could fix common objectives towards which national energy policies could converge. Periodic assessment of the results would make it possible to identify any additional action needed.

Consultation with all those responsible in the energy sector, procedures for which were instituted when the Green Paper was being prepared and followed up, have proved their worth. Now it would be a good thing to consider whether it is feasible to formalize this process by setting up an advisory committee for energy. This committee would be small, but operators, consumers and workers in the energy sector would all be represented on it. Such a committee of experts could give useful advice to the Commission about initiatives it might take, including the technical aspects of proposals being prepared and the way in which these could be implemented after having been adopted by the Community institutions. This committee's role of back-up and advice would therefore be quite distinct from the institutional role conferred on the Economic and Social Committee by the Treaty.

In 1996, the Commission will make proposals to institute these instruments of analysis, convergence and consultation, if the initial discussions surrounding the White Paper confirm the value of such an approach in the opinion of those who are most concerned, namely the Community institutions, the Member States and all those who are active in the energy market.

CONCLUSION

The White Paper adopted by the Commission on 13 December 1995 provides the necessary basis for detailed thinking about the future of a Community energy policy, comprising its aims, the instruments for its implementation, its institutional framework and its consequences for other Community policies.

It is in the context of the inter-institutional debate to be held on this document that the Community will have to decide what is the most appropriate method for promoting the development of a Community energy policy.

The progressive extension of the European Community's responsibilities affecting the sphere of energy indicate that this question is no longer one of simple national competence, even if it is not yet strictly of Community competence. Energy policy is rather to be considered nowadays as a shared competence on the part of the Community and its Member States.

To this end, and in accordance with the case law of the Court of Justice of the European Communities, the Commission and the Member States will have to decide on a procedure according to which they will be able to issue common positions on the energy sector in the future. This procedure could be inscribed in a revised version of the TEU, or it could also be the subject of a piece of secondary legislation based on the present treaties. It will be up to the 1996 Intergovernmental Conference to decide which. ◻

COMMUNITY NEWS

MEETINGS OF THE COUNCIL OF MINISTERS RESPONSIBLE FOR ENERGY

Brussels, 20 December 1995
Bologna (Informal meeting) 3 and 4 March 1996

INTERNAL ELECTRICITY MARKET

As expected, it proved politically impossible for the Council on this occasion to reach a common position on the main item of the agenda, i.e. the proposal for a Directive on the liberalisation of the Internal Electricity Market.[1] There was a general political discussion during which all the delegations expressed their known positions but no negotiation as such on the remaining open points, the most important of which are: the definition of eligible customers, the inclusion among the latter of the distribution companies, and questions relating to public service obligations.

Commissioner Christos Papoutsis emphasized that the compromise proposed by the Spanish Presidency is the best possible taking into account the difficulty of the problem, the different sensitivities in Member States, the different traditions and structure of their markets. He accepted that a final solution was not possible yesterday but the Commission does not consider that there is a complete deadlock. There is therefore every reason to pursue all efforts to bridge the remaining differences as soon as possible.

He called upon the Council to adopt a text of conclusions which would make definitive those reached at its meeting of 1 June 1995, confirming the progress realised since then, agreeing on continuing to work on the basis of the actual compromise proposal put forward by the Presidency and committing itself to find a solution early in 1996.

He then proposed that the coming Italian Presidency (IT) call an extraordinary meeting of the Council early next year with the aim of then reaching a common position. This proposal was supported by the overwhelming majority of the Member States.

Four however declined to give their views on this point.

The Presidency announced at the end of the meeting that it was not politically possible for the Council itself to adopt a text of formal conclusions. Instead, the Presidency issued a text of "Presidency conclusions" which in broad lines mentions the points which would be included in the text of the Council's conclusions.

At the ensuing joint Press Conference (Presidency, European Commission), Commissioner Papoutsis said that there had been substantial progress during the Spanish Presidency, which he congratulated for all its unremitting efforts, adding that he was naturally disappointed that the Council on this occasion did not arrive at a common position or a text of common conclusions.

Mr Papoutsis pointed out that it was the conditions in certain Member States which did not allow the Council to reach an agreement and he expressed the sincere hope that all outstanding problems would be overcome in the very near future.

In the event of a broad political agreement at the informal meeting of the Council in Bologna (3 and 4 February 1996, at which time Energy in Europe will be going to press), the Commission will ask the Italian Presidency immediately to convene a formal meeting of the Council as only at such a session can it legally adopt a common position. If no agreement is forthcoming at this meeting, the Commission will be obliged to consider other methods and options.

In answer to a question, the Commissioner said that certainly France has to face a number of problems for the time being, but there are also other Member States having to deal with difficulties. Both the Commission and the Council must take all these sensitivities into account. He went on to say however that recourse to the procedures provided for under Article 90.3 EC remains among the options the EC will consider in the event a real deadlock were to persist.

MINIMUM ENERGY EFFICIENCY STANDARDS FOR DOMESTIC REFRIGERATORS AND FREEZERS

The Council adopted a Common Position on the Commission's Proposal for a Directive laying out minimum energy efficiency standards for domestic refrigerators and freezers. This Proposal, also was

1 *COM(93)643 final, 07.12.1993*

presented by Commissioner Papoutsis is seen by the Commission as a vital component of the strategy to reduce CO_2 emissions.

To fulfill the Community's commitment to stabilize CO_2 emissions by the year 2000 and beyond, a substantial reduction in household electricity consumption is needed. Being present in nearly every home and working 24 hours a day, seven days a week, refrigeration appliances consume most electricity in the domestic sector and offer the best possibility for energy savings.

The Council's Common Position proposes a first phase of efficiency standards to take effect three years from the adoption of the Directive, by which time domestic refrigerators and freezers must use new technology giving an average improvement in efficiency of about 15%, i.e. to consume 15% less electricity.

A second set of measures to further improve efficiency is envisaged to follow about four years from adoption of the Directive. This dynamic approach will give appliance manufacturers time to adapt, while ensuring progress to achievable and economic levels of efficiency.

At the Press Conference Commissioner Papoutsis said that the adoption of minimum efficiency standards will result in large savings to consumers and significant reduction in CO_2 emissions. The 15% improvement of energy efficiency will result in electricity savings corresponding to the production of three large power stations by the year 2005. By 2020, they will be the equivalent to the total current electricity production of nine large power stations (or, to put it another way, the total electricity generation of Greece).

He also said that the associated reduction of CO_2 emissions would equal by year 2020 Portugal's total emissions from power generation (about 20 million tonnes per year).

The benefit for consumers will be that the net savings for each consumer will be around 10 ECU per year due to reduction in electricity consumption. For society as a whole, the savings will be in the order of 2 billion ECU each year and are even more greater, if the cost of avoiding the same amount of CO_2 emissions by other means is taken into account.

Finally, the Commissioner said that the adoption by the Council of this Commission proposal proves that the environment can be protected and CO_2 emissions reduced in a variety of ways, and not necessarily by the taxation route alone.

Review of Community legislation in the energy sector

Recasting of Regulation 1056/72: This Regulation concerns the reformulation and at the same time the simplification of the notification to the Commission of investment projects of Community interest in the oil, natural gas and electricity fields.

The Council reached a political agreement on this proposal. Parliament adopted a positive opinion on 15 December 1995, but the Council has not been formally informed. Once this has been done any coming meeting of the Council of Ministers will be able to adopt the Regulation automatically.

Repeal of 12 legal acts of the Council and the Commission: here again the Council reached a political agreement. For the same procedural reasons as in the previous case, Parliament having also already adopted a positive opinion on 15 December 1995, it will be for a coming meeting of the Council to give effect to the agreement.

Natural Gas supply and prospects

Commissioner Papoutsis informed the Council on the EC's recent Communication on the EU's natural gas supply and perspectives.[2] The Council acknowledged the political importance of this issue. A detailed discussion will take place under the Italian Presidency.

White Paper on Energy Policy

As the Commission has adopted its White Paper entitled "An Energy Policy for the European Union" as recently as 13 December 1995, Mr Papoutsis addressed the Ministers on its content and underlined its main political messages. A detailed discussion will take place during the informal meeting of the Energy Council in Bologna (3 and 4 February 1996).

European Energy Charter

The Commissioner informed the Council on the current situation (following the signature in December 1994 of the European Energy Charter Treaty, the ratification process has been started, a new Secretary general appointed, and the headquarters location in Brussels decided upon). The Commission will begin a sustained information effort addressing the situation as regards the ratification of the Treaty, as well as an information campaign to make known the existence and content of the Charter and its Treaty, and the potential benefits of joining.

2 *COM(95) 478 final, 18.10.1995, reproduced in this issue*

THE COMMISSION'S SYNERGY AND SAVE II PROGRAMMES (MANAGED BY DG XVII)

Commissioner Papoutsis explained the merits of these two legislative proposals from the Commission.[3] As far as Synergy is concerned, the Commission is proposing a Council Regulation for a multiannual programme in order to provide a sound legal basis for the annual pilot actions the EC was undertaking since 1990. The total budget proposed is 50 MECU over the 5-year period. The Council now awaits the European Parliament's Opinion on the proposal and it is expected that a common position will be reached during the Italian Presidency.

As far as SAVE II is concerned, the Commissioner presented the proposal for a Council decision concerning this multiannual programme, which will continue as a major EU instrument contributing, as SAVE I has done, to energy efficiency improvement. The successor programme put forward is however a more far - reaching and comprehensive initiative. Furthermore, as with many other EU programmes it is proposed to make SAVE II available also to the candidate countries of Central and Eastern Europe. The budget proposed for a period of 5 years is 150 MECU. The detailed discussions in the Council will continue and as in the case of Synergy it can be expected that a final decision could be reached during the Italian Presidency.

EU - MEDITERRANEAN COOPERATION

Commissioner Papoutsis thanked the Spanish Presidency for its efforts in this field and emphasized the importance of including the Energy sector in the framework set out by the new Euro-Mediterranean Partnership. He informed the Ministers that the first "sectoral" ministerial meeting in the context of this Partnership will be of Energy and Industry Ministers during the first half of 1996, the exact date remaining to be fixed by the Italian Presidency.

INFORMAL ENERGY COUNCIL IN BOLOGNA, ITALY ON 3 FEBRUARY 1996

WHITE PAPER ON ENERGY POLICY

Ministers had a first exchange of views on the White Paper "An Energy Policy for the European Union", which had been presented at the December Council meeting. Commissioner Christos Papoutsis emphasized that due to the important role energy plays for the economic and social development of the EU and its Member States, as well as for the achievement of the basic aim of European integration, there is a real need for a common approach in the energy field.

He then referred to the initiatives the EC intends to take in 1996:

- The first initiative is the establishment of a programme to monitor energy trends in cooperation with Member States, industry and other bodies.
- The second initiative is the organization of cooperation between Member States on agreed energy objectives. This is essential if energy policy conducted on both national and Community level is to be fully effective. There is a need to establish both common objectives on energy policy and a working method for Member States to pursue the implementation of these objectives.

The Commission is now reflecting on what objectives should be proposed. The intention is for the majority of these objectives to be qualitative in nature (such as security of supply or diversity of fuels). Nevertheless this does not preclude proposing sector objectives such as energy efficiency.

- The third initiative is the establishment of an Energy Advisory Committee representing all energy interests. The Commission believes that in the new context in which energy policies at the European level should be conducted, there is a need for further openness and transparency. The Commission takes the view that in coming years it needs to consult interested parties on new energy initiatives at an early stage rather than when proposals are more already more formalized.

Commissioner Papoutsis believes that this procedure will considerably improve the decision- making process and decisively reinforce to the effectiveness of the policies followed both on Community and on national level. The Commission is currently reflecting on how best to establish this advisory body and will make concrete proposals in the second half of 1996.

EURO-MEDITERRANEAN ENERGY COOPERATION

Ministers briefly discussed Euro-Mediterranean Energy Cooperation on the basis of presentations by both the Presidency and the Commission. The Commissioner said that the moment has come to approach "in a concrete manner the contents and the organization of cooperation in the energy sector" and informed the Council that the Commission brought together on 30 January all those responsible for energy in the non-Member Mediterranean countries in order to start the dialogue in this area.

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3 *See Energy in Europe, N° 25, July 1995, for details of these proposals*

In view of the interest shown by these countries, the Commission believes that energy cooperation should be promoted at the political level in order to map the way ahead. The Presidency has announced that the first ministerial Euro-Mediterranean Conference on Energy will be held before the end of the first half of 1996.

INTERNAL ELECTRICITY MARKET

The Italian Presidency has underlined that there should be a final agreement very soon and that work will be pursued with the highest priority in the appropriate Council bodies. The Presidency has presented the principles of some "technical improvements and adaptations" to the compromise proposed last year by the Spanish Presidency. (The details of the Italian Presidency's ideas were presented at the meeting of the Council's High-Level Energy Working Group (most senior national officials responsible for the sector, on 12 February 1996.)

At the final Press Conference Commissioner Papoutsis said that the Commission "took note" of the interesting ideas of the Presidency, which "could constitute a follow-up to the Spanish compromise solution". It sees the Spanish compromise solution as the best and indeed the only definitive working framework achieved so far in this very lengthy and difficult negotiation. The Commission will study the details of the Presidency's ideas and proposals and will decide if it agrees or not and hopes that there will be a final agreement very soon now. As the Commissioner said, "there is a strong political will to reach an agreement, and everybody understands that time is running out.

Mr Papoutsis concluded: "if on 7 May 1996, at the next formal meeting of the Energy Council, there is no final agreement, then the Commission will refer the issue to the European Council (Heads of State and Government, ed. note) and it will be up to the EU's Leaders to decide if we are going to have an internal energy market".

EURO-MEDITERRANEAN ENERGY CONFERENCE

Declaration of Madrid, 20 November 1995

The Ministers of Energy of France, Spain and Italy, the European Commission represented by the Director-General of Energy, the Official representatives of the following European Countries, Austria, Belgium, Greece, Luxembourg, Portugal and Sweden; and of the following South and East Mediterranean countries, Algeria, Cyprus, Egypt, Israel, Jordan, Lebanon, Malta, Morocco, Palestine, Tunisia and Turkey; and the Chief Executive Officers of the following Mediterranean Energy Companies. BOTAS Petroleum Pipeline Corp. (Turkey), CEPSA (Spain), DEPA Public Gas Corp. (Greece), EDF (France), Egyptian Electricity Authority EFA (Egypt), ENEL (Italy), ENI (Italy), Gas Natural SDG (Spain), Gaz de France (France) Grupo ENDESA (Spain), Iberdola (Spain), ONE (Morocco), Public Petroleum Corp. (Greece), Public Power Corp. (Greece), Red Eléctrica de España (Spain), REPSOL (Spain), SAGANE (Spain), Sonatrach (Algeria), Sonelgaz (Algeria), STEG Société Tunisienne de l'Electricité et du Gaz (Tunisia), TOTAL (France), Transgas (Portugal), Union Fenosa (Spain) met in Madrid on 20 November 1995.

Considering that :

An economic and financial partnership and a free trade area are being developed in the Mediterranean area.

The demographic growth in the Mediterranean countries will increase the need of energy for domestic consumption.

Energy is necessary for the people's well-being, and the access to energy, under all its modern versions including electricity, is a prior condition for a balanced social development.

Energy is a fundamental element for industrialization and economic development.

Energy is an essential component fort the restructuring process of the Mediterranean countries' economies.

The efficient and clean use of energy is an important element in the effort to protect the environment, with the aim of having a sustainable development.

Energy is one of the most important aspects of economic cooperation, both between the East and South Mediterranean Countries themselves and between these countries and Europe. The potential for cooperation is the result of the structural complementarities that need, however, the realization of important energy transport connections intended to allow the creation of a common Mediterranean energy market.

Having taken into consideration :

The Declaration of Tunis at the Euro-Mediterranean Conference on energy cooperation (27 and 28.03.1995).

The conclusions of the European Union's Energy Ministers Council (1.06.1995).

The European Union's new MEDA programme.

The Declaration made by the Chief Executive Officers of the Mediterranean energy companies at their meeting in Paris (17.06.1995).

The conclusions of the Athens workshop on the Euro-Mediterranean Energy Partnership (6 and 7.07.1995), as well as the list of projects that was presented.

The conclusions of the Cairo Conference, on Financing energy projects in the Mediterranean basin (2 and 3.10.1995).

Have agreed that :

The realization of energy projects being an important field of cooperation needs the utmost attention from the European Union.

The energy industry is an important component in the Mediterranean economies. This industry can conceive and start implementing projects capable of improving the economic situation and the populations' well being, as well as establish strong cooperation links in the region.

The energy network in the Mediterranean basin should be developed with the goal of allowing the reinforcement of the energy exchanges between the East and South Mediterranean Countries themselves, on on hand, and between these countries and Europe, on the other.

Energy projects must be implemented on a commercial basis to take full advantage of the financing capabilities of the companies and of the existing financial institutions. The need remains, however, to provide financial resources to those activities which would not be undertaken autonomously by the enterprises.

In order to promote energy projects, appropriate instruments should be introduced. The creation of a specific energy chapter in the European Union's MEDA programme will show the importance that the European Union gives to the Mediterranean energy sector. This would allow the European Union to undertake, in particular, the following actions:

- Support the South and East Mediterranean Countries in the energy field by transferring the European Union's experience and know-how in defining and implementing energy policies, energy studies and energy projects.
- Promote, in cooperation with energy companies and national and international institutions, an investment guarantee system.
- Pay special attention to those projects that could contribute to regional integration, social development and environmental protection.
- Promote and encourage industrial partnerships in the energy sector, transfers of technologies, as well as both energy efficiency and renewable energy resources.

In the institutional area, and in order to improve the legal and regulatory framework capable of promoting international investments, the possibility of introducing a legal set-up inspired by the principles of the European Energy Charter, must be examined.

In the organizational area, an orientation Committee, called Euro-Mediterranean forum, composed by representatives of the European Union countries and South and East Mediterranean Countries, shall be established.

The Spanish Presidency is invited to present this joint declaration to the Euro-Mediterranean Conference in Barcelona.

EURO-MEDITERRANEAN COOPERATION
reminder of major events in 1995

The Euro-Mediterranean Conference on energy cooperation was held in Tunis 27 and 28 March 1995, jointly organized by Synergy, by the Tunisian Ministry of Industry and by the Tunisian Agency for Energy Management. The aims of this conference: development of energy cooperation, creation of an appropriate regional framework for developing a coherent energy policy and promotion of investments security.

Strengthening cooperation appeared as a priority in a number of fields. This is certainly the case for energy policy as such, where cooperation should cover promotion of the producer-consumer dialogue, on the establishment of coherent energy policies, on the improvement of in trade and on the security of private investments. These objectives could be achieved by further development of energy networks in the Mediterranean basin and increased industrial cooperation in order to stimulate investments. Partnerships in the electricity, hydrocarbon, energy efficiency sectors should be also encouraged, hydrocarbon and energy efficiency.

As a follow-up to this conference and also as an input of the Euro-Mediterranean conference in Barcelona (November 1995), a seminar was held in Athens on 6 and 7 July 1995 for the preparation of a draft action plan and to identify specific projects for support.

Building of these two events, Synergy in turn worked with the World Bank and the Egyptian government in organizing the Cairo international Conference (2 and 3 October) on the topic "How to finance energy sector projects in the Mediterranean region". This Conference, attended by 300 persons responsible in many roles for energy matters, aimed to seek the means for the creating the commercial and legal conditions needed to attract investments in the energy projects of the region.

Mr Papoutsis' speech in Cairo is reproduced elsewhere in this issue.

CONCLUSIONS OF THE SYNERGY CONFERENCE ON GAS, OIL AND ELECTRICITY IN THE BALKANS

Salonika, 16 and 17 October 1995

With the development and promotion of energy programmes within the framework of specific EC actions and with the support of both national and private initiatives, the Balkans have become a development zone through political and economic co-operation.

This idea was the key message of the International Conference on Gas, Oil and Electricity Interconnections in the Balkans held in Salonica on 16 and 17 October 1995, thus also demonstrating the important role of Northern Greece from the geopolitical point of view.

The Conference was organised under the Synergy programme of the Directorate General for Energy. Through their statements and discussions the participants expressed the will of the Balkan countries for co-operation towards materialisation of the projects, thus reflecting the aspiration of the peoples of the region for peace, progress and co-operation in all sectors.

More than 250 Delegates participated in the Conference, including the Ministers of Energy from the Balkan countries and the Black Sea region, Mr C. Papoutsis, Member of the Commission responsible for Energy issues, high-level representatives of ministries and institutions in the energy sector, executive officers of commercial and development banks (among them Mr. P. Gennimatas, Vice-President of the European Investment Bank, and Mr. A. Govindassamy, Director of Power/Energy Utilities of the European Bank for Reconstruction and Development).

The Council of Ministers was represented by the Spanish Presidency. The Greek side was represented by Mr A. Peponis, Minister of Industry, Energy and Technology and Mr G. Romeos, Vice Minister of Foreign Affairs.

As Commissioner Papoutsis stressed, the Balkans should be considered neither as the geopolitical margin nor the powder keg of Europe, referring to the recent agreement between Greece and FYROM in New York.

Mr A. Peponis, Minister of Industry, Energy and Technology of Greece pointed out that the message conveyed by this international energy conference was the hope for the right of the Balkan people to re-establish conditions of stable coexistence and co-operation in the whole region.

It was pointed out at the Conference that a variety of energy interconnection projects of great national, regional and European importance have been already implemented, planned, or studied, or are to be studied in the Balkan area. This fact led to the Commissioner Papoutsis' decision to form a special Task Force to work on the research and registration of the various projects, as well as the study of the project

characteristics in co-operation with public authorities of each country, interested bodies and banks. The Task Force will follow each project in order to set priorities and facilitate their implementation.

This co-ordination becomes necessary as five EC programmes are already involved in the energy field in the Balkan countries, namely the Structural Funds for Greece, bilateral protocols and horizontal Mediterranean co-operation programmes for Turkey, PHARE for the other countries of the region, and TACIS for the republics of the former USSR. Various initiatives at national level as well as private projects could also be mentioned in this respect. In addition, co-ordination of actions is essential due to the complexity of the aims e.g. installation of networks for the transportation of electricity, gas and oil transportation from remote sources, on the one hand, and the interconnections of Eastern and Southern European networks with those of West Europe, on the other.

This diversity of projects, institutions, support programmes and so on demonstrates the strategic role of the Balkans for the energy supply of Europe. With early ending of the conflicts in the former Yugoslavia this strategic character will become all the more evident.

Mr C. Papoutsis suggested that this co-ordination initiative be carried out by the Black Sea Regional Energy Centre in Sofia, grouping 11 countries of the Black Sea Co-operation Organisation and the European Commission, which has already been involved in many EC programmes, such as PHARE and TACIS, thus enabling the Task Force to start working immediately.

During the Conference there was discussion on Interconnection prospects between the electricity networks of Bulgaria, Romania, Albania and the UCPTE. As it was pointed out, realisation of these interconnections is technically feasible, though specific projects carried out within the national systems. The existing interconnection systems should be maintained until the necessary decisions are made by the countries concerned.

Further discussion in the electricity sector concerned the planned submarine interconnection between Greece and Italy, which in the long run may also facilitate interconnection with the electricity networks of Russia.

In the oil sector, apart from the plans for the construction of the Burgas (BG) - Alexandroupolis (GR) pipeline, and the need for the Russian side to guarantee the quantities to be transported, special attention has been given to the construction of the Thessaloniki-Skopje-Belgradee oil pipeline along with the utilisation of the oil refineries in Thessaloniki and Skopje. With termination of the embargo on FYROM and the prospects of reconciliation in Bosnia, this project is steadily gaining in practical significance

Natural gas interconnections were the major discussion topic during the Conference. Participants agreed on the need to diversify supply sources for the countries of the region, through interconnections with the Middle-East, the Central Asian Republics and Western

European networks, as well as by building new LNG terminals. In addition, the strategic importance of natural gas storage facilities and the need of international co-operation for prospection and development of such sites was emphasised. Moreover, the future Romania-Ukraine and FYROM-Greece interconnections, as well as the prospect of interconnection of Albania via either Greece or FYROM were presented and discussed with great interest.

These programmes are now under active study.

A significant conclusion of the conference was that, apart from the realisation of the interconnections, and as the expected economic development in Eastern European Countries over the next 15 years will result a dramatic increase in energy consumption, there is a urgent need for the countries of the region to increase their efforts in energy saving and rational use of energy.

During the conference Mr C. Papoutsis announced a DG XVII initiative under the Synergy programme to assist in the reconstruction of the electricity distribution system in Sarajevo. This initiative began with a visit of experts to the city at the beginning of November.

Mr C. Papoutsis also declared that the European Commission is ready to develop energy co-operation with FYROM as soon as possible. The subject of this co-operation could be joint energy planning for FYROM and Northern Greece. It would consist in developing wider energy co-operation between Northern Greece and FYROM, involving such joint energy planning, based on study, to be carried out through an EC programme, provided that all outstanding problems are resolved.

In his address to Greek and other European businessmen attending the conference Mr C. Papoutsis pressed for investment initiatives in the Balkan area, based on the guarantees offered by the European Energy Charter.

Futhermore, of particular significance were the statements regarding terms of financing, made by Mr P. Gennimatas, Vice President of the EIB.

Among the investment schemes presented during the Conference were the following :

- The Burgas-Alexandroupolis oil pipeline ;
- the gas pipeline Central Asia/Iran to Western Europe via the Balkan peninsula ;
- the electricity Interconnection between Greece and Italy
- the so-called "Mediterranean Electricity Ring" ;
- the Greece-Albania gas pipeline ;
- The electricity interconnection of Albania, Bulgaria and Romania with UCPTE ;
- The LNG terminal at Krk Island, Crotia ;
- the Ukraine-Romania gas pipeline.

The Conference was co-sponsored by :

- the Public Petroleum Corporation of Greece (DEP S.A.)
- the Public Gas corporation of Greece (DEPA S.A.)
- the Public Power Corporation of Greece (PPC S.A.)
- EURELECTRIC (The European Grouping of the Electricity Supply Industry)

4TH INTERNATIONAL ENERGY CONFERENCE

25 and 27 September 1995
Puerto La Cruz, Venezuela

This fourth conference followed on from the first Ministerial meeting which took place in Paris in July 1991. The second meeting took place in July 1992 in Bergen (Norway), and the third meeting took place in Cartagena (Spain) 19 and 20 September 1994[4].

It was on the occasion of the latter conference that Venezuela proposed organizing the fourth meeting, co-sponsored by Russia and the European Commission which took place for the first time in a developing producer country (member of OPEC).

The conference was highly successful and demonstrated the willingness of all participants to continue a global informal dialogue between all interested parties, producing and consuming countries from the developed and the developing world, on energy issues.

The Venezuelan authorities represented by the President of the Republic, Dr. Rafael Caldera and by the Minister of Energy and Mines, Dr. Arrieta Valera, expressed their appreciation to the Commission for its co-patronage and expressed the hope that greater cooperation between the European Union and Venezuela would develop in the future.

The Puerto La Cruz conference gathered more than forty countries from all parts of the world and International Organizations (OPEC and the IEA included). Among others, the Spanish and Russian Ministers of Energy attended the opening session as well as several other Ministers, notably from Latin America.

At the conference, three themes were addressed :

- the outlook for energy supply and demand ;
- the environment and technology dimensions ;
- the reintegration of the oil and gas industries and the financing of investment.

4 *See previous issues of* Energy in Europe *for reports*

A large consensus emerged during the conference on those three subjects. The main conclusions of the conference can be summarized as follow :

- world energy demand, in particular for oil and gas, will continue to increase notably most strongly in the developing world ;
- environmental protection needs to be taken into account both at the producing and at the consuming end of the energy chain ;
- transfer of technology and know-how from industrialized to developing countries should be accelerated ;
- upstream downstream integration in the oil and gas industries would favour stability and financing of investment.

The informal group of countries composed of the host countries and co-patrons of the previous conferences to which the Commission and Russia now also belong will continue to work in favour of greater understanding of energy issues between all parties.

As a clear signal for future development of this process, India proposed to host the fifth international conference in November 1996.

This proposal was welcomed by all participants. This move from Europe, first to Latin America and now Asia, should in fact further support the globalization approach which the Commission has always considered to be complementary to the EU's efforts towards greater regional integration.

THE THERMIE PROGRAMME IN 1996

The second call for demonstration project proposals in the framework of the new Thermie Programme was eight.

The proposals which can be submitted for funding concern energy projects (Type A Actions) designed to advance or implement innovative techniques, processes or products for which the research and development phase has, for the most part, been completed. The areas covered are:

- rational use of energy (in industry, energy industry and fuel cells);
- renewable energy sources: solar energy (both photovoltaic and thermal applications), wind energy, energy from biomass and waste, small-scale hydroelectricity and geothermal energy);
- fossil fuels: solid fuels and hydrocarbons.

The areas of particular interest for this call for project proposals are described in greater detail in an information brochure (1995-1996 edition). **The deadline for project proposals under this call is 1 February 1996.**

For the sectors of rational use of energy in buildings and transport, a separate call for interest prior to a call for proposals was launched on 3 October 1995.

This call for demonstration projects does not affect the terms of the first call for proposals (Type B Actions) in the domains of energy RTD strategy, dissemination of energy technologies, preparatory, accompanying and support measures and technology stimulation for SME's. These activities are subject to a call continuously open from 15 December 1994 until 17 December 1997. However, an updated information concerning Type B Actions will be included in the new information brochure.[5]

[5] *Copies are available from :*
Directorate-General for Energy (DG XVII)
THERMIE
200 rue de la Loi
B-1049 Brussels
Fax : 32.2.295.05.77

DOCUMENT UPDATE

MAIN COMMISSION ENERGY DOCUMENTS, PROPOSALS, DIRECTIVES

COM(94) 0659 Commission's Green Paper - "For a European Union Energy Policy"

COM(95) 0032 Amended proposal for a Council Regulation (EC) laying down general rules for the procedure for the granting of Community financial aid in the field of trans-European networks

COM(95) 0089 Proposal for a Council Regulation (EC) introducing registration for crude oil imports and deliveries in the Community

COM(95) 0197 Proposal for a Council Regulation (EC) adopting a multi-annual programme to promote international cooperation in the energy sector Synergy programme

COM(95) 0225 Poposal for a Council Decision concerning a multi-annual programme for the promotion of energy efficiency in the Community - SAVE II

COM(95) 0369 Proposal for a Council Directive to introduce rational planning techniques in the electricity and gas distribution sectors

COM(95) 0478 Communication from the Commission "European Community gas supply and prospects"

COM(95) 0682 Commission's White Paper "An energy policy for the European Union"

SEC(95)2283 Commission Working Paper on "European Energy to 2020: A Scenario Approach"

THERMIE

- Summary guide on RUE (Rational Use of Energy) - Energy Efficient Lighting Practice
- Workshop - Energetisch gebruik van stortgas - Elewijt/mechelen - 7.4.1995
- European Oil and Gas Technology Projects - Sixth Status Report - October 1994

BROCHURES

- Geothermal Energy Technology Projects - 1995
- Energy Saving in Industry - 1995
- Market Study on RES (Renewable Energy Sources)- The Energy potential of Landfill Sites in Poland - Decembre 1994
- Market Study on RUE (Rational Use of Energy) - Evaluation of the market potential of micro-scale CHP-units in Germany
- Traitement des déchets solides urbains (Tunisie - Maroc) - Etude de marché
- Evaluation of the market potential of micro-scale CHP-units in Germany
- H.C. - Oil and Gas Process Technology
- The Oil production Industry in Western Siberia and the Environment Current Practices and Prospects for change
- European Technologies for Oil and Gas Exploration in Remote and Poorly Accessible Areas
- RUE - Cogeneration in the agrofood sector
- Improving Public Transport Attractiveness
- Energy Efficient Industrial Natural Gas Technologies and Equipment
- Brewing and Malting : Economy through Energy Efficiency
- Environmental Improvement by successful Thermie Activities in Moscow
- Efficient Public Transport in rural and low Density Urban Areas
- Good Practices for better Mobility in European Cities

- The Application of Computers to Energy Management in Industry
- Développement des réseaux de chaleur
- RES (Renewable Energy Sources) - Energy from Biomass Principles and Applications
- Use of low Temperature Geothermal Energy Sources for Heating: the Cases of Poland, Czech Republic and Slovakia
- Advanced Biomass Technologies for Heat Generation

EUR-REPORTS

15492 Kaplan turbine with new adjustment gear
15830 Integral management of gas produced in controlled landfills, self-generation of electricity in Artigas
15831 The hydroelectric development of the old water-mill of Prades
15923 Photovoltaic diesel systems for houseboats and barges
15924 Photovoltaic lighting of archaeological zones
15925 Photovoltaic supply of the lighthouse on Palmaiola island
15930 Solar electricity for regional development in Corsica
15932 Photovoltaic power supply for permanent farmhouses controlled and maintained through radiocommunication
15934 New low head hydro units
15935 Total recovery of spend lubricant oils
15971 Private utility providing power to industrial consumers using poultry-litter as a fuel
15972 Small hydroelectric unit at the Filotheou Monastery in Agio Oros, Greece
15973 The recovery, detinning and recycling of 2 000 tonnes per annum of ferrous metals from municipal refuse

PROCEEDINGS

Energy Efficiency in Breweries

FLAG BROCHURES

- Deep Water mmoring Lines with Buoys (N° 193)
- Improved Simulation tools for Multiphase Production (N° 194)
- Provag : From fly Ash to artificial Gravel (N° 196)
- Rocal: Demonstration Plant for processing FGD Gypsum into Anhydrite (N° 197)

STUDIES

Study on RUE - Energy efficient technologies in sports facilities

THE THERMIE PROGRAMME AND THE EUROPEAN COMMISSION'S WHITE PAPER ON GROWTH, COMPETITIVENESS AND EMPLOYMENT

BY C. Jenkins and A. Bor, DG XVII
Energy Technology Directorate

The analysis carried out in this study suggests that the first Thermie programme was consistent with, and complementary to, the objectives expressed in the Commission's White Paper on Growth, Competitiveness and Employment.
It shows how, during its five-year implementation, Thermie has encouraged activities which are particularly appropriate for successful implementation of the model of sustainable economic development proposed in the White Paper, in particular as regards investment in cleaner energy technology, advancements in the way industry produces and uses energy, and improved access to new European technologies. As this issue is likely to gain in weight and importance, the results of this study will be invaluable for the implementation of the new specific non-nuclear energy Research and Technological Development programme, better known as the JOULE-Thermie programme (1995-1998), and will help to provide the new programme with bench-marks to maintain consistenly with sustainable development and EU-wide competitiveness.

BACKGROUND

The European Commission's White Paper on Growth, Competitiveness and Employment, issued in 1993,[1] represents an important tool for the task of ensuring sustainable development in the European Union. Sustainable development as outlined in the White Paper, and particularly in the "new development model" described in the document, is important for securing competitiveness and employment, and vice versa. The White Paper duly has a central place in the implementation and development of Community activities, not least in the energy area.

Energy use is one of the key elements of the new development model, with an emphasis on energy technology. Therefore, as a major dissemination instrument for a diverse broad range of innovative and environmentally sound energy technologies, the European Community's Thermie programme may be expected to make an important contribution to the new development model.

The first Thermie Programme (1990-1994) aimed to promote greater use of clean energy technologies of European efficient through financial support granted for demonstration and dissemination projects and through associated measures (ie. monitoring and evaluation of projects, market analyses, dissemination of information on energy technologies, etc.).

In 1994 it was decided to carry out a study of the complementarity and consistency of Thermie with the objectives declared in the White Paper in order to assess to what extent Thermie contributes to and supports the key aims set out in this document: sustainable economic growth, European industrial competitiveness, in particular for small and medium enterprises, and employment creation.

This article presents the results of the report and summarises the comparative analysis of the first Thermie regulation with the guidelines contained in the Commission's White Paper on Growth, Competitiveness and Employment.

1 *Luxembourg, OPOCE - Supplement to Bulletin of the European Communities, 06/93.*

METHODOLOGY

In order to evaluate how far Thermie complements the policy objectives of the Community as set out in the White Paper, the study was divided into three main parts:

The first included a qualitative examination of the links between the Thermie programme and the White Paper. This analysis presented an overview of the legal framework of Thermie compared to the demands and challenges presented in the White Paper, as given by direct quotations from the latter. As the subjects addressed in the White Paper are wider than scope of Thermie, the study focused on the key issues covered by and related to energy technology demonstration and dissemination.

The second part was a quantitative assessment of Thermie demonstration and dissemination projects under a range of criteria related to the White Paper. Although the Thermie programme was initiated in 1990, the number of completed projects was relatively small compared to the total of ongoing projects at the time of the analysis, due to the average length of time required fully to implement a Thermie Project. The analysis was thus based on a limited sample of 50 completed projects. However, the sample of projects adopted reflected most of the themes and characteristics of the Thermie programme. It included a combination of innovative and dissemination projects initiated during the period 1990-1993, covering each of the sectors relevant to Thermie, namely rational use of energy, renewable energy sources, solid fuels, and hydrocarbons.

The microeconomic analysis of the projects against specific criteria related to growth, competitiveness and employment was carried out on the basis of the information collected both from project files and a questionnaire filled out by the contractors involved in the selected projects.

The third part of the study was devoted to the analysis, in qualitative terms, of the potential contribution of Thermie's associated measures to White Paper objectives. Associated measures were the feature of the Thermie Programme designed to improve the replication and the market penetration of innovative energy technologies. For this purpose a set of examples was illustrated providing an insight into activities which were representative, of Thermie's associated measures.

MAIN FINDINGS

The comparative analysis carried out in the first part of the study showed that a high degree of consistency exists between energy technology demonstration and dissemination as pursued by the Thermie programme and the principles laid out in the Commission's White Paper. Thermie's contribution is particularly significant for the following themes:

- Sustainable development, of which a major element is the creation of a new "clean technology base" aimed at environmental improvements and quality of life;
- importance of increasing R&D investment to speed up incorporation of new efficient and clean technologies in production;
- processes and products, with a view to achieving a higher rate of growth in a sustainable way;
- market proximity of technologies to allow their industrial and commercial exploitation;
- environmental issues leading to competitiveness and employment, as the exploitation of demand for environmental products and services helps to achieve global competitiveness;
- creation and preservation of jobs;
- improvement of financing solutions for technological initiatives, especially those coming from SMEs;
- diffusion of results and dissemination of information relating to innovative technologies bringing new opportunities for European industry.

The quantitative analysis of the sample of 50 completed Thermie projects, in the second section of the study, leads to the following conclusions:

- Competitive advantages, examined in terms of cost reduction (energy savings and other costs), increase of the contractors' annual income, and increase of market potential, were achieved in 80% of the projects. 39 contractors reported significant savings which represent a competitiveness advantage of ECU 300 000 - 500 000/year per project under analysis. Furthermore, 18 organisations saw their potential market increased, out of which ten were able to assess this increase as approximately MECU 805 in total.
- regarding the growth aspect, the investment in projects induced by the Thermie support was estimated at ECU 7 per ECU of Community support. This figure takes into account the replications (exclusively covered by private financing) reported by 13 out of the 28 organisations which replied to the questionnaire.
- in terms of job creation or preservation, it was assessed that all contractors who were able to provide information on this issue (28 out of 50) reported either a neutral or positive impact as a result of the implemented technology. Thus, on the basis of the initial Thermie projects, 17 contractors could identify 139 preserved and/or created jobs.

The remaining 11 contractors estimated their employment level as unchanged. This does imply that the cost savings mentioned above did not necessarily feed into new jobs. A further point of interest was that 80% of the directly preserved and/or created jobs were reported by Small and Medium Sized Enterprises. Regarding indirect employment effects generated by recourse to external services, it was calculated that 22 Thermie projects initiated a total of 54 Man-years, whereas the remaining 28 contractors either did not use external services or could not provide the specific information. As far as associated measures implemented under the Thermie programme were concerned, the study provided qualitative evidence of the positive influence of this type of action on the themes of the White Paper. This is especially the case when measures aiming at broader dissemination of knowledge on energy technologies led to new investments in sustainable energy practices.

COST-BENEFIT-ANALYSIS OF THERMIE PROJECTS

By P. Abreu Marques and A. Jahn, DG XVII
Directorate for Energy Technology

A Cost-Benefit Analysis has been carried out by DG XVII in consultation with representatives of the Member States in order to assess the cost and anticipated impact of projects selected for support through Thermie. This article presents the analysis for projects supported from 1990 up to 1994, showing the following results:
The analysis illustrates that successful selection and dissemination of Thermie projects promises to bring substantial benefits, helping to achieve the Union's energy and environmental policy objectives, and to contribute to the competitiveness of European technologies.

BASIC CONCLUSION

The technologies selected for support and dissemination can offer cost-effective options for lowering overall EU energy consumption. Closely linked to this is the contribution which these technologies make to reducing pollutant emissions, particularly CO_2, which remains an extremely important issue in line with the challenges recognised in the Green Paper on Energy Policy to exploit synergy between energy and environmental objectives. Furthermore, through stimulation of investment in innovative energy technologies, the technological basis of European industry is significantly enhanced, particularly as regards small and medium sized enterprises.

INTRODUCTION

The Thermie programme for the promotion of European energy technologies, running between 1990 and 1994 aimed at providing support for the demonstration and dissemination of clean and efficient technologies in order to achieve stronger market penetration. The regulation[1] allowed financial support to energy technology projects to improve the rational use of energy (RUE) in different sectors of the economy, promote the wider use of renewable energy sources (RES), encourage the cleaner use of coal and other solid fuels (SF) and optimise exploitation of the EU's oil and gas resources (OG). Projects were expected to involve significant elements of risk when demonstrating new energy technologies, or else to disseminate new ways of using existing technologies to exploit their market potential. The Community budget during this period amounted to about MECU 700 of which 85%[2] was allocated for financial support to projects.

Since an average Thermie project takes 4-5 years to complete it is vital to anticipate the extent to which the financial support is likely to achieve the objectives set out in the regulation. In this respect, a Cost-Benefit Analysis (CBA) has been completed for the projects selected from 1990 to 1994. It aims at a financial assessment of the future expected economic and environmental impact of the programme through an ex-ante analysis of the projects supported. The anticipated impacts are calculated and cumulated over the lifetime

1 *Council Regulation (EEC) N° 2008/90 of 29 June 1990: Promotion of energy technology in Europe (Thermie programme).*

2 *The remainder is allocated to associated measures for the promotion of energy technologies.*

of the Thermie projects, adding the impacts of their expected replication[3] in the market, which is likely to result from successful demonstration and dissemination of the technologies. The methodology[4] defines the cost of the Thermie projects as the financial support committed by the Community, whereas the benefit side covers energy savings/substitution effects, emission reductions and macroeconomic impacts.

METHODOLOGY

Precise definition of cost and benefit elements is most crucial for this type of analysis. Depending on the point of view and on the purpose of the analysis, a range of various elements and allocation of cost and benefit could be considered. This analysis is made from the perspective of the Community having provided financial support for energy technology projects. It reflects the consideration that, due to their high-risk nature, Thermie projects would not have been executed without the contribution of the Community[5] and that, successful demonstration of the technology concerned will stimulate a number of replications.

COSTS

The Thermie programme provided financial support of up to 40% of the eligible project costs[6]. From the point of view of the Community, the financial support for the projects is considered a cost item. This reflects the interest of the Community in assessing the magnitude of the benefits to the EU on different issues resulting from the funds made available under Thermie.

BENEFITS

The expected future benefits encompass both those induced directly by the initial Thermie projects and those generated indirectly by their anticipated replications. They are presented in accumulated values reflecting the complete lifetime of the projects.

- **Energy savings/substitution:** the expected annual energy savings/substitution of each project is quantified with weighted EU-average energy prices (taxes excluded)[7]. The assumption has been made that energy prices will be stable in real terms over the period under analysis.
- **Environmental improvements:** the expected energy savings/substitution will lead to a reduction of pollutant emissions; the emissions considered being CO_2, SO_2, NO_x, VOC and CO. The analysis is conducted by splitting the total amount of energy savings/substitution into their fuel and electricity components (using the relevant sectoral average fuel and electricity consumption[8]). Specific emission factors[9] are applied to these components. These emissions are finally quantified in money terms by applying average valuations[10] per ton of each emission.
- **Macro-economic impact:** Given that the risky nature of the projects would not have allowed them to start without Thermie funding, financial support from the Community is considered an autonomous investment. It is therefore assumed that an increase in the Communities' GDP can be linked directly to Thermie project support through a multiplier effect. The basis for this calculation is provided by QUEST[11], a European simulation model which appraises the increase in the Union's GDP following an autonomous investment.

ASSUMPTIONS

- **Life-cycle analysis:** the expected costs and benefits generated by each project are calculated over its entire life-time[12].
- **Replication of projects:** it is assumed that demonstration and dissemination activities conducted under Thermie in order to encourage the application of technologies, contribute ultimately to the replication of projects by other operators throughout the Union. Thus, it is concluded that the replication potential would have been less exploited if the Community had refrained from financial support. Consequently, benefits gained from these replications can to a certain extent be attributed to the initial Thermie projects, and therefore to the financial support. However, bearing in mind that market penetration of technologies is influenced by various external factors, the most difficult exercise is to anticipate a replication ratio. A strictly modest approach has been adopted for this exercise. Of course, the replication rates anticipated at this stage for each individual project will need to be verified against market realities by evaluation of successful Thermie projects in the future.

3 *For further details, see 'Methodology'.*
4 *For further details, see 'Methodology'.*
5 *Council Regulation (EEC) No. 2008/90 of 29 June 1990).*
6 *The eligible cost represent the costs of a project directly related to the innovative components of the technology.*
7 *Source: Energy prices 1978-1990, Eurostat, Luxembourg 1991*
8 *Source: Energy balance sheet EURO 12, Eurostat 1991*
9 *Source: Analysis of the ecological impact of demonstration projects, REGIO-TEC, Stamberg 1991*
10 *Source: Valuation of environmental externalities caused by various emissions, Recommendations ISI Karlsruhe, 1992*
11 *Source: "European Economy", DG II publication, n° 47, March 1991*
12 *Period under evaluation: negotiation phase (average: 1 year), construction phase (average: 3 years), lifetime of each technology (from 5 to 40 years depending on sector and technology; source: original proposals)*

• **Present value of costs and benefits:** with the costs and benefits accruing over a period of time, it is necessary to adjust each item to a common (1994) value by using a discount rate before comparing them. The discount rate includes a "risk premium" which is meant to reflect the high level of uncertainty in the performance of implementing new and innovative technologies and is added to a "risk-free" rate of return.

ANTICIPATED RESULTS FROM THERMIE PROJECTS SELECTED BETWEEN 1990 AND 1994

PREFACE

From 1990 to 1994, 2 501 proposals were received in response to the five published public calls for proposals, of which 726 energy technology projects were selected for financial support. The number of projects and the financial support allocated to each sectors is presented as follows:

Figure 1 : Number of Thermie projects supported by sector, 1990-1994

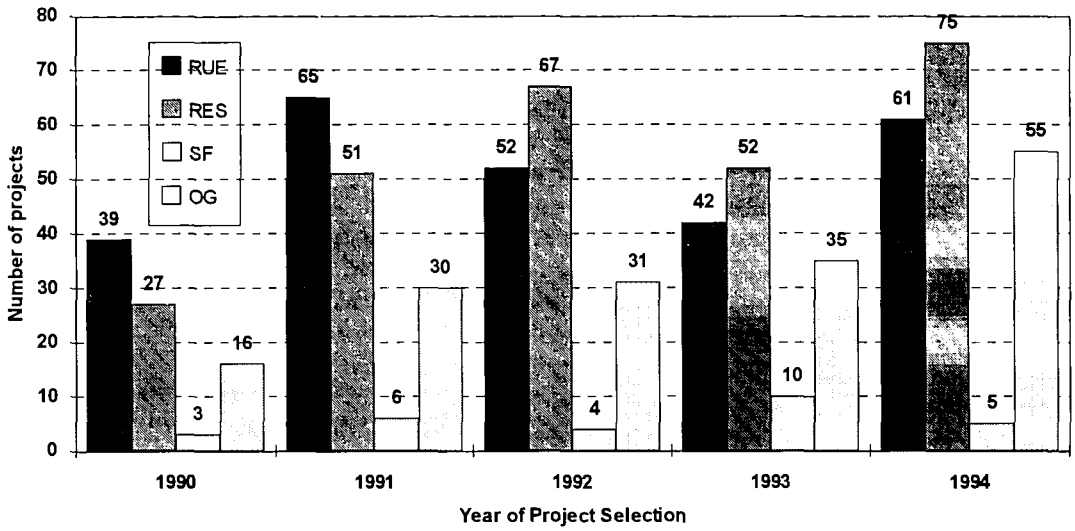
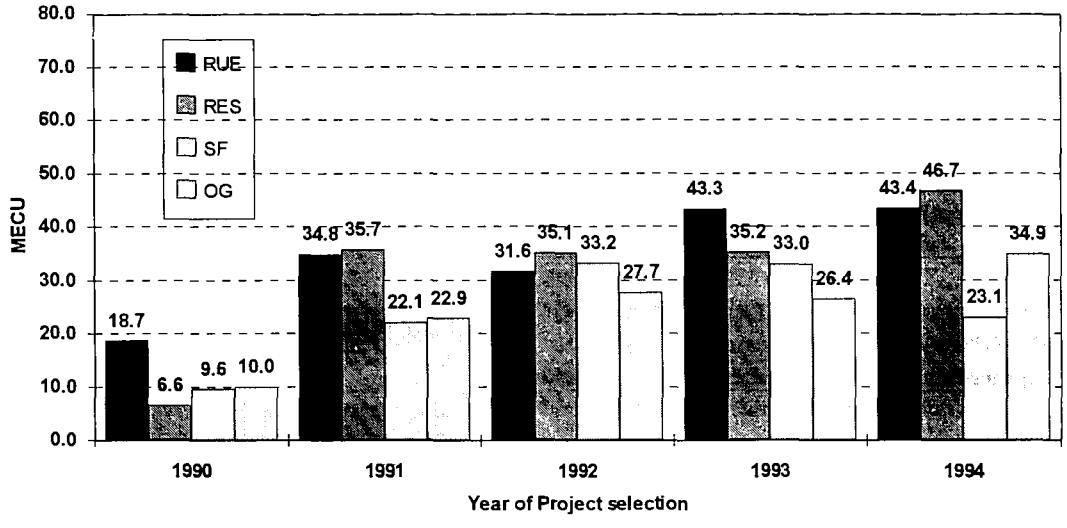


Figure 2: Financial support to Thermie projects supported by sector, 1990-1994



Note : Hereafter project support data will be presented as 1994 discounted values

OVERALL RESULTS

- The accumulated **energy savings/ substitution** which is expected to occur from the initial Thermie projects selected between 1990 and 1994 over the entire lifetime and including their anticipated replication, amounts to over 230 MTOE.
- The accumulated **avoided environmental damage** resulting from these energy savings/substitution is transferred to emission reduction of five important pollutants: the analysis suggests avoidance of 900 Mt of CO_2, 7 Mt of SO_2, 3 Mt of NO_x, 430 kt of VOC and 2,5 Mt of CO. It should be stressed that although these effects are expected be generated over the full period under analysis[14], two-thirds of the total accumulated emission reduction is anticipated to be achieved by the year 2017.

Number of projects	726		(all in 1994 discounted value)
	COST	BENEFITS	
Project support	540 MECU		
Energy savings[13]		7 816 MECU	232 436 kTOE
Emission reduction		4 667 MECU	909 077 kt CO_2 6 830 kt SO_2 2 951 kt NO_x 427 kt VOC 2 304 kt CO
Macroeconomic impact		2 065 MECU	
Total	540	14 558 MECU	
NET BENEFIT			14,018 MECU

Number of projects	259		(all in 1994 discounted value)
Project support	161 MECU		
Energy savings		5 054 MECU	146 037 kTOE
Emission reduction		2 740 MECU	495 218 kt CO_2 3 413 kt SO_2 1 431 kt NO_x 226 kt VOC 1 204 kt CO
Macroeconomic impact		621 ECU	
Total	161	8 415 MECU	

Number of projects	272		(all in 1994 discounted value)
Project support	153 MECU		
Energy savings		2 762 MECU	86 399 kTOE
Emission reduction		1 937 MECU	413 859 kt CO_2 3 416 kt SO_2 1 520 kt NO_x 200 kt VOC 1 100 kt CO
Macroeconomic impact		570 MECU	
Total	153	5 268 MECU	

Further, assessed on a yearly basis, the results prove that the highest level of annual CO_2 reduction brought about by Thermie projects including replication is expected to occur in 2010 with 47 Mt/year; for Thermie projects only, the highest level will be achieved in the year 2000 at a level of about 3,5 Mt/year and will be maintained through the lifetime of the technologies. These results illustrate that measures today will have a significant impact in the near future if the expected replication is met by market actors.

Finally, the support will lead, through a multiplier effect on investment, to an increase in the Union's income by more than 2 billion ECU.

SECTOR RESULTS

Rational Use of Energy

This sector includes four sub-sectors: buildings (71 projects), industry (144 projects), energy industry (11 projects) and transport (33 projects).

13 *Energy savings/substitution and emission reduction were assessed for RUE and RES*

14 *Approximately 60 years, covering the Thermie projects themselves and their successively starting replication projects over their respective lifetimes*

RENEWABLE ENERGY SOURCE

This sector includes the sub sectors solar energy (photovoltaic and thermal: 107 projects), energy from biomass and waste (50 projects), geothermal energy (26 projects), mini-hydro (37 projects) and wind energy (52 projects).

Number of projects supported	2167
Support allocated	113 MECU*
Macroeconomic impact	438 MECU

* in 1994 discounted value

SOLID FUEL

These projects are of a long-term strategic nature. Since coal is the single most important fuel for electricity generation (36,5% input in total electricity production[15]), but has to comply with increasingly stringent environmental legislation, strong emphasis is given to clean combustion technologies which can increase the efficiency of coal-fired power plants and reduce pollutant emissions.

Number of projects supported	28
Support allocated	113 MECU*
Macroeconomic impact	437 MECU

* in 1994 discounted value

A major project in this sector is a targeted project in IGCC (Integrated Gasification Combined Cycle) technology: the Puertollano project, rated at 335 MWe and representing, at the time of selection, the world's largest power plant with this promising technology for cleaner electricity production from coal. Coal consumption will be cut by 30% and CO_2 emission will be reduced by 25% as compared with conventional plants.

HYDROCARBONS

The aim of the financial support in this sector is not directly linked to energy efficiency or energy consumption targets but more to reducing the Union's dependency on imported energy supplies by improving exploitation and availability of its indigenous oil and gas resources by means of environmentally sound technologies. Thus, their impact will be in terms of production cost savings, prevention of environmental damage, increased safety or better exploitation of resources.

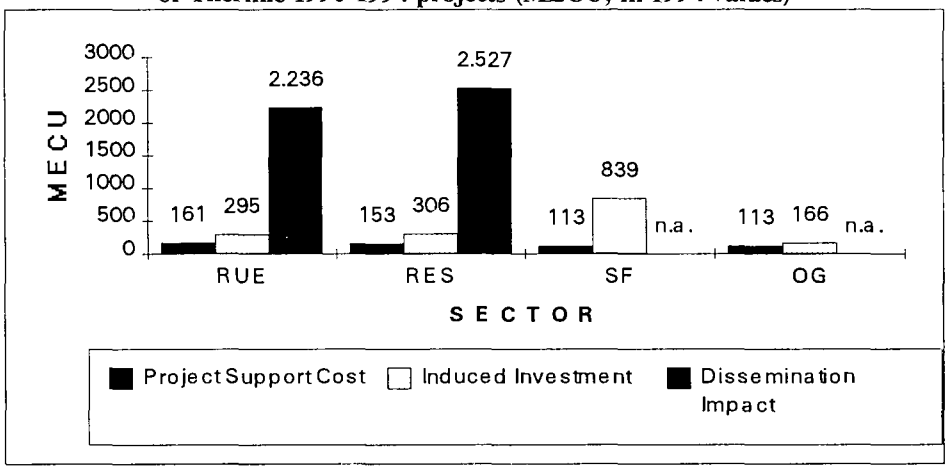
ADDITIONAL BENEFITS

A number of so called 'Additional benefits on economic and social grounds could be taken to be a by-product' of the Cost-Benefit-Analysis but are not directly included within the analysis[16]'. However they offer an additional overview on the contribution of Thermie projects to crucial issues of European policy objectives. The benefits covered are presented hereafter:

Stimulation of Additional Investment

It is interesting to assess the investment stimulated by the Thermie support in other ways, although these items represent neither a 'cost' nor a 'benefit' element within the CBA methodology from the Community's point of view. However, the proportions of investment initiated due to the support to the respective Thermie projects are substantial - illustrating the scale of investment which is expected to be launched for sustainable technologies rather than for other options. The factors comprise the Induced Investment[17] for the initial Thermie project and the Dissemination Impact[18] for the anticipated replication projects.

Figure 3 : Project Support, Induced Investment, expected Dissemination impact of Thermie 1990-1994 projects (MECU, in 1994 values)



15 *Source: Eurostat, "Energy" 1990, Luxembourg 1992*

16 *Due either to inconsistency with the methodology or to complexity.*

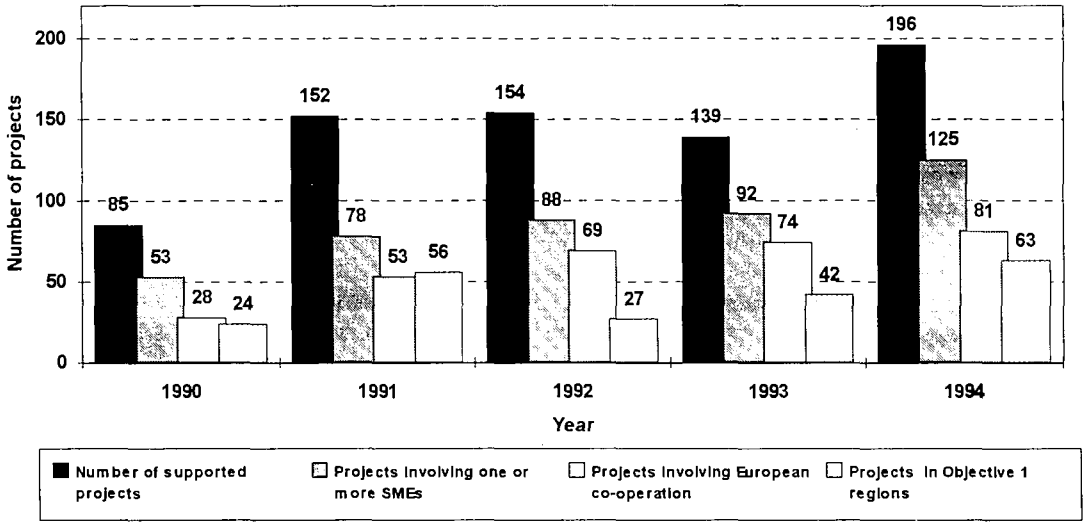
17 *Induced Investment: Part of eligible cost of the project financed by the project contractor*

18 *Dissemination Impact: Investment cost for anticipated replication project (reflects equally eligible part only)*

The total Induced Investment for all projects supported between 1990 and 1994 amounts to MECU 1 607 and it is estimated that total investment of MECU 4 763 (Dissemination impact) will be launched for replication projects by market actors.
These results, broken down for the four sectors are presented below:

Socio-economic elements:
With regard to the challenges the Union is facing today, particular attention is being given to certain criteria which allow us to conclude that Thermie project support to energy technologies is expected to gain further significant benefits which go beyond directly energy-related issues. With this in mind, a number of criteria were applied to the Thermie projects: the question of co-operation needed at european level in order to implement the project, the proportion of Small and Medium enterprises and the share of the projects located in Objective 1 under-developed regions of the EU. The results of this assessment is illustrated below:

Figure 4: Number of THERMIE projects involving European co-operation, SMEs, Objective 1-regions in relation to total number of projects, 1990-1994



A report covering the complete period of Thermie 1990-94, including a detailed presentation of the methodology and results, is expected to be available in the near future.

THIRD PARTY FINANCING : A POWERFUL INCENTIVE FOR INVESTMENT IN ENERGY EFFICIENCY

Notice to operators (potential investors, energy service companies, and other interested parties)

BY R. Alvim de Faria, DG XVII
Unit for Strategy, Dissemination, and Promotion

Where investment opportunities are concerned, too often energy saving is forgotten. Priority is given to equipment which either increases output or reduces labour or material costs. Energy costs, because frequently they are considered to be an overhead, are often ignored when considering ways of investing to improve competitiveness. Yet reducing energy costs can be an important way of reducing costs, and increasing profitability and competitiveness. And of course there are powerful environmental reasons for considering energy efficiency as a priority.

Of course, investment goes where it will yield the biggest returns. Sometimes energy efficiency investments are not considered on their own to provide adequate pay backs (this is quite different when energy efficiencies can be achieved while replacing equipment for other reasons).

But energy efficiency need not be the poor relation when it comes to investment. There are ways of approaching energy efficiency investments which will allow the finance to be provided from a third party source, while the re-payments are financed from the savings enjoyed.

This is why the European Commission has developed an approach to help the industrial or commercial consumer of energy: the third party financing contract.

THE CONCEPT OF THIRD PARTY FINANCE

Third Party Financing (or TPF, as it is commonly known in energy circles) is, as suggested above, a simple yet powerful means of financing energy efficiency investments. What it means is that a third party investor provides the finance for investments that have been demonstrated - perhaps by a thorough energy audit - to offer sure reductions in energy costs. The third party receives re-payments from the energy saved, and according to a schedule of payments linked to projected energy savings over time. And of course the net benefits accrue to the company making the change. It really is that simple.

Or is it? How do you go about setting up such an arrangement so that you can be sure that it will work out as you hoped?

This is where the European Commission comes in. The Directorate-General for Energy, DG XVII, has long recognised that Third Party Financing can be a powerful inventive for energy efficiency investments. In particular, the SAVE programme has had TPF as one of its priorities (see insert on these pages). Now it has come up with an idea in which the Commission itself can encourage the use of TPF: the third party financing contract.

WHAT THE THIRD PARTY FINANCING CONTRACT ENTAILS

The idea is simple, but it helps in providing the guarantees which some companies may need, before entering into a TPF deal. In effect, the European Commission oversees and provides a contractual framework for the deal.

The system envisages three partners:

- The European Commission - project superintendent for the operation ;
- the potential investor - private company or public institution, wishing to reduce its energy costs by means of an identified energy savings investments;
- the third party financer - 'ESCO', or Energy Service Company.

The third party financer, a service company specialising in energy management, will take the commitment for preliminary study, to financing, to implementation of the work, and possibly including the maintenance of equipment. The whole arrangement is stipulated in a contract overseen by the Commission and to the company involved enjoys the benefits from

the investment. The third party financer sees its contribution refunded from the profit made by the energy saving.

WHAT ARE THE BENEFITS?

Under agreements of this type, the third party financer either could receive the equivalent of 100% of the energy savings achieved, or could share the profit with the contracting company, according to the provisions of the contract. The duration of the contract, and the refund schedule, are stipulated unequivocally in writing, and in addition a first-time investor benefits from a series of additional guarantees built in by the Commission.

A ceiling is also established and agreed: any overshooting is the responsibility of the third party financer. The completion dates and the quality of implementation are guaranteed. Accounts and invoices are accessible at all times. Moreover, this investments does not appear as a commercial debt; so the recipient company preserves its own funds and credit limits: that is, its financial independence is unaffected.

A third party financer taking part in a Commission-supervised TPF Contract must first have been approved by the Commission (see below).

IN PRACTICE

The third party financer first evaluates the level of potential energy savings possible, by recourse to a range of techniques. Depending on the results of this assessments, the third party financer the project, according to the stipulations of the contract. This contract will also mention the refund schedule for the third party financer.

Of course, in Ireland there are now powerful incentives for companies, both in carrying out energy audits, and in making subsequent investments in energy efficiency improvement. The Irish Energy Centre's Energy Audit Grant Scheme (EAGS) provides support for previously approved energy audits within companies, carried out by approved energy auditors. The Energy Efficiency Investment Support Scheme (EEISS) provides support for approved energy efficiency investments, subsequent to an energy audit.

Taken together with the possibilities offered by Third Party Financing - and the European Commission's TPF Contract scheme in particular - this amounts to an exciting menu of opportunities for companies wishing to reduce energy costs. Investing in energy efficiency should now be within the scope of most companies, and it really is an opportunity that shouldn't be missed.

The benefits are :

- Reduced energy cost;
- increased competitiveness;
- demonstrable improvements to the environment;
- reduced national imports of primary energy sources.

WHO CAN TAKE PART?

To become a Third Party Financer within the Commission's TPF Contract scheme, you must first be approved. The candidate company must be independent, credible, financially viable, and technically qualified. You can learn more about how to *become* a Third Party Financer, or about the scheme itself, by completing and returning the coupon on these pages. Do it now; the returns could be well worth while.

Reply coupon
Complete and return (by mail, to:
The European Commission, Directorate-General for Energy XVII, 200 Rue de la Loi 1049-Brussels, Belgium; or by fax to: +32-2-295-61-05)
(for the attention of Mr R. Alvim de Faria)

I am interested in:

- ☐ Becoming an approved Third Party Investor
- ☐ Participating in the Commission's TPF Contract Scheme
- ☐ Receiving more information about the TPF Scheme

Name: _____

Organisation: _____

_____

Address: _____

_____

_____

Tel.: _____

Fax: _____

Email: _____

THE EUROPEAN UNION AND THE GAS SECTOR

Gas Expo Conference
Amsterdam, 30th October to 2nd November 1995

BY P. Lambert, DG XVII
Head of Gas Unit

Energy policy in the European Union is currently the subject of major debate. In 1994, extensive consultations took place between Commission services and a wide range of parties with an interest in European energy policy, including national Governments, the gas industry and consumers among many others. The Commission's January 1995 Green Paper set out the main energy policy issues in the Union, and was the result of the consultations and indeed the basis for further discussions with the parties involved[1]. The Green Paper was discussed by Member States in the Energy Council, by the Economic and Social Committee and by the European Parliament.

As has been explained already in these columns, the Green Paper exercise was not an end in itself. It identified the essential ingredients of a European energy policy as overall competitiveness, security of supply, and environmental protection and it set a framework in which to shape the future direction of energy policy. Essentially it was a stepping stone for the next stage which will take the form of a White Paper on energy policy to be published by the Commission at the end of 1995. The White Paper aims to put forward an energy policy for the EU taking the form of a coherent strategy and an associated Action Plan.

Aside from the detailed thrusts of the White Paper, natural gas will clearly have an important role within an energy policy for the Union. The consumption of natural gas has grown in spectacular fashion in Europe since the 1960s so much so that today it accounts for nearly 20% of the EU's energy needs. And virtually all forecasts show natural gas consumption increasing in the years ahead, outstripping the growth in the use of other fuels, to take a growing market share, which may be as high as 25% of total energy supply by 2010. Increased demand is expected to occur in all market segments where gas competes today but especially in the power generation sector. In this sector, natural gas offers strong competitive economic and environmental advantages which become especially important as the power sector itself faces the effects of increasing competition through liberalisation and the need for investment in new and replacement capacity. As we look further into the future, the past and present are no longer reliable guides, and it may be that natural gas will in the longer term become a substantial competitor to oil products in the transportation sector.

It is not only in the area of inter fuel competition that gas is gaining ground. Here, in the Netherlands, gas has around 50% of total energy supply and, apparently, the market is saturated, making it difficult for gas to gain additional market share. This is far from being the case in other EU Member States. Opportunities for growth in market share for gas exist in all other Member States and indeed this is foreseen in most of them. In Greece and Portugal, natural gas is being introduced to diversify the energy balances in those countries and bring the environmental benefits associated with natural gas. In other countries, Spain for example, substantial natural growth is expected and indeed encouraged.

GAS SUPPLY

At present around 40% is imported into the EU from Russia, Norway and Algeria with small quantities from Libya, the balance (60%) produced from within the EU, the bulk (three quarters) of it coming from the Netherlands and the UK. As indigenous production eventually declines, so increasing volumes will be imported from outside the EU to satisfy Europe's

1 *See* Energy in Europe *N° 24 and 25.*

growing appetite for gas. This will mean that an increasing proportion of the EU's gas supply will be imported, rising to around 60% by 2010 (the reverse of today's situation) and maybe as high as 75% by 2020.

Being an industry with long-term planning horizons, much of the gas needed for the early years of the next century is already contracted. Analysts often talk in terms of a "supply gap" which refers to the shortfall in contracted supplies in relation to expected demand for a given year. According to the Commission's own figures, there may be a supply gap of up to 20% for the year 2010. This is not however a cause for concern. It would be surprising if indeed all the gas supplies needed to meet expected demand were contracted 15 years in advance. What is more, there appears to be ample supplies available and deliverable to fill this gap and indeed to satisfy demand well beyond this time. Russia, Norway and Algeria will remain the main external suppliers for the foreseeable future, and, in addition, there are other potential sources to meet the EU's needs for example in the Middle East, Central Asia and West Africa. It is clear that sources further afield will however need higher real consumer prices than are prevalent today in order to cover the higher transportation costs inherent in such projects, whether they be pipeline or LNG projects.

With increasing dependence on imported gas supplies, together with a fixed system of transportation infrastructure, it is natural that attention should focus on security of gas supply. Whilst there exists a mechanism for dealing with insecurity and crises in the oil sector, both at EU level and more widely in the IEA framework, no such mechanism exists in the gas sector. Moreover, two non-OECD countries together currently supplying around 30% of the Union's total gas supplies continue to experience a degree of political uncertainty. While the gas industry continues to provide a reliable supply of natural gas to its customers, large and small alike, it is right and proper that public authorities, whether at regional, national or European levels, shoulder their respective responsibilities in this area. The 1995 Green Paper on EU Energy Policy, referring specifically to the gas sector, states that "security of supply under competitive conditions should be a key goal of an EU energy policy".

HOW TO SAFEGUARD SECURITY OF SUPPLY FOR GAS?

The Commission in its recent communication entitled, "Gas Supply and Prospects"[2], has addressed this problem which may for convenience be divided into *external relations* and *internal measures*.

Under the external relations heading, it goes almost without saying that gas supplies must continue to be diversified. This has been the case to date - at least for the EU as a whole - but diversification will become more and more important as internal production dwindles and external dependence increases in the years ahead. Whatever the commercial considerations, it will always be desirable strategically to avoid undue dependence on a single source of supply. With many supply contracts already in place, diversification of supply looks reasonably assured for the next 20 years or so. However, vigilance in this area remains the watchword!

I should also emphasise the importance of *the European Energy Charter Treaty* in terms of security of supply. The Charter Treaty includes among its signatory nations many existing and potential gas supplying and transit countries. With its special provisions on transit and dispute resolution, the Charter Treaty holds an important place in the international framework to secure gas and indeed other energy supplies. The construction of a framework similar to the Energy Charter southwards, or an initiative by the Energy Charter Conference to extend the Charter process to cover other regional gas suppliers could reinforce supply security. The 1995 Euro-Mediterranean Conference in Barcelona offered a suitable forum to take this a stage further. In addition, the ongoing consumer-producer dialogue provides a further framework for stability and the establishment of closer ties.

While on the subject of external relations, I would like to refer to the countries of Central and Eastern Europe (CCEE), many of which should become EU members in the next few years. Excluding large international transit pipelines, it is estimated that CCEE countries will require at least 3 billion ECU of investment funding for transportation and storage projects over the next 15 years as well as around 100 million ECU for technical assistance associated with these projects. Moreover, CCEE countries will remain heavily dependent on gas imports from Russia, especially as indigenous gas production in the region declines in absolute terms, bringing the question of supply security sharply into focus. CCEE countries will be looking increasingly westwards to the EU for help in the form of increased gas trade, integration and co-

2 *COM(95) 478 final.*

operation as well as economic assistance. The strategic location of CCEE countries on the main transit routes linking eastern reserves with EU markets should not be overlooked. An important workshop on East-West Transborder Co-operation in the gas sector will also be held in the New Year under the Commission's SYNERGY programme. The aim of the workshop is to facilitate east-west integration at a practical level.

THE GAS NETWORK

Today, integrated gas grid is a far cry from that of the 60s or even 70s, although interconnections are still awaited which if made would strengthen further the integrated grid, adding to security of supply and forming the physical basis of the internal gas market. There are a number of such links identified as priorities in the Trans-European Networks (TEN) framework. Five such gas projects were given the highest priority by the European Council in Essen last year. Three of these projects are internal to the EU, helping to complete the internal network while two are major supply lines from outside the EU. There are a number of other TEN "common interest" projects in the gas sector, identified as such by the Council. This list is not fixed but may be amended as time goes by - but projects must be in the planning stage and have a definite timetable. TEN projects hold priority status with regard to unblocking any administrative constraints and attracting funding from the EIB (European Investment Bank) and small amounts directly from the Commission's own budget. In fact only last month, applications for EU support for feasibility studies were received in respect of six natural gas projects on this TEN list.

In addition to the TEN projects, the Commission has identified a number of other pipeline interconnections which, if completed, would enhance the EU's security of supply. Around 80% of European gas reserves are located in the North Sea and the Netherlands. The critical issue is therefore the ability to deliver these reserves. Some of these projects which are at the planning stage or even under construction, others have yet to reach the drawing board. Clearly a most significant project is the UK/Continent Interconnector which will initially make available the large UK gas reserves to Continental Europe, strengthening security of supply on both sides of the channel and adding a vital link to the single EU market for gas.

Time does not permit a detailed discussion of other internal security measures which you will find in the Commission's paper on "Gas Supply and Prospects". The future storage plans of the gas industry will almost double the total existing working storage volume of the EU in a time horizon from 2000-2015. However, while this expected increase is higher than the expected gas demand increase, the level of storage relative to external import dependence will be lower in 2010 than today. Storage projects are long-term projects and therefore an analysis of the costs and benefits of creating more storage capacity should be undertaken from an EU perspective to cope with the increased demand, reduced flexibility inherent in declining EU internal production and increased external dependence. This is particularly important for the less mature gas countries.

As in the case of to storage, *interruptibility* plays a key role in swing deliverability, and as such, interruptible customers provide a critical role in meeting security of supply needs. Different types of interruptible contracts exist in the Member States and their use also seems to vary greatly among them. The industrial sectors affected are different from country to country and so priorities of interruption need to be analysed. In order to determine the true level of interruptibility and the implications for security of supply in case of a major crisis, an investigation of the actual amount of interruptibility available among Member States would be required.

A crisis simulation study was undertaken by the Commission and described in the "Gas Supply and Prospects" Communication. It's conclusions were as follows:

- Interruption of supplies from a main non-OECD supplier could be dealt with more effectively when there is co-operation at a European level to cope with the supply shortfall. Therefore, the use of the EU dimension improves security of supply.
- EU gas companies already co-operate through cross border back-up agreements. However, there is little available data on them and it is not possible to establish if they would exploit the EU dimension to the full in the case of a major crisis.
- The elements of such EU co-operation involve the use of measures such as demand reduction through the use of interruptible contracts; production flexibility, both in terms of a country's own production and imports from other EU producing countries; trade of gas made available as a consequence of the greater import diversity of the EU as a whole as opposed to single countries; and use of available storage at EU level.
- To exploit fully these measures, the integration of the EU system of transmission lines linking the different EU sources of supply is crucial.
- Use of the measures referred to above, exploiting the EU dimension to the full, would take place in the normal commercial and operational environment in which the gas industry functions. However, though

higher prices will ensure that markets clear, even in a crisis situation, this may create political strains. Consideration should be given to emergency guidelines at EU level which might help to tackle such problems in an orderly manner.

In addition to the possible development of EU Emergency Guidelines for gas, another possible approach to reinforcing security of gas supply at EU level could be to establish *Security Targets*. For example, a target may suggest that each Member State is required to demonstrate they have either sufficient storage, interruptible capability, production/import flexibility, or a joint back-up emergency agreement with another Member State to cope with an interruption of supply from its non-OECD suppliers during the six winter months. Alternatively, using the same measures, Member States might be required to demonstrate the provision of "X" days of total gas consumption.

These targets might be differentiated provided the overall security objective is assured and there is an adequate degree of burden sharing. The Security Target approach would require an investigation into which are the most vulnerable Member States and what are the potential damages in case of a gas loss. The analysis could then concentrate on the most economically feasible mechanisms for each Member State, including the added value offered by full use of the EU dimension.
Clearly all such developments will need to be discussed fully with the Member States, the Parliament, the gas industry and other interested organisations before any EU guidelines could be drawn up.

Work should continue on analysing in-depth the evolving balance of all factors affecting security of gas supply at EC level and by Member State. This should take into account the costs and benefits of the various options, and cover not only developments on the supply side but also the implementation of TENs, completion of the Internal Energy Market and developments in external relations such as the European Energy Charter.

COMPLETION OF THE INTERNAL ENERGY MARKET

It seems unnecessary to repeat the steps which have already been achieved, in particular the Transit Directives[3] and the Price Transparency Directive[4]. The deadline to complete the Single Market - 1 January 1993 - is well past. The internal market programme applies to all economic sectors; no exceptions were foreseen in the Treaty for the energy sector. The Commission has an obligation therefore to complete the internal market in the field of energy. It is also important to say that all Member States agree with the objective of an open and competitive internal energy market. But progress has in reality been slow, understandably perhaps in view of the significance of the changes being considered.[5]

You are aware that discussions for several months have concentrated on the electricity.sector, leaving gas in abeyance pending a common agreement for electricity. In November last year, the Council reached political agreement on four key issues, covering public service obligations, unbundling of accounts, procedures for the construction of new production capacity and the role of the system operator. It is now of vital importance to find agreement on the fifth and last key issue, that of access to the network. The Commission has shown itself flexible with regard to the choice of final system, whether it be negotiated third party access or a modified single buyer system but certain fundamental principles would have to be guaranteed, such as full choice for consumers, the inclusion of distribution companies in the liberalisation and respect for competition principles with regard to dominant players.

Once agreement is reached in the electricity sector, attention will turn to the gas sector. It would be natural to look at some of the solutions decided for the electricity sector and assess their relevance for gas sector. But this will not necessarily provide the right solution without further ado for the gas sector, given the differences between the two sectors of which the Commission is conscious.

Without prejudging the negotiations which will take place in this vital area I would like to emphasise CHANGE. Politically we have already seen that energy lags behind other economic sectors. Once agreement is reached in the electricity sector, there will inevitably be strong pressure for change on gas and it would be surprising if the status quo could survive such pressure. In addition, however, change is happening in the market place. Competitive forces are growing in several Member States, consumers expect more choice and specifically the arrival of the UK/ Continent Interconnector may be a significant catalyst for change. The secret of success would seem to lie in arriving at a solution which is workable for all parties, which recognises the successful track record and strengths of the gas industry, but which accommodates

3 *Council Directive 90/547/EEC . OJ L 313, 13.11.1990.*
4 *Council Directive 90/377/EEC ; OJ L 185, 17.07.1990.*
5 *See articles elsewhere in this volume.*

the need for change. To achieve such a solution will require constructive contributions from all sides.

EU Energy Policy

In addition to the formulation of the White Paper, there will be discussions throughout 1996 on whether or not to include a chapter on energy in the revision of the Treaty. In this review, I have referred to the steady moves to complete the Internal Energy Market and the added value of addressing security of supply issues from an EU vantage point. It is already commonly accepted that environmental considerations must be a key element of energy policy and that they can be pursued most effectively at Community level. All this argues for broad energy policy provisions in a revised Treaty which remain relevant over time and which respect the principle of subsidiarity in relation to Member States and indeed regional authorities. We shall watch with interest in the coming months to see what is finally decided.

CONFERENCE ON FINANCING ENERGY PROJECTS IN THE MEDITERRANEAN BASSIN

Cairo, 2 and 3 October 1995 - General Report

BY P. Carvounis, DG XVII
Head of Unit for Energy Cooperation with Third Countries

The Cairo Conference on the financing of energy projects in the Mediterranean region was organized jointly by the European Commission (Energy Directorate, Synergy Program), the World Bank (Industry and Energy Depart.) and the Observatoire Méditerranéen de l'Energie (OME).
The idea for the conference was born in Seville in October during a seminar organized by the World Bank on electricity and gas policies in the Western Mediterranean. During the seminar, financing issues were seen as a strategic factor and it was thought that it would be useful to extend the debate to the entire region. This was confirmed by the Tunis Conference organized in March 1995 by the European Commission.

The Cairo Conference was attended by 350 participants from 22 countries. During its two days, many aspects of the central theme of the financing of energy projects were covered, in both the statements that were delivered and in the ensuing discussions. The discussions, centered around four main subthemes: the global perspective, consensus on major trends, obstacles, and proposals and recommendations.

FINANCING NEEDS

The preliminary studies done by the OME highlighted the amount of the investment that needs to be done in energy projects in the Southern and Eastern Mediterranean countries. From 1996 to 2010, some USD 250 billion will have to be invested in the energy sector, of which 57% for electricity (production transmission and distribution) and 43% for oil and gas. This translates into an annual flow of USD 14-16 billion, as compared with the current levels of USD 6-7 billion, i.e; a doubling of the current investement effort.

Currently, such energy investment is still to a large extent made by public sector enterprises, with possible funding from the national budget. However, enterprise and governments are, for the most part, faced with micro-and macroeconomics constraints that prelude them from playing their traditional role. Financing needs therefore have to be met by new channels, essentially the mobilization of domestic and international private capital. For that to occur, projects must be attractive and have an expected return high enough to attract private capital. Restructuring the energy sector is a prerequisite to attract funds and achieve the targeted goals.

The papers delivered showed that in the region there are many projects that can be broken-down into five major categories :

- *Supply*: power plants, development of hydrocarbon deposits, refineries;
- *Transmission*: domestic transmission of gas and electricity, regional interconnections, international gas pipelines ;
- *Distribution*: gas and electricity grids, decentralized energy systems ;
- *Rehabilitation of power plants*, gas and electricity networks, refineries ;
- *Energy conservation*, which most often have to be designed and carried out within a local or regional perspective.

These projects have either focused or general effects on economic development; their rate of return is not always coincident: they often result in interdependencies of various types: in economic terms between several countries or betweens new means of energy transport, including the local opportunities that these can generate along their route.

The use of private capital does not mean that public financing will disappear. Programs such as rural electrification will be largely financed by public funds, but the magnitude of overall needs requires a large-scale use of private capital, and hence the prospect of a good return on potential projects. One of the key points of the Conference was to identify the conditions under which such resources could be mobilized.

CONSENSUS

The Conference confirmed that there is a consensus among the countries in the Mediterranean region on the need for regional cooperation. This consensus reflects the desire of governments and enterprises to engage in dialogue, identify and implement joint actions, and reinforce their interdependencies, in order to better manage the share assets of Mare nostrum.
For the Northern Mediterranean countries - those of the European Union - the commitment to cooperation was strenghtened by the establishment of a new Community-wide Mediterranean policy that is more activist and ambitious and whose means are mobilized under the MEDA program. Other operations, such as the Synergy Program, are more specific to the energy sector, for which the DG XVII will launch the Energy Forum that could facilitate the mobilization of resources available under the MEDA program for energy projects. For its part, the European Investment Bank is an important link between the North and the South and a powerful catalyst for the securing of financing.

The World Bank Group made a detailed presentation of the policies and activities of IBRD, IFC and MIGA, with emphasis put on the technical and financial assistance given to the energy sector in the region's countries. The Bank's policy is based on the fact that traditional financing channels are no longer sufficient to funds increasing needs. Private capital has now to be mobilized, in particular, local sources. Mobilizing private capital requires that institutional reforms be implemented in the very short term. The Bank noticed that most Mediterranean countries are lagging behind the required schedule, which leads to divert financial flows towards more advanced countries.

In the Southern and Eastern Mediterranean countries, the commitment to North-South and within South cooperation also exists among the governments and enterprises. The financing needs of the energy sector and the associated micro-and macroeconomics financial constraints have made most of these countries aware of the need to undertake institutional reforms in the sector. These reforms are not the same for all countries and will not be introduced at the same pace, especially given the reservations in somes countries

Nevertheless, the major trends are as follows:

- The establishment in each country of a clear, transparent and stable institutional framework regarding legislation, sector organization, and administrative and judicial operations. The existence of such a framework, even if there is no general model, is a key condition for attractive private investors.
- More use by public enterprises of business practices and the management styles used in the private sector. Greater autonomy of public enterprises vis-à-vis the government and possible modification of their legal status (incorporation).
- Either partial or total, immediate or gradual opening up of energy activities to private capital, as a means of finding additional resources and increasing sector productivity. This process is well under way for power generation ; it is much farther behind for electricity and natural gas distribution. This is due, in part, to the weight of the political and social constraints shaping that sub-sector.
- Liberalization of prices and foreign trade.
- The taking into account in energy investments of energy conservation investments and, in particular in the electricity sector, the possibilities of implementing demand-side management policies.

The Conference also showed that there was a consensus among the participants for approaching energy investments from the standpoint of individualized projects. This approach makes it possible to more clearly show the technical and economic feasibility of each project, the cash flows that it can generate and the risks involved. In addition, the environmental impact, which is increasingly being taken into account, can be identified. This approach, which is an extension of the planned investments.

PERSISTING OBSTACLES

The Conference found that there are still many obstacles to be overcome before the financing of energy projects can mobilize the necessary resources in terms of volume, as well as pace and time frame. The biggest obstacles mentioned during the Conference were :

- lack of institutional framework ;
- country risk ;
- exchange rate risk
- the difficulty of mobilizing local savings ;
- the complexity of putting together project financing packages.

INSTITUTIONAL FRAMEWORK

Lack of institutional framework remains the main obstacle to attracting local and international private capital.

COUNTRY RISK

Country risk is a major consideration for private investors. It covers the risk borne by an investor should the Government not meets its institutional commitments, as well as all changes and unforeseen events that might occur and impact the original project's feasibility. Among such risks, a key cause of concern is the setting of selling prices by the private investor, if the selling prices (for a given project) are not automatically adjusted to reflect changes in unmanageable costs, the project's profitability may be eroded.

EXCHANGE RATE RISK

Several statements stressed the frequent obstacle posed by exchange rates that are structurally unfavorable. This occurs, in particular, when equipment is imported and the cash flow is generated in local currency. In order to cover such risk, special types of guarantees must be established.

LOCAL CAPITAL

Attracting local savings to an energy project financing is an important balancing factor since the use of local savings helps reduce exchange rate exposure. Unfortunately, mobilizing local savings often runs into numerous obstacles, such as the non-existence or scarcity of local financial markets, speculative behavior, and insufficient development of local financial channels. It was recalled on several occasions, in particular by bankers, that the mobilization of local savings should be considered a priority.

FINANCIAL ENGINEERING

Energy projects that involve private investment are subject to thorough financial analysis that aims at identifying all types of risk so that they can be covered. Because coverage is often covered contractually, many projects therefore become veritable web" of contracts. One project mentioned during the Conference involves, for example, the following array of contracts; implementation agreement, power purchase agreement, fund agreement, construction contract, operating and maintenance contract, fuel supply agreement, water utilization agreement, loan agreement shareholders' agreement, escrow account agreement, and consultant agreement. These contracts cover different aspects: technical, economic, financial, legal , institutional, and environmental. They are interdependent and consequently entail multiple parallel negotiations. The mobilization of private capital thus means that the operation is much more complex, due largely to the appropriate coverage of country risk. The completion of institutional reforms now under way in some countries might eventually reduce the country risk and, as a result, simplify procedures.

PROPOSALS AND FOLLOW-UP

The financing conditions of energy projects and the associated obstacles were the subject of a number of proposals made during the Conference. Some of those proposals have already been formulated and tested; others have been suggested rather intuitively and require more thorough examination.

It is fairly generally accepted that the mobilization of the resources needed for most energy projects should rest on two main principles:

- diversity of the sources of financing ;
- plurality of partners.

These two principles arise from the nature of the risks and their distribution.

- The diversity of financing sources (multifinancing) seeks to increase the number of financing channels and utilize the full range of what is available. This means commercial, national and international banks, export credit agencies, bilateral financing and international institutions. It was stressed several times at the Conference that there are as yet unfamiliar means of financing on guarantee that can at times make it possible to conclude the financing package for a project that is not completely financed by conventional means.
- Partnership is a way of sharing risks. National or international entities with different or complementary juridictions may get together on a joint project in order to provide the intial capital and share the risks.

These common grounds were the basis for four main areas of discussion at the Conference:

- financing of joint ventures ;
- improving financial engineering ;
- coordinating overall project engineering ;
- new sources of financing ;
- new guarantees.

FINANCING JOINT VENTURES

By definition, projects that entail electric and gas interconnections involve several countries and the benefits reaped by each country in question can be considerable. However, it was shown in the case of electricity interconnections that the investments made

in each country are may not be proportional to the benefits reaped by each country. Attention must therefore be paid to the sequencing of investments and devising a global financing process. This could eventually lead to the joint management of high-voltage transmission networks. These concerns are apparently behind a trend in which purely technical interconnections are giving way to energy trade on purely commercial bases. Studies have already been done on this subject. There is clearly a considerable potential for economic benefits from cooperation and ways of implementing these ideas should be explored. This could be achieved through such institutions as the Euro-Med Forum and the Energy Charter Treaty.

Improving financial engineering

The experience of different countries shows that BOT schemes and related arrangements are not easy to implement, especially owing to the multiplicity and complexity of contracts and the protracted negotiations. Efforts are under way, in Turkey in particular, to simplify the implementation of such arrangements. This issue should be addressed jointly by the countries and the shareholders, including the major issues of tranfer of technology and local supply.
BOT does not appear suitable for privatization operations to rehabilitate existing facilities. It has been shown that the rehabilitation of existing plants (especially for power generation and for refining) can be very beneficial financially. LROT (lease, renovate, operate and transfer) packages have been suggested and should be appraised further.

Overall projects coordination

The organizational complexity of projects was repeatedly brought up: proliferation of contracts sources of financing and players. As such, there is a clear need for coordination, especially between credit export agencies and commercial banks. It also appears that some of the players have not sufficiently sought to adapt their methods to the new financing context. This is an area for analysis and action. An institution such as the World Bank, which acts as both donor and financial adviser, might be able to serve as facilitator in financial engineering.

New sources of financing

Taking into account the need for multifinancing, various sources of fund need to be screened and ranked, for equity as well as debt financing. With regard to the latter, IFC has emphasized that holding equity positions is a priority as it allows attracting additional equity and debt. From another standpoint, the joint UN/World Bank Global Environment Facility (GEF) enables projects where improving environment is the key objective to make it economic through additional funding EIB may implement softer loans where improving the environment is at stake.
Several additional possibilities were mentioned, among others: the provision of European risk capital for such projects through the European Investment Bank; the establishment in each country of a National Energy Conservation Fund that would be funded by a tax on rates and used to finance energy conservation investments.

New guarantees

Covering country risk remains one of the major obstacles to attracting private capital. The World Bank Group (through IBRD's Partial Risk Guarantee and Partial Credit Guarantee as well as MIGA's Guarantee) has recently set up new financial instruments to overcome the investors reluctance caused by the threat that lack of clear rules of the game may cast on project financing.

In some cases, it appears that direct and indirect public guarantees could be reintroduced. In IPP projects, this would be the case for the key element, i.e. the purchase power agreement (PPA). In such cases, the government may stand behind the financial viability of the public enterprise that purchases the electricity from the private investor. Other types of guarantees were mentioned: for example, Moroccan law guarantees that the economic equilibrium initially agreed between the partners in the project will be maintained.
Eventually, an idea was brought up by a number of enterprises in the region: the establishment of a Mutual Guarantee Fund replenished by regional shareholders that would seek to share certain risks.

The Conference thus raised a number of critical issues that need to be discussed in the context of more technical gatherings or of broader gatherings such as the Barcelona Euro-Med Conference that will take place in late November. All means must be explored for improving the financing of energy projects. They continue to play a major role as an agent of economic development. Beyond the possible improvements, it is clear that the key problem in project financing is the rapid and complete implementation of institutional reforms. ◻

CO-OPERATION BETWEEN EURATOM AND THE RUSSIAN FEDERATION IN THE AREA OF NUCLEAR MATERIAL ACCOUNTANCY AND CONTROL, AND SAFEGUARDS

BY W. Gmelin, DG XVII
Director for Euratom Safeguards

A co-operation programme between the Euratom Safeguards Directorate and the Russian Federation in the field of nuclear material accountancy control and safeguards was initiated in 1992 and formalised in 1993. The aim of the programme is to upgrade the nuclear materials accountancy and control system in the Russian Federation to the same standards as those maintained in Western countries with substantial nuclear programmes. A project-oriented co-ordination structure was established and funds were made available by the European Parliament. A phased approach was developed and after an initial phase of familiarisation and training, a number of concrete co-operation projects were started. This paper outlines the overall co-operation programme the Euratom Safeguards Directorate has set up with the Russian Federation and details as an example some of the current projects.

INTRODUCTION

Following the dissolution of the former Soviet Union, the centralised system for nuclear materials control and physical protection either ceased functioning effectively or disappeared entirely in the various republics of the Commonwealth of Independent States (CIS). An effective system which can properly control the nuclear material is presently not available. It also appears that the inventory of nuclear material present in these countries is not accounted for in the way one is used to in the West. Furthermore, the dismantling of nuclear weapons will considerably increase the amount of very sensitive fissile materials (Plutonium or Highly Enriched Uranium) which will have to be controlled properly.

The European Union together with its Member States, and other Western countries expressed their strong concerns about this situation and decided to co-operate with the CIS republics to set up a reliable system of controls. In 1992, contacts were established between the Russian authorities on one side and the European state authorities and the European Commission services on the other. Member States of the European Union, the European Parliament and the Commission realised that immediate efforts were required in the field of nuclear material accountancy, control and safeguards. It was decided to focus the efforts particularly on the Russian Federation. A co-operation programme between the European Commission, in particular the Euratom Safeguards Directorate, and the Russian Federation was soon established. It was formalised in 1993 following the provision of funds by the European Parliament. A project-oriented co-ordination structure was agreed with the Russian authorities that proved to be efficient in respect of transparency, documentation of the results, project management, resource allocation and quality control. This paper outlines the programme the Euratom Safeguards Directorate has set up with the Russian Federation and details, as an example, some of the current projects.

PROBLEM DEFINITION

From the initial phase of co-operation with the Russian Federation, Euratom was able to identify the areas where the existing arrangements for nuclear materials accounting and control were not completely consistent with norms in the European Union or in other Western countries. Clearly, the arrangements in Russian installations had been developed to operate within a specific system. Now that this system no longer exists, it has been extremely encouraging that the Russian partners have actively sought co-operation programmes such as this in order to appreciate the alternatives and to adopt Western norms in this important area.

The issues which have so far been identified as in need of being addressed are:

- establishing nuclear materials accounts based on the best physical knowledge of material involved in transfers, operations etc. It seems to be by no means universal, but there are installations which use financial or operational ("technological losses") considerations to change the nuclear material accounts. Separating these considerations and establishing a nuclear materials accounts system based on physically independently determined values is therefore an important issue. In addition criteria for such systems in terms of, for example, precision and timeliness need to be established;
- definition of separate responsibilities for key related functions within the area of nuclear materials accounting and control e.g. plant operations, nuclear materials accounting records keeping, nuclear materials control, analytical services, quality assurance, physical inventory taking. This is a somewhat esoteric point as the requirement is rarely, if ever, explicitly defined in Western nuclear operational regulations but has evolved with the industry. The old Soviet system imposed a very strict system of individual responsibility for certain areas but comprising many or even all of these functions. Now that this system no longer exists, the security afforded by it needs to be replaced by a separation of the functions listed. This separation can be achieved in a number of ways and is, in many respects facility-specific, but it is an issue to be addressed;
- establishing a nuclear materials accounting system based e.g. on a division into Material Balance Areas which starts from an agreed point i.e. an accepted physical inventory and in which all transfers in and out are then recorded so that at any point in time the updated book inventory can be determined. Periodic physical inventory taking and comparison of these figures with the independently updated and audited book inventory figures are required.
- establishing data handling and processing procedures for data capture, transmission and treatment at installation, regional and national level. Clearly the appropriate software and hardware also needs to be made available to enable computerised information systems to be implemented;
- the determination and availability of methodology, techniques and equipment to perform verifications at the national and regional safeguards level. This concerns exclusively the Russian national inspectorate Gosatomnadzor that has many and varied responsibilities in the nuclear fuel cycle in Russia. Defining methodology for the safeguards activities and techniques to implement this methodology is a key issue. Only in this way can Gosatomnadzor approach its safeguards task in a structured way to provide acceptable coverage of all its safeguards responsibilities with a reasonable use of resources. The availability of appropriate equipment is a prerequisite for the successful completion of these tasks.

OUTLINE OF THE CO-OPERATION PROGRAMME

The co-operation programme that was set up with the Euratom Safeguards Directorate therefore aimed at :

- upgrading the nuclear materials accountancy and control system in the Russian Federation to the same standards as those maintained in Western countries (for example, those of the European Union) which have substantial nuclear programmes;
- ensuring that such a system would comply with the safeguards requirements of the International Atomic Energy Agency (IAEA) and;
- as a consequence, contributing to the non-proliferation of nuclear materials and to the minimisation of hazards to the public through the illicit traffic of nuclear materials.

The participants in these co-operation programmes are:

- Gosatomnadzor (GAN) - the Russian national inspectorate;
- the Ministry of Atomic Energy of Russia (Minatom);
- several scientific research institutes within the Russian Federation;
- the Euratom Safeguards Directorate (ESD), and
- the European Joint Research Centre (JRC).

The co-operation was set up in two phases:
The first one was focused on the training of inspectors and various experts in the field of safeguards methods and techniques. Several seminars were organised, bringing Russian experts to the Euratom Safeguards

Headquarters in Luxembourg to familiarise them with its safeguards systems, and to provide them with logistical help (computers, documentation, etc.). Russian experts also accompanied Euratom inspectors on visits to different types of nuclear installations in the European Union. This first phase was completed in early 1995.

The second phase focuses on a number of concrete projects related to the implementation of nuclear material accounting and control systems at individual plant level as well as at the national level. These projects have started and are expected to be finished in 1997.

They cover the collecting, processing and evaluation of information, establishment of inspection procedures, the setting up of accounting systems for nuclear materials in selected plants, and the organisation of nuclear material accountancy and control at the inspecting organisation level in a selected region.

THE FIRST PHASE OF THE CO-OPERATION PROGRAMME

The extent of these activities, the progress achieved so far and detailed future intentions are presented in the paper given in ref. 1.

Summarising, the first phase consisted of training and familiarisation of Russian experts in the field of nuclear material accountancy, control and safeguards. A number of visits were organised to nuclear installations in the European Union, during which apart from the familiarisation aspects, the Russian participants had the opportunity to participate actively in (simulated) Euratom inspection exercises. These visits/inspections were aimed at providing training in the preparation, execution, evaluation and conclusion of inspections as carried out by Euratom. It was concluded that these inspection activities or exercises provide essential 'on the job' training and that they should eventually include all types of installations to cover the entire fuel cycle.

Also in this first phase of co-operation, work was performed on the design of a nuclear materials control system. This work was mainly performed by Russian experts working at the Euratom Safeguards Directorate Headquarters in Luxembourg. The underlying idea of this project was that the Russian experts, responsible for the design of the future Russian national nuclear materials accountancy and control system (called NMAC), would achieve the design of relevant systems, concepts and approaches through day-to-day contacts, discussion and co-operation with the corresponding Euratom staff, while the necessary design tools (e.g., computers, documentation) and infrastructure would be made available by the Euratom Safeguards Directorate. The system specifications were defined and documented. The Euratom safeguards system was considered to be the basis of the system to be developed for the Russian Federation as far as the methodology, the accounting principles and safeguards techniques are concerned. While the relevant work in this field will, by necessity, continue in the Russian Federation, these projects can be regarded as completed.

Also in this first phase of co-operation, training was provided in the form of safeguards seminars. Several seminars were organised in Luxembourg and in St Petersburg, involving the Russian nuclear industry and authorities, European Union operators and European Commission staff.

The Russian side has outlined the vital importance of all the above projects, their appreciation of the work performed and the usefulness of the results achieved, which they described as very significant and essential.

THE SECOND PHASE OF THE CO-OPERATION PROGRAMME

After completion of the first phase, the Russian Federation delegation officially proposed four major projects, all relating to the practical implementation of nuclear material accountancy and control (NMAC) systems in Russia, based on the results of the first phase described earlier.

These projects are:

➢The "Gosatomnadzor North-European Regional Information System (CISNER)"

This project includes the analysis of the present NMAC system at installations under inspection and supervision by the North-European District of Gosatomnadzor of Russia; the development and implementation of the safeguards system at installations of the North-European region; the trial, review and documentation of the developed procedures and methods at these installations.

The joint project includes participation of Gosatomnadzor Northern European District and Headquarters, Minatom Moscow and the Euratom Safeguards Directorate. In a first stage it involves nuclear power plants in Sosnovy Bor, Kursk and Smolensk, a research institute in Sosnovy Bor, a nuclear material transport and storage company in St. Petersburg, and several companies involved in the construction, testing, operation and re-loading of nuclear propelled ships in St Petersburg and Murmansk.

The project started with the analysis of the existing nuclear material accountancy and control systems in the installations which are part of the project. Design information for the installations concerned was prepared and reviewed, and visits to the installations have started. These visits have shown that in most of the cases some form of local nuclear material accountancy systems exists and in some cases is being updated to include, eventually, requirements for international safeguards. However the computer hardware and software in use urgently needs to be upgraded.

Reporting to, and communication with, the local and regional safeguards authorities is not uniform or transparent and is very difficult. The organisational structure of the different nuclear installations is sometimes very unclear and their relationships with Gosatomnadzor differ from case to case. Also the very long distances and the poor telecommunication form a challenge to be addressed.
The visits to the different installations also revealed that the actual inspection work of Gosatomnadzor is limited to accountancy and consistency checks. Physical verifications are marginal as no safeguards equipment, e.g. NDA instruments, seals or surveillance systems, is available. It was therefore decided to enlarge the CISNER project to include the procurement and installation of the safeguards instrumentation necessary to control the plants and training of the Gosatomnadzor inspectors in the use of the equipment.
In parallel the work on the development of the computerised data handling and treatment system started. In this area Russian experts worked in Euratom headquarters to define the requirements of the system and to give recommendations for the design and implementation. The data flow related to nuclear material accountancy and control involve the installations themselves, the local Gosatomnadzor inspector, the Gosatomnadzor field offices in Sosnovy Bor, Murmansk, Severodinsk, Kurchatov and Desnogorsk and the North European District Directorate of St. Petersburg. A technical report containing the user requirements and design options is in preparation.

The Russian partners requested the following features and characteristics be included in the system: rapid transmission and processing of information; high reliability of the information transmitted and processed; high system reliability; reduction of routine work to a minimum; creation and maintenance of a data base for nuclear material accounting and control in the North-European region and use of computerised tools to optimise decision making.

In order to divide the project into manageable items, a pilot project was defined involving one nuclear power plant and all levels of communication from the plant operator, via the local and field offices of Gosatomnadzor, to the main regional Gosatomnadzor office of St. Petersburg
The Euratom co-operation consists of support to technical experts of Gosatomnadzor and the plant operators in writing user requirements specifications and system definition documents, and of making funds available to procure computer hardware and software. Involvement of companies which are already well established in Russia is seen as a key factor to guarantee success.

The pilot project has been defined in detail, hardware and software procurement and development is under way. It is expected that the first equipment will be delivered by the end of this year.
After successful testing of the pilot system, the system will be expanded to the other installations of the project based on a priority list defined by Gosatomnadzor.
Gosatomnadzor has shown a great interest in the project, the people working on the project are highly skilled and very motivated to bring the project to a successful conclusion. A lot of work is being invested in the establishment of the legal, regulatory and procedural aspects of Gosatomnadzor. This will however require a great deal of effort over a long time and it is our feeling that Euratom can effectively contribute in these aspects.

➢The "Minatom Computerised Central Information System (MINS)"
The MINS project (MINATOM Computerised NMAC Information System) is established jointly between Minatom of the Russian Federation and the Euratom Safeguards Directorate and comprises the study, design, specification, realisation and implementation of a centralised and computerised information system for Minatom. It was decided that MINS basically should concentrate at first on a centralised headquarters system, linked to computerised work places at two nuclear power plants, at one LEU fuel fabrication plant and at the controlling operator organisation(s). The outcome of the project should provide Minatom with a solid informatics and accountancy platform, which will enable the various users to gain experience with a computerised system. It can later be extended to a comprehensive computerised NMAC system for the entire fuel cycle in the Russian Federation.

The general objectives of the MINS project are the development of a regulatory framework and

accompanying documents, the improvement of the centralised information (headquarters) system, the improvement of the NMAC system at facility level (computerised work stations), and the development and implementation of specific NMAC applications.
MINS will include the following features: high system reliability, optimum use of modern technology for fast and secure information transmission and processing, extensive database for storage and management of NMAC data.

Given the scope of the project, the following organisations participate:
1. Minatom, the Ministry of Atomic Energy of the Russian Federation, which is the requesting Authority and eventually responsible for the implementation;
2. TSNII Atominform, which is a large research and information handling institute depending from Minatom of which a specially created section of Atominform has been entrusted to carry out the majority of the work involved in MINS;
3. Rosenergoatom: a public organisation ('operator organisation') grouping and supervising most of the Russian Federation nuclear power plants;
4. TVEL, the public organisation ('operator organisation') to which belongs the LEU fuel fabrication plant at Novosibirsk;
5. VNIIA, scientific research institute for automation;
6. VNIINM, scientific research institute for inorganic materials;
7. Gosatomnadzor;
8. and Euratom.

The MINS project started officially in September 1994 and will be completed by the middle of 1997. The project team comprises 22 team members of which eight are from Euratom and 14 are specialists from the Russian Federation.
The period from September 1994 to July 1995 allowed both sides to get acquainted with each-others working methods, to organise fact finding missions and to establish a detailed work schedule. In particular two progress meetings were organised at Luxembourg, two technical visits were paid (Kalinin nuclear power plant and Novosibirsk fuel fabrication plant) and three to four Russian experts stayed at Luxembourg for two different one-month periods. Following detailed discussions between Russian staff and Euratom officials, the Russian experts issued a feasibility report and the associated supporting documentation. Over 500 pages in total have been translated from Russian by Commission services and were studied and commented on by Euratom.
The project has now arrived at a turning point. With the initial analysis and feasibility study completed, the next phase will consist of equipment acquisition and installation, specific training and preparation for the programming of the database management system. At the latest MINS progress meeting (3 and 4/8/1995 at Luxembourg) the detailed equipment specifications for the HQ system to be installed at Atominform as well as a delivery schedule were agreed upon, the nuclear power plants to be included in MINS were chosen to be Kalinin NPP (VVER 1000) and Smolensk nuclear power plant (RBMK 1000); the fuel fabrication plant will be the LEU plant at Novosibirsk. Each will be equipped with computerised workstations. Also the operator organisation Rosenergoatom controlling these nuclear power plants and Minatom itself will receive appropriate workstations. Requirements of the equipment were drafted. A link is established between the CISNER project with Gosatomnazor and the MINS project as the projects are similar, because both systems will eventually be linked because a lot of useful work done within CISNER can be of direct use to MINS.

The following activities are scheduled to take place before the end of 1995: acquisition, performance testing and installation of the hard/software for the HQ system; final specification and acquisition of hard/software for the other computerised workplaces; initial training of first 2, than 5 Russian experts on the use of the DBMS chosen; full scope training of 8 Russian experts on the use of the DBMS; other software training at Luxembourg.

➢The "PIT Procedures Project (PROC)"
This project, between Minatom, Gosatomnadzor and the Euratom Safeguards Directorate, relates to the development of joint recommendations on physical inventory taking (PIT) at VVER-1000 Nuclear Power Plants and at a LEU Fuel Fabrication Plants. It includes the elaboration of draft regulatory documents governing the preparation and conduct of physical inventory-taking at power plants and fabrication plants; the testing of these draft regulations at the facilities while performing inventories and the finalising of the regulatory documents on the basis of the trials carried out. The whole range of activities relating to physical inventory taking: accounting system arrangements, records audit, documentation, physical preparation, organisation, performance of the PIT, evaluation will be covered. The project work started in July 1994 and is expected to be finalised by October 1995.

The project phases have been defined as follows:
➢Initial technical information and plant visits. The plants chosen for the exercise were the Kalinin VVER-1000 Nuclear Power Plant and the Novosibirsk LEU Fuel Fabrication Plant. Technical information about plant operations, material accounting arrangements

and, in particular, physical inventory procedures has been provided by the operators. Both plants have been visited by the project team to review the information provided and examine the materials accounting and physical inventory arrangements.

- The second stage relating to document production is now well under way. Euratom has proposed a draft series of general recommendations on physical inventory taking. This will be followed by recommendations on physical inventory taking in Nuclear Power Plants and in LEU Fuel Fabrication Plants. Finally the operator (Minatom), on the basis of the agreed guideline documents, will produce specific PIT procedures for the Kalinin and Novosibirsk plants including forms to be used, operational preparation, inventory methods, evaluation etc.

- Minatom and Gosatomnadzor intend to use the results of the project as essential input to the development of regulatory documents governing the preparation and conduct of physical inventory taking at Nuclear Power Plants and LEU Fuel Fabrication Plants.

The project is proceeding well and a large measure of agreement has been reached on all aspects of nuclear materials accounting and physical inventory taking which have been discussed and for which guidelines have been drafted.

Recently, on the occasion of the visit to the Novosibirsk LEU Fuel Fabrication Plant the operator and Gosatomnadzor strongly indicated that they wished to extend the project to include full PIT exercises followed by physical inventory verification (PIV) by Gosatomnadzor. If the Russian side propose this to the Joint Co-ordination Group, this will form a new project starting when the current project finishes in October 1995 and lasting up to 18 months.

The interest in PIT/PIV projects with our Russian collaborators has been considerable and it is likely that more projects of this kind will be proposed in the future. Euratom welcomes these initiatives and considers that work in this area enables valuable insights to be gained into the nuclear material accounting and control systems in Russian Federation installations and also enables our Russian collaborators to appreciate Euratom's standards and practices in this area.

- The "PIT/PIV Project (PPP)".

This project was on the initiative of the Kurchatov Institute (RRC-KI). They proposed a co-operation project with Euratom and Gosatomnadzor with the following objectives :

- Develop PIT procedures for two critical rigs and associated local storage facilities. One rig using 96% high enriched uranium as UO_2 in ceramic pellets, the other using 21% high enriched uranium in micro particles of UO_2 within graphite and silicon carbide layers in pebbles.
- Co-operate in performing a practical PIT exercise in the two installations.
- Using this as a starting point for a new materials accounting system and therefore for a materials balance period, define activities during the period to test potential new working arrangements between the operators and Gosatomnadzor.
- At the end of the materials balance period, co-operate in performing a practical PIV exercise with Gosatomnadzor based on a second PIT by the operator alone.

Starting in April 1994, considerable progress was made in developing PIT procedures and nuclear materials accounting arrangements, defining activities between operators and Gosatomnadzor and proposing PIT techniques and equipment. Unfortunately, following this promising start and some detailed preparation including shipment of Euratom equipment to Moscow, the project could not proceed as planned because of difficulties on the Russian side whereby a number of key previously agreed arrangements could not be maintained. This would have limited the activities to an exercise much reduced in scope and which, in Euratom's judgement, did not warrant at that stage the use of considerable resources. The project has therefore been postponed until suitable arrangements can be concluded which all sides would consider beneficial. Nevertheless, the project enabled Euratom to understand in detail current and planned future nuclear materials accounting arrangements in the two installations and enabled RRC-KI and Gosatomnadzor to appreciate Euratom's approach to these arrangements, in particular with respect to instrumentation, destructive analysis and operator/safeguards authority interface.

FUTURE CO-OPERATION

- In June 1995, the Russian Federation proposed five additional new projects. The Commission is at present evaluating the scope and the importance of these proposals, taking into account the available expertise and human and budgetary resources within the Euratom Safeguards Directorate. These proposals include a further "Physical Inventory-Taking and Verification Project (PITV)" in complex nuclear facilities, the development of a data analysis system for measurement results, the establishment of a centre for reference materials and measurement technologies and the organisation of a seminar on the development and application of reference materials.

- As a result of the decree of President Yeltsin issued in September 1994 enforcing the role and the powers of Gosatomnadzor and of the decree of Prime Minister Chernomyrdin issued in January 1995 Gosatomnadzor was required to establish a series of regulatory documents at national, regional and site level concerning the accountancy and control of nuclear material. In this framework Russian experts are working in Luxembourg to establish these documents
- The Russian side requested the opportunity to participate in actual inspections including an inspection at an enrichment plant
- Euratom experts will accompany Russian inspectors during their verification activities in specific plants in the Russian Federation.

CONCLUSIONS AND RECOMMENDATIONS

- The results of the co-operation of the Euratom Safeguards Directorate with the Russian Federation are encouraging and their value has been officially recognised by the Russian partners as significant and essential.
- The experience from these visits suggests that the Russian participants have a high level of technical knowledge and experience in nuclear technology but that further training in and familiarisation with modern safeguards techniques, methods, logistics and evaluation would be very useful.
- As a conclusion it can be said that all participants in the projects have demonstrated a great interest in their complete execution. Euratom became convinced that assisting the Russian Federation in this area is the right way to proceed. Euratom has also learned to appreciate the motivation, technical knowledge and human qualities of their Russian counterparts and experience the collaboration not only as a one way exercise but as an exchange of expertise where all participants can benefit. Indeed the Euratom staff participating in these projects were required to reflect on and to describe Euratom safeguards to outsiders who professionally reviewed its methodology and practices.
- Expert manpower continues to be insufficient for these co-operation activities. The present level of co-operation cannot be maintained without voluntary and extra effort by Euratom staff. If this co-operation continues the manpower situation has to be reviewed.

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EUROPEAN CONTRIBUTION TO DISPOSING OF RUSSIA'S SURPLUS MILITARY PLUTONIUM

BY A. Decressin and J.P. Lehmann, DG XVII
Nuclear Energy Unit

The International Science and Technology Centre (ISTC) has decided to finance a feasibility study on the use of plutonium of military or civil origin as a fuel in nuclear power plants.

At its quarterly meeting on 30 June 1995 the ISTC's Governing Board earmarked almost ECU 6 million to fund 27 new projects, one initiated by DG XVII, known as project n° 369.

The ISTC is an intergovernmental organization set up in March 1994, by international Agreement, to develop, approve, finance and monitor science and technology projects with the following objectives:

- to give weapons scientists and engineers in Russia and other CIS States opportunities to redirect their talents to peaceful activities;
- to help with the transition towards a market-based economy responsive to civil needs;
- to support basic and applied research and technological development for peaceful purposes;
- to promote the further integration of scientists and engineers from Russia and other CIS States into the international scientific community.

Accordingly, the ISTC helps twin former weapons scientists and engineers in Russia and other CIS States with foreign colleagues similarly interested in the research and development of peaceful projects.

The current signatories to the Agreement establishing the ISTC are the European Union, Japan, the Russian Federation, the United States of America and the Republic of Georgia.

The ISTC has three administrative bodies: the Governing Board, the Scientific Advisory Committee and the Secretariat, which is located in Moscow and run by an Executive Director.

The meeting of 30 June 1995 was attended not only by the Signatories, but also by representatives of Armenia, Belarus and Kyrgyzstan. Kazakhstan, too, will be joining the organization. The 27 new projects approved at the meeting will redirect 1 300 scientists and engineers specializing in A.B.C. (atomic, biological, chemical) weapons and missile technology towards civil programmes:

- monitoring of nuclear materials
- development of dangerous chemical product databases
- nuclear reactor safety
- transport and storage of dangerous materials
- recycling technology
- research into magnetic fusion
- development of peaceful laser applications
- soil decontamination
- development of pesticides
- new electricity generation technology
- manufacture of medicinal products.

These new projects included, the ISTC will be spending more than ECU 50 million on 157 projects involving 9 500 scientists.

PLUTONIUM DISPOSAL

When the ISTC was set up in 1994, DG XVII took the initiative of proposing a project No 369-p on the technical and economic feasibility of using military and civil grade plutonium to fuel nuclear power plants. It received an encouraging response from a number of EU Member States already active in that field (B, D, F, UK) and submitted a draft study for examination by the Russian Ministry of Atomic Energy (Minatom), with which it is in regular contact. DG IA (External Relations) and DG XII (Research and Technology) were then brought into the picture, and the process initiated by the Commission eventually resulted in

Minatom officially submitting Project No 369, which was approved by the ISTC Governing Board.

POLITICAL AND TECHNOLOGICAL ASPECTS

The study reflects a major concern in the EU and Russia alike. Given the policy of disarmament and non-proliferation, the EU has a vital interest in disposing of Russia's miiitary plutonium stocks as quickly as possible. The quickest and most economical solution would be to recycle them in nuclear power plants, and the Russian Federation has said repeatedly that it considers plutonium to be a precious source of energy for its people. Russian plans to date have focused on recycling plutonium in existing fast neutron reactors, such as BN-600 in Beloyarsk (Siberia) and BN-350 in Schvevchenko (Kazakhstan), or reactors to be built in series, such as BN-800 (still at the planning stage). Russian research centres have begun studying the use of mixed uranium and plutonium oxide ("mox") fuel in VVER-1000 light water reactors built using technology similar to that used in the PWRs operating in several EU Member States (B, D, E, SF, F, UK, NL, S). Russia currently has seven VVER-1000 reactors in service at Balakovo, Kalinin and Novovoronezh, and seven others under construction. Still others are operating in a neighbouring country.

The EU nuclear industry is a world leader in the industrial development and commercial exploitation of "mox" fuel technology in pressurized light water reactors and is well placed to guide the use of such fuel in the VVER-1000.

Industrialists in those Member States working on plutonium recycling technology have not only shown interest in Project No 369 from the outset, but have written to the ISTC management expressing their wish to collaborate with and support the Russians throughout the study.

STUDY PLAYERS

Minatom appointed seven Russian research institutes to conduct the feasibility study, making one of them responsible for directing and coordinating the work: the Institute of Physics and Power Engineering (IPPE) in Obninsk.

The other participants are the All-Russia Scientific Research and Design Institute of Power Technology (St Petersburg), the "Bochvar" All-Russia Scientific Research Institute of Inorganic Materials (Moscow), the "GidroPress" Special Design Bureau (Podolsk), the "Khlopin" Radium Institute (St Petersburg), the Experimental Design Bureau of Machine Building (Nizhny Novgorod) and the Governmental Specialized Project Institute (Moscow).

In the EU, the following are taking part: Belgo-nucléaire (Belgium), Cogéma, C.E.A., Framatome (France), B.N.F.L. (United Kingdom) and Siemens (Germany).

PROGRAMME CONTENTS

The feasibility study is based on systematic comparative analysis of the technico-economic parameters of various scenarios for using military or civil grade plutonium in:

- fast neutron reactors to be built on a single site with the appropriate fuel cycle installations;
- pressurized light water reactors already in service (VVER), loaded partly with "mox" fuel;
- pressurized light water reactors adapted to take 100 % "mox" fuel.

The programme will comprise two phases, each lasting a year:

- Phase 1: Characterization of principal fuel parameters, including the most stringent safety requirements. Calculation of investment and operating costs for successive stages of plutonium use in the reactors and in fuel cycle and storage installations.
- Phase 2: Systematic comparative analysis of the various scenarios, using standard methodology, to determine their economic effectiveness. Environmental impact assessment from the point of view of radiation protection and waste management and evaluation of measures to prevent misuse of nuclear materials.

RESOURCES

The human resources available to the seven Russian research institutes represent 1 300 men x months (an average of around 50 researchers). The basic data will be derived from neutronics calculation using the most up-to-date balance calculation (taking account of the amount of energy produced and isotope composition changes), while mathematical models will be used to determine technico-economic feasibility. The research institutes will make their data banks, software and data-processing capability available to the project, while the European Union will be providing almost ECU 450 000 in funding. Two-thirds of the budget will go on staff costs, and around half of that will go to the IPPE, chef de file for the project.

The project will be guided by a joint organizational committee of experts from the Russian Federation and the European Union. The committee will meet twice a year, alternately in Russia and one of the EU Member States.

Progress reports will be produced each quarter, along with sectoral interim reports (fast reactors, light water reactors, fuel cycle, comparative analysis) and, of course, a final report. The findings will be published in the specialized national and international press and at international scientific meetings.

THE STUDY WILL HAVE AN IMPACT

It is intended as an essential reference in nuclear disarmament decision-making, providing a tool for evaluating the possible uses of plutonium and taking account of non-proliferation considerations, environmental protection, nuclear safety and technico-economic feasibility.

Its findings will also serve to guide R&D projects and identify areas of cooperation between Russia and the EU Member States active in the area concerned.

The project is in line with international political and economic thinking and planning, with the western countries embarking on the peaceful use of military fissile material to minimize the risk of misuse.

BI-ANNUAL CONGRESS OF THE INTERNATIONAL NUCLEAR LAW ASSOCIATION

Helsinki, 4 and 8 September 1995

BY R. Lennartz, DG XVII
Nuclear Conventions Unit

The International Nuclear Law Association (INLA) was founded in 1972[1] and is based in Brussels. Its objective is to arrange for and to promote, at an international level, studies and the knowledge of legal problems related to the peaceful use of nuclear energy under the special aspects of the protection of man and his environment, to help promote the exchange of information among its members and to cooperate on a scientific basis with similar associations and institutions.

Today, the Association has around 500 members who represent some 40 countries all over the world. Most are university professors, civil servants, lawyers both corporate and independent, magistrates, or officials from international organisations such as the International Atomic Energy Agency, the OECD and the European Commission.

Every two years, a congress is held. To date twelve congresses have taken place, each time in the capital of the country of the Chairman, who is elected for a period of two years. The last congress was thus held in Helsinki on 4-8 September 1995; the next congress, which will mark the 25th birthday of INLA, will take place in Tours, France (15 and 18 September 1997).

The congresses are organised around five working groups, each covering a broad aspect of the peaceful use of nuclear energy. Each working group chooses a specific theme within its field of competence on which it reports to the congress. During the two year interval between the congresses, the working groups meet regularly in order to prepare the report. The five working groups cover the following fields:

- Licensing and Decommissioning;
- Liability and Cover;
- International Nuclear Trade;
- Radiation protection;
- Radioactive Waste Management.

At the congress, the rapporteur of each working group presents the group's report whereas other members of the association may present individual papers relating to the theme of the the working groups. A congress of course also affords the opportunity for people who know each other professionally, to exchange information in the fringes of the meetings and thus help to advance the Association's aim of advancing knowledge of its field.
At the last congress in Helsinki in September 1995, the following issues were reviewed and discussed:

LICENSING AND DECOMMISSIONING

Working group 1 compared national regulations in the field of decommissioning in France, Germany and Finland. This comparison showed great similarities among the systems. This can be explained by the simple fact that, for technological reasons, procedures for decommissioning follow broadly similar lines. The various stages such as cessation of operation, final ending of activity, final shutdown, safe enclosure and dismantling cannot be varied significantly to any degree. The group therefore concluded that harmonisation between legal systems could be more easily achieved in the field of decommissioning than in the case of construction or operation.
In this context it should be noted that the European Commission is informed about decommissioning

1 *ICRP Publication N° 60.*

projects under Article 37 of the Euratom Treaty, which stipulates that Member States shall provide the Commission with information relating to any plan for the disposal of any form of radioactive waste in order to allow it to determine whether the implementation of that plan is liable to result in radiological contamination of the water, soil or airspace of another Member State [2].

Liability and Cover

The working group concluded that the Vienna Convention on civil liability for nuclear damage, concluded under the auspices of the International Atomic Energy Agency, would need to be revised in a very flexible way, by laying down only certain general criteria such as strict liability, channelled on to the operator of an installation, limited in duration and amount and guaranteed by an insurance or other financial guarantee. Within this framework, the contracting parties could then develop their own legislation dealing with the specific needs of each country.

A revision of the Paris Convention (on the same subject, but concluded in the framework of the OECD, should be envisaged following that of the Vienna Convention because a 1988 Joint Protocol, which links the scope of the two Conventions, can only enter into effect if the liability regimes of the two Conventions are similar.

Another aspect discussed was the position of the western companies working in Eastern Europe on safety upgrading of nuclear power plants.

An individual presentation which deserves mention in this connection dealt with civil liability in the case of isotopes used in radiotherapy. Whenever nuclear liability is mentioned, it is rather for damage arising out of failure of installations of the nuclear fuel cycle which springs to mind. Liability for medical radiation accidents is clearly an issue which has not yet drawn much attention. The paper was given by Mr T. van den Borre, research fellow at the University of Maastricht and assistant legal advisor to the Belgian nuclear research centre in Mol.

Nuclear trade

This year, working group 3 had chosen to deal with certain legal problems relating to East-West nuclear exchanges. Its report, in which lawyers from three continents took part, focused on such issues as:

- analysis of structures and procedures for cooperation set up in order to improve safety of nuclear power plants in Eastern European countries (e.g. G-7 and G-24 initiatives, PHARE and TACIS programmes, bilateral support, initiatives by industry);
- the parallel question of nuclear third-party liability in those countries;
- the measures taken to regulate nuclear materials procurement from the former Soviet Union. Under this heading, a description of the common supply policy developed by the Euratom Supply Agency and the Commission towards the CIS countries was given, including cases brought before the Court of Justice of the European Communities challenging this policy. One of which has already led to a judgement in favour of this common supply policy (*ENU* cases, T-458/93 and T-523/93, judgement of 15 September 1995) while the other is still pending (*KLE* case nr. T-181/94).

Two other topics were discussed by working group 3: "Mercosur and its implications for nuclear trade" and "Other uses of nuclear materials". The latter report gave a short overview of the regulatory, nuclear safety and commercial problems arising from the increasing use of radioactive sources for industrial, medical and food production purposes.
Several individual papers delivered at this session dealt with the non-proliferation aspects of nuclear trade.

Radiation Protection.

Under the heading of a survey of current problems in radiation protection legislation and case law, working group 4 dealt with such issues as:

- legal implementation of the International Commission on Radiological Protection recommendations[3], more specifically the legal implications of the "dose constraint" concept and the exemption levels;
- international regulatory approach to the radiological protection of working women;
- Community radiation protection legislation and the free movement of workers (e.g. uniformity of dose limits, radiological passports);
- considerations on measures to be adopted following nuclear accidents;

2 *See Commission Recommendation N° 91/4/Euratom of 7 December 1990 on the application of Article 37 of the Euratom Treaty, OJ L 6 of 9.1.1991, page 16.*

- new trends in the treatment of radio-induced occupational diseases;
- litigation concerning radiological protection of workers: the Forbach and Sellafield cases.

RADIOACTIVE WASTE MANAGEMENT

Working group 5 chose to report on legislation and regulation concerning site selection for the disposal of high-activity radioactive waste. It concluded that ultimate responsibility for site selection should be given to a single authority. However, as the various competences in the process of site selection are divided among local, regional and national bodies, conflicts of law arise. These are in fact dealt with by comprehensive coordination procedures. The most important problem encountered is the definition of the selection criteria. Public consultation through an enquiry stage or other appropriate mechanism is obviously highly desirable. Details were given of regulations in this field in Belgium, France, Germany, Italy, Japan, Spain, Switzerland, the United Kingdom and the United States.

The congress ended with sessions dedicated on the Nuclear Safety Convention, Nuclear Law in Economies in transition (information was given on recent developments in nuclear law in the Slovak Republic, Russia, Slovenia and Lithuania) and the question of Codes of Conduct as regards the civil uses of nuclear energy.

¿ CUÁL ES LA POLÍTICA ENERGÉTICA QUE EUROPE NECESITA ?

Yves Galland, DG XVII
Ministro de Industria de Francia

Francia apoyó la iniciativa de la Comisión de elaborar un Libro Verde sobre la energía para contrarrestar la falta de una idea clara sobre las posibles implicaciones de una política energética común.

Existe un amplio consenso sobre los objetivos - o, mejor dicho, las orientaciones políticas- recogidos en el Libro Verde: competitividad, seguridad de abastecimiento, protección ambiental. Éstos son también los objetivos de la política energética francesa. Así pues, Francia evidentemente suscribe el análisis general que hace el Libro Verde que está basado en un estudio del equilibrio energético y las perspectivas de la Unión Europea en este sector.

Yves Galland

Más allá de estas orientaciones políticas es vital definir una correcta estrategia energética a largo plazo para la Unión Europea ya que, aunque el Libro Verde proporciona una base de discusión, no propone metas cuantificadas para una fecha precisa, por ejemplo, en cuanto a la autosuficiencia energética, la diversificación de combustibles, la eficiencia energética o la reducción de las emisiones de dióxido de carbono. Por eso yo prefiero utilizar el término "orientaciones políticas" en lugar de "objetivos".

Incumbe globalmente a los Estados miembros poner en perspectiva estos objetivos y definir la forma adecuada de alcanzarlos para construir una estrategia a largo plazo que responda a determinadas cuestiones fundamentales:

- Cuando hablamos de la seguridad de abastecimientos, ¿nos referimos a la seguridad a corto o a largo plazo? Si nos fijamos en las perspectivas a largo plazo es obvio que el carbón europeo, por ejemplo, que no es competitivo y está en declive, no tiene ningún papel que jugar. En cuanto a la competitividad, ¿nos referimos a la competitividad de mercado o a la competitividad duradera? En el caso de la electricidad, por ejemplo, las tendencias del mercado favorecen inversiones con rentabilidad a corto plazo, como pueden ser las turbinas a gas, aunque el gas no sea la fuente energética más competitiva para generar electricidad de base, día a día durante todo el año. Sin embargo, un enfoque más dinámico, basado en una competitividad duradera, sería más favorable a la energía hidroeléctrica, la energía nuclear o el carbón importado, que son las fuentes más baratas de energía de base.
- Por lo que respecta al efecto invernadero, parece que sólo las medidas a largo plazo podrían tener un efecto duradero, y éstas únicamente pueden tener éxito en la práctica si se tiene la debida consideración de los impuestos indirectos, las cargas fiscales y otros incentivos para la elección de fuentes de energía menos contaminantes, especialmente las nuevas y renovables y la energía nuclear, que no generan CO_2.

Por todo ello, los socios europeos deberán ir más allá del simple intercambio de opiniones y mirar hacia el futuro para identificar las principales amenazas al

equilibrio energético europeo y la forma de enfrentarse a ellas con decisión:

Cómo puede frenarse la creciente tendencia europea - que probablemente aumente del 50% al 70% en los próximos quince años - a depender de fuentes externas de energía?

Podemos conformarnos con la creciente dependencia de suministros externos de gas, que probablemente aumente del 40% actual al 70% en el año 2010 y a casi el 80% en el 2020?

Si el auge del gas pronosticado en los estudios de la Comisión tiene como resultado un alza de precios, que podría ser de aproximadamente un 50% hacia el año 2005, ¿cómo podemos evitar recurrir cada vez más al petróleo de Oriente Medio, para el que ya hay gran demanda en Estados Unidos y al que recurrirán cada vez más los países asiáticos, especialmente si experimentan una crisis del carbón como resultado del alineamiento de los precios locales del carbón con el precio mundial? ¿No existiría entonces el riesgo de padecer otra crisis del petróleo?

En general, ¿puede Europa conformarse con una dependencia cada vez mayor del gas y del petróleo (importados en su mayoría) que ya cubren actualmente un 68% de su consumo?

En esta fase del proceso de reflexión, y sin prejuzgar las intenciones básicas de los autores del Libro Verde, es necesario plantear una crítica formal: ¿puede este documento de reflexión conformarse con una breve mención a la energía nuclear, que es en la actualidad una de las pocas fuentes autóctonas de energía con capacidad de desarrollarse en Europa y que indudablemente contribuye a la diversificación del equilibrio energético europeo, que es una fuente de energía competitiva para generar electricidad de base y, lo que es más, que no genera dióxido de carbono?

Apartándonos de estas cuestiones puramente técnicas, debemos considerar dos cuestiones fundamentales en las que los socios europeos deberán avanzar a corto plazo si quieren realizar progresos en la creación de una política energética europea. Me refiero al concepto del mercado interior y al principio de subsidiariedad.

El Libro Verde parte del principio de la preeminencia del mercado interior. Francia está totalmente de acuerdo en que las necesidades de los usuarios domésticos e industriales deberán satisfacerse al menor coste posible al mismo tiempo que se cumplen los requisitos de seguridad de abastecimiento y protección ambiental, puesto que la competencia es un factor que contribuye al progreso técnico y sin duda beneficia a los consumidores industriales cuyo deseo es tener una total libertad de elección.

La apertura del monopolio de la producción de electricidad puede, por ejemplo, contribuir a mejorar la eficacia económica y la transparencia del sector eléctrico europeo.

Sin embargo, teniendo en cuenta los peligros y riesgos a largo plazo anteriormente mencionados, ¿podemos confiar exclusivamente en la mano invisible del mercado?

Aunque Francia cree que la definición de objetivos en la política energética europea es algo plenamente justificado, esperar que éstos se consigan esencialmente por medio de la libre actuación de las fuerzas del mercado equivaldría a negar la propia existencia de una política energética específica concebida para conseguir esos objetivos cuando no concuerdan con la lógica del mercado.

Referirse a la preeminencia del mercado da paso a otro interrogante: ¿cómo podemos establecer un equilibrio entre el mercado, por un lado, y el concepto de las obligaciones de servicio público o de interés económico general por el otro? Este concepto existe en casi todos los Estados miembros de la Unión Europea. El concepto de servicio público tiene un alcance variable según la trayectoria histórica, organización administrativa y tradiciones económicas de cada país. Dentro de un mismo Estado puede variar con el tiempo. En Francia, el concepto de servicio público se basa en unos pocos principios fundamentales, como son la continuidad del servicio, la igualdad de acceso y trato a los usuarios y la universalidad del servicio. Este *modus operandi*, que se aplica a las fuentes de energía de toda la red, ya ha demostrado sus méritos. Ello no excluye que pueda mejorarse y adaptarse al contexto europeo. De hecho Francia ha presentado propuestas en este sentido. Por otra parte, ¿puede la preeminencia del mercado ser una justificación suficiente para que se ponga en tela de juicio la organización económica de algunos Estados miembros?

En esta misma línea es importante que se sustancie más el concepto de obligaciones de interés económico general que, a mi modo de ver, están definidas de manera restrictiva en el Libro Verde. Creo que es necesario un mayor pragmatismo en esta cuestión, teniendo en cuenta la diversidad de las políticas energéticas que se siguen en los distintos Estados miembros, lo cual, como la Comisión subraya en el Libro Verde, no representa una desventaja sino una oportunidad.

Por esta misma razón deberíamos considerar ahora otra dimensión de la política energética europea. ¿A qué nivel deberían desarrollarse y llevarse a cabo las orientaciones políticas que se hayan definido? En otras palabras, ¿cómo debe aplicarse el concepto de subsidiariedad?

No cabe duda de que las acciones que deben emprenderse pueden dividirse en tres niveles: la OCDE, la Unión Europea y los Estados miembros individualmente. ¿Cuál es el nivel adecuado?

La respuesta sin duda depende del sector que se considere. En el caso del carbón, por ejemplo, existe

un mercado mundial que funcionan de forma admirable y no necesita intervención alguna a menos que sea por razones sociales o regionales relacionadas con el empleo. En el caso del petróleo existen disposiciones eficaces en caso de crisis que gestiona la AIE y que no es necesario duplicar.

Por otra parte, en el caso del gas el problema es claramente regional puesto que existen tres mercados principales del gas a nivel mundial: el norteamericano, el europeo y el asiático. Por consiguiente, el nivel europeo es el adecuado para analizar el gas natural y Francia está muy satisfecha de que exista una reflexión a nivel europeo sobre el suministro de gas en Europa.

En el caso de los productos petrolíferos y del refinado, existen serios peligros en cuanto a la relocalización que podrían surgir por una excesiva apertura del mercado único hacia el exterior o por normas medioambientales excesivamente rigurosas que podrían disuadir a los explotadores de invertir en modernización en Europa. Por ello Francia considera primordial que se garantice la capacidad de refinado en Europa.

Y, por último, pero no por ello menos importante, volviendo a la energía nuclear, es esencial que Europa defienda a su industria. Ésto vale para los bienes de inversión afectados puesto que existe una fuerte competencia americana y japonesa en este sector. También vale para el enriquecimiento, sector en que Europa posee una industria fuerte y eficaz: a este respecto es vital que el mercado no resulte excesivamente perturbado por las importaciones de material nuclear de zonas vecinas a precios muy inferiores a los del mercado.

¿Es necesario adoptar disposiciones comunitarias adicionales?

Sí, en cuanto se refiere a análisis económicos y de prospectiva que deberían incrementarse a nivel de la Unión Europea puesto que es de crucial importancia que los Estados miembros tengan una visión común de su futuro y de los riegos y problemas que puede acarrear.

En cuanto a lo demás, lo principal es hacer balance de las disposiciones existentes y asegurar una mejor coordinación entre los Estados miembros en cuestiones tales como el medio ambiente, el mercado interior, la fiscalidad, la competencia, etc..

Es completamente obvio que los temas de seguridad subyacen en cada uno de los elemento que configuran el sector energético. ¿Sería posible eventualmente establecer mecanismos similares a los que ya existen para la política exterior y de seguridad común (PESC) que son mecanismos de cooperación y no son vinculantes? La cuestión debe al menos plantearse.

En conjunto debe admitirse que el grado de convergencia de las políticas energéticas nacionales de los Estados miembros sigue siendo bastante limitado. Estas políticas se siguen dentro de contextos que son demasiado dispares para que puedan converger a corto plazo ya que existe una gran diversidad en lo que se refiere a la situación energética de cada país, sus recursos propios y sus sistemas de producción, transporte/transmisión y distribución así como en la estructura de sus medios de producción de electricidad. Esta diversidad se debe a factores históricos, sociales, geográficos y geológicos y no puede sino aumentar con la ampliación de la Unión Europea a más Estados.

Por consiguiente, lo que debemos evitar a cualquier precio es tratar de alcanzar un consenso prematuro y artificial entre los Estados miembros de la Unión Europea. Para empezar se necesita por el contrario un enfoque mucho más modesto y pragmático ya que ésta es la única manera realista de acelerar el progreso en esta área. Francia recomienda la aplicación del principio de subsidiariedad: a) para que cada Estado miembro establezca su propia política energética en función de sus características específicas, y b) con respecto a la definición por parte de cada Estado de las obligaciones de interés económico general.

A nivel comunitario, debería utilizarse mejor lo que ya existe y llevarse a cabo análisis económicos de prospectiva comunes para asegurar una visión uniforme de los riegos y problemas a largo plazo que pueden surgir con relación al abastecimiento de energía en Europa.

Sobre la base de esta visión común y clara del futuro será posible determinar lo que realmente podemos hacer mejor juntos. Así podremos armonizar gradualmente las políticas energéticas europeas. Será una empresa a largo plazo pero es la única forma realista de avanzar hacia una política energética común.

FINLANDIA Y LOS RETOS DE LA ENERGÍA EN EUROPA

Antti Kalliomäki, DG XVII
Ministro de Industria de Finlandia

Antes de que Finlandia pudiera incorporarse a la Unión Europea hubo que negociar y resolver varias cuestiones difíciles. Me satisface poder decir que la energía no fue una de las cuestiones conflictivas. El énfasis y el enfoque de nuestra política energética son muy similares a los adoptados generalmente en Europa y en la UE.

Antti Kalliomäki

Para Finlandia, que depende en gran medida de la energía importada, las cuestiones relacionadas con la seguridad son muy importantes. Como mi país tiene además una de las economías industriales con mayor dependencia energética del mundo, la eficiencia energética siempre ha sido una preocupación presente en el Gobierno y en los productores y usuarios de energía. La protección del medio ambiente se toma muy en serio debido a la frágil naturaleza ártica del país. Todos estos elementos de política energética conviven dentro de un marco de economía de mercado que me atrevo a decir que es uno de los más liberales de Europa.

Con este telón de fondo es fácil entender que la adhesión no cambió en nada la sustancia de nuestra política energética. El único dominio importante en el que se tuvieron que negociar ciertas disposiciones especiales fue el del abastecimiento de combustibles nucleares. En esta área queríamos asegurarnos una transición fluida al nuevo entorno Euratom y conservar la diversidad de suministros.

Esperamos desempeñar un papel activo en la cooperación energética en el seno de la UE. Creemos que ello contribuirá de manera positiva a la política energética nacional. También esperamos poder contribuir de manera constructiva a las actividades de la UE en este sector.

A continuación trataré de algunas cuestiones específicas que están incluidas en el orden del día de la política energética tanto europea como finlandesa.

Mercado Interior de la Energía

Los precios y los mercados de la energía se han ido liberalizando gradualmente en Finlandia desde los años 1980. Al principio de los 80 las importaciones de petróleo y carbón estaban sujetas a licencias de importación. Las licencias para la importación de electricidad se han eliminado en el presente año y, por lo tanto, el Gobierno ya no controla la importación de energía.

De igual modo, hasta principios de los 80 los precios al usuario de productos petrolíferos estaban regulados, pero ya no existe ningún control gubernamental específico sobre los precios del mercado de la energía, incluso para la distribución y venta al por mayor. Las condiciones del mercado determinan en general los precios de la energía y el Gobierno no interfiere en su fijación o mecanismos.

Se mantiene sin embargo una vigilancia sobre los precios de transmisión de la electricidad mediante un nuevo mecanismo regulador del mercado de la electricidad debido al carácter monopolístico de este sector. Los precios de los servicios de la red tienen que

ser razonables y justos pero sin recurrir a la reglamentación, por ejemplo en cuanto a las tasas de rentabilidad permisibles.
La ley finlandesa sobre la electricidad se ha sometido a una amplia revisión cuya finalidad ha sido una mayor liberalización de la transmisión de energía de cualquier voltaje, es decir, incluidas las líneas locales de distribución. Cualquier productor puede vender electricidad a un distribuidor o usuario final en todo el país. Este es un verdadero principio de acceso de terceros. Este objetivo se sustenta por medio de una diferenciación de las operaciones y una mayor transparencia de los precios y costes de la electricidad. La ley entró en vigor a principios de junio de 1995.
En Finlandia no existe un sistema reglamentado de planificación de la capacidad nacional de electricidad. Ni siquiera las grandes instalaciones de producción necesitan permisos. Sólo se necesitan licencias para la energía nuclear e hidráulica bajo una legislación específica. La libre competencia es por lo tanto un hecho en el sector de la producción de electricidad. Naturalmente, se necesitan los permisos adecuados por razones de ordenación territorial, protección del medio ambiente y otras similares.
No debe sorprender, por lo tanto, que Finlandia esté a favor del mercado interior de la electricidad en Europa. En el Consejo nosotros apoyamos el principio del ATR negociado. Nos parece que, para un mercado relativamente pequeño como es el finlandés, la competencia y la cooperación internacional son favorables y beneficiosas. También nos parece que una mayor armonización de las normas y reglamentaciones nacionales contribuiría a la mejora del funcionamiento del mercado interior de la energía. En los mercados del gas y la electricidad, la armonización en el área de la competencia tiene sin embargo una importancia mucho menor si se compara con problemas como los derechos exclusivos existentes o el acceso restringido a las redes. La armonización puede servir para realizar ajustes en el mercado pero no es una condición previa para el comercio. El comercio internacional es algo que existe desde hace siglos pero la armonización es una idea relativamente nueva.

Medio ambiente y Cambio climático

En su informe al Parlamento sobre la energía, en el otoño de 1993, el Gobierno finlandés estableció objetivos para que a finales de los años 90 se detuviera el aumento de las emisiones de CO_2 derivadas de la producción y el uso de energía. Finlandia ha venido practicando el desarrollo forestal sostenible desde hace décadas y, por consiguiente, se espera que los bosques retengan mayores cantidades de carbono atmosférico durante por lo menos los próximos 15 a 20 años. Esto significa que los bosques absorberán cada vez más carbono. El mantenimiento de esta reserva es una parte importante de la política climatológica finlandesa.
Finlandia considera que la aplicación de políticas y medidas eficaces es la clave del logro de estos compromisos. La estrategia climatológica de Finlandia se concentra principalmente en el refuerzo de los programas ya iniciados de reducción de emisiones.
En primer lugar, en 1990, Finlandia fue el primer país del mundo que estableció un impuesto sobre el dióxido de carbono, y el sistema se ha ido mejorando gradualmente desde entonces. Nos gustaría ver reflejado este tipo de medida como elemento importante en la futura negociación de un protocolo. También apoyamos la idea de un impuesto europeo sobre el CO_2 en la cumbre de Essen.
El programa finlandés de conservación de la energía tiene por objeto conseguir una utilización final más eficaz de la energía en sectores individuales. Con ello se debería conseguir para el año 2000 una reducción de un 10 a un 15% en el consumo de energía sobre el nivel de 1990.
La finalidad del nuevo programa bioenergético es aumentar el uso de la bioenergía en al menos un cuarto para el año 2005 con respecto al nivel actual. Actualmente, alrededor del 13% de la producción de energía en Finlandia está cubierta por la biomasa. Los programas tecnológicos llevan ya en marcha varios años desde los 80, y en 1993 el Gobierno lanzó ocho nuevos programas de desarrollo de la tecnología energética centrados en tecnologías de energías nuevas y renovables. Estamos persuadidos de que las soluciones basadas en las nuevas tecnologías desempeñarán un papel primordial en el futuro para lograr una verdadera reducción de las emisiones.
Estas son las principales políticas que hemos considerado más eficaces para las condiciones existentes en Finlandia. Hay sin embargo grandes diferencias en cuanto a los puntos de partida, recursos y capacidades de las partes implicadas.
Lo que caracteriza más específicamente a la producción de energía en Finlandia es la contribución importante que tiene la energía hidroeléctrica y nuclear, la producción combinada de calor y electricidad (PCCE), la calefacción zonal y los biocombustibles. Por consiguiente, las emisiones específicas de CO_2 son relativamente bajas y nuestra capacidad de reducirlas tiene un futuro limitado. Nuestra previsión es que las emisiones de CO_2 relacionadas con la energía aumentarán en un 25 a 30% hasta el año 2000. En 1990, las emisiones de CO_2 provenientes de la producción y consumo de energía y de la industria sumaban alrededor de 54 millones de toneladas.
Finlandia considera que los compromisos actuales contenidos en los puntos a) y b) del apartado 2 del artículo 4 del Convenio sobre el Clima son sólo un primer paso y no son suficientes. Estimamos que el

mandato de Berlín es útil como paso siguiente para empezar el proceso de negociación de un protocolo. La negociaciones futuras deberían concentrarse en una amplia gama de disposiciones, mecanismos y medidas de entre los cuales cada país o grupo de países podría elegir los más rentables y adecuados a sus propias circunstancias. Para ello deberían tenerse en cuenta los puntos de partida y enfoques, las estructuras económicas y bases de recursos, la necesidad de mantener un crecimiento económico fuerte y sostenible, las tecnologías disponibles y otras circunstancias individuales.

Energ

Finlandia es uno de los ocho Estados miembros de la UE cuya producción eléctrica se basa en parte en la energía nuclear. Los cuatro reactores de potencia en existencia, con una capacidad total de 2 310 MWe, entraron en funcionamiento en los años 70 y principios de los 80. Actualmente satisfacen alrededor del 30% de la demanda de electricidad en Finlandia.

Ambas unidades VVER de 445 MWe en Loviisa, explotadas por Imatran Voima Oy (IVO), y las dos unidades BWR de 710 MW en Olkiluoto, explotadas por Teollisuuden Voima Oy (TVO) han estado funcionando de manera fiable y segura a lo largo de todo su período de explotación. Los factores medios anuales de carga de las unidades finlandesas han estado siempre entre los mejores del mundo.

Todos los intentos de construir más instalaciones de energía nuclear han chocado con dificultades políticas. El proyecto más reciente, que fue aprobado por el Gobierno en marzo de 1993, no consiguió la aprobación del Parlamento que se necesita conforme a la legislación nuclear finlandesa.

Finlandia depende totalmente de otros países para su abastecimiento de uranio así como para los servicios de conversión, enriquecimiento y fabricación del combustible. La necesaria seguridad de abastecimiento se ha conseguido mediante la diversificación de las fuentes. Uno de los objetivos de las negociaciones de adhesión de Finlandia fue garantizar que la transición al nuevo entorno de abastecimiento Euratom se llevaría a cabo de forma fluida y se mantendría esta diversidad vital de suministros.

Finlandia es uno de los pocos países donde ya funciona un depósito para residuos nucleares de actividad media y baja. Igualmente, a principios de los 80 se inició un programa, que progresa de manera satisfactoria, para encontrar un emplazamiento antes del año 2000 para el almacenamiento final de los residuos de los elementos del combustible gastado. El Parlamento aprobó en diciembre de 1994 una ley que excluye definitivamente la opción del reproceso para el combustible utilizado en los reactores finlandeses ya que estipula la eliminación directa de este combustible en Finlandia. La misma ley prohíbe también la eliminación en Finlandia de combustible extranjero gastado y de otros residuos nucleares.

Los conocimientos técnicos que han garantizado un alto nivel de seguridad nuclear en Finlandia, y especialmente los que se han adquirido a través de la adaptación de los dos reactores VVER a las exigencias de seguridad occidentales, se ha utilizado también para proporcionar asistencia, tanto de forma bilateral como a través de la cooperación de la UE (TACIS, etc.), para la revalorización de los reactores de este tipo existentes en la propia Rusia.

COOPERACIÓN ENERGÉTICA ENTRE EL ESTE Y EL OESTE

Al igual que otros países industrializados y organizaciones multilaterales occidentales, Finlandia ha iniciado programas de cooperación y asistencia técnica para colaborar al desarrollo de los países de la antigua Unión Soviética y de Europa Central y Oriental.

Los programas finlandeses de ayuda al sector energético se centran en la seguridad nuclear y la economía energética. Los países en los que concentramos más especialmente nuestros esfuerzos son la Federación Rusa y Estonia.

A principios de 1993 se firmó un acuerdo entre Finlandia y la Federación Rusa para la cooperación en las zonas limítrofes. La finalidad de este acuerdo es la creación de un marco legal para esta cooperación y el fomento de los contactos transfronterizos entre las autoridades locales y regionales.

De 1992 a 1994 Finlandia destinó 30 millones de marcos finlandeses (unos 5 millones de ecus) a la cooperación bilateral en seguridad nuclear. Se prevé conservar la financiación al nivel de unos 2 millones de ecus anuales durante los próximos años. Además, Finlandia se ha adherido a la Cuenta de Seguridad Nuclear creada por el Banco Europeo de Reconstrucción y Desarrollo (BERD).

Se han finalizado dos importantes estudios sobre la planificación energética y la conservación de energía en la Federación Rusa. El Plan Energético de Karelia describe las tendencias pasadas y futuras de evolución de la sociedad de esta región, identifica la situación actual de abastecimiento y demanda energética y analiza el desarrollo probable de la economía y del sector energético hasta el año 2015. El estudio sobre conservación energética en nueve instalaciones de producción y distribución de energía en la Federación Rusa trata del consumo energético en las instalaciones que consumen más energía, hace una estimación del potencial de conservación de energía y sugiere medidas técnica y económicamente factibles para conservar la energía.

En Estonia, el Ministerio de Comercio e Industria de Finlandia está financiando varios proyectos cuya finalidad es mejorar la eficacia energética y el comportamiento medioambiental del sector energético. Basándose en las amplias relaciones comerciales con los países de la antigua Unión Soviética, las empresas y organismos finlandeses están bien capacitados para tratar con estos países. En su calidad de nuevo miembro de la Unión Europea, Finlandia naturalmente desea unir sus fuerzas con las de los demás Estados miembros para contribuir al desarrollo de la economía energética en terceros países.

EXAMEN DE LA LEGISLACIÓN COMUNITARIA EN EL SECTOR ENERGÉTICO

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Dirección General de Energía

El Consejo Europeo de Bruselas de diciembre de 1993 señaló la importancia de iniciar una acción destinada a simplificar o eliminar determinados actos legislativos que podrían afectar de forma adversa a las actividades de los agentes económicos y especialmente las de las pequeñas y medianas empresas.

Sobre el mismo tema, el Libro Blanco de la Comisión sobre Crecimiento, Competitividad y Empleo también señala que los Estados miembros deben prestar especial atención a la mejora de la flexibilidad en sus empresas y en el mercado laboral eliminando la excesiva rigidez causada por la legislación existente y facilitando una mayor movilidad de los trabajadores.

Para contribuir al inicio de este proceso, la Comisión ha creado un grupo de expertos independientes, el Grupo Molitor (por el nombre de su presidente) para examinar en sectores seleccionados la legislación nacional y comunitaria que puede tener un impacto negativo en el desarrollo económico de la Comunidad Europea. La energía fue uno de los sectores que se incluyeron en este escrutinio.

Teniendo en cuenta que, por otra parte, la legislación sobre energía no sería estudiada como primera prioridad por el Grupo, el Consejo de Energía del 29 de noviembre de 1994 invitó a la Comisión a presentar un informe sobre la revisión de la legislación comunitaria existente en este sector, con propuestas para simplificar, poner al día o eliminar legislación, siempre que fuera necesario o posible.

En respuesta a esta invitación, la Comisión ha iniciado su propio análisis de la legislación comunitaria sobre energía en dos áreas: la utilización racional de la energía y el sector petrolífero. Estas áreas ya habían sido seleccionadas durante la Presidencia alemana puesto que algunos de los actos legislativos implicados, adoptados en distintos momentos, se referían a los mismos temas.

La finalidad de preparar este informe es presentar la opinión de la Comisión sobre la necesidad o no de mantener actos legislativos, que sería objeto de revisión. La necesidad o no de derogar cada uno de esos actos legislativos deberá estar claramente justificada tanto desde el punto de vista jurídico como desde el punto de vista práctico.

Sobre la base de los resultados de este análisis jurídico y práctico, la Comisión presentará propuestas formales para la derogación de directivas, reglamentos o decisiones y para evitar en el futuro referencias a recomendaciones o resoluciones que ya no parecen relevantes.

La Comisión estima que este ejercicio general puede conducir a resultados muy positivos en términos de eficacia de la legislación de la UE sobre energía y tiene la intención de continuar este proceso de simplificación como y cuando sea necesario.

En la ejecución de esta iniciativa la Comisión garantizará en todo momento el mantenimiento de una total coherencia con los trabajos del grupo Molitor en su tarea de revisión de la legislación comunitaria. □

LOS PROGRAMAS ALTENER Y SAVE II

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Unidad responsable de la utilización racional de la energía y fuentes renovables de enegía

El programa actual SAVE ("Specific Action on Vigorous Energy Efficiency - Programa especial de eficacia energética") abarca los cinco años comprendidos entre 1991 y 1995. El 30 de mayo la Comisión adoptó la propuesta del programa que debía sucederlo, "SAVE II" (doc. COM(95) 225/4 fin.), que se basa en la experiencia adquirida hasta ahora mediante el programa anterior y en los informes de un grupo de expertos independientes encargados de evaluar los resultados de Save I y de presentar recomendaciones para futuras actividades. El presente artículo está basado en una ponencia presentada en la Conferencia denominada "Energía para un Futuro Común", que se celebró en Baden (Austria) del 29 al 30 de junio de 1995, bajo los auspicios del programa Synergy.

La Necesidad de una Iniciativa comunitaria sobre la Eficiencia energética

Medio Ambiente

Habida cuenta de que la utilización eficaz de la energía reduce la emisión de contaminantes a la atmósfera, este objetivo se ha acogido como el elemento más importante la política destinada a conseguir la meta que se ha propuesto la UE de estabilizar las emisiones de CO_2 a sus niveles de 1990 para el año 2000. Admitiendo este hecho, el programa SAVE ha sido reconocido por la Comisión como la piedra angular de la estrategia comunitaria para la reducción del CO_2. Esta actitud se ha visto reforzada por las Conclusiones del Consejo sobre el Medio Ambiente de los días 15 y 16 de diciembre de 1994 que declaraba que "El Consejo subraya una vez más que el objetivo de estabilizar las emisiones de CO_2 sólo podrá conseguirse mediante un paquete coordinado de medidas destinadas a mejorar la eficacia energética y la utilización racional de la energía basado en la oferta y la demanda a todos los niveles del proceso de producción, conversión, distribución y consumo y en la explotación de las energías renovables."[1]

Nada de ésto significa que la gestión eficaz de la energía deba considerarse como la panacea de nuestros problemas medioambientales. Se reconoce generalmente sin embargo que, en condiciones normales de crecimiento económico, será necesaria una mejora sustancial del uso racional de la energía si la UE quiere alcanzar su objetivo sobre el CO_2. Ésto inevitablemente implica que los Estados miembros tendrán que aumentar sus esfuerzos para gestionar el uso de los recursos energéticos y que la UE tendrá un papel en la coordinación y optimización de estos esfuerzos.

El Libro Verde de la Comisión sobre la Política energética de la UE

El Libro Verde establece tres principios a los que debe responder la política energética: la competitividad industrial, la seguridad de abastecimiento y la protección del medio ambiente. La eficiencia energética satisface estos tres requisitos. Salvaguarda la seguridad de abastecimiento mediante el uso prudente de los recursos energéticos, reduce los factores de coste de la industria, lo que conlleva un aumento de la

1 Doc. de la Secretaría del Consejo, n°: pres. 94/273 de 16.12.94

productividad, y protege el medio ambiente reduciendo la cantidad de contaminantes dañinos emitidos a la atmósfera.

El Libro Blanco sobre el Crecimiento, la Competitividad y el Empleo2

El Libro Blanco de la Comisión de 1993 mencionaba el papel que corresponde a las nuevas ecoindustrias, como es el caso de la eficiencia energética, en la generación de empleo. La Comisión ha calculado que este tipo de industrias tienen un potencial de creación de empleo de aproximadamente 100.000 puestos permanentes y 200.000 hombres/año para el año 2000. Existen pruebas empíricas sustanciales que demuestran que las inversiones en la reducción de la demanda de energía crean de tres a cuatro veces más puestos de trabajo que su equivalente en proyectos de suministro de energía[3]. En un estudio de 1984 encargado por la CE[4], que marcó un hito en este dominio, se calculaba que, si se impusiera una política sobre la demanda de energía con objeto de reducir el consumo de energía en un 15% durante un período de 15 años, el efecto anual neto sobre el empleo podría ser de unos 520.000 hombres/año.

El Objetivo 1995 de Eficiencia Energética

Ya es prácticamente un hecho que la Comunidad estará lejos de alcanzar el ambicioso objetivo que estableció el Consejo en 1986 de mejorar en un mínimo del 20% la intensidad del uso de energía en la Comunidad para el año 1995. Para alcanzar este objetivo habría sido necesario que concurriera el aumento de las iniciativas de los Estados miembros en la gestión del uso de la energía con un aumento constante de los precios. De hecho, los esfuerzos de los Estados miembros en el sector de la eficiencia energética declinaron durante la década en cuestión y, como sabemos, los precios del petróleo cayeron en picado en 1986. La existencia de la declaración del tal objetivo no fue un incentivo suficiente por sí mismo para que los Estados miembros mantuvieran sus esfuerzos para mejorar el uso racional de la energía: los beneficios de una sociedad eficaz desde el punto de vista energético se olvidaron en favor de las ganancias a corto plazo que puede proporcionar el disponer de una energía más barata.

Un Complemento a la tecnología

La Comunidad Europea ha financiado, principalmente mediante los programas Thermie y JOULE, importantes progresos en el sector de la mejora de la producción de energía y las tecnologías de utilización final. Gran parte de estos progresos se ha realizado sobre un telón de fondo de dificultades para la introducción de tecnologías de la energía en el mercado. Desde 1990, el programa Thermie ha desarrollado instrumentos para apoyar la penetración del mercado por parte de las tecnologías que ya se habían desarrollado. Queda sin embargo todavía mucho por hacer a nivel de adopción de medidas para eliminar obstáculos, tanto institucionales como financieros, para la introducción de tecnologías eficaces desde el punto de vista energético. El programa SAVE es el vehículo de estas medidas para complementar los programas de tecnología energética. SAVE en sí mismo es tecnológicamente neutro. Un ejemplo de ello es la propuesta de directiva sobre la certificación energética de los edificios presentada al Consejo bajo el (primer) programa[5]. Algunos Estados miembros no poseían un elenco suficiente de gestores en el sector energético capaces de emitir estas certificaciones. SAVE ha apoyado por consiguiente la formación de gestores del sector energético en auditoría energética. Para garantizar la penetración de las tecnologías energéticas supondría una ventaja disponer de gestores con una buena formación; de esta forma la iniciativa SAVE complementa los esfuerzos de los programas tecnológicos para hacer llegar las tecnologías energéticas al mercado.

Cohesión y social en la UE

Hay estudios que demuestran que, cuando se realizan programas de eficiencia energética, el ahorro conseguido tiende a gastarse en la economía local y por lo tanto a aumentar el nivel de la actividad económica local con la mejora subsiguiente de la calidad de vida. Mientras que las inversiones para abastecimiento de energía (cuyas instalaciones generalmente se sitúan cerca de los principales centros de población) tienen un efecto claramente limitado (sólo benefician a aquellos que se encuentran en la zona próxima a la instalación), las inversiones para la mejora de la eficiencia energética a nivel del usuario final crean empleo a través de una amplia zona geográfica, lo que puede ser importante para las regiones y ciudades menos desarrolladas de la Comunidad.

La gestión de la energía aumenta la competitividad industrial al reducir los factores de coste, aumentando por consiguiente las oportunidades de crecimiento industrial y creación de empleo. Ésto tiene también una

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2 Libro Blanco sobre "Crecimiento, competitividad y empleo - Pistas para entrar en el siglo XXI", Oficina de Publicaciones Oficiales de la Comunidad Europea, Luxemburgo, 1993 *(Suplemento n° 6/93 del Boletín de las Comunidades Europeas)*

3 Power to Spare - A plan for increasing New England's competitiveness through energy efficiency, New England Policy Council, Julio de 1987.

4 Employment Effects of Energy Conservation Investments in EC Countries, Fraunhofer Institute, estudio realizado para la DG XVII.

5 COM(93) 279 final, D.O. C 204/12 de 28.07.1993

importancia especial para las zonas periféricas de la Comunidad.

La adhesión de Austria, Finlandia y Suecia a la Unión, el 1 de enero de 1995, ha tenido como resultado un aumento significativo del nivel medio de la intensidad energética de la UE (la energía utilizada para producir una unidad de PNB) lo que ha creado una mayor presión para conseguir la cohesión de la Unión en este importante sector de actividad económica.

La evidencia empírica demuestra que los programas de planificación como SAVE contribuyen en gran medida a conseguir los objetivos de cohesión económica y social pues generan ingresos disponibles a partir del ahorro de energía. Otros factores sugieren que los programas basados en la tecnología pueden de hecho tener un efecto negativo en la cohesión económica y social ya que sus mayores esfuerzos están orientados a zonas en las que ya existe un alto nivel de competencia tecnológica. Estas zonas no son generalmente las mismas zonas geográficas que tienen más necesidades en cuanto a beneficios de la cohesión económica y social.

El Protocolo sobre la Eficiencia energética en el Tratado sobre la Carta de la Energía

Como se informó en el nº 24 de "La Energía en Europa", el Tratado sobre la Carta de la Energía se firmó en Lisboa el 17 de diciembre. Este Tratado, que establece la cooperación en el sector de la energía entre los países occidentales y las economías de transición de Europa Oriental y los antiguos Estados de la Unión Soviética, incluye un protocolo que cubre el tema de la eficiencia energética. Se ha calculado que algunas de las economías de transición tienen intensidades energéticas que son literalmente un múltiplo de la media de la UE. Los Estados miembros de la Unión han desarrollado un potencial impresionante en el área de la gestión eficaz de los recursos energéticos, que puede transferirse a las economías de transición. Es importante, pues, que la experiencia que se ha ganado con SAVE I se transmita a las economías de transición, y los mecanismos que se han desarrollado dentro de las cláusulas de la Carta de la Energía ofrecen un marco ideal para este fin. Este mismo argumento es sin duda válido para todas las economías en desarrollo que, en las primeras fases de tal desarrollo, tienen tendencia a hacer un uso intensivo de la energía.

Legislación y establecimiento de Normas

La experiencia de SAVE en el área de las actuaciones administrativas ha resultado ser menos positiva de lo que se pretendía originalmente. El lanzamiento del programa coincidió con la introducción del principio de subsidiariedad y, aunque se admite que el principio en sí es especialmente apropiado en el caso de las actuaciones sobre la eficiencia energética (porque éstas tienen sin duda un mayor efecto cuanto más próximas están al consumidor) el freno que han supuesto sobre el conjunto de medidas administrativas propuestas en SAVE I ha sido considerable. Parece evidente que la única vía razonable es formular medidas solamente en aquellas áreas en las que la Comunidad tiene competencias bien establecidas. Una de estas áreas sería la del comercio de productos, en la que ya se llevó a cabo un trabajo considerable con SAVE I. La ausencia por ahora de un artículo sobre la energía en el Tratado de Maastricht significa que todavía no existe una base legal específica para legislar en el sector energético. Por consiguiente, cualquier nueva actividad legislativa de SAVE II debe concentrarse en áreas en las que la acción individual de los Estados miembros pudiera conllevar la desorganización de una política comunitaria importante como puede ser el mercado interior. Aunque la coyuntura actual no parece favorable a la legislación adicional sobre eficiencia energética en general, la Comisión, naturalmente, seguirá observando la situación y presentará propuestas sobre este tipo de legislación según lo estime oportuno, necesario y eficaz.

Proyectos Piloto

La finalidad de los proyectos piloto era reforzar las infraestructuras de eficiencia energética en los Estados miembros y apoyarles en la introducción de las actuaciones legislativas propuestas en SAVE I. De hecho se realizaron 200 proyectos individuales. Ésto impuso una importante carga administrativa en los servicios que gestionaban SAVE y condujo a una limitación en los esfuerzos para crear proyectos de cooperación y para divulgar los resultados, actividad que conlleva un importante elemento de valor añadido. Durante el cuarto año del programa se realizaron esfuerzos para enmendar esta situación y se pretende que SAVE II ponga un mayor énfasis en que los Estados miembros se ayuden unos a otros mediante la transferencia de experiencias sobre las diferentes opciones normativas.

Programa de Información

En 1993 se inició el lanzamiento de un amplio programa de información utilizando la red ***EnR*** (una red de los organismos de eficiencia energética de los Estados miembros). Esta acción ha resultado muy eficaz y ha sido un buen ejemplo de cómo puede funcionar el principio de subsidiariedad en la práctica. Por el momento, el programa de información se ha propuesto sobre una base anual por EnR y se ha discutido con la Comisión. Podría resultar más adecuado desarrollar una estrategia de información

dentro del Comité SAVE y prestar el servicio, según fuera necesario, a distintas redes de información que estarían óptimamente equipadas para responder a las distintas prioridades y áreas de interés. Una acción de este tipo subrayaría el valor añadido del apoyo comunitario.

Actuaciones en Cooperación con otros Programas de Energiá

Durante la administración de SAVE se hizo evidente que existían vastas zonas de interés común entre las actuaciones realizadas bajo este programa y las realizadas bajo otros programas del sector energético. Se creó una cooperación entre Thermie y SAVE en el área de financiación por terceros (un mecanismo de financiación que puede considerarse ya sea como un método para acelerar las inversiones en la utilización racional de la energía o como un método para acelerar la introducción de nuevas tecnologías). Este tipo de actuación puede ampliarse en SAVE II, teniendo siempre en cuenta una diferencia esencial, es decir, que Thermie se concentra en conseguir la penetración en el mercado de las nuevas tecnologías mientras que SAVE se preocupa de la promoción de instrumentos de normalización. Ahora también se recurrirá al programa Synergy y al programa para la gestión de la energía urbana y regional para que colaboren en apoyo de una incitativa común de financiación por terceros. Es evidente que existen otras áreas en las que es posible cooperar, como la educación y la formación, la gestión, la determinación de objetivos y el control de la demanda, en las que deberían realizarse progresos durante la vigencia del programa SAVE II.

Es conveniente señalar que, mientras los programas JOULE y Thermie tienen por objeto apoyar la investigación tecnológica y desarrollar y hacer demostraciones de esta tecnología, al mismo tiempo que proponen mecanismos que propicien la penetración de estas tecnologías en el mercado, los programas SAVE y Sinergy son neutrales en cuanto a tecnología, como ya se indicó anteriormente en el caso del primero. Estos tres programas utilizan sin embargo las mismas herramientas para transmitir parte de su mensaje. Ocurre que los tres programas hacen uso de conferencias, seminarios, talleres de discusión, folletos y otros medios de información. Debe realizarse un esfuerzo para que los elementos de uno o más de los tres programas arriba mencionados lleguen a constituirse en actividades específicas. Este esfuerzo no será tan sencillo como puede parecer a primera vista ya que la audiencia de las actividades de Thermie es en general diferente de la del sector de eficiencia energética o la de las actividades de SAVE.

Observaciones de índole general

La eficiencia energética puede conseguirse de una de las dos maneras siguientes: por las inversiones directas o por un cambio de los comportamientos. Habida cuenta de que el modesto presupuesto del programa SAVE I le impedía ser un vehículo para acelerar las inversiones mediante subvenciones directas, el programa dedicó sus mayores esfuerzos a la creación de un entorno más positivo para la eficiencia energética en la UE. Esto se consiguió mediante medidas administrativas, como las directivas, y de un "aumento de la capacidad" en los Estados miembros vía los proyectos piloto y las actividades de información. El coste de las actividades de promoción para el gran público está fuera del ámbito del programa.

El programa PACE, cuya finalidad era el desarrollo de iniciativas de normalización para mejorar la eficacia del uso de la electricidad, fue un intento de influir directamente sobre el comportamiento de los consumidores mediante la información y la elaboración de normas. Debido a la sinergia entre sus objetivos y el objetivo más global del programa SAVE, PACE se incorporó a SAVE. Estos dos programas han funcionado juntos con éxito y se han preparado varias directivas relacionadas con la electricidad durante el programa SAVE.

En los cinco años que lleva en existencia el programa SAVE también se hizo evidente que los esfuerzos de la DG XVII en favor de la programación energética en las regiones, ciudades e islas constituyen una respuesta adicional al objetivo general del programa SAVE. Las mejoras en eficiencia energética introducen un enfoque sobre la demanda en los problemas relacionados con la energía que hace necesario el desarrollo de estructuras regionales y urbanas que podrán ser eficaces si su actuación está próxima al consumidor final. Estos recursos descentralizados permiten una acción eficaz de información a los consumidores sobre las consecuencias del derroche de la energía, y las maneras de evitarlo, favorecen la explotación de los recursos energéticos locales y sirven para divulgar las soluciones energéticas más adecuadas. Esta acción, al igual que PACE, tiene por objeto conseguir cambios de comportamiento radicales y a su vez ofrece una sinergia real con SAVE. Por ello, las actividades de la DG XVII en el sector de la gestión de la energía a nivel regional y urbano se han incorporado al programa SAVE. De ello se derivará el enriquecimiento de ambos programas y las iniciativas desarrolladas para el programa SAVE II resultarán altamente beneficiadas por la subsiguiente concentración de los objetivos.

LA STRUCTURA DE SAVE II

INTRODUCCIÓN

Las acciones que se describen a continuación se han inspirado en cinco fuentes:

- la experiencia ganada por la Comisión durante los cinco años precedentes del programa SAVE ;
- las conclusiones y recomendaciones de un grupo de expertos independientes a quienes se encargó la evaluación del programa SAVE ;
- las opiniones recogidas en la Conferencia SAVE que tuvo lugar en 1994 en Florencia ;
- las iniciativas llevadas a cabo con el programa relativo a la gestión de la energía a nivel regional y urbano y con PACE, a que se ha hecho referencia anteriormente y que actualmente se han incorporado a SAVE ;
- la evaluación de los programas nacionales de reducción del CO_2 ejecutados por los Estados miembros en respuesta a la estrategia establecida por el Consejo para la estabilización del CO_2.

ESTUDIOS Y OTRAS ACCIONES QUE HAN PERMITIDO COMPLETAR Y EJECUTAR LA LEGISLACIÓN COMUNITARIA SOBRE EFICIENCIA ENERGÉTICA Y NORMAS DE RENDIMIENTO ENERGÉTICO

Es necesario disponer de estudios para la preparación de los expedientes técnicos que deben acompañar a toda propuesta de directiva. Durante SAVE II se completarán parte de los trabajos en curso en el área del etiquetado y normas sobre equipos. Los esfuerzos estarán dirigidos principalmente a cuatro áreas:

Etiquetado de aparatos que utilizan energía

Esta actividad está especialmente relacionada con la continuación de las iniciativas relativas al etiquetado de aparatos domésticos dentro del marco de la directiva 92/75/CEE[6]. Ya han sido adoptadas varias directivas que son de aplicación y se realizan esfuerzos continuos en este dominio para introducir otras directivas aplicables a una serie de aparatos que utilizan energía.

Acuerdos voluntarios[7]

Están en marcha las negociaciones con asociaciones que representan a los fabricantes de aparatos que utilizan energía para establecer acuerdos voluntarios relacionados con la mejora del rendimiento en el uso final de la energía. Estas negociaciones tienen inevitablemente un carácter altamente técnico: se prevé que durante SAVE II continuarán las investigaciones sobre las mejoras técnicas anticipadas y sobre el potencial a largo plazo para mejorar la eficacia del uso final de la energía en el sector de los aparatos que utilizan energía. Este trabajo es necesario para establecer la posición negociadora de la Comisión ante a los fabricantes.

Normas internacionales de eficiencia energética a nivel del uso final

La Comisión está negociando actualmente con los principales socios comerciales de la Comunidad Europea para establecer normas internacionales para diversos tipos de aparatos que utilizan energía. Por ahora los esfuerzos se concentran en los equipos de oficina que necesitan una cantidad importante de energía auxiliar (por ejemplo, los ordenadores personales). Se necesita, sin embargo, una acción más amplia cuyo objetivo final sea la creación de un conjunto global de normas internacionales de eficiencia energética a nivel del uso final. Ya se han emitido una serie de mandatos al CEN/Cenelec[8] respecto a la creación de normas para medir el consumo de determinados aparatos que utilizan energía. Este esfuerzo continuará (y tal vez aumentará) con SAVE II.

Normas de la Comunidad Europea sobre eficiencia energética a nivel del uso final[7]

Solamente en aquellos casos en los que el enfoque descrito anteriormente no resulte eficaz será la propia Comisión quien proponga directivas sobre normas comunitarias que indiquen el consumo máximo de energía para tipos específicos de aparatos que utilicen energía.

Estudios que llevan a adoptar otras medidas legislativas

Aunque esté previsto que la actividad legislativa actual de SAVE II se concentre en los temas enumerados anteriormente, la Comisión llevará a cabo regularmente aquellos estudios que estime oportuno para la preparación de medidas legislativas futuras en el campo de la eficiencia energética. Estos estudios podrán abarcar todo el espectro de la mejora de la gestión energética y la decisión sobre los mismos se adoptará anualmente sobre una base *ad hoc*.

ACCIONES PILOTO MEDIANTE REDES

La experiencia adquirida con el programa de información de SAVE I ha demostrado la eficacia de las redes específicas para llevar a cabo los objetivos estratégicos establecidos por la Comisión. Las redes poseen diversas ventajas sobre las acciones individuales. En primer lugar, muchos de los programas subvencionados por SAVE I tienen una dimensión que va mucho más allá de las fronteras del Estado miembro donde se realiza el trabajo. En

6 D.O. nº L 297 de 13.10.1992, p. 16

7 Actividad que anteriormente formaba parte del programa PACE

8 Véase el artículo sobre el carácter y procedimientos de estos organismos en el nº 22 de "La Energía en Europa".

algunos casos concretos, la utilización de redes a nivel comunitario como contratistas podría constituir el vehículo ideal para maximizar la dimensión comunitaria de muchos de estos programas y para optimizar el efecto multiplicador de los distintos proyectos. Estas redes implican a un gran número de personas y organismos y por consiguiente a canales de información ya consolidados. SAVE II va a dedicar una parte de su presupuesto a grandes proyectos cooperativos gestionados por redes adecuadas ya consolidadas a nivel comunitario. Para dar dos de los ejemplos posibles de actividades en este sector, las redes de transporte transnacionales podrían constituir un objetivo para explorar la mejor forma de organizar sistemas de transporte eficaces desde el punto de vista energético, o se podrán establecer contactos con asociaciones internacionales de arquitectos para desarrollar soluciones de eficiencia energética para edificios nuevos o ya construidos y para divulgar estas soluciones entre sus miembros. Será posible favorecer la preparación de material para cursos sobre gestión energética por parte de las redes de responsables de la formación en este sector utilizando la más avanzada tecnología multimedia y divulgando este material lo más ampliamente posible. En el sector industrial, será posible fomentar entre las asociaciones industriales la preparación de programas de gestión energética y de material educativo específico para cada industria, distribuyéndolo al sector industrial interesado. También se fomentarán actividades piloto de este tipo relacionadas con regiones, ciudades e islas. Las asociaciones de consumidores se utilizarán para desarrollar y distribuir material relacionado con la promoción de un mejor comportamiento energético. Evidentemente ésta no es una enumeración exhaustiva sino que se limita a dar algunos ejemplos de esta nueva actividad que trata de optimizar la divulgación de las actividades piloto mediante el uso de las redes existentes cuya eficacia está probada.

Actividades Piloto Prioritarias

Para finales de 1995, SAVE I habrá financiado unas 250 actividades piloto sectoriales. Los principales dominios de interés han sido la educación y formación, la planificación integral de recursos, el transporte, los edificios, la cogeneración y el control y la selección de prioridades. Aunque se ha reunido un volumen considerable de información, todavía existe campo suficiente para llevar a cabo iniciativas piloto en todas estas áreas. La Comisión se propone continuar las actividades piloto en estos sectores pero utilizando un mecanismo distinto para la financiación de actividades individuales que permita una solución más coordinada. Se propondrá un tópico específico - por ejemplo, maneras de salvar los obstáculos para la cogeneración, o problemas asociados con los sistemas de transporte urbano - y se publicarán avisos de licitaciones específicas. Será necesaria una importante cooperación transfronteriza entre los licitadores y los resultados de estas acciones prioritarias se divulgarán lo más ampliamente posible. Otros sectores que podrán considerarse prioritarios para las actividades piloto seleccionadas serán el uso final de la electricidad y el desarrollo y difusión de mecanismos innovadores de financiación como la financiación por terceros. Esta es una actividad nueva que se ha desarrollado a partir de la experiencia adquirida durante el programa SAVE y que ha sido propuesta por el equipo que evaluó ese programa.

Divulgación de la Información a través de las Redes

La información directa al consumidor es un factor importante para la mejora de los comportamientos frente al consumo de energía. Al igual que en el caso de los proyectos piloto, la idea de las redes parece hecha a medida para las tareas de divulgación. La experiencia de SAVE I en este terreno fue positiva y deberá continuarse y ampliarse. Con SAVE I se utilizó sólo una red pancomunitaria pero con SAVE II se prevé que, cuando se considere apropiado, otras redes existentes pueden responsabilizarse de distintos aspectos del programa de información y que la Comisión, una vez consultado el Comité SAVE, llevará a cabo una revisión estratégica con las redes implicadas para tomar una decisión sobre la dirección del programa. Esta actividad se coordinará estrechamente con los resultados obtenidos por todas las iniciativas desarrolladas durante el programa SAVE II.

Control de la Eficiencia energética a Nivel nacional y de la UE

Durante SAVE I se desarrolló un número importante de herramientas de análisis. Entre éstas se incluye la extensión del modelo MURE II[9] sobre actividades normativas en el campo de la eficiencia energética; una base de datos que contiene las iniciativas tanto de SAVE como de los Estados miembros; y el desarrollo de un método de fácil manejo para desagregar la información sobre intensidad energética de manera que queden destacados los avances debidos únicamente a la eficiencia energética. Durante SAVE II se prevé el establecimiento de convenios sobre métodos de supervisión que utilicen una metodología común para analizar el nivel de eficiencia energética dentro de la Comunidad de forma continua y que describirán los

[9] El modelo MURE es un modelo de demostración que simula el efecto de las distintas actividades normativas relacionadas con la eficiencia energética a nivel de la Unión Europea y de los Estados miembros.

progresos realizados para la consecución del objetivo de eficiencia energética de la UE anteriormente mencionado. Los Estados miembros ya poseen una gran cantidad de datos relativos a su propia situación energética. Se celebrará una reunión anual de expertos de los Estados miembros sobre las tendencias de los indicadores de eficiencia energética y sobre el funcionamiento de las iniciativas de este campo. Éste será un ejercicio conjunto entre la Comisión y los Estados miembros. Es una actividad nueva y está directamente relacionada con el desarrollo de los útiles adecuados bajo el programa SAVE.

Acciones específicas en Favor de una mayor Cohesíon entre los estados Miembros en la Preparación de Disposiciones orientadas a conseguir una gestión más eficaz de la energía

A pesar de los esfuerzos de los Estados miembros y del programa SAVE, persiste un alto grado de disparidad entre las infraestructuras de gestión energética de los Estados miembros de la Unión e incluso entre muchas de las regiones de la UE. Mientras que algunos Estados miembros comenzaron sus esfuerzos de eficiencia energética tras la primera crisis del petróleo de 1973, otros apenas acaban de iniciar sus propios programas nacionales. Por ello es importante que SAVE II se utilice como un vehículo para conseguir una mayor cohesión entre los Estados miembros y entre sus regiones en el dominio del uso racional y prudente de los recursos energéticos. Así, SAVE II lanzará una serie de iniciativas dirigidas a aquellos Estados miembros y regiones en los que hasta ahora se ha hecho relativamente poco para establecer prioridades en la utilización de la energía más relevantes en cuanto a los objetivos económicos y ambientales. Esta iniciativa estaría limitada a los Estados miembros y, en algunos casos, a regiones específicas de un Estado miembro cuyas infraestructuras de eficiencia energética estén todavía subdesarrolladas. La finalidad de esta acción será aprovechar la experiencia de los Estados miembros para optimizar el ajuste de la capacidad regional o local. Las actividades en esta área serán:

- la creación de conexiones entre los distintos Estados miembros o las regiones de distintos Estados miembros para el intercambio de información,
- la creación de las bases de datos necesarias para permitir el acceso de los responsables de las medidas oficiales a iniciativas locales eficaces,
- el apoyo a la creación de centros regionales modelo que actúen como puntos focales para las actividades de gestión energética local y que dispongan de los conocimientos técnicos necesarios para formular soluciones a partir de los recursos energéticos regionales.

El aumento de esta capacidad de gestión de recursos energéticos regionales es una consideración importante para la formulación de soluciones de gestión eficaces adecuadas a las muy diversas situaciones de suministro/demanda de energía en las regiones y los Estados miembros.

Esta es una actividad nueva que está relacionada con el movimiento existente dentro de la Unión para crear una mayor cohesión económica y social. La eficiencia energética crea riqueza puesto que implica un aumento en los ingresos disponibles y se ha demostrado que es una herramienta eficaz para el desarrollo regional. Este requisito no es puramente filosófico sino que es muy real dentro del contexto de los esfuerzos de los Estados miembros para conseguir el objetivo del CO_2 establecido por el Consejo de Ministros.

Acción específica orientada a mejora la gestión energética a Nivel regional y urbano

El programa de acción piloto que tiene por objeto la mejora de la gestión energética en las regiones y ciudades de la Comunidad, que funciona desde 1990, ha demostrado la importancia de responder prioritariamente a las cuestiones energéticas locales e investigar activamente las soluciones locales. El programa proporciona asistencia a las autoridades locales en las regiones, islas y ciudades para ayudarles a crear agencias de gestión de la energía cuyo papel principal será la ejecución de los programas locales y regionales para un uso óptimo de la energía. A través de ello, el programa contribuye a la integración de la energía en los planes locales de desarrollo sostenible y contribuye a los esfuerzos medioambientales regionales y locales. Un prerrequisito de este enfoque desde las bases es el acercamiento a los consumidores mediante canales muy descentralizados de información, educación y asesoramiento sobre gestión energética. Estos esfuerzos pueden hacerse unas veces a nivel de todo tipo de usuarios, como las pequeñas empresas (incluidas las PYME) o los entes públicos, y en algunos casos pueden dirigirse directamente al ciudadano individual, que en cuanto a números puede representar el mayor potencial en las actividades de gestión energética. Este punto quedó destacado en el programa SAVE I que consideró de importancia primordial las actividades cercanas al consumidor orientadas a cambiar sus pautas de consumo de energía. SAVE II no se limitará a continuar esta actividad sino que además la reforzará coordinando las actividades de SAVE con las del programa para la gestión de la energía en las regiones y ciudades. Las actividades en este dominio se centrarán en la creación de agencias de gestión energética regionales y locales. Estas actividades podrán incluir también apoyos colaterales, como los programas de educación en el uso final de la

energía, el establecimiento de agencias locales de gestión e información sobre energía y la ejecución de proyectos prioritarios con un alto potencial de divulgación. El énfasis de esta actividad se centra en las autoridades regionales y locales y está orientado al cambio de las costumbres de uso energético en todo tipo de consumidores. Las actividades específicas que se llevarán a cabo en este sector se discutirán con el Comité SAVE.

Actividades orientadas a la Inclusión de la Eficacia energética como uno de los Criterios de los Programas estratégicos de la UE

Conseguir un uso más racional de la energía es un objetivo estratégico que tiene repercusiones sobre muchos aspectos de la vida en la UE. Al comienzo de este artículo se subrayan los efectos principales de la mejora de la eficiencia energética sobre el empleo, el medio ambiente, el desarrollo regional y la competitividad industrial. Sin embargo, el programa SAVE ha sido creado para conseguir un único objetivo: la mejora en la forma de utilizar los recursos energéticos. Es por lo tanto importante que SAVE esté conectado con otros programas comunitarios que han sido creados para conseguir objetivos específicos, a los que puede contribuir el mejor uso de la energía. Esta conexión ya ha sido admitida por la Dirección General de política regional de la Comisión que ha hecho enormes esfuerzos para que la eficiencia energética y los proyectos de energías renovables se incluyesen en el último ejercicio financiero del FEDER. El programa SAVE, en cooperación con otros departamentos de la Comisión, deberá tratar de garantizar que el avance en el uso eficaz de los recursos energéticos desempeñará el papel que le corresponde en la consecución de los objetivos de los programas comunitarios. El primer elemento dentro de esta estrategia será la preparación de un conjunto exhaustivo de estudios que examinarán el papel puede desempeñar la gestión prudente y eficaz de la energía de uso final en la creación de puestos de trabajo y en el desarrollo regional y local.

Esta es una actividad nueva que ha evolucionado paralelamente a los distintos programas. Los programas como Valoren, financiado por el Fondo Europeo de Desarrollo Regional, han demostrado el enorme potencial de la eficiencia energética como motor del desarrollo regional. Esta es una experiencia muy positiva que debe ampliarse.

Conclusión

Se ha evaluado positivamente el efecto del programa SAVE en cuanto al uso eficaz de la energía en la UE. Existen muchas razones decisivas para continuar y extender este esfuerzo, entre las que se incluyen la protección del medio ambiente, las consideraciones de política energética, el empleo, la política regional y local y la cohesión social. Las lecciones extraídas del primer programa SAVE abogan en favor de la reorientación de las actividades hacia acciones con una dimensión comunitaria más pronunciada, y acciones orientadas a la coherencia de las infraestructuras de eficiencia energética dentro de la UE. También se prevé una operación complementaria encaminada a divulgar los resultados de los esfuerzos comunitarios de eficiencia energética a terceros países. La propuesta de SAVE II representa un vasto enfoque comunitario al gran potencial económico y medioambiental de un uso más racional de la energía. Para proporcionar esta mayor amplitud se han incluido en la propuesta de SAVE dos iniciativas existentes: el programa para mejorar la eficacia del uso de la electricidad final y el programa relativo a la promoción de la gestión energética en el ámbito de las regiones, islas y comunidades locales. El programa incorpora aquellos elementos que han resultado satisfactorios en SAVE I, ampliados por una serie de nuevas acciones destinadas a reforzar el programa y a crear un enfoque más eficaz y sinérgico frente a los problemas de energía y medio ambiente en la Comunidad.

EL PROGRAMA PILOTO DE LA COMUNIDADE PARA LA PROMOCIÓN ENERGÉTICA EN EL ÁMBITO REGIONAL Y URBANO DENTRO DE LA UNIÓN, SU DESARROLLO E IMPORTANCIA

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Orígenes del Programa : del Estudio de la Situación a la Planificación energética regional

Al principios de los años 80 - solamente tres años después de la segunda crisis del petróleo, sobre un telón de fondo de mercados perturbados - la Comisión, con el apoyo del Parlamento Europeo, empezó a preocuparse por los aspectos regionales de la política energética. En unos momentos en que la energía era cara y existía el riesgo de penuria, se pensaba principalmente en llegar a los consumidores de energía haciendo uso de la dimensión regional para combatir el derroche y aprovechar los recursos energéticos locales.

El consumir menos y producir más se convirtió en una prioridad económica. Este nuevo enfoque se concentraba en el aspecto de la demanda para fomentar el ahorro de energía y la sustitución de la energía importada por las fuentes locales (en su mayoría renovables) de energía. Muy pronto fue evidente que era necesario actuar a un nivel bastante próximo a los consumidores de energía y que los representase realmente: las regiones pasaron por lo a desempeñar un papel activo en el escenario de la política energética.

Este objetivo encontró, sin embargo, dificultades importantes, como la falta de información regional fiable sobre la demanda y el potencial de ahorro energético y las fuentes de energía locales, la falta de métodos e instrumentos para analizar y prever la evolución futura, la falta de diálogo y confianza entre las partes interesadas, etc. Se hizo evidente por lo tanto que existía la necesidad de disponer de un programa de planificación energética regional para ayudar a las regiones a recopilar y analizar los datos sobre energía que permitiesen elegir una política energética consecuente con los demás problemas de desarrollo.

Se comenzó con una primera serie de cinco estudios en 1982 con un presupuesto muy reducido y para 1989 se habían financiado 45 estudios de este tipo.

De la Planificación a la Programación energética regional y urbana

Aunque debido a las circunstancias del mercado del petróleo en 1986 las fuentes primarias de energía (especialmente el petróleo) se abarataron, el enfoque previamente formulado consistente en proceder de forma ascendente a partir de las bases continuó siendo válido ya que era posible mantener una sólida política de gestión energética en los países industrializados debido a que el precio final de la energía (electricidad, combustible para motores, etc.) se mantuvo alto en muchos casos y porque existía una creciente concienciación sobre los problemas ambientales (la capa de ozono, el efecto invernadero, la lluvia ácida, etc.).

Después de una primera evaluación en 1989, el programa de planificación energética regional de la Comunidad se mantuvo con los siguientes cambios:

- el programa se amplió a actividades posteriores a la etapa de planificación con interacción y negociaciones entre los agentes locales de la energía y la preparación de planes específicos y jerárquicamente estructurados a corto, medio y largo plazo (que originaron el concepto de programación energética adoptado en 1990). Esta forma de programación sirvió de marco de referencia para las futuras inversiones en el sector energético;
- ampliación del programa a las ciudades ya que en ellas es donde se consume más del 75% de la energía y habida cuenta de su importancia en términos de decisión y gestión de las múltiples operaciones relacionadas con la energía, especialmente las inversiones. Ello dió origen al concepto de programación energética regional y urbana, que también se adoptó en 1990;
- Mejoras en los procedimientos y la transparencia del plan, publicándose una convocatoria anual de

propuestas en el Diario Oficial de las Comunidades Europeas.

De la Programación a la gestión energética regional y urbana

El concepto de la programación tuvo el indudable mérito de traducir las conclusiones de las actividades emprendidas en este contexto a programas prioritarios claramente identificados y presupuestados Pronto se hizo evidente, sin embargo, la existencia de ciertas limitaciones, especialmente en los centros urbanos y ciudades de las regiones sin experiencia en el saber hacer energético o en recursos conexos. En 1992 quedó de manifiesto que era necesario promover la ejecución de actividades de programación energética regional y urbana ya que se había observado que a menudo la ejecución práctica de las ideas y las actuaciones que resultaban de las actividades de programación seguían siendo limitadas si no existían recursos *in situ* con el saber hacer adecuado. Por lo tanto, la evolución gradual del programa comunitario hacia el nivel local en el sector energético puso de manifiesto la necesidad de crear agencias locales de energía.

La creación de agrupaciones o agencias regionales se incluyó dentro de las categorías de programas subvencionables por la Comisión siempre que se ajustasen a determinados criterios como la inexistencia de este tipo de agrupaciones en la región o municipio en cuestión, el compromiso de contratar personal competente y la busca de objetivos de gestión energética.

Este apoyo a la creación de agencias o agrupaciones regionales y locales llevó a actividades más secundarias y el concepto primordial no fue ya la programación sino la gestión regional y local de la energía.

Se prevé enfocar y desarrollar el seguimiento de este programa sobre la base de este concepto de gestión, que de hecho complementa en gran parte el concepto de programación y está prevista la creación de un programa *ad hoc*. La DG XVII está preparando las propuestas correspondientes para mantener este instrumento de apoyo a los distintos niveles de autoridades descentralizadas y el programa debería ser operativo a principios de 1996.

La Importancia de la Gestión energética para las regiones, las Islas, y las Ciudades

La Gestión energética y los Intereses de los Responsables locales

Existen numerosas esferas de influencia de los representantes locales donde la energía juega un papel importante:

- las redes (para electricidad, gas, calefacción, refrigeración) que deben planificarse y racionalizarse;
- la gestión de los servicios públicos (reducción de costes);
- el transporte (que debe facilitarse al mismo tiempo que se protege el medio ambiente);
- la planificación del espacio (que tiene muchas implicaciones en cuanto a los trayectos diarios hogar/trabajo en los que se consume una gran cantidad de energía);
- la gestión de residuos que pueden utilizarse para producir energía;
- la sanidad pública (que depende en parte de las condiciones ambientales que a su vez dependen en gran parte del consumo de energía; especialmente la calidad del aire).

Implicaciones directas de la Gestíon energética local sobre la Energía

La gestión energética local tiene en primer lugar un efecto inmediato en el campo del ahorro energético como resultado de su contribución a la difusión de las tecnologías más eficaces, y también en el campo de las fuentes de energía renovable ya que las autoridades locales juegan un papel primordial en el proceso de promoción y puesta en práctica de las tecnologías energéticas.

Esta gestión también contribuye a la definición de las inversiones en infraestructuras de distribución de la energía, evitando la duplicación de esfuerzos y la improductiva competencia entre redes.

Effectos indirectos de la gestión energética en términos del desarrollo local y del desarrollo sostenible

La gestión local de la energía hace posible enfrentarse a varias cuestiones relacionadas con el desarrollo sostenible, por ejemplo:

- la creación de puestos de trabajo y el valor añadido local, especialmente como resultado de planes de ahorro energético consistentes en sustituir las inversiones y los gastos de mantenimiento por gastos operacionales, ya que los primeros generan (mucho) más valor añadido y empleos locales (especialmente en

las PYME) que los últimos;

- la aparición de un volumen de negocios a menudo considerable relacionado con la utilización de fuentes de energía renovables. Esta orientación, que implica múltiples sistemas de producción/consumo, también representa un mercado muy propicio para la creación y el desarrollo de las PYME;
- la protección del medio ambiente y la mejora de la calidad de vida, como resultado de la eficacia de la gestión energética en mejoras sobre el transporte urbano, la calidad de la vivienda, el aprovechamiento de los residuos, etc.;
- la concienciación y movilización de los consumidores locales de energía (incluidos los usuarios domésticos) para combatir eficazmente el derroche y la contaminación relacionados con la energía. La concienciación puede promoverse por medio de campañas orientadas a los aspectos financieros (reducción de costes) de la gestión energética y de reuniones entre los agentes locales del sector energético que hasta ahora no se han relacionado entre sí. Esto resulta generalmente en un intercambio de ideas y en un consenso propicio al desarrollo local.

CONFÉRENCE SUR LA POLITIQUE ÉNERGÉTIQUE DE L'UNION EUROPÉENNE

C. Papoutsis, Membre de la Commission

Cette conférence, organisée par le "Club de Bruxelles" sur le thème "Quelle politique énergétique pour l'Union européenne?" a attiré plus de trois cents représentants de la quasi-totalité des secteurs liés à l'énergie ainsi que d'organismes nationaux, européens et internationaux tant privés que publics. Cet important événement a en fait été organisé à la demande de la DG XVII et s'inscrit dans le droit fil de son Livre vert intitulé "Pour une politique énergétique de l'Union européenne" publié en janvier 1995[1]. Les allocutions d'ouverture ont été prononcées par M.Yves Galland, ministre français de l'industrie, et par M. Papoutsis, membre de la Commission. D'éminentes personnalités du secteur de l'énergie, des représentants d'associations de défense de l'environnement ainsi que de hauts fonctionnaires de la Commission et des membres du Parlement européen ont contribué à des débats animés. Les actes complets de la conférence seront publiés en temps opportun, mais nous avons le plaisir de publier dans ce numéro, outre l'article de M Galland, l'allocution de M. Papoutsis dont le texte complet figure ci-après.

Monsieur le Président, Monsieur le ministre, Mesdames et Messieurs,

C'est avec grand plaisir que j'ouvre aujourd'hui cette importante conférence consacrée à la politique énergétique. En effet, elle constitue une excellente occasion d'analyser les objectifs du Livre vert et fournira une contribution intéressante au futur Livre blanc sur la politique énergétique.

Le débat sur la politique énergétique et le Livre vert revêt aussi une certaine importance compte tenu de la nécessité de traiter de la politique énergétique dans le contexte de la Conférence intergouvernementale de 1996.

J'aimerais rappeler que la Communauté s'est dotée, depuis un certain temps déjà, d'une politique énergétique, dont les orientations étaient, jusqu'au milieu de la dernière décennie, déterminées par la nécessité d'assurer la sécurité d'approvisionnement.

Toutefois, la mise en place progressive du marché intérieur et l'apparition de problèmes environnementaux ont modifié assez radicalement le contexte dans lequel la politique énergétique va devoir évoluer. En outre, il ne faut pas oublier les bouleversements intervenus sur la scène économique et géopolitique en dehors de l'Union.

Tous ces facteurs justifient qu'un vaste débat sur l'avenir d'une politique énergétique européenne s'engage entre les parties concernées. Le Livre vert a fourni une base de réflexion, avant tout, pour les autres institutions : Parlement européen, Comité économique et social et Conseil. La résolution adoptée par le Conseil le 1er juin, pendant la remarquable présidence de M. Galland, a constitué une base constructive qui permettra de continuer à développer cette politique. Toutefois, parallèlement aux travaux des institutions, j'attache une grande importance aux opinions de tous les représentants des associations professionnelles du secteur de l'énergie et des groupes de défense de l'environnement sur le Livre vert.

La publication d'un Livre blanc qui sera la fruit de ces consultations a été annoncée. Je souhaite que ce document soit disponible avant la fin de l'année. Il aura deux principaux objectifs.

1 *COM(94)659 final, 11.01.95, publié par la suite sous la forme d'un supplément à "Energie en Europe" (Allemand, anglais, espagnol, français)*

Premièrement, il devra proposer de grandes orientations politiques et établir un programme de travail à long terme pour les mettre en oeuvre.
Deuxièmement, il contribuera à l'effort de réflexion engagé en vue de la Conférence intergouvernementale de 1996.
Il est évident que, dans le domaine de l'énergie, les responsabilités sont partagées entre les niveaux national et communautaire. Devant des problèmes graves, tels que notre dépendance croissante à l'égard des importations énergétiques, ou des problèmes de dimension mondiale, tels que les questions relatives à l'environnement, il faudra adopter des politiques cohérentes à tous les niveaux.
Comme l'indique le Livre vert, nous ne cherchons pas à harmoniser les politiques nationales. L'objectif est d'améliorer globalement l'efficacité des mesures prises en unissant les forces dispersées dans la Communauté.
Je suis convaincu que, bien que des instruments communautaires appropriés existent déjà dans les traités, il est nécessaire de les adapter à la politique énergétique et aux exigences économiques internationales.
Le concept de convergence présenté dans le Livre vert vise à promouvoir l'établissement de nouvelles relations entre les politiques nationales et communautaires.
Les acteurs du secteur de l'énergie, qu'il soit public ou privé, doivent relever des défis très importants. Je me félicite que des conférences comme celle-ci nous donnent l'occasion d'examiner ces problèmes de manière approfondie.
Le Livre vert définit trois objectifs, à savoir :
- la compétitivité globale
- la sécurité d'approvisionnement
- l'environnement.
J'espère que chacun de ces sujets fera l'objet d'un examen complet.
Nous devons d'abord nous demander comment notre politique énergétique peut renforcer la compétitivité économique globale des entreprises de l'Union européenne, et comment nous pouvons garantir que les progrès technologiques concourent au même but.
La compétitivité est un élément essentiel de l'avenir économique de la Communauté. Nous sommes tous conscients de l'importance de la compétitivité pour le maintien de l'emploi, du bien-être et de la qualité de la vie. La politique énergétique ne peut pas être dissociée de son contexte et étudiée comme un phénomène isolé. Le secteur de l'énergie doit participer aux efforts déployés par la Communauté pour améliorer la compétitivité. L'industrie est, à juste titre, préoccupée par ce problème.
Le Livre blanc "Croissance, compétitivité, emploi" a déjà émis l'idée que le secteur de l'énergie doit, et peut, participer à l'amélioration de la compétitivité globale. Cette amélioration pourra être obtenue par la mise en oeuvre de deux instruments.
Il s'agit, tout d'abord, d'un meilleur fonctionnement du marché qui résultera à la fois d'une simplification des règles communautaires et de l'intégration des marchés. Nous devrons donc ouvrir des monopoles à la concurrence tout en nous assurant que la protection des missions de service public reste suffisante.
Ensuite, l'évolution technologique et sa pénétration sur les marchés sont des paramètres essentiels pour l'amélioration de la compétitivité. Le Livre vert décrit le potentiel technologique à exploiter dans les domaines de la production et de la consommation de l'énergie et de la réduction de effets néfastes sur l'environnement.
Je suis convaincu que, dans tous les secteurs de l'énergie, une technologie plus efficace s'impose.
Continuer à progresser dans ce domaine aura une incidence positive sur le bilan énergétique de l'Union et améliorera aussi la position de nos industries sur les marchés internationaux.
Il appartient au secteur privé de poursuivre ses efforts dans cette direction. Néanmoins, les pouvoirs publics ne peuvent pas se soustraire à leurs responsabilités. Il est clair que tous les progrès technologiques ne doivent pas bénéficier d'un soutien, mais, dans de nombreux cas, c'est une nécessité.
Par exemple, les sources d'énergie renouvelables ont en ce moment des prix peu favorables qui peuvent compromettre leurs chances de participer à l'approvisionnement énergétique futur de la Communauté. C'est dans un tel cas que le soutien au développement et à la pénétration de la technologie est important.
Le quatrième programme-cadre, Thermie II, SAVE II et Altener sont tous des programmes de soutien communautaires qui contribuent valablement au développement, à la diffusion et à la pénétration des progrès technologiques.
La promotion de l'amélioration de l'efficacité énergétique et l'exploitation de nouvelles sources d'énergie renouvelables sont également importantes si nous devons combler l'écart entre les régions développées et moins développées de la Communauté. La réalisation de l'objectif de cohésion économique et sociale fixé dans le traité peut également passer par une politique énergétique qui vise à améliorer la compétitivité.
Les auteurs du Livre vert se sont ensuite demandés comment améliorer la sécurité de l'approvisionnement énergétique dans l'Union européenne, et notamment dans les régions périphériques et isolées et dans celles qui sont moins développées.
Comme je l'ai déjà indiqué, la sécurité de l'approvisionnement a toujours été un grand sujet de préoccupation, pour les gouvernements comme pour

l'industrie. Pour les citoyens de la Communauté, la sécurité de l'approvisionnement signifie l'accès à un flux d'énergie ininterrompu, de qualité constante, à des prix justes et abordables. Elle est étroitement liée au marché international, puisque la Communauté importe actuellement la moitié de ses besoins en énergie.

Les marchés du charbon et du pétrole ont une dimension plus internationale que ceux de l'électricité et du gaz, qui sont de nature plus régionale. Néanmoins, toutes les sources d'énergie, à l'exception des énergies renouvelables, font l'objet d'échanges internationaux.

Les relations extérieures sont essentielles pour intensifier les relations économiques entre les régions de production et de consommation. Les accords commerciaux et la coopération technique reposent sur l'intérêt commun des deux parties. La notion de sécurité d'approvisionnement recouvre aujourd'hui davantage que la simple relation entre le fournisseur et le consommateur. Sans négliger la nécessité d'adopter des mesures pour la gestion de crises, l'accent est plutôt mis, désormais, sur l'établissement de relations saines pour le plus grand bénéfice des deux partenaires.

Au sein même de la Communauté, il est nécessaire d'assurer l'approvisionnement en énergie des régions périphériques ou moins développées à des prix acceptables. Il faut donc instaurer un climat propice qui permette aux agents économiques de prendre le risque de construire l'infrastructure nécessaire à la fourniture d'énergie. La Communauté peut y contribuer par l'intermédiaire de sa politique de promotion des réseaux d'énergie transeuropéens.

En outre, ces régions sont dotées de sources d'énergies nouvelles et renouvelables. Il faut profiter des conditions favorables de développement de ces sources d'énergie grâce aux incitations des pouvoirs publics. Une promotion systématique et sérieuse de ces sources d'énergie et de l'efficacité énergétique pourraient apporter une importante contribution à la réduction de la dépendance de la Communauté à l'égard des importations d'énergie.

Les auteurs du Livre vert se sont ensuite penchés sur la façon dont la politique énergétique de l'Union européenne pouvait prendre en compte la dimension environnementale, et notamment sur la manière dont l'Union européenne peut assister les pouvoirs publics dans la promotion de l'efficacité énergétique.

L'intégration de la dimension environnementale dans les autres politiques est prévue par le traité. Il s'agit de savoir quelle est la manière la plus efficace pour y parvenir dans le secteur de l'énergie. Selon le Livre vert, la stratégie de l'internalisation des coûts externes au moyen d'instruments fondés sur le marché constitue la méthode la plus indiquée.

Il faut reconnaître, même si l'on redoute parfois les éventuelles conséquences sur la compétitivité, que l'internalisation des coûts environnementaux ou sociaux associés aux prix de l'énergie peut aussi constituer un moyen d'inciter à rechercher l'efficacité énergétique en utilisant des technologies garantissant un meilleur rendement, notamment dans l'industrie. On peut aussi, de la même manière, trouver des incitations pour l'exploitation des sources d'énergie renouvelables.

Le marché unique, en fonctionnant efficacement et d'une manière intégrée, pourra jouer un rôle car il permettra à l'industrie d'adapter la production aux besoins. Ce type de conditions peut être bénéfique pour l'efficacité énergétique, puisque l'investissement industriel est un outil important pour l'évolution dans ce secteur.

En ce qui concerne les domaines d'action des pouvoirs publics, la promotion de l'efficacité énergétique est, dans le secteur de l'énergie, l'un des sujets sur lesquels un consensus politique s'est dégagé.

Cependant, il manque les deux facteurs de déclenchement externes suivants :

- *des prix de l'énergie plus élevés, qui pourraient constituer une incitation pour les consommateurs, et*
- *une conjoncture économique qui créerait un climat favorable pour les investissements.*

L'intervention des pouvoirs publics demeure donc nécessaire. L'utilisation d'instruments économiques, et notamment d'incitations fiscales, doit être étudiée. Dans certains cas, il faudra aussi recourir à l'approche réglementaire, à condition de la mettre en oeuvre d'une manière qui n'entrave pas le fonctionnement du marché.

Finalement je voudrais souligner deux aspects, qui sont la nécessité de la coopération internationale dans le domaine de l'énergie, et l'importance de l'attribution d'un rôle précis à la Communauté dans la politique énergétique.

De toutes les tâches relevant de la responsabilité de la Communauté, la coopération internationale est probablement celle sur laquelle il sera le plus facile de parvenir à un consensus. Il est désormais incontestable qu'un dialogue continu avec les producteurs d'énergie contribue à l'instauration d'un climat favorable pour les investissements. Je dirais même que l'on a pris pleinement conscience du rôle de la Commission.

Les tâches portant sur des sujets dont la dimension dépasse les frontières de la Communauté, tels que les problèmes environnementaux ou la coopération dans le domaine du transfert de technologie vers les pays en développement sont également considérées comme relevant naturellement de la responsabilité de la Communauté. Il est aussi capital d'instaurer un dialogue politique afin de trouver des moyens communs

d'analyser la situation et de parvenir à des solutions cohérentes.

Les programmes de l'Union tiennent de plus en plus compte de la coopération internationale. La question est de savoir si c'est suffisant. Je pense que les nouvelles orientations politiques devraient être axées sur les grands défis que l'Union doit relever. La conférence d'aujourd'hui va, j'espère, nous aider à les recenser.

L'un de ces défis consistera, c'est évident, à prendre conscience de la dimension mondiale du problème de l'environnement et à trouver un moyen de le traiter. Un autre sera la recherche d'un juste équilibre, dans le secteur de l'énergie, entre un système de marché totalement libre visant à générer des bénéfices et le niveau d'intervention nécessaire des pouvoirs publics pour garantir aux citoyens un service suffisant.

Je suis convaincu que l'Union européenne a un rôle important à jouer en ce qui concerne les défis à relever dans le domaine de la politique énergétique.

Nous devons mobiliser des instruments communautaires, existants ou à définir, de manière cohérente afin d'assurer le fonctionnement du marché et d'apporter une valeur ajoutée aux mesures prises au niveau national. Pour mettre en oeuvre ces instruments, il convient de se fixer, au niveau communautaire, des objectifs communs qui permettront de garantir la cohérence et l'efficacité. Dans l'intérêt de ces objectifs, il est essentiel d'adopter des approches convergentes dans les Etats membres.

En conclusion, je souhaiterais dire que je suis favorable à l'introduction d'un chapitre sur l'énergie dans le traité. Compte tenu de l'importance que revêt l'énergie pour nos économies ainsi que pour les citoyens européens et leur bien-être, je crois que nous devons doter la politique énergétique d'un cadre dans lequel elle peut se développer de manière effective et efficace.

Ces considérations, comme tous les autres problèmes seront abordées dans le Livre blanc, à l'issue d'une réflexion approfondie.

Je souhaite que les débats auxquels vous allez participer pendant ces deux jours soient enrichissants et je suis impatient d'en connaître les conclusions. □

DÉBATS SUR LE MARCHÉ INTÉRIEUR DE L'ÉNERGIE AU SEIN DE L'UNION EUROPÉENNE ET RÔLE DES CONSOMMATEURS

Par A. Klom, DG XVII
Unité Fonctionnement du Marché intérieur

La question du rôle des consommateurs, qu'il s'agisse d'usagers industriels ou résidentiels, de sociétés de distribution ou de grandes entreprises, n'est jamais oubliée dans les longs débats sur l'achèvement du marché intérieur de l'énergie, notamment dans les secteurs de l'électricité et du gaz naturel. Le présent article vise à exposer un certain nombre de problèmes essentiels qui sont en cours d'examen dans le cadre de ces débats ainsi que, dans ce contexte, la position objective des consommateurs. Pour coller le plus possible à l'actualité, il sera plus particulièrement axé sur le marché de l'électricité et sur les propositions présentées dans ce domaine, l'objectif étant d'apporter des éclaircissements et des explications sur les questions suivantes :

- Quelle évolution a connue le marché intérieur de l'énergie au cours de ces dernières années?
- Qu'est-ce que l'accès des tiers au réseau ou ATR?
- Qu'est-ce que le principe de l'acheteur unique?
- Quelle est la position des consommateurs du secteur résidentiel?
- Quelle est la situation actuelle?

Le Marché intérieur de l'Energie - Récapitulatif

En février 1992, la Commission a adopté des propositions de directives du Conseil relatives au marché intérieur de l'électricité et au marché intérieur du gaz naturel. En janvier 1993, le Comité économique et social a donné son avis sur ces propositions; en novembre 1993, le Parlement européen a donné son avis en première lecture sur ces propositions, en proposant un grand nombre d'amendements. La Commission a tenu compte d'un certain nombre des amendements du Parlement, mais pas de la totalité, et des débats qui ont eu lieu au sein du Conseil, pour modifier ses propositions en décembre 1993.

Depuis janvier 1994, les débats au sein du Conseil ont porté, plus particulièrement, sur la proposition modifiée relative à l'électricité, l'objectif étant désormais de parvenir à une position commune. Les deux propositions ont suivi la procédure dite de codécision, ce qui signifie que, après adoption d'une position commune par le Conseil, le Parlement devra donner son avis sur les propositions en deuxième lecture. Ce n'est que lorsque cette étape aura été franchie que le Parlement et le Conseil pourront adopter ensemble, officiellement, les directives.

Le Conseil "Energie" de mai 1994 a recensé, sur la base de la proposition relative au marché intérieur de l'électricité, cinq problèmes essentiels à résoudre avant de pouvoir parvenir à une position commune. Le Conseil "Energie" suivant, qui s'est tenu en novembre 1994, est parvenu à un accord politique sur quatre des cinq problèmes, bien qu'aucune position commune n'ait été officiellement adoptée. Ces quatre problèmes cruciaux sont les obligations de service public, les procédures applicables aux nouvelles capacités de production, la séparation des comptes et le rôle de l'exploitant de réseau.

Les parties ne sont toujours pas parvenues à un accord sur le cinquième point, qui est en fait celui qui empêche le Conseil d'adopter une position commune. Ce problème capital est celui de l'accès au réseau, aussi appelé accès des tiers au réseau ou ATR.

Qu'est-ce que l'accès des Tiers au réseau ?

Dans la proposition d'origine de la Commission figurait le principe de l'accès des tiers au réseau d'électricité et au réseau de gazoducs, sur une base réglementaire ou obligatoire, présenté comme un moyen d'intensifier la concurrence et d'accélérer la libéralisation sur ces marchés. Cela supposait que les producteurs d'électricité auraient directement accès aux

consommateurs d'électricité puisqu'ils pourraient utiliser, moyennant une rémunération raisonnable, le réseau interconnecté pour transporter les quantités fournies.

Devant l'hostilité manifestée par le Conseil et le Parlement au principe d'ATR obligatoire, la Commission a, dans sa proposition modifiée, introduit l'idée d'accès des tiers au réseau négocié, dans le but de trouver un compromis tenant compte des préoccupations exprimées à ce sujet. Dans le cadre d'un système d'ATR négocié, les producteurs d'électricité pourraient toujours avoir accès aux consommateurs par l'intermédiaire du réseau interconnecté en négociant avec l'opérateur de réseau. Ces négociations concerneraient le tarif applicable au transport. L'exploitant du réseau devrait, s'il fait partie d'une entreprise de service public intégrée, être indépendant au moins sur le plan administratif et séparer ses comptes en ce qui concerne la production, le transport et la distribution. Les négociations avec l'exploitant de réseau devraient être libres et les Etats membres devraient veiller à ce qu'elles se déroulent en toute bonne foi, sans qu'aucune des parties n'abuse de sa position de négociation, au détriment d'une issue favorable des négociations. L'exploitant de réseau peut refuser l'accès si la capacité de transport nécessaire lui fait défaut ou si l'exécution du contrat en question l'empêche de s'acquitter des obligations de service public qui lui sont imparties par l'Etat membre.

Si un litige relatif au contrat ou aux négociations elles-mêmes survient pendant ces négociations, les parties peuvent le porter devant une autorité chargée du règlement des litiges. Cette autorité serait nommée par les Etats membres et pourrait être soit une instance existante, telle qu'un tribunal d'arbitrage ou une autorité compétente en matière de concurrence, soit un organe nouvellement créé. Toutefois, il resterait aussi possible d'en appeler directement à la législation communautaire devant un tribunal. L'autorité chargée du règlement des litiges aurait accès aux comptes séparés de l'exploitant de réseau et serait ainsi en mesure de juger si les négociations sur les tarifs et les exigences techniques relatives au transport sont justes et raisonnables ou non.

Les consommateurs concernés par l'ATR négocié seraient, d'une part, les gros consommateurs industriels dont la consommation annuelle s'élève à 100 GWh d'électricité ou 25 millions de m^3 de gaz et, d'autre part, les sociétés de distribution, sans aucune restriction quant à leur taille ou à leur niveau de consommation.

Les propositions modifiées de la Commission font partie de la deuxième étape de l'approche en trois phases adoptée pour mettre en place le marché intérieur de l'énergie. La deuxième étape vise à établir un niveau minimal de libéralisation et d'ouverture des marchés européens du gaz et de l'électricité. Elle laissera aux Etats membres la possibilité d'aller au-delà de ce niveau minimal en abaissant les seuils d'éligibilité pour les consommateurs. Suivant les résultats de cette deuxième étape, la Commission présentera des propositions sur les mesures nécessaires à la troisième et dernière étape de la libéralisation.

Cette approche en plusieurs étapes signifie que, dans l'état actuel des choses, les consommateurs éligibles pour l'ATR négocié seraient les consommateurs industriels finals et les distributeurs. L'objectif de la Commission est de voir les avantages de la libéralisation répercutés indirectement, par l'intermédiaire des distributeurs, sur les consommateurs résidentiels et les petites et moyennes entreprises (PME). Ce degré d'ouverture des marchés n'est pas aussi élevé qu'il peut l'être actuellement dans certains Etats membres. Cependant, pour l'Union dans son ensemble, il représentera au moins un niveau initial d'ouverture des marchés, minimal mais commun. Dans une étape ultérieure, il est possible d'envisager une poursuite de la libéralisation.

QU'EST-CE QUE LE PRINCIPE DE L'ACHETEUR UNIQUE ?

Pendant les débats sur les propositions modifiées qui ont eu lieu au sein du Conseil en 1994, la France a proposé le principe de l'acheteur unique comme alternative au système d'ATR négocié de la Commission. Cette idée a été approfondie par les autorités françaises qui ont présenté en octobre dernier aux Etats membres et à la Commission un document de six pages intitulé "Fonctions, rôle et tâches de l'acheteur unique" exposant en détail la proposition française.

L'acheteur unique serait, dans la zone du réseau qu'il couvre, la seule entité à être autorisée à vendre et à acheter de l'électricité. Tous les producteurs vendraient à l'acheteur unique dans un contexte de concurrence. De nouveaux producteurs seraient admis à entrer dans la zone par l'intermédiaire d'appels d'offres, qui seraient organisés par l'acheteur unique et devraient également couvrir les offres d'électricité émanant de capacités de production existantes situées dans les pays voisins.

L'acheteur unique exécuterait aussi toutes les tâches de l'exploitant de réseau, dont notamment l'équilibrage journalier de l'offre et de la demande et la gestion des interconnexions avec les autres réseaux. Il serait tenu d'assurer la sécurité d'approvisionnement, l'optimisation des investissements, l'égalité de traitement entre les consommateurs et le respect de l'environnement.

Tous les consommateurs situés sur le territoire de l'acheteur unique, qu'ils s'agisse de consommateurs industriels ou de distributeurs, seraient obligés de se fournir auprès de lui. Il devrait donc s'efforcer d'optimiser ses tarifs en achetant à des prix compétitifs. Toutefois, les consommateurs auraient la possibilité de mettre en place des lignes les reliant directement à d'autres producteurs situés en dehors du territoire de l'acheteur unique, de manière à pouvoir s'approvisionner à des prix moins élevés. En outre, les gros consommateurs industriels pourraient retirer un avantage économique d'un mécanisme d'importation qui leur permettrait d'acheter à l'extérieur de l'énergie qui serait ensuite revendue au réseau de l'acheteur unique en marge du système. L'acheteur unique achèterait cette énergie au prix de vente qu'il pratique diminué des frais de transport (qui feraient l'objet d'un tarif publié), dans des conditions identiques à celles du système d'ATR négocié, à savoir la disponibilité de la capacité de transport nécessaire et le respect des obligations de service public. En vertu de la proposition française, les distributeurs ne seraient pas autorisés à importer.

L'organisation de ce système est assez différente de celle que prévoit la proposition modifiée de la Commission concernant l'ATR négocié. Il existe non seulement des différences dans les possibilités d'importation offertes aux consommateurs mais, en outre, la structure interne du réseau est plus fermée quant à l'accès direct des consommateurs aux capacités de production. Pour les gros consommateurs industriels, il serait encore possible d'avoir accès à des sources d'approvisionnement extérieures, mais pour les distributeurs, et, a fortiori, les PME et les consommateurs résidentiels, l'acheteur unique serait le seul fournisseur d'électricité.

QUELLE EST LA POSITION DES CONSOMMATEURS RÉSIDENTIELS ?

Dans un système d'ATR négocié, les distributeurs ont entièrement le droit de bénéficier d'un accès négocié aux réseaux d'électricité et peuvent conclure des contrats avec des fournisseurs d'électricité nationaux ou extérieurs. Les contrats de fourniture sont négociés et l'accès au réseau doit également faire l'objet de négociations. L'exploitant du réseau peut refuser l'accès si l'exécution des obligations de service public qui lui sont imposées par l'Etat membre risque d'être compromise.

Les Etats membres peuvent aussi imposer aux distributeurs des obligations de service public relatives à la sécurité, à la régularité, à la qualité et au prix de l'approvisionnement. Ces obligations, qui garantissent la prestation de services essentiels, peuvent constituer une protection pour les consommateurs résidentiels. La concurrence *protègera* aussi, d'elle-même, les intérêts des consommateurs. Les Etats membres peuvent déterminer les droits et obligations des entreprises de distribution et de leurs clients. En outre, il ont aussi la possibilité d'imposer l'obligation d'approvisionner les consommateurs d'une région donnée et de réglementer les tarifs, dans le but, par exemple, d'assurer une égalité de traitement entre consommateurs. Ces mesures contribuent à la protection des consommateurs d'une part et, d'autre part, les distributeurs peuvent ainsi indirectement répercuter les avantages de la libéralisation sur les consommateurs résidentiels. Les Etats membres demeurent libres d'adopter les politiques de prix et les réglementations tarifaires de leur choix, dans le cadre de la législation communautaire.

Les distributeurs, comme tous les autres consommateurs, ont le droit d'établir des lignes directes qui les relient à un producteur pour être directement approvisionnés en électricité. Cette possibilité d'approvisionnement par lignes directes ne présente peut-être pas beaucoup d'intérêt pour les consommateurs résidentiels, mais elle peut comporter des avantages pour les distributeurs et les PME qui se situent en deçà du seuil d'éligibilité de 100 GWh et qui peuvent ainsi conclure des contrats d'approvisionnement en électricité à des prix compétitifs et se faire livrer par ligne directe sans passer par le réseau.

A l'inverse, dans le cadre de la proposition française de système d'acheteur unique, les distributeurs ne pourraient s'approvisionner qu'auprès de l'acheteur unique. Toutefois, la France a précisé que cette caractéristique n'était pas inhérente au système de l'acheteur unique, mais seulement à sa façon propre de concevoir ce système. L'acheteur unique tenterait d'optimiser sa politique d'achat vis-à-vis des producteurs avec lesquels il a conclu un contrat en achetant l'électricité suivant un ordre de préséance économique et en s'efforçant donc d'acheter généralement au plus bas prix. Il offrirait aux distributeurs un prix moyen et optimisé pour l'approvisionnement. Ces derniers fourniraient de l'électricité aux consommateurs résidentiels sur la base de cet approvisionnement à prix moyen et optimisé.

L'acheteur unique comme les distributeurs devraient remplir des obligations de service public, ce qui permettrait de donner aux consommateurs résidentiels une garantie sur la qualité, la régularité et la sécurité de l'approvisionnement, ainsi que sur un certain nombre d'autres aspects importants sur lesquels la France n'a pas fourni de précisions. La proposition française est aussi caractérisée par le fait que le système de l'acheteur unique permettrait de poursuivre la politique de tarification dite de "péréquation". Cette politique exige que des catégories homogènes de

consommateurs sur l'ensemble du territoire couvert par le réseau paient le même prix pour le même approvisionnement. Les distributeurs devraient donc, selon le modèle français, suivre cette politique pour leurs ventes aux consommateurs résidentiels. Dans ce système, la possibilité d'établir une ligne directe reliée à un point de production serait une exception à la règle et elle serait notamment offerte aux distributeurs ou aux consommateurs résidentiels.

Il ressort de ce qui précède que les résultats de ces deux approches différentes de la libéralisation du marché de l'électricité varieraient considérablement selon le système pour les consommateurs résidentiels. L'importance du jeu de la concurrence étant moindre dans le système de l'acheteur unique, l'effet de protection du consommateur dû aux conditions de marché libre serait moins sensible.

QUELLE EST LA SITUATION ACTUELLE ?

Le Conseil "Energie" de novembre 1994, qui n'a pas pu trouver d'accord sur la question de l'ATR et de l'acheteur unique, a demandé à la Commission d'examiner les conséquences pour la concurrence en général ainsi que pour les producteurs et pour les consommateurs, d'une mise en oeuvre parallèle d'un système d'ATR négocié et d'un système dit d'acheteur unique, et d'en rendre compte au Conseil. Il conviendra d'évaluer la compatibilité du système d'acheteur unique avec le traité instituant la Communauté européenne et la réciprocité des deux systèmes, à la fois pour le degré d'ouverture des marchés et le degré d'accès au marché.

Etant donné qu'il s'agit d'une tâche onéreuse, la Commission a privilégié l'aspect de l'examen. Elle a tout d'abord chargé un consultant, l'Energiewirtschaftliches Institut (institut d'économie énergétique) de l'université de Cologne d'entreprendre une analyse technique approfondie des répercussions qu'auraient la coexistence et la réciprocité des deux systèmes en question.

Sur la base des résultats de cette étude, les services de la Commission ont élaboré un document de travail consacré à l'ATR et à l'acheteur unique intitulé "Document de travail de la Commission sur l'organisation du marché intérieur de l'électricité"[1]. Ce document de travail a été adopté le 22 mars 1995 et a ensuite été envoyé au Conseil comme réponse de la Commission à la demande formulée en novembre 1994 par le Conseil.

Il ressort de ce document de travail que la proposition française de système d'acheteur unique n'est pas, sous sa forme actuelle, compatible avec le traité, qu'elle n'offrirait pas les garanties de réciprocité suffisantes entre les deux systèmes et ne permettrait pas d'obtenir des résultats économiques équivalents. Cependant, pour tenter de sortir de l'impasse dans laquelle se trouve le Conseil sur la question, et en partant du principe que, lors de la deuxième phase de mise en oeuvre du marché intérieur de l'énergie, il faudra trouver des solutions souples pour harmoniser les différentes structures du secteur de l'électricité des Etats membres, la Commission a proposé un certain nombre d'adaptations à la proposition française d'acheteur unique qui permettraient d'assurer la compatibilité avec le traité et la réciprocité entre les deux systèmes. Ce faisant, la Commission n'a pas perdu de vue la position des consommateurs dans les deux systèmes, de sorte que, ni dans le cadre du système de l'ATR négocié, ni dans celui de l'acheteur unique, les consommateurs ne soient privés de possibilités raisonnables d'avoir accès à diverses sources d'approvisionnement en électricité compétitives, provenant de leur pays ou de l'extérieur. Les modifications apportées au système d'acheteur unique par la Commission contribuent donc à fournir à des consommateurs éligibles des possibilités réciproques de trouver des approvisionnements compétitifs sur la marché intérieur de l'électricité.

Dans les deux systèmes, les consommateurs éligibles seraient les grands consommateurs industriels et les distributeurs. Les consommateurs résidentiels auraient donc aussi, dans les deux systèmes, davantage de possibilités de bénéficier des avantages, fût-ce indirectement par le biais des distributeurs, qu'offrent une concurrence et une libéralisation accrues. Pour déterminer vers quelle issue on s'achemine, sur la base du document de travail de la Commission, les débats au sein du Conseil se poursuivent dans le but de parvenir à une position commune; le Conseil a indiqué, dans ses conclusions de novembre 1994, que cela devrait être fait avant la fin 1995. A cet effet, des formulations juridiques devront être trouvées pour les quatre points sur lesquels le Conseil est déjà parvenu à un accord politique en novembre 1994. Toutefois, pour que le Conseil puisse adopter une position commune, les Etats membres devront encore rapprocher leurs positions sur le problème central de l'accès au réseau.

La Commission espère que le document de travail qu'elle a élaboré et les propositions d'adaptation du système d'acheteur unique qu'elle a présentées dans ce document ont contribué de manière significative à la recherche d'un terrain d'entente pour un accord sur l'achèvement du marché intérieur de l'électricité. Lorsque ce point aura été atteint, et avec l'accord du Parlement européen, les consommateurs européens peuvent s'attendre à voir un marché européen de l'approvisionnement en électricité plus ouvert, plus compétitif et plus sûr.

[1] *SEC(95) 464final du 22.03.95.*

RÉSEAUX TRANSEUROPÉENS D'ÉNERGIE

Par I. Gowans, DG XVII
Unité Réseaux transeuropéens, Cohésion, Evaluation des Programmes

Depuis la parution du dernier article sur ce sujet, de nombreux événements importants se sont produits, à la fois en ce qui concerne les propositions relatives aux réseaux d'énergie présentées par la Commission et les travaux du Groupe Christophersen, avec, en point d'orgue, la présentation de projets de réseaux devant être approuvés par le Conseil européen d'Essen en décembre 1994.

Les propositions de la Commission concernant un ensemble d'orientations relatif aux réseaux transeuropéens dans le secteur de l'énergie et un ensemble d'actions en vue d'établir un contexte plus favorable au développement des réseaux transeuropéens dans le secteur de l'énergie ont fait l'objet d'une position politique commune lors du Conseil des ministres de l'énergie de l'Union européenne qui s'est tenu en juin 1995.

Les projets d'intérêt commun recensés dans les orientations pourront se voir attribuer une aide pour la réalisation d'études de faisabilité qui devront faire la preuve de leur viabilité économique au sens large. Le règlement financier prévoyait des possibilités d'aide aux projets sous la forme de réductions de taux d'intérêt et de garanties d'emprunts. La proposition relative à l'établissement d'un "contexte favorable" visera, pour sa part, à favoriser la coopération technique entre les organismes de réseaux ainsi que la coopération dans l'octroi d'autorisations par les Etats membres concernés.

Compte tenu de l'avis favorable émis par le Parlement européen sur ces propositions (en novembre 1994 pour le règlement financier et en mai 1995 pour les autres propositions), et du bon déroulement des deuxièmes lectures, elles devraient finalement pouvoir être adoptées à temps par le Conseil de ministres pour que leur mise en oeuvre et l'engagement des crédits nécessaires ait lieu au deuxième semestre de 1995.

En ce qui concerne les engagements, la Commission a prévu un total de 112 millions d'écus de dépenses sur les réseaux dans le secteur de l'énergie pour la période allant de 1995 à 1999. Ces dépenses, tout comme celles qui sont destinées aux réseaux dans le secteur des transports et des télécommunications, seront régies par le même règlement financier. Cette question a fait l'objet d'une position commune du Conseil des ministres de l'économie et des finances en avril 1994 et d'un avis du Parlement européen en novembre. Comme la proposition relative aux orientations, elle devra passer devant le Parement en deuxième lecture avant de pouvoir être finalement adoptée par le Conseil avant la fin de l'année.

Les projets prioritaires dans le secteur de l'énergie recensés par le groupe Christophersen ont été examinés lors du Conseil européen d'Essen par les chefs d'Etat et de gouvernement auxquels le groupe avait présenté son rapport[1]. Le Conseil a suivi les principales recommandations du groupe Christophersen en ce qui concerne la priorité à donner aux dix projets dans le secteur de l'énergie qui se trouvaient à l'état de maturité le plus avancé. Ces dix projets ont fait l'objet d'un suivi par la Commission et par la Banque européenne d'investissement. Conformément aux recommandations du groupe Christophersen adoptées par le Conseil européen d'Essen, chaque année au mois de décembre, la Commission présentera au Conseil européen, après avoir consulté les Etats membres, un rapport consacré à l'avancement des travaux sur les réseaux transeuropéens et notamment sur les projets prioritaires. Elle transmettra ce rapport au Parlement européen.

Les dix projets prioritaires dans le secteur de l'énergie sont les suivants :

[1] *Ce rapport est désormais publié sous le n° ISBN 92-826-8995-6, "Réseaux transeuropéens", et il est disponible auprès du secrétariat de "Energie en Europe".*

Interconnexions électriques

a4 Grèce-Italie
b6 France-Italie
b7 France-Espagne
b10 Espagne-Portugal
c2 Danemark : Est-Ouest

Projets dans le secteur du gaz naturel

e5 f6 Réseau principal de gazoducs au Portugal et interconnexions avec le Nord et le Sud de l'Espagne
e6 Grèce
f6 Espagne : gazoducs intérieurs et terminal GNL : connexions avec le Portugal
h4 Algérie-Maroc-Espagne :
h7 Russie-Biélorussie-Pologne-UE :tronçon en Allemagne

Ces projets prioritaires sont confrontés à deux grandes catégories de problèmes, à savoir le financement et les procédures.

En ce qui concerne le financement, en mars 1995, les trois projets de connexions électriques aériennes (France-Italie, France-Espagne et Espagne-Portugal) ne connaissaient pas de problèmes de financement, contrairement à deux autres projets, Italie-Grèce et Danemark Est-Ouest. Quant aux projets dans le secteur du gaz, à cette date, le financement des projets au Portugal était bouclé, tout comme celui des deux gazoducs espagnols assurant la connexion avec le Portugal et le tronçon Tarifa-Tanger du gazoduc venant d'Algérie. Pour le tronçon Tarifa-Cordoue de ce gazoduc, ainsi que pour les autres projets dans le secteur du gaz et les projets concernant la Grèce et l'Europe de l'Est, le financement n'était pas encore bouclé.

La deuxième catégorie de difficultés est celle des problèmes de procédure technique et administrative. Elle concerne quatre des cinq projets dans le secteur de l'électricité et a retardé le début ou l'avancement des travaux de construction. En fait, seul le projet Danemark Est-Ouest sera touché par ces problèmes. Pour les projets prioritaires dans le secteur du gaz, les retards dus aux procédures sont moins fréquents; ils sont liés à l'incidence sur l'environnement ou à des problèmes d'octroi des autorisations permettant d'utiliser du gaz pour la production d'électricité.

Le groupe Christophersen n'existe plus en tant que tel, mais les travaux sur la résolution des problèmes touchant les dix projets prioritaires et sur les trois autres projets figurant sur la liste B des projets moins avancés se poursuivent dans le cadre du groupe de commissaires chargé des réseaux transeuropéens qui a été constitué et dont la présidence est assurée par M. Kinnock. Cette liste B comporte deux projets d'interconnexion électrique entre l'Italie et l'Autriche et entre la Norvège et le continent ainsi que le projet plus complexe dit "Baltic Ring", qui prévoit plusieurs interconnexions électriques entre les pays riverains de la mer Baltique.

FEU VERT POUR THERMIE

Par I. Samouilidis, DG XVII
Direction Technologie énergétique

Il a récemment été décidé, dans le cadre du programme Thermie concernant la promotion de technologies énergétiques pour l'Europe, de lancer une grande série de projets et d'initiatives dont la tonalité écologique est nettement marquée. Ce programme, placé sous la responsabilité de la Direction générale XVII - Energie de la Commission des Communautés européennes, a toujours accordé une place particulière à l'environnement, et, notamment, au rôle capital que les nouvelles technologies énergétiques, propres et novatrices, mises au point dans les domaines de l'utilisation rationnelle de l'énergie, des sources d'énergie renouvelables, des combustibles solides et des hydrocarbures, peuvent jouer dans la réduction des émissions de dioxyde de carbone et autres polluants.

La dernière année du programme Thermie existant, 1994, a été marquée par le démarrage de travaux dans trois domaines d'activité essentiels pour l'énergie et l'environnement.

Les avantages pour l'Environnement des Technologies énergétiques

Une série d'études coordonnées et imbriquées a été lancée en vue de déterminer et de quantifier les avantages environnementaux et économiques que présente l'utilisation des nouvelles technologies énergétiques, propres et novatrices mises au point dans le cadre du programme Thermie. Ces activités ont été entreprises sur la base de la très sérieuse analyse coût-bénéfice du programme réalisée en 1994.

Exemples d'activités :

- "Introduction de bilans écologiques"
- "Guide de la prise en compte des incidences sur l'environnement dans les évaluations coût-bénéfice des technologies énergétiques modernes"
- "Améliorations sur le plan de l'environnement apportées par des activités THERMIE réalisées à Moscou".

Diffusion des Avantages pour l'environnement des technologies énergétiques propres et novatrices

Le programme Thermie est également consacré à la diffusion de l'expérience et des bénéfices acquis grâce aux travaux réalisés sur les technologies et aux activités associées, telles que les études, l'organisation d'expositions et de salons importants dans tous les Etats membres et la présence à d'autres manifestations de ce type. Dans le cadre du volet consacré à l'environnement du programme Thermie, un certain nombre d'organisations pour la promotion des techniques énergétiques (OPET) feront connaître, lors de ces manifestations, les avantages pour l'environnement des nouvelles technologies énergétiques à des groupes cibles importants composés notamment d'industriels, de représentants de collectivités locales et régionales ou encore d'universitaires.

Exemples :

- Stand à l'exposition Heleco, en Grèce, en 1995
- Stand à l'exposition Envitec, en Allemagne, en 1995
- Stand à l'exposition "Energie et environnement", à Turin (Italie), en 1994.

Education, Formation et Diffusion ver les Groupes ciblés importants

Les activités dans le domaine de l'environnement en cours actuellement sont souvent destinées à la formation ou à la diffusion de l'information vers des groupes cibles importants de la collectivité, afin de leur

faire connaître les avantages pour l'environnement des technologies énergétiques, ou la manière de modifier leurs méthodes de travail pour bénéficier des économies d'énergies ou réduire les émissions de polluants. Les différentes activités dans ce domaine sont notamment l'organisation de séminaires, d'ateliers, de tables rondes et de conférences, tels que, par exemple :

- "Doubler les avantages des économies d'énergie en répondant aux exigences de la nouvelle législation en matière d'environnement" : série de séminaires ciblés au Royaume-Uni
- "Planification de projets en tenant compte d'impératifs énergétiques et écologiques", atelier en Allemagne, 1995.

Bien que le programme Thermie ait pris fin en 1994, il est clair que les travaux du nouveau programme JOULE-Thermie continueront à porter sur les avantages pour l'environnement des nouvelles technologies énergétiques propres et novatrices.

RAPPORT ANNUEL THERMIE 1994

Par J. Dessens, DG XVII
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Au cours des cinq dernières années, il n'y a certainement pas eu un seul numéro d'Energie en Europe qui n'ait pas contenu d'articles ou de rapports sur les activités entreprises dans le cadre du programme Thermie (1990-1994). En outre, si l'on fait le total des aides financières accordées dans le cadre des programmes de démonstration de la DGXVII, qui l'ont précédé et qui ont débuté au milieu des années soixante-dix, on constate que la somme consacrée à la promotion de la technologie énergétique en Europe pendant les deux décennies considérées s'élève presque exactement à 2 milliards d'écus. Nos lecteurs n'ignorent pas que le programme Thermie va être suivi d'un programme en partenariat entrepris au titre du quatrième programme-cadre de RDT, le programme dans le domaine de l'énergie non nucléaire dit "Joule-Thermie"[1]. Cependant, nous avons pensé que, malgré l'abondante documentation qui leur a déjà été fournie par notre magazine, nos lecteurs pourraient être intéressés par le bref résumé du dernier rapport annuel (1994) qui figure ci-après. [2]

Depuis 1990, le programme Thermie soutient les actions de démonstration et de promotion des technologies énergétiques européennes. Un financement essentiel a été alloué aux projets qui contribuent à la réduction des importations énergétiques et à la limitation des émissions de polluants, tout en garantissant la compétitivité future et en encourageant la cohésion économique et sociale dans l'Union européenne.

Pendant les cinq années du programme Thermie (1990-1994), une somme totale de 700 millions d'écus a été consacrée à des projets et à des actions d'accompagnement destinés à améliorer l'utilisation rationnelle de l'énergie, à promouvoir l'utilisation des sources d'énergie renouvelables, à encourager l'application de techniques de combustion propre des combustibles solides et à optimiser l'exploitation des réserves d'hydrocarbures de l'UE.

Le programme Thermie, tel qu'il est établi par le règlement (CEE) du Conseil n°2008/90, est organisé autour de trois axes distincts mais interdépendants : le soutien aux projets technologiques, les actions d'accompagnement et la coordination avec d'autres programmes nationaux et communautaires.

La plus grande partie des fonds alloués dans le cadre de Thermie sont consacrés à des projets soigneusement sélectionnés destinés à démontrer les possibilités d'utilisation des nouvelles technologies énergétiques ou

1 *(voir l'article sur l'exposition organisée à Berlin dans le cadre de la réunion, ce printemps, des parties à la convention sur les changements climatiques, également dans ce numéro).*

2 *Le texte intégral est disponible (en anglais) auprès du secrétariat d'Energie en Europe (ou de la direction Technologie énergétique de la DG XVII, n° de télécopieur 32 2 771 56 11, adresse de courrier électronique : dessens.j@mhsg.cec.be, ainsi que de nombreuses autres publications relatives à Thermie évoquées dans des numéros précédents et qui concernent des projets en cours déjà financés par le programme quinquennal (brochures, bulletins, catalogues de projets sectoriels).*

de nouveaux moyens d'utiliser des technologies existantes qui n'ont pas encore atteint la totalité de leur potentiel. Ce soutien est complété par des efforts importants déployés dans le cadre des actions d'accompagnement, en vue de stimuler la diffusion de ces technologies. Beaucoup sont mis en oeuvre par l'intermédiaire d'un réseau de dimension européenne d'organisations pour la promotion des techniques énergétiques (OPET).

A partir de 1995, la plupart des activités de Thermie seront exécutées dans le cadre du volet "démonstration" du programme dans le domaine de l'énergie non nucléaire dit "Joule-Thermie" relevant du quatrième programme-cadre de la Communauté européenne pour des actions de recherche, de développement technologique et de démonstration.

DÉMONSTRATION DE NOUVELLES TECHNOLOGIES EN 1994

Le dernier appel de propositions lancé dans le cadre de Thermie indiquait les cahiers des charges et les priorités pour les projets dans les quatre domaines techniques ainsi que pour les projets ciblés portant sur la gazéification de la biomasse pour la production d'électricité et de chaleur.

Au total, 196 projets ont été sélectionnés et Thermie leur a accordé une aide financière de 148 Mécus. Il s'agissait donc du plus grand nombre de projets et du montant de financement le plus élevé des cinq années du programme. Dans le même temps, la plupart des objectifs horizontaux fixés par la Commission ont été atteints dans la sélection des projets de 1994. Un tiers du financement a été alloué à des projets pour les régions de l'objectif 1, qui sont des régions de l'UE en retard de développement. Environ 65 % de l'aide a été attribuée à des projets réunissant des entreprises de différents Etats membres et 116 projets concernaient les PME.

SOUTIEN AUX PROJETS TECHNOLOGIQUES EN 1994

UTILISATION RATIONNELLE DE L'ENERGIE

A l'issue de l'appel de propositions de 1994, 61 projets dans le domaine de l'utilisation rationnelle de l'énergie ont été sélectionnés et un financement total de 43,42 Mécus leur a été alloué dans trois secteurs.

Tableau 1

Secteur	Nombre de projets	Soutien (en Mécus)
Bâtiment	18	9,85
Industrie	34	18,73
Transports	91	14,84

Parmi les contributions financières les plus élevées, plusieurs concernaient la deuxième phase de financement de projets ciblés dans les secteurs du bâtiment et du transport, déjà sélectionnés en 1993.

SOURCES D'ENERGIE RENOUVELABLES

Thermie classe les projets portant sur les sources d'énergie renouvelables en cinq secteurs. 75 projets ont été sélectionnés pour recevoir un soutien total de 46,75 Mécus.

Tableau 2

Secteur	Nombre de projets	Soutien (en Mécus)
Energie solaire:		
Applications thermiques	8	1,62
Applications photovoltaïques	19	6,4
Energie de la biomasse	5	22,55
Energie géothermique	14	6,8
Energie hydroélectrique	18	5,24
Energie éolienne	11	4,14

Dans le domaine des sources d'énergie renouvelables, le secteur dans lequel le soutien financier est le plus important était de loin celui des projets ciblés de gazéification de la biomasse pour la production d'électricité et de chaleur. On a demandé aux proposants d'inclure dans leurs projets la sylviculture à courte rotation, les technologies reposant sur la combustion en lits fluidisés, l'utilisation de méthodes d'élimination du goudron déjà éprouvées, l'application d'un cycle combiné et les bilans complets énergie/environnement/économie.

COMBUSTIBLES SOLIDES

Cinq grands projets ont été sélectionnés pour recevoir un financement total de 23,06 Mécus. La centrale à cycle combiné à gazéification intégrée de Puertollano, en Espagne, est le plus grand projet Thermie, avec un financement total de plus de 50 Mécus depuis 1991. L'aide d'un montant de 8,7 Mécus prévue en 1994 est destinée au démarrage de la phase d'exploitation.

HYDROCARBURES

Dans ce secteur, 55 projets ont été sélectionnés pour recevoir un soutien financier de 34,91 Mécus. C'est la somme la plus élevée jamais atteinte sur toute la durée du programme, ce qui a permis d'assurer l'équilibre du

total des dépenses entre tous les secteurs, comme le prévoient les lignes directrices figurant dans le règlement du Conseil relatif au programme Thermie.

ACTIONS D'ACCOMPAGNEMENT RELATIVES À L'ANALYSE, À LA PROMOTION ET À L'ÉVALUATION POUR 1994

Au cours des dix dernières années, la Communauté européenne comme les Etats membres ont réalisé des investissements considérables pour mettre au point des technologies énergétiques novatrices. Cependant, il est communément admis que les actions de démonstration de nouvelles technologies ne représentent que la moitié du chemin, la deuxième moitié étant la réalisation du potentiel de ces technologies. Le volet "Actions d'accompagnement" de Thermie en faisait un programme particulièrement bien adapté pour assurer une promotion rapide et efficace des nouvelles technologies, en Europe et ailleurs. Le règlement relatif à Thermie prévoyait trois grands types d'actions d'accompagnement, à savoir l'analyse des caractéristiques et l'évaluation du potentiel du marché, la promotion des technologies et des résultats de projets et le suivi et l'évaluation des projets.
Le réseau OPET met en oeuvre la plupart des actions d'accompagnement, qui couvrent un vaste éventail d'activités, allant de la production d'une large gamme de publications et de cassettes vidéo à l'organisation de séminaires et conférences spécialisés et de la gestion de cours de formation et de missions de travail à des études et à des évaluations de marché.

PUBLICATIONS ET CASSETTES VIDÉO

Des bulletins paraissant régulièrement décrivent les activités des OPET et l'avancement de projets ciblés tels que le projet de cycle combiné à gazéification intégrée de Puertollano, en Espagne, des projets de transport urbain ou de conception de bâtiments.
En outre, 30 brochures techniques (dites "maxibrochures") fournissant des informations sur des technologies ou des processus particuliers ainsi que plus de 10 cassettes vidéo ont été éditées.

SÉMINAIRES, ATELIERS, MISSIONS DE TRAVAIL ET COURS DE FORMATION

Le programme Thermie a financé plusieurs grandes conférences dont "Efficacité énergétique en Amérique latine" (mars 1994), "Energie et autorités locales en Europe" (juin 1994) et la réunion des OPET à Berlin en septembre 1994. Un grand nombre de séminaires et d'ateliers ont également été organisés, ainsi que plusieurs missions de travail et des cours de formation pour les responsables du secteur de l'énergie, originaires en majorité d'Europe centrale et orientale.

EVENEMENTS

La promotion des technologies énergétiques dans l'UE, assurée par plus de 15 salons spécialisés, a constitué un élément essentiel des activités de diffusion entreprises dans le cadre de Thermie. L'exposition Thermie, organisée en septembre à Berlin au Martin-Gropius-Bau, a attiré plus de 90 organismes de tous les Etats membres. Plus de 150 technologies ont été présentées, certaines issues de programmes nationaux et régionaux financés par l'UE et d'autres mises au point par des investisseurs privés.

AUDITS, ETUDES ET EVALUATION DE MARCHÉ

Les études et les évaluations de marché constituent souvent une première étape nécessaire pour déterminer les technologies qui peuvent être utilisées et savoir où et comment les mettre en oeuvre. Les études portaient sur les technologies garantissant une certaine efficacité énergétique dans les installations sportives et les hôpitaux ainsi que sur les économies d'énergie dans le secteur des transports de plusieurs Etats membres de l'UE. Dans les pays d'Europe centrale et orientale, y compris les nouveaux Etats indépendants, 12 audits portant principalement sur la sécurité et l'efficacité du fonctionnement des chaudières ont été réalisés dans le cadre des actions d'accompagnement Thermie.

GROUPES DE MARKETING

La Commission a mis en place en 1992 des groupes de marketing en vue d'intensifier et de systématiser sa coopération avec les associations sectorielles et professionnelles, les experts indépendants et les OPET. En 1994, les groupes ont continué à soutenir l'élaboration de stratégies de marketing et de diffusion pour de nombreux domaines couverts par Thermie.

EXAMEN DE THERMIE 1990-1994

Au cours des cinq années sur lesquelles il s'est déroulé, le programme Thermie a permis de soutenir un vaste éventail d'innovations techniques et de nouvelles possibilités d'utilisation de technologies ayant déjà fait leurs preuves. Un montant total de 574 Mécus a été attribué à 726 projets.
Conformément aux priorités politiques du début des années quatre-vingt-dix, la majorité des ressources de Thermie a servi à soutenir les projets dans le domaine de l'utilisation rationnelle de l'énergie et des sources d'énergie renouvelables. Sur les quatre secteurs qui composaient le domaine "utilisation rationnelle de l'énergie", on notait un déséquilibre marqué en faveur des projets industriels, qui représentaient la moitié des projets et des ressources. La production d'énergie à partir de la biomasse et des déchets est considérée comme ayant un énorme potentiel et le fait qu'elle ait

bénéficié du plus fort soutien dans le domaine des sources d'énergie renouvelables témoigne de son importance pour le mécanisme de prise de décisions dans l'UE. Les domaines des combustibles solides et des hydrocarbures représentaient chacun 21 % du total des ressources attribuées aux projets, bien que les projets y soient relativement moins nombreux.

Tableau 3 : soutien attribué aux projets par Thermie en 1990-1994

Secteur	Nombre de projets	Contribution de Thermie (en Mécus)
Utilisation rationnelle de l'énergie	**259**	**172**
Bâtiment	71	31
Industrie	144	85
Secteur de l'énergie	11	10
Transports	33	46
Sources d'énergie renouvelables	**272**	**159**
Energie solaire:		
Applications thermiques	34	9
Applications photovoltaïques	73	26
Energie de la biomasse	50	62
Energie géothermique	26	15
Energie hydroélectrique	37	13
Energie éolienne	52	34
Combustibles solides	**28**	**121**
Hydrocarbures	**167**	**122**
TOTAL	**726**	**574**

Depuis le démarrage des activités du réseau OPET en 1991, environ 25 Mécus ont été alloués chaque année aux actions d'accompagnement. Au cours des quatre années, quelque 4000 actions ont été lancées en vue de promouvoir de nouvelles technologies énergétiques efficaces. Elles relevaient, pour la plupart, du domaine "utilisation rationnelle de l'énergie" ou "sources d'énergie renouvelables". Les actions portant sur les combustibles solides et les hydrocarbures sont relativement peu nombreuses car leurs cibles sont plus réduites et parce que les industries s'emploient déjà à promouvoir les technologies auprès de secteurs du marché plus mûrs.

Conclusion

L'énergie est toujours un bien et un service aussi important et aussi vital. La société continue à demander un approvisionnement plus propre, plus fiable et plus économique et un choix toujours plus étendu. Toutefois, la satisfaction de cette demande pour l'avenir passe par la formulation d'une politique prévoyante et par des décisions énergiques. Thermie constitue un excellent exemple de collaboration entre les institutions européennes et les Etats membres pour l'établissement des programmes les plus importants et les plus étendus en matière d'énergie jamais réalisés au niveau supranational.

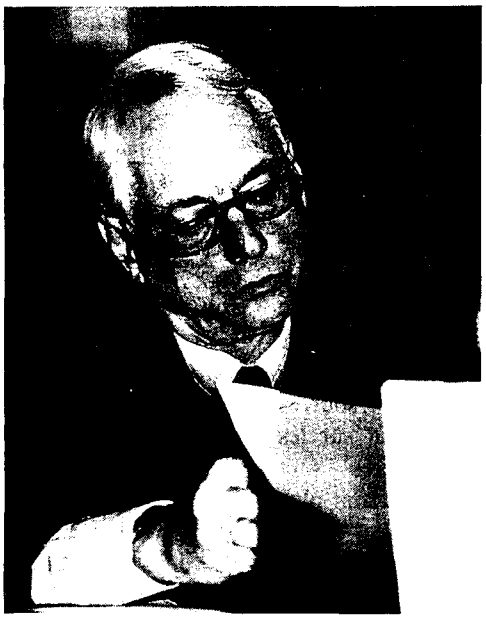
Thermie a déjà apporté une contribution considérable à l'UE - en ce qui concerne l'environnement, la sécurité d'approvisionnement et la compétitivité - mais ce n'est que dans les années à venir que l'on engrangera tous les bénéfices du programme. Le Conseil et le Parlement ont fait la preuve de leur engagement en faveur de la promotion des technologies énergétiques et il demeure absolument capital de veiller à ce que l'Union conserve un grand dynamisme en la matière afin que l'utilisation des meilleures technologies garantissant une efficacité optimale se répande le plus largement possible.

WELCHE ENERGIEPOLITIK BRAUCHT EUROPA ?

Von Yves Galland
Französischer Industrieminister

Frankreich hat die Initiative der Kommission unterstützt, ein Grünbuch zur Energiepolitik vorzulegen, um die wichtigsten Erfordernisse einer gemeinsamen Energiepolitik herauszuarbeiten.

Über die Ziele - genauer gesagt, die politischen Orientierungen -, die in dem Grünbuch dargelegt werden - Wettbewerbsfähigkeit, Versorgungssicherheit und Umweltschutz - besteht weitgehende Übereinstimmung. Dies sind auch die Ziele der französischen Energiepolitik. Auch der in dem Grünbuch enthaltenen umfassenden Analyse, der eine Studie über die Energiebilanz und die Zukunftsaussichten für die Energieversorgung in der Europäischen Union zugrundeliegt, kann Frankreich nur zustimmen.


Yves Galland

Jetzt gilt es, eine langfristige Energiestrategie für die Europäische Union festzulegen, die über diese politischen Orientierungen hinausgeht. Das Grünbuch bietet zwar eine Diskussionsgrundlage, aber keine quantifizierten, zu einem festgesetzten Zeitpunkt zu erreichenden Ziele, z.B. hinsichtlich der Selbstversorgung mit Energie, der Diversifizierung der Versorgungsquellen, des Energie-Wirkungsgrades oder der Verringerung des CO_2-Ausstoßes. Deshalb habe ich von "politischen Orientierungen" gesprochen und nicht von "Zielen".

Jetzt ist es die Aufgabe aller Mitgliedstaaten, diese Ziele ins rechte Licht zu rücken und festzulegen, auf welchem Wege sie zu erreichen sind. Wir brauchen eine langfristige Strategie, die die Antworten auf die folgenden grundlegenden Fragen umfaßt:

- Wenn wir über Versorgungssicherheit sprechen, meinen wir dann eine kurz- oder eine langfristige Sicherheit? So spielt z.B. die europäische Kohle, die unwirtschaftlich ist und immer mehr an Bedeutung verliert, langfristig keine Rolle. Wollen wir eine marktbezogene oder eine nachhaltige Wettbewerbsfähigkeit? Z.B. im Elektrizitätsbereich begünstigt der Markt Investitionsvorhaben mit möglichst kurzen Amortisationszeiten, wie etwa Gasturbinen, obwohl Gas für die tagtägliche, ganzjährige Grundlaststromerzeugung nicht die wettbewerbsfähigste Energiequelle darstellt. Ein weitblickenderes, auf eine nachhaltige Wettbewerbsfähigkeit ausgerichtetes Konzept würde hingegen Wasserkraft, Kernenergie und Importkohle begünstigen, denn dies sind die billigsten Grundlast-Energiequellen.
- Bei der Eindämmung des Treibhauseffekts können nur langfristig angelegte Maßnahmen dauerhaft Wirkung zeigen. Vor ihrer Einführung ist abzuwägen, welche Anreize, z.B. bei den Verbrauchs- und sonstigen Steuern, bestehen, um eine Entscheidung zugunsten der umweltfreundlichsten Energiequellen herbeizuführen: eine Entscheidung für neue und erneuerbare Energiequellen und für die Kernenergie, die alle kein CO_2 produzieren.

Auch sollten sich die europäischen Partner nicht auf einen bloßen Meinungsaustausch beschränken; sie müssen in die Zukunft blicken, um die größten Herausforderungen zu erkennen, mit denen die

europäische Energiebilanz konfrontiert werden wird, und gezielte Antworten auf diese Herausforderungen finden:

Was können wir tun, um Europas wachsende Abhängigkeit von Energieeinfuhren, die in den nächsten 15 Jahren voraussichtlich von 50 % auf 70 % anwachsen wird, zu verringern?

Können wir uns mit einer rapide zunehmenden Abhängigkeit von Gaseinfuhren zufriedengeben, wenn deren Anteil von gegenwärtig 40 % auf 70 % im Jahre 2010 und fast 80 % im Jahre 2020 ansteigen wird?

Was können wir tun, damit wir nicht noch stärker auf Öleinfuhren aus dem Nahen Osten angewiesen sind, wenn der Gas-Boom, der in den Studien der Kommission vorausgesagt wird, einen Preisanstieg von möglicherweise ca. 50 % bis 2005 nach sich zieht? Die Nachfrage nach Öl aus dem Nahen Osten ist in den Vereinigten Staaten schon jetzt sehr groß und wird in den asiatischen Ländern erheblich steigen, vor allem, wenn die Anpassung der Preise für heimische Kohle an die Weltmarktpreise in diesen Ländern eine Kohlekrise nach sich zieht. Besteht nicht in diesem Fall die Gefahr einer weiteren Ölkrise?

Allgemeiner ausgedrückt, kann sich Europa mit einer zunehmenden Abhängigkeit von (hauptsächlich importiertem) Öl und Gas abfinden, wenn diese beiden Energiequellen schon jetzt 68 % des Verbrauchs ausmachen?

An dieser Stelle sollten wir in unseren Überlegungen innehalten, um - ohne die grundlegenden guten Absichten der Verfasser des Grünbuches in Zweifel zu ziehen - eine kritische Überlegung einzubringen: Genügt es, daß die Kernenergie in der Diskussionsvorlage nur so kursorisch erwähnt wird? Schließlich ist die Kernenergie eine der wenigen heimischen Energiequellen, die in Europa weiterentwickelt werden können. Sie leistet zweifellos einen Beitrag zur Diversifizierung der europäischen Energiebilanz. Die Kernenergie ist eine außerordentlich wettbewerbsfähige Energiequelle für die Grundlast-Stromerzeugung, und außerdem produziert sie keinerlei Kohlendioxid.

Von diesen rein technischen Fragen einmal abgesehen, sollten wir uns mit zwei grundlegenden Themenkomplexen auseinandersetzen, die die europäischen Partner baldmöglichst weiterentwickeln müssen, wenn bei der Einrichtung einer europäischen Energiepolitik Fortschritte erzielt werden sollen. Ich meine das Binnenmarktkonzept und das Subsidiaritätsprinzip.

Ausgangspunkt des Grünbuches ist das Prinzip, daß dem Binnenmarkt Vorrang gebührt. Frankreich teilt die Auffassung, daß der Bedarf der privaten und gewerblichen Abnehmer gedeckt werden muß, wobei die Kosten so niedrig wie möglich zu halten sind; gleichzeitig muß den Anforderungen der Versorgungssicherheit und des Umweltschutzes Rechnung getragen werden, denn Wettbewerb führt zu technischem Fortschritt und nützt folglich den gewerblichen Abnehmern, die an völliger Wahlfreiheit interessiert sind.

So lassen sich beispielsweise durch eine Aufhebung des Stromerzeugungsmonopols die Wirtschaftlichkeit und die Transparenz des europäischen Stromversorgungssystems unmittelbar verbessern.

Aber können wir es uns wirklich leisten, trotz der genannten Herausforderungen und Risiken unser ganzes Vertrauen in den Markt zu setzen?

Frankreich hält es für legitim, Zielvorgaben für eine europäische Energiepolitik festzusetzen; aber zu erwarten, daß diese Ziele überwiegend durch das freie Spiel der Marktkräfte erreicht werden können, hieße, zu leugnen, daß es auch eine spezifische Energiepolitik gibt, die darauf ausgerichtet ist, jene Zielvorgaben überall dort zu erreichen, wo sie nicht mit der Logik des Marktes im Einklang stehen.

Da wir gerade beim Vorrang des Marktes sind, müssen wir uns noch eine weitere Frage stellen: Wie können wir zwischen den Erfordernissen des Marktes und dem Konzept des öffentlichen Dienstes bzw. dem allgemeinen wirtschaftlichen Interesse ein Gleichgewicht herstellen? Dieses Konzept gibt es in den meisten Mitgliedstaaten der Europäischen Union. Das Konzept des öffentlichen Dienstes ist in den einzelnen Ländern aufgrund ihrer Geschichte, ihrer Verwaltungsstrukturen und ihrer wirtschaftlichen Traditionen unterschiedlich stark ausgeprägt. In jedem Staat unterliegt es mit der Zeit einem Wandel. In Frankreich beruht das Konzept des öffentlichen Dienstes auf einigen wenigen grundlegenden Prinzipien, wie etwa der Kontinuität, der Gleichbehandlung und der Universalität. Dieser *Modus operandi* hat sich auch bei der leitungsgebundenen Energieversorgung bewährt. Trotzdem kann er noch verbessert und an das europäische Umfeld angepaßt werden. Frankreich hat entsprechende Vorschläge ausgearbeitet. Trotzdem müssen wir uns fragen, ob das Konzept des Marktes ein völliges Infragestellen der Wirtschaftsordnungen mehrerer Mitgliedstaaten rechtfertigt.

In diesem Zusammenhang muß dem Konzept des allgemeinen wirtschaftlichen Interesses, das nach meinem Dafürhalten im Grünbuch nur restriktiv umrissen wird, mehr Gewicht verliehen werden. Ich bin davon überzeugt, daß wir an dieser Stelle pragmatischer handeln und die Vielfalt der energiepolitischen Schwerpunktsetzungen der einzelnen Mitgliedstaaten stärker berücksichtigen müssen. Denn diese Vielfalt ist, wie die Kommission in dem Grünbuch hervorhebt, kein Nachteil, sondern eine Chance.

Nun müssen wir aber auch eine andere Dimension der europäischen Energiepolitik betrachten. Auf welcher Ebene sollen die vorgegebenen politischen Leitlinien weiterentwickelt und umgesetzt werden? Mit anderen Worten, wie soll das Subsidiaritätsprinzip zur Anwendung geraten?

Bei den geplanten Aktionen können wir deutlich zwischen drei Ebenen unterscheiden: der OECD, der Europäischen Union und den einzelnen Mitgliedstaaten. Welche Ebene ist am besten geeignet?

Die Antwort dürfte für die einzelnen Sektoren unterschiedlich ausfallen. So gibt es z.B. für Kohle einen hervorrangend funktionierenden Weltmarkt, und Interventionen sind nicht erforderlich - es sei denn, aus sozial oder regional bedingten beschäftigungspolitischen Gründen. Beim Öl verfügt die IEA über ein wirksames Krisenmanagement, wodurch sich alle weiteren Instanzen erübrigen.

Beim Gas haben wir es hingegen eindeutig mit einem regionalen Problem zu tun, denn es gibt drei wichtige Gasmärkte auf der Welt: den nordamerikanischen, den europäischen und den asiatischen Markt. Deshalb bietet es sich an, Erdgasanalysen auf europäischer Ebene durchzuführen, und Frankreich befürwortet die Erstellung langfristiger europäischer Konzepte zur Gasversorgung in Europa.

Bei den Raffinerie- und Ölprodukten besteht die große Gefahr einer Verlagerung von Produktionsstätten. Eine übertriebene Öffnung des Binnenmarktes nach außen oder überzogene Umweltnormen könnten die Betreiber davon abhalten, in die Modernisierung ihrer europäischen Anlagen zu investieren, und so die Verlagerung in Gang bringen. Frankreich legt jedoch großen Wert darauf, zumindest einige der europäischen Raffineriestandorte zu sichern.

Was schließlich die Kernenergie betrifft, so ist es unbedingt erforderlich, daß Europa für seine Industrie eintritt. Dies gilt für Investitionsgüter, denn der amerikanische und japanische Konkurrenzdruck ist groß. Dies gilt auch für die Anreicherung, wo Europa über eine leistungsfähige Industrie verfügt; in diesem Zusammenhang ist eine Störung des Marktgleichgewichts durch Einfuhren von Kernmaterial aus benachbarten Regionen zu Preisen, die deutlich unter dem Marktniveau liegen, unbedingt zu vermeiden.

Jetzt können wir uns fragen, ob noch weitere Gemeinschaftsinstrumente vonnöten sind.

Ja, im Bereich der Wirtschaftsanalysen und Prospektivstudien. Diese sind auf der Ebene der Europäischen Union zu intensivieren, denn es ist äußerst wichtig, daß die Mitgliedstaaten ein gemeinsames Bild von ihrer Zukunft haben - mit allen Risiken und Problemen, die diese Zukunft mit sich bringt.

Ansonsten kommt es vor allem darauf an, eine Bestandsaufnahme der vorhandenen Instrumente durchzuführen und eine bessere Koordinierung unter den Mitgliedstaaten in Fragen der Umwelt, des Binnenmarktes, der Besteuerung, des Wettbewerbs usw. herbeizuführen.

Natürlich steht hinter jedem Teilbereich des Energiesektors auch die Sicherheitsfrage. Wäre es möglich, eines Tages - ähnlich wie bei der gemeinsamen Außen- und Sicherheitspolitik (GASP) - Mechanismen einzurichten, die auf dem Prinzip der Zusammenarbeit beruhen, aber nicht verbindlich sind? Die Frage ist zumindest eine Überlegung wert.

Insgesamt müssen wir zugeben, daß der Grad der Übereinstimmung unter den energiepolitischen Schwerpunktsetzungen der einzelnen Mitgliedstaaten eher gering ausfällt. Die diesen Schwerpunktsetzungen zugrundeliegenden Sachverhalte unterscheiden sich so stark voneinander, daß eine kurzfristige Konvergenz unmöglich ist. Zu unterschiedlich ist die Energielage in den einzelnen Ländern: bei den einheimischen Rohstoffen, den Systemen zur Erzeugung, zum Transport bzw. zur Durchleitung und zur Verteilung von Energie ebenso wie bei den Strukturen der Stromerzeugungsanlagen. Diese Vielfalt, die auf historischen, sozialen, geographischen und geologischen Gegebenheiten beruht, kann sich mit einer zukünftigen Erweiterung der Europäischen Union nur noch verstärken.

Deshalb müssen wir um jeden Preis einen künstlich herbeigeführten, voreiligen Konsens unter den Mitgliedstaaten der Europäischen Union vermeiden. Stattdessen brauchen wir zunächst einmal ein bescheideneres, pragmatischeres Konzept, denn nur so können wir auf realistische Weise vorankommen. Frankreich schlägt vor, das Subsidiaritätsprinzip anzuwenden, damit jeder Mitgliedstaat unter voller Berücksichtigung seiner besonderen Merkmale a) seine eigene Energiepolitik und b) seine eigene Definition des allgemeinen wirtschaftlichen Interesses festlegen kann.

Auf Gemeinschaftsebene sollten wir das bereits Bestehende besser nutzen und gemeinsam zukunftsweisende Wirtschaftsanalysen durchführen, um zu einer einheitlichen Beurteilung der Risiken und Probleme zu gelangen, die die europäische Energieversorgung längerfristig betrachtet gefährden könnten.

Auf der Grundlage dieser klaren, gemeinsamen Zukunftsvision können wir entscheiden, was wir wirklich am besten gemeinsam tun sollten. Auf diesem Wege gelangen wir zu einer stufenweisen Harmonisierung der europäischen energiepolitischen Schwerpunktsetzungen. Das wird lange dauern, aber nur so wird es uns gelingen, Schritt für Schritt eine gemeinsame Energiepolitik zu verwirklichen.

FINNLAND UND DIE ENERGIEPOLITISCHEN HERASFORDERUNGEN EUROPAS

Von Antti Kalliomäki
Finnischer Minister für Handel und Industrie

Bevor Finnland der Europäischen Union beitreten konnte, mußten zahlreiche schwierige Fragen ausgehandelt bzw. geklärt werden. Ich freue mich, sagen zu können, daß der Energiesektor nicht zu diesen Problembereichen zählte. Die Konzepte und Schwerpunkte unserer Energiepolitik entsprechen weitgehend denen der anderen europäischen Länder und der EU.


Antti Kalliomäki

Finnland ist stark von Energieeinfuhren abhängig und legt deshalb seit langem großen Wert auf Sicherheit. Da die Industrie meines Landes gleichzeitig zu den energieintensivsten der Welt zählt, war eine effiziente Energienutzung schon immer eines der wichtigsten Anliegen der Energieerzeuger, der Energienutzer und der Regierung. In Anbetracht der empfindlichen, arktischen Landesnatur nehmen wir den Umweltschutz sehr ernst. Alle diese energiepolitischen Aspekte werden im Rahmen von Marktstrukturen umgesetzt, die, wie ich zu behaupten wage, zu den liberalsten in Europa zählen.

Daher ist verständlich, daß der Beitritt das Wesen unserer Energiepolitik nicht grundlegend verändert hat. Der einzige wichtige Bereich, in dem Sonderregelungen ausgehandelt wurden, war die Versorgung mit Kernbrennstoffen. Dort wollten wir unter Beibehaltung der Vielfalt der Bezugsquellen einen reibungslosen Übergang zum neuen Euratom-Umfeld herbeiführen.

Wir freuen uns darauf, bei der energiepolitischen Zusammenarbeit innerhalb der EU eine aktive Rolle zu spielen. Wir glauben, daß dadurch auch unsere nationale Energiepolitik positive Anstöße erhält. Und wir hoffen, daß es uns gelingen wird, zu den diesbezüglichen Aktivitäten der EU einen konstruktiven Beitrag zu leisten.

Nun möchte ich einige spezielle energiepolitische Fragen hervorheben, die gegenwärtig sowohl in Finnland als auch in Europa auf der Tagesordnung stehen.

DER ENERGIE-BINNENMARKT

Seit den achtziger Jahren sind die finnischen Energiepreise und -märkte stufenweise dereguliert worden. Anfang der achtziger Jahre wurden für Öl- und Kohleeinfuhren noch Einfuhrlizenzen verlangt. Die Lizenzen für Stromeinfuhren wurden erst in diesem Jahr abgeschafft; jetzt werden die Energieeinfuhren also nicht mehr vom Staat kontrolliert.

Ebenfalls bis Anfang der achtziger Jahre wurden die Endverbraucherpreise für Erdölerzeugnisse reguliert; seitdem sind alle staatlichen Preiskontrollen im Energiebereich - auch für den Handel mit und Vertrieb von Elektrizität - aufgehoben worden. Die Energiepreise werden im allgemeinen von den Märkten festgesetzt; der Staat nimmt keinen Einfluß auf die Preisgestaltung.

Die Beförderungspreise für Strom werden allerdings wegen des Monopolcharakters dieses

Wirtschaftszweiges von einer neugeschaffenen Marktregulierungseinrichtung überwacht. Die Preise für die Benutzung des Netzes müssen angemessen und fair sein, aber frei von Verordnungen, zum Beispiel über zulässige Rentabilitätsraten.
Das finnische Elektrizitätsgesetz ist grundlegend überarbeitet worden, um eine weitere Liberalisierung der Durchleitung von Hoch-, Mittel- und Niederspannung und somit eine Einbeziehung lokaler Verteilungsnetze zu ermöglichen. Jeder Stromerzeuger darf landesweit jeden Endverbraucher und jede Vertriebsstelle beliefern. Damit ist das Prinzip des Netzzugangs Dritter umgesetzt worden. Die Differenzierung beim Betrieb und die größere Transparenz der Strompreise und -kosten werden sich in diesem Sinne positiv auswirken. Das Gesetz ist Anfang Juni 1995 in Kraft getreten.
Finnland hat kein staatliches System zur Planung der landesweit benötigten Stromerzeugungskapazitäten. Selbst die ganz großen Anlagen sind nicht mehr genehmigungspflichtig. Nur für Kern- und Wasserkraftwerke sind nach den jeweiligen Einzelgesetzen Genehmigungen erforderlich. Somit herrscht bei der Stromerzeugung ein freier Wettbewerb. Hinsichtlich der Flächennutzung, des Umweltschutzes usw. sind natürlich entsprechende Genehmigungen vorgeschrieben.
Es überrascht also nicht, daß Finnland die Einrichtung europäischer Elektrizitäts-binnenmärkte befürwortet. Im Rat haben wir uns für das Prinzip des ausgehandelten Netzzugangs Dritter ausgesprochen. Wir wissen, daß sich internationale Zusammenarbeit und grenzüberschreitender Wettbewerb auf einem relativ kleinen Markt wie dem finnischen positiv auswirken. Wir wissen auch, daß eine weitere Harmonisierung der einzelstaatlichen Bestimmungen zu einem besseren Funktionieren des Energie-binnenmarktes beitragen kann. Für den Wettbewerb auf den Strom- und Gasmärkten ist die Problematik der Harmonisierung allerdings weniger schwerwiegend als die der auch weiterhin bestehenden Exklusivrechte bzw. der Beschränkung des Netzzugangs. Harmonisierung führt zu einer Glättung der Handelsabläufe, ist aber keine Voraussetzung für den Handel überhaupt. Grenzüberschreitenden Handel treiben wir schon seit Jahrhunderten, aber das Konzept der Harmonisierung ist noch relativ jung.

Umwelt und Klimaänderung

Der Energiebericht, den die finnische Regierung im Herbst 1993 dem Parlament vorlegte, enthält die Zielvorgabe, bis Ende der neunziger Jahre der Zunahme der CO_2-Emissionen der Energieerzeuger Einhalt zu gebieten. Finnland verfolgt schon seit Jahrzehnten eine zukunftsfähige Forstpolitik, so daß unsere Wälder zumindest in den kommenden 15-20 Jahren immer mehr atmosphärischen Kohlenstoff absorbieren können. Folglich wird noch mehr Kohlenstoff in den Wäldern gebunden. Die Pflege dieses Reservoirs ist ein wichtiger Bestandteil der finnischen Klimapolitik.
Finnland ist der Auffassung, daß der Umsetzung wirkungsvoller Konzepte und Maßnahmen bei der Verfolgung dieser Ziele eine Schlüsselrolle zukommt. Die finnische Klimapolitik ist in erster Linie darauf ausgerichtet, die bereits angelaufenen Programme zur Verringerung der Schadstoffemissionen auszubauen.
1990 führte Finnland als erstes Land der Welt eine CO_2-Steuer ein; seitdem ist das System laufend verbessert worden. Nach unserer Auffassung sollen derartige Maßnahmen bei den zukünftigen Verhandlungen über ein Protokoll eine wichtige Rolle spielen. Folglich befürworten wir auch das auf dem Essener Gipfel diskutierte Konzept einer europäischen CO_2-Steuer.
Ziel des finnischen Energiesparprogramms ist eine noch größere Effizienz beim Energieendverbrauch durch die einzelnen Sektoren. Dadurch ließe sich der Energieverbrauch bis zum Jahr 2000 - verglichen mit 1990 - um 10-15 % reduzieren.
Das neue Bioenergie-Programm zielt darauf ab, den Einsatz von Bioenergie - gemessen am heutigen Stand - bis 2005 um wenigstens ein Viertel zu steigern. Gegenwärtig sind 13 % der finnischen Energieerzeugung durch Biomasse abgedeckt. Schon seit den achtziger Jahren gibt es einschlägige Energieprogramme, und 1993 wurden von der Regierung acht neue Programme zur Entwicklung insbesondere neuer und erneuerbarer Energietechnologien eingeleitet. Wir glauben, daß Lösungen, die auf neuen Technologien aufbauen, für eine tatsächliche Verringerung der Schadstoffemissionen in Zukunft eine wesentliche Rolle spielen werden.
Dies sind die wichtigsten Leitlinien einer Politik, wie sie uns angesichts der finnischen Rahmenbedingungen am geeignetsten erscheint. Allerdings bestehen zwischen den Beteiligten erhebliche Unterschiede hinsichtlich ihrer Ausgangspositionen, Ressourcen und Fähigkeiten.
Bezeichnend für die finnische Energieerzeugung ist der große Anteil von Kernenergie, Wasserkraft, Wärme-Kraft-Kopplung (WKK), Fernheizung und Biobrennstoffen. Deshalb sind auch die spezifischen CO_2-Emissionen relativ gering, und unsere Möglichkeiten, sie in Zukunft noch weiter einzuschränken, entsprechend begrenzt. Wir gehen davon aus, daß die energiespezifischen CO_2-Ausstöße bis zum Jahre 2000 um 25-30 % ansteigen werden. 1990 betrugen die finnischen CO_2-Emissionen aus

Energieerzeugung, Energieverbrauch und Industrie insgesamt ungefähr 54 Millionen t.
Finnland betrachtet die derzeitigen Verpflichtungen in Artikel 4 Absatz 2 a) und b) des Rahmenübereinkommens der Vereinten Nationen über Klimaänderungen lediglich als einen unzureichenden ersten Schritt. In dem Verhandlungsauftrag von Berlin sehen wir einen weiteren nützlichen Schritt auf dem Weg zu einem Protokoll. Die künftigen Verhandlungen sollten sich auf eine breite Palette von Instrumenten, Werkzeugen und Maßnahmen konzentrieren, so daß sich jedes Land bzw. jede Ländergruppe die jeweils geeignetsten, kostengünstigsten Maßnahmen aussuchen kann. Zu berücksichtigen sind jeweils die unterschiedlichen Ausgangspositionen, Konzepte, Wirtschaftsstrukturen und Energievorräte, die Notwendigkeit, ein starkes, dauerhaftes Wirtschaftswachstum beizubehalten, die verfügbaren Technologien sowie weitere individuelle Besonderheiten.

Kernenergie und Nukleare Sicherheit

Finnland ist einer von acht EU-Mitgliedstaaten, in denen ein Teil der Stromerzeugung in Kernkraftwerken erfolgt. Vier Kraftwerke mit einer Gesamtkapazität von 2.310 MW gingen Ende der siebziger bzw. Anfang der achtziger Jahre ans Netz. Heute decken sie etwa 30 % des finnischen Strombedarfs.
Sowohl die beiden 445 MWe WWER-Blöcke in Loviisa, die von der Imatran Voima Oy (IVO) betrieben werden, als auch die beiden 710 MWe BWR-Blöcke der Teollisuuden Voima Oy (TVO) in Olkiluoto haben seit der Inbetriebnahme immer zuverlässig und sicher funktioniert. Die durchschnittliche jährliche Leistungsausnutzung der finnischen Blöcke gehörte stets zu den besten der Welt.
Alle Bemühungen um den Bau weiterer Kernkraftwerke sind bisher am politischen Widerstand gescheitert. Das jüngste Projekt, dem die Regierung im März 1993 zustimmte, erhielt nicht die nach den finnischen Atomgesetzen erforderliche Zustimmung des Parlaments.
Hinsichtlich der Lieferung, Konversion und Anreicherung von Uran sowie der Herstellung von Brennelementen ist Finnland vollkommen vom Ausland abhängig. Die notwendige Versorgungssicherheit wurde durch Diversifizierung der Quellen erreicht. Bei den Beitrittsverhandlungen zählte es zu den Zielsetzungen Finnlands, einen gleitenden Übergang zum neuen Versorgungsumfeld im Rahmen von Euratom zu gewährleisten und die so lebensnotwendige Versorgungsvielfalt beizubehalten.
Finnland ist eines der wenigen Länder mit einem bereits in Betrieb befindlichen Endlager für schwach- und mittelaktive radioaktive Abfälle. Auch ein Programm mit der Zielsetzung, noch vor dem Jahr 2000 einen Standort für ein Endlager für abgebrannte Brennelemente zu finden, wurde Anfang der achtziger Jahre eingeleitet und macht gute Fortschritte. Im Dezember 1994 verabschiedete das Parlament ein Gesetz, das eine Wiederaufbereitung in finnischen Reaktoren eingesetzter Brennstoffe ausschließt, weil es eine direkte Endlagerung solcher Brennstoffe in Finnland vorschreibt. Dasselbe Gesetz verbietet auch die Endlagerung ausländischer abgebrannter Brennstoffe und sonstiger radioaktiver Abfälle in Finnland.
Das Expertenwissen, mit dessen Hilfe Finnland die hohen Sicherheitsstandards im Nuklearbereich erreicht hat, und das nicht zuletzt bei der Anpassung der beiden WWER-Reaktoren an westliche Sicherheitsvorschriften gesammelt wurde, kam auch zur Anwendung, als es darum ging - sowohl auf bilateraler Ebene als auch über die EU-Zusammenarbeit (TACIS usw.) -, bei der Nachrüstung bestehender Reaktoren dieses Typs in Rußland selbst mitzuwirken.

Ost-West-Zusammenarbeit im Energiebereich

Ähnlich anderen westlichen Industrieländern und einigen internationalen Organisationen hat auch Finnland Programme für die technische Hilfe und die Zusammenarbeit eingeleitet, um die Länder der ehemaligen Sowjetunion sowie Mittel- und Osteuropas in ihrer Entwicklung zu unterstützen.
Die Schwerpunkte der finnischen Hilfsprogramme für den Energiesektor sind nukleare Sicherheit und Energieeinsparung. Die wichtigsten Empfängerländer sind die Russische Föderation und Estland.
Anfang 1992 unterzeichneten Finnland und die Russische Föderation ein Abkommen über die Zusammenarbeit zwischen den Grenzregionen. Das Abkommen dient der Schaffung eines gesetzlichen Rahmens für diese Zusammenarbeit und der Förderung grenzüberschreitender Kontakte der regionalen und lokalen Behörden.
Von 1992 bis 1994 stellte Finnland für die bilaterale Zusammenarbeit im Bereich der nuklearen Sicherheit 30 Millionen FMK (ungefähr 5 Millionen ECU) zur Verfügung. Für die kommenden Jahre ist die Bereitstellung von ca. 2 Millionen ECU pro Jahr vorgesehen. Hinzu kommt, daß Finnland zum Konto "Nukleare Sicherheit" bei der Europäischen Bank für Wiederaufbau und Entwicklung seinen Beitrag leistet.
Zwei umfangreiche Studien über Energieplanung und Energieeinsparung in der Russischen Föderation sind abgeschlossen worden. Der Energieplan für Karelien beschreibt die bisherigen und die zukünftigen Entwicklungstendenzen in der Gesellschaft dieser

Region, betrachtet die gegenwärtige Angebots- und Nachfragesituation auf dem Energiemarkt und analysiert die voraussichtliche Entwicklung der Wirtschaft und des Energiesektors bis zum Jahre 2015. Die Studie über das Energiesparpotential von neun Industrieanlagen bzw. Kraftwerken in der Russischen Föderation enthält eine Analyse des Energieverbrauchs besonders energieaufwendiger Anlagen, eine Einschätzung ihres Energiesparpotentials und technisch wie wirtschaftlich vernünftige Vorschläge zur Energieeinsparung.

In Estland finanziert das finnische Ministerium für Handel und Industrie mehrere Projekte, die darauf abzielen, den Energie-Wirkungsgrad und die Umweltverträglichkeit im Energiesektor zu verbessern. Angesichts weitverzweigter Handelsbeziehungen mit den Ländern der ehemaligen Sowjetunion sind finnische Unternehmen und Organisationen als Partner dieser Länder besonders qualifiziert. Als neues Mitglied der Europäischen Union ist Finnland natürlich bereit, sich mit anderen Mitgliedstaaten zusammenzutun, um Drittländer bei der Entwicklung ihrer Energiewirtschaft zu unterstützen.

VERSCHIEDENE KONZEPTE FÜR EINE LIBERALISIERUNG DER ELEKTRIZITÄTSMÄRKTE

Von A.M. Klom, GD XVII
Referat Funktionieren des Binnenmarktes

EINLEITUNG

Am 29. November 1994 forderte der Rat "Energie" in seinen Schlußfolgerungen die Kommission auf, die erwarteten Folgen einer gleichzeitigen Einführung und Anwendung des Vorschlags der Kommission für einen ausgehandelten Netzzugang Dritter (TPA) und des französischen Vorschlags für ein sogenanntes Alleinabnehmersystem auf dem Elektrizitätsbinnenmarkt zu prüfen. Die Kommission sollte diese beiden Konzepte hinsichtlich ihrer Wirtschaftlichkeit, Gegenseitigkeit und ihrer Vereinbarkeit mit dem EG-Vertrag untersuchen.
Ferner brachte der Rat seine Überzeugung zum Ausdruck, daß die Vollendung des Elektrizitätsbinnenmarktes flexibler Lösungen bedarf, die im Geiste der Gegenseitigkeit zwischen den Mitgliedstaaten angewandt werden müssen. Im vorliegenden Beitrag sollen die Hintergründe aufgezeigt werden, und es wird der Versuch unternommen, die Antwort der Kommission auf diese wichtigen Fragen zu erläutern und zusammenzufassen.

DIE HINTERGRÜNDE DER DEBATTE ÜBER DEN ELEKTRIZITÄTSBINNENMARKT

1989 entwarf die Kommission ein gestaffeltes Konzept zur Vollendung des Erdgasbinnenmarktes. Das Konzept umfaßte eine Anzahl von Vorschlägen, die auf vier allgemeinen grundsätzen beruhten. Erstens sollte die Staffelung der Maßnahmen die Industrie in die Lage versetzen, sich an ihr neues Umfeld anzupassen; zweitens sollten sich die Mitgliedstaaten nach dem Subsidiaritätsprinzip für ein System entscheiden, das ihren spezifischen Bedürfnissen am besten entsprach; drittens galt es eine Überregulierung zu vermeiden; und viertens handelte es sich um ein gesetzgeberisches Konzept auf der Grundlage von Artikel 100 a EG-Vertrag, der einen politischen Dialog mit dem Rat, dem Wirtschafts- und Sozialausschuß und dem Europäischen Parlament vorschreibt.
Die Kommission entschied sich für ein Dreiphasenkonzept. In der ersten Phase wurden 1990 und 1991 Richtlinien über den Transit von Elektrizitäts- und Gaslieferungen in der Gemeinschaft und über die Transparenz der vom industriellen Endverbraucher zu zahlenden Gas- und Strompreise erlassen. Die zweite Phase, die auf eine größere Liberalisierung des Elektrizitätssektors, einschließlich der teilweisen Einführung eines Netzzugangs Dritter, ausgerichtet ist, begann im Februar 1992 mit den Vorschlägen für Richtlinien betreffend die gemeinsamen Vorschriften für den Elektrizitäts- und Erdgasbinnenmarkt. Über eine dritte Phase, die auf eine noch größere Liberalisierung abzielt, soll nach Auswertung der Ergebnisse der zweiten Phase entschieden werden.
Die Vorschläge, über die seit 1992 diskutiert wird, wurden aufgrund der in erster Lesung abgegebenen Stellungnahme des Parlaments und der Erörterungen der Mitgliedstaaten im Rat von der Kommission im Dezember 1993 geändert. Von Anfang an zeigte sich die Kommission gegenüber einer gestaffelten Liberalisierung der europäischen Energiemärkte sehr aufgeschlossen und kooperativ. Als Frankreich 1994 die Möglichkeit eines Alleinabnehmersystems als Alternative zum Vorschlag der Kommission in die Verhandlungen über den geänderten Vorschlag betreffend den Elektrizitätsbinnenmarkt einbrachte, reagierte die Kommission ebenfalls mit Aufgeschlossenheit. Vor diesem Hintergrund wurde die Kommission vom Rat aufgefordert, die Möglichkeiten für eine gleichzeitige Anwendung beider Konzepte zu prüfen.
Auf der Tagung des Rates "Energie" am 29. November 1994 wurde über vier Elemente des geänderten Vorschlags über den Elektrizitätsbinnenmarkt

grundsätzliches Einvernehmen erzielt. Seitdem ist der Rat darum bemüht, dieses politische Einvernehmen in Rechtstexte umzusetzen, die als Text für einen gemeinsamen Standpunkt des Rates verwendet werden können, wie ihn der Rat gemäß den Schlußfolgerungen vom 29. November 1994 bis Ende 1995 förmlich festlegen will. Bei den vier Themen, über die dieses Einvernehmen erzielt wurde, handelt es sich um die Möglichkeit der Mitgliedstaaten, den Elektrizitätsversorgungsunternehmen im allgemeinen wirtschaftlichen Interesse folgendes vorzuschreiben: 1. sie müssen Aufgaben des öffentlichen Dienstes erfüllen; 2. vertikal integrierte Unternehmen haben für die Tätigkeit im Bereich der Erzeugung, Übertragung und Verteilung gesonderte Konten zu führen; 3. die Rolle und Funktion des Netzbetreibers; 4. die Verfahren zur Einrichtung neuer Produktionskapazitäten auf einzelnen Märkten.

Die Überprüfung des Alleinabnehmersystems

Die Kommission ist der Aufforderung des Rates nachgekommen und hat unter Berücksichtigung der genannten Übereinkünfte die möglichen Auswirkungen einer gleichzeitigen Anwendung eines ausgehandelten Netzzugangs Dritter und eines Alleinabnehmersystems untersucht. Da über die anderen Themen bereits Einvernehmen bestand, mußte die Kommission ihre Untersuchung so schnell wie möglich durchführen, damit der Rat seine Beratungen abschließen und einen gemeinsamen Standpunkt festlegen kann.

Zur Vorbereitung der eigentlichen Arbeit bestellte die Kommission beim Energiewirtschaftlichen Institut der Universität Köln eine technische Analyse der zu untersuchenden Fragen. Deren Ergebnisse dienten der Kommission als Grundlage für ihre eigene wirtschaftliche und juristische Untersuchung.

Grundlage dieser Analyse ist natürlich eine Betrachtung der beiden Systeme. Das Konzept des ausgehandelten Netzzugangs Dritter ist ein System, in dem die Elektrizitätserzeuger zugelassene Endverbraucher direkt beliefern können, indem sie einen Netzzugang aushandeln. Die Verhandlungen mit dem Netzbetreiber erstrecken sich auf die Beförderungspreise und -bedingungen und unterliegen einem Schlichtungsverfahren. Die zugelassenen Endverbraucher dürfen innerhalb und außerhalb des Systems zu wettbewerbsfähigen Preisen Strom einkaufen, während der Netzbetreiber für die Systemsicherheit sorgen und Aufgaben des öffentlichen Dienstes erfüllen muß.

Das ursprünglich von Frankreich vorgeschlagene Alleinabnehmersystem beruht auf dem Prinzip, daß nur eine einzige Instanz Strom kauft und verkauft. Alle Erzeuger verkaufen nach den Regeln des Wettbewerbs an den Alleinabnehmer; alle Verbraucher kaufen bei diesem Alleinabnehmer zu optimierten Preisen. Der Alleinabnehmer sorgt für die Instandhaltung des Netzes, für eine langfristige Planung, für eine Optimierung der Investitionen und für die Wahrnehmung von Aufgaben im allgemeinen wirtschaftlichen Interesse. Direkte Vertragsverhandlungen sind nur bei Stromeinfuhren vorgesehen, die ebenfalls über den Alleinabnehmer abgewickelt werden.

Das Arbeitspapier der Kommission beschreibt zunächst beide Systeme und betrachtet anschließend spezifische Fragen, die im Falle einer gleichzeitigen Einführung beider Systeme auf dem Elektrizitätsbinnenmarkt grundlegende Bedeutung erlangen würden. Das Arbeitspapier enthält einen Vergleich der internen Organisation und analysiert die Frage der Vertragsverhandlungen für beide Systeme, betrachtet das Verhalten des Alleinabnehmers und analysiert die Auswirkungen einer Koexistenz beider Systeme auf die direkten Stromleitungen und die Investitionen. Um die Frage nach der Vereinbarkeit mit dem EG-Vertrag zu beantworten, folgt eine gründliche juristische Analyse, die auf der Grundlage des Vertrags und der Rechtsprechung des Europäischen Gerichtshofes den Versuch unternimmt, die unterschiedlichen Aspekte des Alleinabnehmersystems aufzuschlüsseln und ihre möglichen Auswirkungen hinsichtlich des Vertrags zu analysieren.

Der Vorschlag der Kommission

Unter Berücksichtigung der vom Rat gestellten Fragen gelangte die Kommission in ihrem Arbeitspapier zu dem Ergebnis, daß das Alleinabnehmersystem in der von Frankreich vorgeschlagenen Form nicht als gleichwertig mit dem Kommissionsvorschlag des ausgehandelten Netzzugangs Dritter betrachtet werden kann und auch keine Reziprozität gewährleistet, weil es dem, was aus wettbewerbsrechtlicher Sicht wünschenswert und möglich ist, nicht entspricht. Ein hohes Maß an Reziprozität kann zwischen beiden Systemen nur sichergestellt werden, wenn gewisse grundsätzliche Anpassungen am gegenwärtigen Konzept des Alleinabnehmersystems vorgenommen werden. Beide Systeme müssen auf einer gemeinsamen und transparenten Definition der Kategorien zugelassener Konsumenten basieren. Marktöffnung wird über die Abdeckung dieser zugelassenen Konsumenten erreicht.

Was die gleichzeitige Einführung beider Systeme und ihre Vereinbarkeit mit dem Vertrag betrifft, so kann beschlossen werden, daß das Alleinabnehmersystem in seiner gegenwärtigen Form mit seinen internen Monopolstrukturen als Maßnahme gleicher Wirkung zu

einer mengenmäßigen Einfuhrbeschränkung im Sinne von Artikel 30 EG-Vertrag betrachtet werden muß. Weiterhin sollte es über die Erfordernisse der öffentlichen Sicherheit hinausgehende Hindernisse für die Niederlassungsfreiheit nicht beinhalten.

Der französische Vorschlag würde dazu führen, daß Lieferungen und Produktion de facto durch den Alleinabnehmer kanalisiert würden. Ein System, welches Ein- und Ausfuhren durch eine Zwischenstelle kanalisiert, steht im Widerspruch zum Prinzip des freien Warenverkehrs. Ausschließlichkeitsrechte, welche zu einer absoluten Kontrolle über Einfuhren, Übertragung und Verteilung führen, stehen zunächst einmal nicht im Einklang mit dem Grundsatz der Gemeinschaft über den freien Warenverkehr und den Wettbewerbsregeln und können nicht automatisch wegen öffentlicher Dienstleistungspflichten gerechtfertigt werden, sondern müssen im Einzelfall analysiert werden, um das Prinzip der Verhältnismäßigkeit zu gewährleisten. Gründe der Versorgungssicherheit könnten eine Ausnahme auf der Basis "öffentlicher Sicherheit" nach Artikel 36 EG-Vertrag rechtfertigen. Das Fallrecht des Europäischen Gerichtshofes führt nicht zu einer automatischen Aussetzung der Vertragsregeln über den freien Warenverkehr und Wettbewerb. Wie das System des ausgehandelten Netzzugangs Dritter zeigt, können Versorgungssicherheit und *öffentliche* Dienstleistungspflichten in einem System mit offenerem Wettbewerb sichergestellt werden.

Es ist augenscheinlich, daß die Mitgliedstaaten ihre Strommärkte nach den jeweiligen Bedürfnissen und verschiedenen Versorgungssicherheitssituationen organisieren. Das Alleinabnehmersystem möchte eine auf Langzeitplanung basierende Organisation des Strommarktes bieten, welche Versorgungssicherheit durch zentrales Management von Produktion, Übertragung und Verteilung gewährleistet. Ohne die Ziele von Langzeitplanung und Versorgungssicherheit zu berühren, sind Anpassungen des Alleinabnehmersystems zur Sicherstellung der Vereinbarkeit mit dem Vertrag sowie aus Gründen der wirtschaftlichen Gleichwertigkeit notwendig.

Um ein Maximum an Reziprozität und Vereinbarkeit mit dem Vertrag sicherzustellen, hat die Kommission vorgeschlagen, daß das Alleinabnehmersystem folgende Modalitäten erfüllen muß. Erstens sollen im Fall des Alleinabnehmersystems zugelassene Konsumenten die Freiheit haben, Stromlieferungen mit externen unter den gleichen Bedingungen wie mit unabhängigen inländischen Stromerzeugern abzuschließen.

Zweitens könnten beide Systeme direkt vergleichbare und akzeptable Ergebnisse bringen, wenn die Einfuhrbestimmungen für das Alleinabnehmersystem von der Verpflichtung des Alleinabnehmers, unbegrenzte Mengen eingeführten Stroms unter objektiven Bedingungen zu kaufen, geleitet werden, sowie ferner von der Transparenz der Netzbenutzungsgebühren und somit von der Transparenz des vom Alleinabnehmer für die eingeführte Strommenge bezahlten Preises. Weiter sollten die Stromeinfuhren nur objektiv gerechtfertigten Bedingungen unterliegen (z.B. Fehlen von Übertragungskapazität oder aus Gründen der öffentlichen Sicherheit).

Drittens müßte, um sicherzustellen, daß die Prinzipien der Objektivität, Transparenz und Nicht-Diskriminierung beachtet werden, daß keine Wettbewerbsverzerrungen stattfinden, daß das Risiko potentieller Diskriminierung vermieden wird und eine neutrale und unabhängige Behandlung erreicht wird, der Alleinabnehmer, wo er Teil eines integrierten Unternehmens ist, vollständig, d.h. in bezug auf Management und Informationsflüsse zwischen seinen Aktivitäten, insbesondere bezüglich Erzeugung und Versorgung, entflochten sein.

Viertens sollten Ausschreibungsverfahren für neue und zusätzliche Produktionskapazitäten, die ja in bezug auf den Wettbewerb restriktiver sind als Genehmigungssysteme, nur von Behörden oder anderen zu diesem Zweck eingerichteten unabhängigen Stellen organisiert und entschieden werden.

Fünftens sollten im Interesse einer Verringerung des Ungleichgewichts zwischen dem Genehmigungs- und dem Ausschreibungsverfahren unabhängige Erzeuger auch im Rahmen von Ausschreibungsverfahren in den Genuß von Genehmigungen kommen, um die Wettbewerbskräfte zu stärken. Eine transparente Definition der unabhängigen Erzeuger in Alleinabnehmersystemen muß auf der Basis von quantitativen Kapazitätsgrenzen eingeführt werden. Darüber hinaus sollten auch Eigenerzeuger, Exportproduzenten und EAK-Produzenten (Erneuerbare, Abfallenergie, Kraft-Wärme-Kopplung) parallele Genehmigungen nützen können, um ihren spezifischen Produktionsanforderungen gerecht zu werden.

Schließlich müssen im Alleinabnehmersystem alle zugelassenen Konsumenten die Freiheit haben, Direktleitungen für Transaktionen mit externen Produzenten und inländischen unabhängigen Erzeugern (und umgekehrt für Erzeuger, um die zugelassenen Konsumenten zu versorgen) nach Artikel 7 des abgeänderten Richtlinienentwurfs zu bauen und zu benutzen.

Erst wenn das Alleinabnehmersystem diese Anforderungen erfüllt, kann davon ausgegangen werden, daß es mit dem EG-Vertrag im Einklang steht und im Geiste der Gegenseitigkeit zu gleichwertigen wirtschaftlichen Ergebnissen und daher zu einer direkt vergleichbaren Marktöffnung führt. Dies sind die

Mindestanforderungen, die für ein auf flexiblen Lösungen beruhendes gleichzeitiges Bestehen zweier unterschiedlicher Systeme auf demselben Elektrizitätsbinnenmarkt erfüllt werden müssen.

Die gegenwärtige Diskussion

Bei dem Arbeitspapier, das die beiden Systeme untersucht, handelt es sich nicht um einen Vorschlag der Kommission für einen neuen Rechtsakt. Zu erörtern sind lediglich die geänderten Vorschläge der Kommission vom Dezember 1993. Das Arbeitspapier ist eine Antwort auf die Aufforderung des Rates vom November 1994; es soll dem Rat neue Impulse verleihen und somit die Verhandlungen vorantreiben. Die Kommission ist dafür, möglichst bald eine Richtlinie zu erlassen und umzusetzen; dies ist nach ihrer Überzeugung der beste Weg zur Verwirklichung des Elektrizitätsbinnenmarktes. Die Kommission ist sich jedoch der Schwierigkeiten einiger Mitgliedstaaten bewußt und weist deshalb mit Hilfe des Arbeitspapiers den Weg zu einer Verhandlungslösung. In ihrem flexiblen Konzept berücksichtigt die Kommission den Wunsch der Mitgliedstaaten nach Flexibilität, Subsidiarität, Versorgungssicherheit usw. ebenso wie die unterschiedlichen Strukturen der Elektrizitätswirtschaft in den einzelnen Mitgliedstaaten.

Der Rat "Energie" tagte am 1. Juni 1995, um das Arbeitspapier über den Elektrizitätsbinnenmarkt zu erörtern. Auf der Tagung stimmte der Rat den wichtigsten Schlußfolgerungen des Arbeitspapiers der Kommission zu, daß die beiden Systeme so unterschiedlich sind, daß eine gleichzeitige Anwendung nur unter ganz bestimmten Bedingungen möglich ist. Allerdings wurde im Rat nur über einige dieser Bedingungen politisches Einvernehmen erzielt, nämlich über die Verpflichtung des Alleinabnehmers, unbegrenzte Mengen Strom zu kaufen, die parallelen Genehmigungen, die TPA-Möglichkeit im Stromausfuhrbereich auch bei Alleinabnehmersystemen sowie die Möglichkeit, daß zugelassene Konsumenten, die Strom einführen wollen, Direktverhandlungen aufnehmen. Alle anderen Bedingungen wurden in einem Verzeichnis zusammengefaßt, über das der Rat während der spanischen Präsidentschaft diskutieren muß. Zusammenfassend ist festzustellen, daß über den Grundsatz der gleichzeitigen Anwendung Einvernehmen besteht, daß aber bisher nur über wenige Bedingungen eine Einigung erzielt worden ist, während über viele andere noch verhandelt werden muß.

Die Kommission ist aufrichtig daran interessiert, mit Hilfe einer Übergangslösung den gegenwärtigen politischen Stillstand im Rat zu überwinden. Dieser Zielsetzung dient auch das Arbeitspapier. Wenn es allerdings dem Rat trotz dieser Bemühungen nicht gelingt, eine Lösung zu finden, wird die Kommission alles in ihrer Macht Stehende tun müssen, um die Vollendung des Elektrizitätsbinnenmarktes herbeizuführen. Das von der Kommission in dem Arbeitspapier dargelegte Konzept ist pragmatischer Natur; mit seiner Hilfe können in absehbarer Zeit realistische, greifbare Ergebnisse erzielt werden. Aber entscheidend ist natürlich das Ergebnis der Diskussion des Rates.

WEGE DER FINANZIERUNG VON HEIZKRAFTWERKEN IN DER EU : DIE VORTEILE DER DRITTFINANZIERUNG

Von R. Alvim de Faria, GD XVII
Referat Strategie, Verbreitung, Fördermaßnahmen

Dieser Beitrag gibt einen Überblick über die Möglichkeiten zur Finanzierung von Heizkraftwerken bzw. Kraft-Wärme-Kopplungsprojekten in der EU und enthält Vorschläge, wie die Anteile der Heizkraftwerke am europäischen Energiemarkt gesteigert werden können. Hierbei nimmt das Konzept der Drittfinanzierung einen besonderen Stellenwert ein.

EINLEITUNG

Es besteht Übereinstimmung darüber, daß die westlichen Volkswirtschaften dank ihrer Energiesparpolitik, der geographischen Diversifizierung der Versorgungsquellen und der Umstellung auf andere Energieträger von den möglichen Auswirkungen einer Ölkrise heute weniger hart getroffen würden.

Andererseits hat das Wirtschaftswachstum in den vergangenen Jahren zu einem Ansteigen des Energieverbrauchs geführt. Außerdem wurden die Bemühungen um eine effizientere Energienutzung durch relativ niedrige Preise konterkariert. Deshalb müssen wir uns folgende Frage stellen: Wie können wir angesichts der begrenzten verfügbaren Ressourcen das Wachstum fördern und gleichzeitig die Umwelt schützen und die Versorgungssicherheit aufrechterhalten?

- Zu allererst müssen wir die Nachfrage nach Energie durch eine effizientere Energienutzung in Grenzen halten.
- Zweitens müssen wir mit den verfügbaren Energiemengen verantwortungsbewußt umgehen, um den Anforderungen des Wachstums gerecht zu werden. Hierzu gehört auch eine Verlagerung technologischer und finanzieller Ressourcen in weniger wohlhabende Regionen. Die einzige praktikable Lösung, mit deren Hilfe wir auch morgen noch billige Energie bereitstellen können, besteht darin, noch heute die Verbreitung neuer Technologiefinanzierungsmethoden zu fördern.

Eines der wichtigsten Hemmnisse für die Entwicklung innovativer Energietechnologien ist die Verfügbarkeit von Investitionsmitteln. Bei geringem Wirtschaftswachstum und niedrigen Energiepreisen reagiert der Markt nur langsam auf fortschrittliche Energietechnologien. Auf dem Markt wird für neue Investitionen ein breites Spektrum von Finanzierungsmöglichkeiten angeboten, und potentielle Investoren müssen sich für die jeweils am besten geeignete Finanzierungsmethode entscheiden.

Vor allem die folgenden vier Gründe sprechen gegen Investitionen im Energietechnologiebereich:

- **Investoren wissen nicht, welches die besten verfügbaren Energietechnologien sind.** Es gibt kosteneffiziente Technologien, die den Energieverbrauch erheblich senken können. Allerdings kommt es weltweit immer wieder vor, daß kosteneffiziente Technologien infolge mangelnder Transparenz in einem Land oder manchmal sogar einer ganzen Region außer acht gelassen werden.
- **Energiebilanzen stehen in den Firmen nicht im Vordergrund.** Angesichts neuer Prioritäten, wie etwa der Senkung der Personalkosten und der elektronischen Automatisierung, und angesichts sinkender Energiepreise zählt seit 1985 die Erstellung von Energiebilanzen zwecks Leistungsoptimierung durch Einsatz modernster Technologien nicht mehr zu den vorrangigen Zielen der Unternehmen.
- **Investitionen in Energietechnologien stehen nicht im Vordergrund.** Der Nutzen einer Investition im Energiebereich (auf den im Durchschnitt 12 % der Geschäftskosten entfallen) ist verglichen mit den Gesamtkosten zu gering, denn eine erhebliche Senkung

der Stromrechnung einer Firma führt nicht unbedingt zu einer nennenswerten Senkung der Gesamtkosten.

- **In einer Zeit, in der das Wirtschaftswachstum gering ausfällt, bestehen finanzielle Einschränkungen.** Wenn sie von anderer Seite unter Druck gesetzt werden, weil sie sich während einer Rezession dem wirtschaftlichen Umfeld anpassen müssen, sind Firmen nicht bereit, für Investitionen im Energietechnologiebereich Kapital zu mobilisieren. *Deshalb müssen Finanzierungstechniken gefunden werden, die auf die Bilanz des jeweiligen Unternehmens keine oder fast keine Auswirkungen haben.*

Nach einer kurzen Vorstellung von Finanzierungsinstrumenten, die zur Verbreitung und Anwendung effizienter Energietechnologien in Unternehmen beitragen können, sowie der Rolle, die die Kommission hinsichtlich solcher Instrumente sowohl innerhalb als auch außerhalb der EG spielt bzw. vielleicht demnächst spielen wird, schließt eine kurze Vorstellung der Programme THERMIE und SAVE diesen Überblick ab.

FINANZIERUNGSINSTRUMENTE

Obwohl viele der verfügbaren Finanzierungsinstrumente hinreichend bekannt sind, ist es wohl von Nutzen, die Alternativen, mit denen ein Investor hinsichtlich der Finanzierung konfrontiert werden kann, kurz aufzuzählen, und hinzuzufügen, welche EU-Mittel zur Förderung der Einführung effizienter Energietechnologien bereitstehen.

ZUSCHÜSSE

Zuschüsse verringern die Investitionskosten und erleichtern die Finanzierung der übrigen Investitionsanteile. Es gibt mehrere Energieprogramme, aus denen private Unternehmen investitionsfördernde zuschüsse erhalten. Ziel der EU-Programme (z.B. JOULE-THERMIE) ist nicht etwa die Verbesserung der Gewinn- und Verlustrechnung des begünstigten Unternehmens; vielmehr sollen sie zur Überwindung der technologischen und finanziellen Risiken beitragen, die mit jeder Innovationsmaßnahme einhergehen - und Innovationen sind, wie Studien der OECD und der EG belegen, ein Mittel, um den Anforderungen der Gesellschaft besser gerecht zu werden.

Es gibt auch nationale und regionale Programme, aus denen der Privatsektor Zuschüsse erhält. Bei einigen nationalen und regionalen Programmen sind die Zuschüsse, mit denen ausgewählte Projekte gefördert werden, nichts anderes als staatliche Beihilfen.

ANREIZE

Zu den nationalen Anreizen für Investitionen in innovative Technologien zählen (z.B. in Frankreich, Deutschland und Belgien) Steuererleichterungen und beschleunigte Abschreibungsmöglichkeiten. Um die mit privaten Investitionen einhergehenden Risiken insbesondere für die KMU zu reduzieren, können auch Zinssubventionen und Bürgschaften gewährt werden. Auf Gemeinschaftsebene sind Instrumente entwickelt worden, um Leasing-Arrangements, die Gewährung von Zinssubventionen (die privaten Investoren eine billige Finanzierungsquelle erschließen und folglich den Wert ihrer Investitionen steigern) und die Einrichtung von Garantiefonds zu erleichtern.

Alle genannten Beweggründe sind allerdings ordnungspolitisch bzw. politisch motiviert und nicht etwa ein Ergebnis der Kräfte des Marktes.

SELBSTFINANZIERUNG

Ein Unternehmen, das aufgrund seiner Tätigkeit über hinreichende liquide Mittel verfügt, kann seine Investitionen selbst finanzieren, ohne auf den Kapitalmarkt zurückzugreifen. Der interne Cash-flow ist für große Unternehmen auch weiterhin die wichtigste Finanzierungsquelle. Den KMU steht jedoch diese Art der Finanzierung nur selten zur Verfügung, und wenn, dann bleiben die anderen genannten Probleme bestehen. Folglich werden *Unternehmen und insbesondere KMU versuchen, fertige Pakete zu nutzen, um ihr technologisches Engagement ebenso zu minimieren wie die erforderlichen Eigenmittel.*

KAPITALBETEILIGUNG

Ein schnell wachsendes Unternehmen hat es schwer, sein Wachstum selbst zu finanzieren; es braucht Beteiligungskapital. Bei Beteiligungen an jungen Privatunternehmen spricht man im allgemeinen von Risikokapital. Um die Entwicklung von Risikokapitalgesellschaften in ganz Europa zu fördern, hat die Kommission mehrere Instrumente entwickelt, um den KMU den Zugang zu Finanzierungsmitteln zu erleichtern und Gemeinschaftsunternehmen durch Eigenfinanzierung zu unterstützen.

FREMDFINANZIERUNG

Eine Fremdfinanzierung mag den Unternehmen attraktiv erscheinen, weil die Zinszahlungen (in den meisten Fällen) steuerlich absetzbar sind; die Steuerbelastung des Unternehmens wird reduziert, und es gewinnt an Wert. Allerdings besteht die Gefahr, daß das Unternehmen wegen zu hoher Schulden in finanzielle Schwierigkeiten gerät.

Oft besteht für die Unternehmen die Möglichkeit einer Fremdfinanzierung zu günstigen Zinssätzen (z.B. über

die Europäische Investitionsbank (EIB), die ohne Erwerbscharakter arbeitet und langfristige Einzel- und Rahmenkredite an Unternehmen vergibt).
Allerdings lassen sich die eingangs erwähnten Hemmnisse mit Hilfe einer Kapitalbeteiligung oder Fremdfinanzierung (insbesondere für KMU) nicht überwinden. Dafür sind andere Finanzierungsinstrumente erforderlich.

Weitere Finanzierungsinstrumente

Immer öfter ist von einer Eindämmung der Nachfrage und von kostenoptimaler Planung die Rede. Kostenoptimale Planung ist eine Methode zur Optimierung von Investitionen im Energiesektor durch genaue Betrachtung der auf der Angebots- und der Nachfrageseite verfügbaren Optionen zur Deckung der wachsenden Nachfrage nach Energie: Mit Hilfe eines Kostenvergleichs wird durch Nutzung der neuen Versorgungsmöglichkeiten die Nachfrage gesenkt. Das Konzept stammt aus den Vereinigten Staaten, wo man bei den öffentlichen Versorgungsunternehmen eingesehen hat, daß es sich immer häufiger rentiert, nicht in neue Kraftwerke, sondern in besonders energiewirksame Anlagen zu investieren und dadurch den Stromverbrauch zu senken. Heutzutage ist es nämlich kostengünstiger, Energie zu sparen, anstatt die Stromerzeugungskapazitäten zu erweitern.
Die Eindämmung der Nachfrage soll die Verbraucher zu kosteneffektiven Investitionen in energiesparende Maßnahmen ermutigen. Die öffentlichen Versorgungsunternehmen brauchen Marketing-Strategien, um Millionen sehr verschiedener unabhängiger Entscheidungsträger vom Nutzen von Energiesparmaßnahmen zu überzeugen: Sie sollen nicht Energie verkaufen, sondern effiziente Energienutzung. Der Hauptgrund für die Einführung einer kostenoptimalen Planung in Westeuropa ist die Umwelt: Energieeffizienz ist weniger umweltbelastend als Energieverbrauch. Auch der wirtschaftliche Nutzen ist beträchtlich - nicht nur für die öffentlichen Versorgungsunternehmen, sondern auch für die Investoren.
Die Versorgungsunternehmen können ihre Strategie zur Eindämmung der Nachfrage nach Energie umsetzen, indem sie unter ihrem Dach eine Energie-Dienstleistungsgesellschaft (ESCO) einrichten, deren Aufgabe darin besteht, den Kunden Energiesparmaßnahmen vorzuschlagen und diese vor Ort umzusetzen. Bei der Einführung von Energiesparmaßnahmen bedienen sich die ESCOs der Drittfinanzierung.

Drittfinanzierung

Das Konzept der Drittfinanzierung wurde entwickelt, um Unternehmen in die Lage zu versetzen, Investitionen zu finanzieren, ohne daß sich dies in ihren Bilanzen niederschlägt. Der Nutzer der wirtschaftlichen Energietechnologien trägt also die anfänglichen Aufwendungen nicht selbst. Stattdessen leistet er an den Technologieanbieter Rückzahlungen, deren Höhe von der Leistung der gelieferten Technologien abhängt. Zur Drittfinanzierung gehören stets technische Hilfeleistungen und die Erstellung von Energiebilanzen vor Ort. Der Nutzer braucht sich also mit den technischen Aspekten nicht zu befassen. Das Dienstleistungsspektrum der ESCO umfaßt die Bereiche Technik, Finanzen und Marketing; sie erstellt ausführliche Energiebilanzen und trifft eine Auswahl unter den verfügbaren zuverlässigen Technologien, damit die angestrebten Energieeinsparungen auch tatsächlich erreicht werden.

Allgemeine Begriffsbestimmung

Die Grundlage jeder Drittinvestition bildet ein Vertrag zwischen einem Privatunternehmen bzw. einer öffentlichen Einrichtung und einer Energie-Dienstleistungsgesellschaft (ESCO), die für Investitionen zur Verbesserung des Energiewirkungsgrads in allen Phasen die Verantwortung übernimmt.
Die ESCO finanziert alle Investitionskosten (Entwurf, Planung, Materialien, Arbeit, Inbetriebnahme, Leistungsüberprüfung und Kontrolle). Die gesamten Investitionskosten werden - proportional zu den erzielten Energieeinsparungen - zurückgezahlt. Die Finanzierung erstreckt sich sowohl auf den materiellen als auch auf den immateriellen Teil der Investition.

Die Vorteile der Drittfinanzierung

- Das Dienstleistungsangebot einer unabhängigen Investitionsgesellschaft:

Ein Weg zur Überwindung der mit energienutzungsspezifischen Investitionen einhergehenden Hindernisse führt über eine geeignete, auf lange Rückzahlungsfristen spezialisierte unabhängige Investitionsgesellschaft. Diese ist vielleicht bereit, die Finanzierung der Investition voll zu übernehmen; auf jeden Fall bringt sie personelle Ressourcen und technische Fähigkeiten mit ein, und natürlich sorgt sie auch für die Absicherung von Risiken. Die unabhängige Investitionsgesellschaft stellt fest, welche Investitionen getätigt werden müssen, um Energie einzusparen; sie berät den Kunden und bietet ihm die zur Verwirklichung des Projekts notwendigen Dienstleistungen und Finanzmittel.
Die Gesellschaft übernimmt unter anderem folgende Aufgaben:
- wirtschaftliche und finanzielle Bewertung des Projekts;
- Treffen finanzieller Regelungen und Bereitstellung von Mitteln, um schnelle Investitionsentscheidungen zu ermöglichen;

- Vertretung und Wahrung der Interessen des Kunden;
- Leistungskontrolle nach Inbetriebnahme.

• Finanzielle Vorteile :

Die Drittfinanzierung ist eine Form der Vollfinanzierung unter Wahrung des Eigenkapitals und der Kreditlinie des Begünstigten. Die Investition wird im allgemeinen nicht als Handelsschuld aufgelistet und hat keinerlei Auswirkungen auf die finanzielle Unabhängigkeit des begünstigten Unternehmens. Die Zahlungspläne brauchen den voraussichtlichen Erfolg oder Mißerfolg des Projektes nicht zu berücksichtigen. Zwischen den mit Hilfe der Investition erzielten Einsparungen und der Höhe der Rückzahlungen besteht ein unmittelbarer Zusammenhang; dies ist bei konventionellen Krediten nicht der Fall.

• Vertragsgarantien: Die unabhängige Investitionsgesellschaft garantiert:

- die Obergrenze für die Projektkosten (Mehrbeträge übernimmt die Investitionsgesellschaft);
- den Termin für die Fertigstellung;
- die Funktionsfähigkeit der Anlagegüter für die gesamte Projektlaufzeit;
- den ständigen Zugang des Kunden zu Konten und Belegen mit Bezug auf seine Investitionen.

• Vertragslaufzeit:

Ein Maximalzeitraum für die Rückzahlungen wird vertraglich festgelegt. Nach Ablauf der Höchstlaufzeit des Projektes noch offene Forderungen werden storniert und von der unabhängigen Investitionsgesellschaft übernommen. Eine vorgezogene Rückzahlung von Investitionen ist möglich, sofern der Kunde dies wünscht.

Die Rolle der EU : Hilfekeistungen beim lösen der Finanzierungsprobleme

Die Europäische Kommission hat eine Reihe gezielter Programme und Regelungen geschaffen, um die Finanzierung besonders förderungswürdiger Projekte zu erleichtern.

Zuschüsse und Anreise

Die Programme THERMIE und SAVE

Europas wirtschaftliches und industrielles Umfeld, das auf die Verwirklichung des Binnenmarktes ausgerichtet ist, braucht eine solide Grundlage im Energiebereich. Die Energielage in der Gemeinschaft leidet noch immer an Sicherheitsmängeln, regionalen Unterschieden und ungelösten Umweltproblemen. Eine Möglichkeit, diese Probleme zu lösen, besteht in der Entwicklung und Nutzung neuer Energietechnologien. Deshalb hat der Rat der Europäischen Union schon seit 1974 eine Reihe von Programmen zur Förderung der Energietechnologien in Europa eingeleitet.

Am 23. November 1994 stimmte der Rat der jüngsten Initiative zu, dem neuen JOULE-THERMIE-Programm, einem spezifischen Programm für FTE, einschließlich Demonstration, im Bereich der nichtnuklearen Energie. Der die Förderung und Demonstration betreffende Teil des Programms wird natürlich durch THERMIE abgedeckt, das nach einem von 1990 bis 1994 durchgeführten Programm mit ähnlichen Zielsetzungen benannt worden ist. Erstmals ist THERMIE im FTE-Rahmenprogramm der EU enthalten, wodurch die Zusammenarbeit mit anderen FuE-Programmen verbessert wird. Das neue Programm stützt im Zusammenhang mit einer neuen spezifischen Forschungsaktion das Gemeinschaftskonzept in den miteinander verflochtenen Bereichen Energie, Umwelt und Wirtschaft. Das THERMIE-Programm läuft von 1994 bis 1998 und verfügt über einen Gesamthaushalt von 532 Mio. ECU. Seine wichtigsten Zielsetzungen sind:

- Verbesserung der Energieeffizienz im Angebots- und Nachfragebereich;
- Förderung der verstärkten Einbeziehung erneuerbarer Energiequellen;
- Unterstützung eines saubereren Einsatzes der Kohle und anderer fester Brennstoffe;
- Optimierung der Nutzung der Öl- und Gasvorkommen in der EU.

Das THERMIE-Programm bedient sich folgender Formen der Förderung:

• unmittelbare finanzielle Unterstützung für Projekte in den Bereichen rationelle Energienutzung, erneuerbare Energien und feste Brennstoffe;

• finanzielle Unterstützung für sonstige Aktivitäten, z.B.:

- Demonstrationsvorhaben im Energiebereich,
- Verbreitung von Energietechnologien,
- vorbereitende, flankierende und unterstützende Maßnahmen und
- Technologieförderung für KMU.

Die meisten anderen Aktivitäten werden über das Netz von Organisationen zur Förderung von Energietechnologien (OPET) durchgeführt, dem gegenwärtig 49 öffentliche oder private, nationale oder regionale Institutionen aus den Mitgliedstaaten angehören.

SAVE ist ein Fünfjahresprogramm der Gemeinschaft im Energiesparbereich. Es wurde 1991 eingeleitet, um die Mitgliedstaaten bei der Ankurbelung und Koordinierung ihrer nationalen Programme für eine effizientere Energienutzung zu unterstützen. Es ging um die Verwirklichung eines umfassenden Pakets gesetzgeberischer Maßnahmen, unterstützt von Pilotprojekten, und um die Verbesserung des Informationsaustausches unter den Mitgliedstaaten sowie zwischen der Gemeinschaft und anderen Interessenten. Ein im wesentlichen unverändertes

Folgeprogramm, SAVE II, ist für den Zeitraum vom 1. Januar 1996 bis zum 31. Dezember 2000 geplant.

Spezifische Initiativen zur Drittfinanzierung

Die EG fördert die Drittfinanzierung, indem sie das von der GD XVII entwickelte SAVE-Programm und das von der GD XIII im Rahmen des SPRINT-Programms ausgearbeitete System der Technologiefinanzierung mit ertragsabhängigen Rückzahlungsmodalitäten (TPF) finanziert. In beiden Fällen kann THERMIE durch Auswahl für eine Drittfinanzierung geeigneter Projekte einen wichtigen Beitrag leisten.

Am 26. Juni 1992 legte die Kommission einen Vorschlag für eine Richtlinie im Rahmen des SAVE-Programms vor; er enthält eine Reihe von Maßnahmen einschließlich der Förderung der Drittfinanzierung von Energiesparinvestitionen im öffentlichen Bereich. Diese Maßnahme bewirkt eine effizientere Energienutzung und folglich eine Verringerung der CO_2-Emissionen.

Die THERMIE-Verordnung bietet der Kommission die Möglichkeit, erforderlichenfalls nach dem in der Verordnung vorgeschriebenen Verfahren andere geeignete Finanzierungsmechanismen einzurichten.

Da der Markt neue Finanzierungsinstrumente, wie zum Beispiel die Drittfinanzierung, dringend braucht, ist es die Aufgabe von THERMIE (gemeinsam mit SAVE), alle an der Drittfinanzierung Beteiligten zu motivieren und zu überzeugen: unternehmensfremde Investoren (Banken und andere Finanzeinrichtungen), Energieversorgungsunternehmen, technische Planungsbüros und Beratungsfirmen (potentielle ESCOs), Hersteller und Anbieter von Anlagegütern sowie Technologieanwender. Das Netzwerk von OPETs spielt bei der Anbahnung und Förderung der Drittfinanzierung eine Schlüsselrolle.

Strategien für die nahe Zukunft

- Ein Dauerproblem der Industrie in der EG und in allen Ländern mit THERMIE-Aktivitäten besteht darin, daß es selbst bei lukrativen Investitionen schwierig sein kann, die erforderlichen Finanzierungsmittel zu beschaffen. Die Finanzeinrichtungen sind nicht sehr risikofreudig und können bei allen Finanzierungsformen hohe Zinssätze verlangen.
- Die Gemeinschaft kann den Unternehmen den Zugang zu Finanzierungsmitteln erleichtern. Sie kann
  - dazu beitragen, daß der Technologiemarkt transparenter wird. Wenn sie über mehr Informationen verfügen, können die Finanzeinrichtungen die Risiken besser abschätzen und billigere Kredite bereitstellen;
  - durch Vergabe von Zuschüssen für Projekte, die aufgrund erheblicher technischer und wirtschaftlicher Risiken schwer finanzierbar sind ,die Investitionskosten senken und somit durch gleichzeitige Wahrung des Gewinniveaus den Projektwert steigern;
  - sie kann den Unternehmen den Zugang zu Kapitalbeteiligungen erleichtern, indem sie die Risikokapitalmärkte innerhalb und außerhalb der EG belebt;
  - sie kann durch Kreditbürgschaften, Zinssubventionen und andere nicht-marktorientierte Maßnahmen weitere Investitionen fördern.
- Die Drittfinanzierung ist offensichtlich das geeignetste Finanzierungsinstrument zum Abbau der von den Marktkräften verursachten Hemmnisse. Folglich werden große Anstrengungen unternommen, um die Drittfinanzierung zu fördern. Zu diesem Zweck ist es erforderlich,
  - die Komplementarität der Programme SAVE und THERMIE für die Förderung der Drittfinanzierung besser zu nutzen. Die Aufgaben von THERMIE bestehen hierbei vor allem darin,

(i) durch finanzielle Unterstützung von Innovations- oder Verbreitungsvorhaben aus gemeinschaftlichen oder einzelstaatlichen Programmen innovative Energietechnologien zu entwickeln und/oder zu fördern, die Modellcharakter haben, zu erheblichen Energieeinsparungen führen und sich positiv auf die Umwelt auswirken;

(ii) für die Anwendung und Marktdurchdringung "marktfertiger" Energietechnologien, die dieselben Merkmale aufweisen wie die geförderten Projekte, intensiv zu werben;

(iii) Expertenwissen über energiespezifische Finanzierungsmodalitäten, z.B. über die Drittfinanzierung, vor allem mit Hilfe des OPET-Netzwerks zu verbreiten und anzubieten. Diese Aktivitäten sind länderspezifisch auszurichten und in denjenigen Ländern, in denen es keine ESCOs gibt, entsprechend anzupassen;

  - die Finanzeinrichtungen dazu zu bewegen, mehr Mittel für Drittfinanzierungsgeschäfte bereitzustellen. Wenn die Drittfinanzierung erst einmal Schule gemacht hat, sollen die Finanzeinrichtungen zu Hauptakteuren bei der Propagierung der Drittfinanzierung werden;
  - unter Einbeziehung der Finanzeinrichtungen und möglicherweise der Energieversorgungsunternehmen ein Netz von Drittfinanzierungsgesellschaften (Energie-Dienstleistungsgesellschaften, ESCOs) einzurichten;
  - internationale Joint-Ventures mehrerer ESCOs bei besonders großen Projekten bzw. bei einer Reihe ähnlicher Projekte zu fördern, um das Risiko auf mehrere Energie-Dienstleistungsgesellschaften zu verteilen bzw. die Verbreitung erfolgreicher Initiativen zu fördern;

in Zukunft unter Verwendung eines Teils der Mittel des THERMIE-Programms den Finanzeinrichtungen und

Drittfinanzierungsgesellschaften, die ja auf dem Markt für das Produkt "Drittfinanzierung" werben sollen, Anreize zur Intensivierung ihres Engagements zu bieten;
- in einer zweiten Phase gemeinsam mit nationalen und internationalen Finanzeinrichtungen die Möglichkeiten für eine Ausdehnung der Drittfinanzierung auf alle Länder zu prüfen, in denen das THERMIE-Programm angewandt werden kann (Mitgliedstaaten, Lateinamerika, Osteuropa, GUS, baltische Staaten usw.).

SCHULSSFOLGERUNGEN

Es gibt viele Gründe, hinsichtlich der Drittfinanzierung im Rahmen von SAVE und THERMIE (sowie weiterer einschlägiger Referate und Programme) gemeinsame Anstrengungen zu unternehmen, um eine optimale gegenseitige Befruchtung der einzelnen Gemeinschaftsprogramme zu gewährleisten. Durch einen umfassenderen Einsatz dieser Technik erreichen wir nicht nur energiepolitische, umweltpolitische und technologische Ziele, sondern auch eine Verbesserung der Beschäftigungssituation in der Europäischen Union.
Abschließend sei bemerkt, daß zwar die Kraft-Wärme-Kopplung zweifellos zu den zukunftsweisenden Technologien zählt, daß wir aber nie vergessen dürfen, daß jedes Projekt einen Einzelfall darstellt, und daß noch immer erhebliche Fortschritte zu erzielen sind.
Deshalb muß jeder Entscheidung in diesem Bereich eine technische und wirtschaftliche Durchführbarkeitsstudie vorausgehen, in der folgende Faktoren Berücksichtigung finden:

- die Preise der eingesetzten Brennstoffe;
- der Einkaufspreis für zusätzliche und zusätzlich bereitgestellte Elektrizität;
- die Rückzahlungszeit;
- der bei der Abgabe überschüssiger Energie an das Netz erzielbare Verkaufspreis.

DER MARKT FÜR FESTE BRENNSTOFFE IN DER GEMEINSCHAFT 1994 UND AUSSICHTEN FÜR 1995

Von J. Piper, GD XVII
Referat Feste Brennstoffe

Vor kurzem veröffentlichte die Europäische Kommission ihren neuesten Jahresbericht über den Markt für feste Brennstoffe (Steinkohle, Koks, Braunkohle und Torf) in der Gemeinschaft. Er enthält die aktuellen Schätzungen der Regierungen der Mitgliedstaaten für 1994 und die Prognosen für das laufende Jahr. Dieser Bericht ist gemäß Artikel 46 EGKS-Vertrag erforderlich: Um allen Beteiligten Hinweise für ihre Tätigkeit zu geben und um ihr eigenes Handeln zu bestimmen, hat die Kommission Marktentwicklung und Preistendenzen zu untersuchen.
Über die im Januar 1995 beigetretenen neuen Mitgliedstaaten - Österreich, Finnland und Schweden - standen für den Bericht noch keine einheitlichen Angaben zur Verfügung. Deshalb bezeichnen die Ausdrücke "Gemeinschaft" bzw. "Europäische Union" durchgehend die zwölf Mitgliedstaaten von Ende 1994. Die wichtigsten Energiedaten der neuen Mitgliedstaaten werden am Schluß des Berichts in einem eigenen Kapitel dargestellt.
1994 hat sich die Wirtschaftstätigkeit in der Gemeinschaft spürbar belebt. Das reale BIP dürfte über das ganze Jahr hin um mehr als 2 1/2 % gewachsen sein. Für das laufende Jahr wird mit einem BIP-Wachstum um rund 3 % gerechnet. Dementsprechend könnte der Energiebedarf 1994 gegenüber dem Vorjahr um insgesamt rund 1 1/2 % zugenommen haben. Legt man die derzeitigen Vorhersagen zugrunde und geht von normalen Witterungsverhältnissen aus, könnte er in diesem Jahr weiter steigen.

Die Produktion fester Brennstoffe in der Gemeinschaft

Die Steinkohleförderung in der Gemeinschaft steht auch weiterhin unter dem Einfluß der Maßnahmen zur Umstrukturierung, Rationalisierung, Modernisierung und Verbesserung der Wettbewerbsfähigkeit. Es wird davon ausgegangen, daß die Gesamtproduktion von 158,6 Mio. t im Jahre 1993 auf 132 Mio. t im Jahre 1994 zurückgegangen ist. Die größten Veränderungen gab es im Vereinigten Königreich (wo die Fördermenge um schätzungsweise 18,9 Mio. t, also fast 28 % gesunken ist), in Deutschland (mit einem Rückgang um 6,6 Mio. t bzw. 10,4 %) und Frankreich (mit einem Rückgang um 1,1 Mio. t bzw. 13,0 %). In Spanien dürfte dagegen die Steinkohleproduktion um 0,1 Mio. t gestiegen sein, hauptsächlich infolge des verstärkten Tagebaus, der den Rückgang der Untertageförderung mehr als wettgemacht haben dürfte. Portugal hat sein letztes Steinkohlenbergwerk 1994 stillgelegt.
Demgegenüber werden für 1995 die geringsten Veränderungen bei der Gesamtproduktion der Gemeinschaft seit Anfang der achtziger Jahre erwartet. Die aktuellen Schätzungen gehen von rund 130,4 Mio. t aus, das sind nur rund 1,6 Mio. t weniger als 1994. Die größten Rückgänge von jeweils 3,3 % werden im Vereinigten Königreich (1,6 Mio. t) und in Spanien (0,6 Mio. t) erwartet. Frankreich und Deutschland könnten dagegen eine Produktionszunahme um 0,2 Mio. t bzw. 0,6 Mio. t registrieren.
Die Braunkohleförderung in der Gemeinschaft dürfte 1994 etwa 284 Mio. t betragen haben, das sind 14,5 Mio. t bzw. 4,8 % weniger als im Vorjahr. Dies ist auf die geringere Förderung in Deutschland (13,5 Mio. t weniger) und Spanien (2,0 Mio. t weniger) zurückzuführen, da Griechenland die Förderung um fast 2,2 Mio. t ausgeweitet haben dürfte. Für 1995 wird mit einer weiteren Abnahme der gesamten Braunkohleförderung in der Gemeinschaft um 5,3 % bzw. 15 Mio. t auf 269 Mio. t gerechnet. Auch bei der Braunkohle dürfte nur Griechenland seine Produktion erheblich steigern (um 1 Mio. t auf 58 Mio. t), während in Deutschland mit einem weiteren Rückgang der Produktion um etwa 15,6 Mio. t auf einen neuen Tiefstand von 192,7 Mio. t gerechnet wird.
Bei der Koksproduktion ist eine Fortsetzung des stetigen Rückgangs der letzten Jahre zu erwarten. 1994 ging sie um 4,5 % bzw. 1,7 Mio. t auf 37,7 Mio. t

zurück, und für 1995 ist ein weiterer Rückgang um 1,8 % bzw. 0,7 Mio. t zu erwarten. Indessen scheint sich das Verhältnis Koksproduktion/Nominalkapazität zu verbessern, weil die Produktionskapazitäten noch drastischer reduziert worden sind. Da die Stahlindustrie rund 90 % des am Binnenmarkt verfügbaren Koks abnimmt, ist es angesichts der strukturellen und technologischen Veränderungen in diesem Industriezweig (einschließlich der zunehmenden Rohstahlherstellung in Elektroöfen) nicht verwunderlich, daß die Koksproduktion in der Gemeinschaft stetig abnimmt.

Die Zahl der in der Gemeinschaft im Jahresdurchschnitt unter Tage beschäftigten Arbeitnehmer ist 1993 um 27.900 und 1994 voraussichtlich erneut um etwa 18.800 bzw. 15 % zurückgegangen und hat einen neuen Tiefstand von etwa 106.700 erreicht. Rund die Hälfte dieses Arbeitskräfteabbaus entfällt auf das Vereinigte Königreich, gefolgt von Deutschland mit einem Drittel. Für 1995 wird davon ausgegangen, daß sich der Stellenabbau in wesentlich gemäßigterem Tempo vollzieht, weil die Umstrukturierung des Bergbaus im Vereinigten Königreich zum größten Teil abgeschlossen ist. Die Zahl der verlorenen Arbeitsplätze könnte für 1995 bei 4.500 liegen, und diese werden weitgehend auf Deutschland und Spanien entfallen.

Die Produktivität nimmt weiter zu, eine logische Folge der Umstrukturierungsmaßnahme in allen kohleproduzierenden Mitgliedstaaten, wo die unwirtschaftlichsten Zechen stillgelegt werden. Die Produktivität stieg gemeinschaftsweit von 762 kg/Mannstunde im Jahre 1993 auf 768 im Jahre 1994. 1995 könnte sie auf etwa 800 kg/Mannstunde ansteigen.

Die Nachfrage nach festen Brennstoffen in der Gemeinschaft

In dem Bericht wird hervorgehoben, daß die Gesamtnachfrage nach festen Brennstoffen - gemessen am Bruttoinlandsverbrauch - 1994 im Vergleich zum Vorjahr um etwa 1 % zurückgegangen ist. Dies ist größtenteils auf den Rückgang der Nachfrage nach Braunkohle um 5 % zurückzuführen, denn der Steinkohleverbrauch könnte sich sogar um 1 % erhöht haben. Für 1995 wird ein ähnlicher Trend erwartet: einer bescheidenen Erhöhung des Steinkohlebedarfs steht ein weiterer Rückgang des Braunkohlebedarfs gegenüber.

Es wird davon ausgegangen, daß die Steinkohlelieferungen in der Gemeinschaft erheblich zurückgegangen sind, und zwar auf 259,7 Mio. t im Jahre 1994, das sind 14,2 Mio. t bzw. 5,2 % weniger als 1993. Dies ist nach den vorausgegangenen zwei Jahren signifikanten Rückgangs die niedrigste Zahl, die in der Gemeinschaft je registriert wurde. Eine genauere Betrachtung dieser Zahlen zeigt jedoch, daß dieser Rückgang hauptsächlich auf die Veränderungen im Vereinigten Königreich zurückzuführen ist: Würde dieses Land von den Gesamtergebnissen ausgenommen, wiesen die inländischen Gesamtlieferungen einen Zuwachs von fast 2 Mio. t gegenüber dem Vorjahr aus. Außerdem ist es wichtig festzustellen, daß die Rückgänge am stärksten die Gemeinschaftskohleproduzenten treffen, mit Spanien als einziger Ausnahme.

Die Prognosen für 1995 besagen, daß das Volumen der internen Steinkohlelieferungen in der Gemeinschaft um 0,4 % bzw. 1,0 Mio. t auf 260,8 Mio. t ansteigen wird. Das bedeutet, daß sich der rückläufige Trend, der eine Schrumpfung dieses Marktes um 72 Mio. t seit 1991 herbeigeführt hat, erstmals umzukehren scheint.

Aus den Schätzungen für den tatsächlichen Steinkohleverbrauch im Jahre 1994 geht allerdings hervor, daß den kraftwerkseigenen Haldenbeständen 15 Mio. t entnommen wurden. Deshalb könnte es sich erweisen, daß der Verbrauch 1994 in etwa dem des Jahres 1993 entspricht. Eine ähnlich umfangreiche Entnahme aus Haldenbeständen könnte auch 1995 erfolgen, so daß der Steinkohleverbrauch in der Gemeinschaft relativ stabil bleibt.

Einfuhren in die Gemeinschaft

Der Bericht konstatiert, daß die Steinkohleinfuhren aus Drittländern 1994 gegenüber dem Vorjahr um 4,0 Mio. t bzw. 3,5 % zugenommen haben dürften. Davon entfallen auf die Kokskohle etwa 26,5 %, der Rest sind Kraftwerkskohlequalitäten. (Die Zunahme entfiel im wesentlichen auf die letzteren.)

Die Länder mit den größten Veränderungen gegenüber dem Vorjahr sind Belgien mit einer Zunahme um 1,8 Mio. t, gefolgt von Dänemark mit 1,5 Mio. t und den Niederlanden mit 1,1 Mio. t. Nur im Vereinigten Königreich und in Frankreich sind die Einfuhren - um 1,9 Mio. t bzw. 0,9 Mio. t - zurückgegangen. Im Vereinigten Königreich haben die Elektrizitätserzeuger vermehrt auf Erdgas zurückgegriffen; die Kernkraftwerke haben bessere Leistungen erbracht, und die hohen Steinkohlen-Haldenbestände wurden systematisch abgebaut. In Frankreich zeigt die Verringerung der Einfuhren, daß die Kernkraftwerke gut genutzt werden und die Stromgewinnung aus Wasserkraft zugenommen hat.

Für 1995 könnten die Steinkohleeinfuhren in die Gemeinschaft wiederum - wenn auch nur geringfügig - zunehmen, und zwar um 2,4 Mio. t auf 122,4 Mio. t. Die meisten Mitgliedstaaten sagen eine geringfügige Zunahme der Einfuhren voraus. Die größte Zunahme

(um 1,3 Mio. t) wird in Deutschland erwartet. Allerdings rechnen sowohl das Vereinigte Königreich als auch die Niederlande mit einem Rückgang der Einfuhren (um 1,0 Mio. t bzw. 0,4 Mio. t).
Auf der Angebotsseite bleiben die Vereinigten Staaten 1994 mit einem Marktanteil von 27 % der größte Lieferant der Gemeinschaft, gefolgt von Südafrika mit 23 % und Australien mit 17 %. Es wird mit geringen Zunahmen gerechnet, die sich auf die meisten der traditionellen Lieferländer verteilen. Für Australien, Polen und die Vereinigten Staaten werden Zunahmen erwartet (1,7 Mio. t bzw. 1,6 Mio. t bzw. 1,0 Mio. t), die Lieferungen aus der GUS und aus Kolumbien werden voraussichtlich geringer als im Vorjahr ausfallen.
Für 1995 werden signifikante Verschiebungen bei den Lieferländern nicht erwartet. Am meisten könnten Südafrika und Polen an Marktanteilen hinzugewinnen.
Die cif-Preise (Kosten, Versicherung, Fracht) waren 1994 sowohl für eingeführte Kokskohle als auch für eingeführte Kesselkohle - ausgedrückt in USD - im Durchschnitt um etwa 4 % niedriger als im Vorjahr. Allerdings sind die Preise angesichts der Angleichung von Angebot und Nachfrage auf dem Weltmarkt (wo jahrelang erhebliche Überschüsse zu verzeichnen waren) und einer ungewöhnlich starken Erhöhung der Seefrachtraten erheblich unter Druck geraten. In Anbetracht der seit kurzem zu verzeichnenden Angebotsverknappung bei Kohle auf den Spotmärkten ist 1995 vor allem bei der Kesselkohle mit Preissteigerungen zu rechnen.

Die neuen Mitgliedstaaten

Der Bericht enthält einen Überblick über die wichtigsten Energiedaten der neuen Mitgliedstaaten.
In **Österreich** deckt die Kohle etwa 13 % des Bruttoenergieverbrauchs. Österreich hat keinen Steinkohlenbergbau, dafür aber einen rückläufigen Braunkohlenbergbau mit einer Produktion von zur Zeit etwa 0,5 Mio. t RÖE. Ein Großteil der eingeführten Steinkohle stammt aus Polen. Elektrizität wird zu 65 bis 70 % aus Wasserkraft, zu 14 % aus Erdgas und zu 11 % aus festen Brennstoffen gewonnen.
In **Finnland** werden etwa 13 % der Gesamtnachfrage nach Energie durch Steinkohle gedeckt, 19 % durch sonstige feste Brennstoffe. Da Finnland weder Steinkohle noch Braunkohle produziert, ist Torf der wichtigste inländische Energieträger. Die meisten Steinkohleeinfuhren kommen aus Polen oder Rußland. Elektrischer Strom stammt zu 24 % aus Kernkraft, zu 26 % aus Wasserkraft, zu 15 % aus anderen festen Brennstoffen und zu 14 % aus Steinkohle.
In **Schweden** deckt die Steinkohle etwa 5,1 % des Gesamtenergiebedarfs und weniger als 2 % der Primärenergie zur Stromgewinnung. Elektrizität wird in Schweden zu 51 % aus Wasserkraft und zu fast 44 % aus Kernkraft gewonnen, obwohl sich das Land verpflichtet hat, aus der Kernenergie bis zum Jahr 2010 auszusteigen, sofern umweltgerechte Alternativen verfügbar sind

Tabelle 1 : Vergleich der wichtigsten Daten des Marktes für feste Brennstoffe (in Mio. t)

	1993 Ist-Zahlen	1994 vorläufige Zahlen	1995 Voraus-schätzungen	1994/1993 jetzt/ Voraus. (%)**	1995/1994 (%)**
STEINKOHLE					
Herkunft					
eigene Förderung	158,6	132,0	130,4	- 16,8	- 1,2
Wiedergewinnung	2,5	1,5	1,7	- 38,6	7,5
Einfuhren aus Drittländern	115,9	120,0	122,4	3,5	2,0
Insgesamt	**277,1**	**253,5**	**254,4**	**- 8,5**	**0,4**
Lieferungen:					
Kokereien	52,5	50,4	50,9	- 4,0	0,9
Verstromung	183,6	172,0	172,2	- 6,3	0,1
Sonstige	37,9	37,3	37,7	- 1,5	1,0
Ausfuhren nach Drittländern					
Insgesamt	0,4	0,3	0,3	- 18,0	- 5,2
	274,3	**260,0**	**261,0**	**- 5,2**	**0,4**
KOKS					
Herkunft					
eigene Produktion	39,4	37,7	37,0	- 4,5	- 1,8
Einfuhren aus Drittländern	3,1	3,7	3,8	18,6	3,3
Insgesamt	**42,5**	**41,4**	**40,8**	**- 2,8**	**- 1,3**
Lieferungen					
Stahlindustrie	37,1	39,4	38,3	6,2	- 2,9
Sonst. Lieferungen innerh. der Gemeinschaft	4,8	4,1	3,8	- 14,4	- 7,5
Ausfuhren nach Drittländern	0,7	0,7	0,6	1,0	- 15,3
Insgesamt	**42,6**	**44,2**	**42,7**	**3,28**	**- 3,6**
BRAUNKOHLE UND TORF					
Herkunft					
eigene Produktion und Einfuhren					
Lieferungen	301,5	286,7	271,7	- 4,9	- 5,2
Brikettfabrikanten					
Verstromung	47,7	38,4	33,4	- 19,6	- 12,8
Sonst. (einschl. Ausfuhren nach Drittländern)	233,8	229,9	221,8	- 1,6	- 3,5
Insgesamt	20,0	18,8	16,5	- 6,2	- 12,2
	301,5	**287,1**	**271,7**	**- 4,8**	**- 5,3**

DIE ZUSAMMENARBEIT DER EU MIT MITTEL-UND OSTEUROPA IM BEREICH DER NICHTNUKLEAREN ENERGIEN

Von P. Nagy, DG XVII
Referat Zusammenarbeit mit Drittländern im Energiebereich

EINLEITUNG

Die Europäische Union und die anderen Staaten der westlichen Welt reagierten prompt und geeint auf die großen Herausforderungen, die die Ereignisse von 1989 in Mittel- und Osteuropa mit sich brachten. Unter der Voraussetzung, daß sie sich zur Demokratie bekannten und sich zu einer Neustrukturierung ihrer Wirtschaftssysteme nach den Prinzipien des freien Wettbewerbs bereitfanden, erwarben die mittel- und osteuropäischen Länder (MOEL) das Recht, neue Formen der Förderung und Zusammenarbeit zu beanspruchen.

Mit der Koordinierung der Unterstützung der MOEL von seiten der 24 OECD-Staaten beauftragten die G7-Staaten auf dem Pariser "Arche-Gipel" am 14. Juli 1989 die Europäische Kommission. Die Förderung der EU selbst erstreckt sich auch auf den Energiesektor; sie erfolgt hauptsächlich im Rahmen von PHARE, aber auch über spezifische Programme zur Förderung der Zusammenarbeit im Energiebereich, wie SYNERGY und THERMIE. Ferner besteht die Möglichkeit einer Zusammenarbeit mit mittel- und osteuropäischen Ländern (im Energiebereich) mit Hilfe von Darlehen, die nach den einschlägigen Bestimmungen des EGKS- und des Euratom-Vertrags sowie von der Europäischen Investitionsbank gewährt werden. Die energiepolitische Zusammenarbeit zwischen der EU und den MOEL wird von der Europäischen Energiecharta und von zahlreichen bilateralen Abkommen gesteuert. Sogenannte *Europa-Abkommen* (Assoziationsabkommen) sind bisher mit neun Staaten unterzeichnet worden (mit den baltischen Staaten, Polen, der Tschechischen Republik, der Slowakei, Ungarn, Rumänien und Bulgarien), es bestehen Abkommen über die handelspolitische und wirtschaftliche Zusammenarbeit mit Slowenien und Albanien; über ein Kooperationsabkommen mit Kroatien wird verhandelt.

Seit dem Europäischen Rat von Kopenhagen im Juni 1993 sind die Beziehungen der EU zu und ihre Zusammenarbeit mit den assoziierten Ländern auf einen zukünftigen Beitritt ausgerichtet; allerdings gibt es bisher noch keinen offiziellen Zeitplan. In diesem Zusammenhang ist festzustellen, daß Polen, Ungarn, die Slowakei, Rumänien und Lettland bereits ihre Beitrittsgesuche eingereicht haben. Eine diesbezügliche Standortbestimmung wird von der Regierungskonferenz der derzeitigen 15 Mitgliedstaaten erwartet, auf der eine institutionelle Reform und die Zukunft der EU ebenso erörtert werden sollen wie die derzeitigen Verträge und Entscheidungsverfahren.

Gegenwärtig dient die auf dem Gipfel des Europäischen Rates im Dezember 1994 in Essen festgelegte *Strategie zur Vorbereitung des Beitritts* den assoziierten MOEL als Leitfaden für die Vorbereitung auf die Mitgliedschaft in der EU.

STRATEGIE ZUR VORBEREITUNG DES BEITRITTS

Die Strategie zur Vorbereitung des Beitritts erstreckt sich nur auf die obengenannten assoziierten MOEL. Ihre wichtigsten Instrumente sind der "strukturierte Dialog" zwischen der EU und den Institutionen der MOEL sowie die *Europa-Abkommen*. Beide behandeln auch Energiefragen, wie im folgenden näher ausgeführt werden soll.

Die strukturierten Beziehungen umfassen gemeinsame (multilaterale) EU-MOEL-Tagungen auf Ministerebene wie zum Beispiel gemeinsame Ratstagungen "Energie". In diesem Stadium werden Energiefragen auch - je

nach Zusammenhang - auf anderen gemeinsamen Ratstagungen behandelt (z.B. auf den Ratstagungen "Wirtschaft und Finanzen", ECOFIN, wenn es um transeuropäische Netze geht), ferner in den nach den Bestimmungen der Europa-Abkommen eingerichteten Gremien.

Die strukturierten Beziehungen erstrecken sich ferner auf den zweiten und dritten Pfeiler der EU gemäß dem Vertrag über die Europäische Union (EUV oder Vertrag von Maastricht), die auch Auswirkungen auf den Energiesektor haben. Einschlägige Beispiele sind die Herausbildung des Konzepts der Energieversorgungssicherheit als Faktor der Gemeinsamen Außen- und Sicherheitspolitik sowie die Diskussion über den illegalen Handel mit Kernmaterial im Rahmen der Zusammenarbeit in den Bereichen Justiz und Inneres.

Wichtigstes Merkmal der Strategie zur Vorbereitung des Beitritts ist die schrittweise Vorbereitung der MOEL auf den (Energie)binnenmarkt, unterstützt von einer Reihe flankierender Maßnahmen wie der Entwicklung der transeuropäischen Netze.

Die Vorbereitung der MOEL auf einen künftigen Beitritt zur Union könnte dementsprechend folgendermaßen ablaufen:

- vom ständigen Dialog begleitete Harmonisierung der Energiepolitiken (wobei die sich laufend weiterentwickelnde Energiepolitik der EU, dargelegt im Grünbuch vom Januar 1995 und im für Ende 1995 zu erwartenden Weißbuch, natürlich eine herausragende Rolle spielen wird);
- Angleichung der Energiegesetzgebung der MOEL an den gemeinschaftlichen Besitzstand im Energiebereich (wie dies in dem auf der Tagung des Europäischen Rates in Cannes im Juni 1995 angenommenen Weißbuch über die Vorbereitung der assoziierten Staaten Mittel- und Osteuropas auf die Integration in den Binnenmarkt der Union dargelegt ist, das auch ein Kapitel über Energie enthält[1]); hierzu gehören alle für den Energiebereich relevanten horizontalen und sonstigen Bestimmungen des gemeinschaftlichen Besitzstandes: beispielsweise Bestimmungen über Wettbewerb (besonders wichtig sind hier die Anwendung des Vertrags sowie Bestimmungen des abgeleiteten Rechts über den Wettbewerb und über staatliche Beihilfen), öffentliches Auftragswesen, Finanzen, Umwelt, Sicherheit und Gesundheit; hinzu kommen die Bestimmungen des Vertrags über die Energiecharta;
- allgemeine Unterstützung bei der Neustrukturierung des Energiesektors;
- Entwicklung der Zusammenarbeit innerhalb der Regionen (beispielsweise im Falle des Schwarzmeerbeckens, einer strategisch wichtigen Transitregion im Energiebereich);
- Verstärkung der Bestrebungen zur Verwirklichung des wirtschaftlichen und sozialen Zusammenhalts (insbesondere durch gemeinsamen Ausbau transeuropäischer Netze im Energiebereich; in diesem Zusammenhang ist von Bedeutung, daß der Europäische Rat auf seiner Tagung in Essen der Gaspipeline Rußland-Weißrußland-Polen-EU Priorität eingeräumt und sich für weitere Arbeiten am Stromringnetz im Baltikum ausgesprochen hat);
- Vertrautmachen mit den spezifischen Programmen der EU im Energiebereich (z.B. SAVE, THERMIE und ALTENER); nachdem der Europäische Rat im Juni 1993 beschlossen hatte, Programme der EU für assoziierte MOEL zu öffnen, bestand im Energiebereich der erste Schritt der Kommission in einem an den Rat gerichteten Vorschlag hinsichtlich der Einbeziehung der MOEL in das SAVE-Programm. Entscheidungen zur Umsetzung dieses Vorschlags werden nicht vor 1996 erwartet.

DIE EUROPA-ABKOMMEN SOWIE WEITERE BILATERALE ABKOMMEN

Seit 1991 haben die EU und ihre Mitgliedstaaten Assoziationsabkommen, die sogenannten "Europa-Abkommen", mit den Baltischen Staaten, Polen (in Kraft getreten), der Tschechischen Republik, der Slowakei, Ungarn (in Kraft getreten), Bulgarien und Rumänien unterzeichnet; ein Abkommen mit Slowenien soll noch vor Ende 1995 abgeschlossen werden. Diese Abkommen ersetzen die "erste Generation" von Abkommen über den Handel und die handelspolitische wirtschaftliche Zusammenarbeit bzw. die Freihandelsabkommen mit den Baltischen Staaten. Angesichts der langen Ratifizierungszeiten hat die EU sogenannte Interimsabkommen abgeschlossen, um eine zügige Umsetzung der den Handel betreffenden Bestimmungen der Europa-Abkommen zu ermöglichen.

Die wesentlichen Inhalte der Europa-Abkommen sind eine (begrenzte) Freihandelszone, politischer Dialog, Angleichung der Rechtsvorschriften, finanzielle Unterstützung und wirtschaftliche Zusammenarbeit. Energie (einschließlich der nuklearen Sicherheit) ist einer der Bereiche der Zusammenarbeit. Auch die PHARE-Finanzierung wird von den Abkommen abgedeckt. Ein spezielles EGKS-Zusatzprotokoll über den Handel mit Kohle und Stahlerzeugnissen gehört ebenfalls zu den Merkmalen sowohl der Europa- als auch der Interimsabkommen. Die im Rahmen der Europa-Abkommen eingerichteten Gremien (Assoziationsrat auf Ministerebene, Assoziationsausschuß auf hoher Beamtenebene, EGKS-

[1] *Dok. KOM(95) 163 endg./1 & 2, Anhang S. 359 ff.*

Unterausschuß, Parlamentarischer Assoziationsausschuß) sind im Prinzip auch für Energiefragen zuständig. Das Abkommen über den Handel und die handelspolitische Zusammenarbeit mit Albanien erstreckt sich auch auf die Zusammenarbeit im Energiesektor. Dasselbe gilt für das Kooperationsabkommen, das gegenwärtig mit Kroatien ausgehandelt wird.

KOORDINIERUNG G-24

Wie bereits erwähnt, wurde im Anschluß an den Gipfel der G7-Staaten im Juli 1989 in Paris der Rahmen der G24 für eine Unterstützung der mittel- und osteuropäischen Länder geschaffen und deren Koordinierung der Kommission übertragen.
Energie wurde zunächst dem Bereich "Umwelt" zugeordnet, aber angesichts erheblicher Strukturprobleme der MOEL im Energiebereich (die durch die Einführung harter Währung als Zahlungsmittel zwischen den ehemaligen Mitgliedern des RGW (Comecon) ab Januar 1991, aber auch durch die Unsicherheit über Lieferungen aus der UdSSR, sowohl hinsichtlich der Lieferungen selbst als auch der Preise, und durch die Golfkrise von 1990-1991 noch verschärft wurden, kamen die 24 OECD-Länder auf ihrer Tagung auf hoher Ebene im Oktober 1990 überein, den Energiebereich zum neuen vorrangigen Sektor der koordinierten Unterstützung zu erklären.
Die neu eingerichtete Arbeitsgruppe "Energie" der G24 (in der die GD XVII den Vorsitz führte) entwarf ein Strategiepapier für mittel- und langfristige Hilfen im Energiebereich. Das Strategiepapier, das im Januar 1991 angenommen wurde, soll flexibel "Leitlinien" für die Hilfe vorgeben, wobei drei weitgefaßte vorrangige Gebiete der Zusammenarbeit festgelegt werden, die nach wie vor auf der Tagesordnung der einschlägigen internationalen Gremien stehen:

- Ausarbeitung und Planung einer Politik, die die Umstrukturierung des Sektors, die Preisgestaltung, Prognosen, die Ausarbeitung eines Regelwerks usw. umfaßt;
- Energieversorgung und -nachfrage - kurzfristig unter Einbeziehung von Energieeffizienz und -einsparung sowie längerfristig zwecks Einführung von Verbesserungen in Produktion und Vertrieb, ferner (geographische) Diversifizierung der Energieversorgung;
- Energie, Umwelt und Sicherheit; der nuklearen Sicherheit wird Vorrang eingeräumt, aber auch andere Aspekte, wie zum Beispiel der Bedarf an sauberen Kohletechnologien, werden behandelt.

Im Juni 1991 fand eine G24-Sondersitzung zum Elektrizitätssektor statt. Thema der Sitzung vom 16. März 1992 war die winterliche Energieknappheit in den MOEL.
Am 4. bis 5. März 1993 und am 3. bis 4. Mai 1994 fanden in Tallinn (Estland) bzw. Vilnius (Litauen) Sondersitzungen der Arbeitsgruppe "Energie" zur Entwicklung eines regionalen Konzeptes für den Energiesektor in den drei Baltischen Republiken statt. Diese Sitzungen zeigen, auf welche Weise die Arbeitsgruppe "Energie" ihre Arbeit fortgeführt hätte, um auch in Zukunft ihrer Verantwortung gerecht zu werden: durch auf Ersuchen der Empfänger veranstaltete Sitzungen vor Ort zu ausgewählten Themen. Angesichts einer veränderten Sachlage beschlossen jedoch die G24 im März 1995, den ständigen Charakter der Arbeitsgruppe "Energie" aufzuheben.

HILFSPROGRAMME IM ENERGIESEKTOR

Die Hilfsprogramme der EU für die MOEL im Energiesektor erstrecken sich insbesondere auf die Gewährung von Zuschüssen im Rahmen von SYNERGY, THERMIE und PHARE sowie auf die bereits erwähnten Darlehen, die nach den einschlägigen EGKS- und Euratom-Rechtsvorschriften und natürlich durch die EIB gewährt werden.

SYNERGY

Das seit 1990 bestehende Programm der GD XVII für die internationale Zusammenarbeit im Energiebereich, jetzt bekannter unter der Bezeichnung "SYNERGY", erstreckt sich sowohl auf die MOEL als auch auf die GUS (die Staaten der ehemaligen Sowjetunion). Die Zuschüsse, die relativ bescheiden ausfallen (insgesamt etwa eine Million ECU für 1990 und 1991, 1,9 Mio. ECU für 1992 und je etwa 3-4 Mio. ECU für 1993, 1994 und 1995), dienen der Unterstützung bei der Anwendung der Grundsätze der Europäischen Energiecharta, der Stärkung der institutionellen Kapazitäten der betroffenen Länder, der Weiterentwicklung der Energiepolitik und der Planung von Maßnahmen zur Verbesserung der Energieeffizienz.
In diesem Rahmen wurden auch das (von PHARE, THERMIE und der ungarischen Regierung kofinanzierte) Energiezentrum Ungarn-EU und das Energiezentrum für die Schwarzmeerregion in Sofia eingrichtet.
Ferner wurden im Rahmen des SYNERGY-Programms zahlreiche wichtige Konferenzen zur Energiepolitik veranstaltet.

THERMIE

Die Industrieprogramme der EU zur Förderung des Transfers innovativer europäischer Energietechnologien haben sich auf die Einrichtung von Energiezentren überall in Mittel- und Osteuropa konzentriert. Dank der von diesen Zentren errichteten Strukturen konnten spezifische kleinere Aktionen durchgeführt werden, die einen erheblichen Beitrag zur Energieeinsparung geleistet haben.

PHARE

PHARE ist mit 1.100 Mio. ECU pro Jahr bzw. 6.700 Mio. ECU für den Zeitraum 1995-1999 das umfangreichste EU-Programm zur Unterstützung der Neustrukturierung der Wirtschaftssysteme in den MOEL; es verfügt über eine ausgereifte, weiter wachsende Energiekomponente (sowohl für Kernenergie als auch für nichtnukleare Energien).
Tatsächlich ist PHARE das wichtigste Instrument der EU im Rahmen der Strategie zur Vorbereitung des Beitritts. Es hat sich von einem Technische-Hilfe-Programm auf Jahresbasis zu einem Mehrjahresprogramm entwickelt, das nunmehr unter bestimmten Voraussetzungen auch zur Kofinanzierung von Investitionen herangezogen werden kann. In diesem Zusammenhang wurde auf dem Europäischen Rat von Essen beschlossen, die bereits für transeuropäische Netze vorgesehenen 15 % des PHARE-Haushalts ab 1995 auf 25 % zu erhöhen.
PHARE fördert sowohl nationale als auch länderübergreifende Programme im Energiesektor wie auch in anderen Bereichen. An den Programmen dürfen sich eines, mehrere oder alle PHARE-Länder beteiligen. Bisherige Projektschwerpunkte waren die technische Hilfe für die Herausbildung (sektoraler) Energiepolitiken sowie die Energiegesetzgebung, ferner die Neustrukturierung der Energieversorgungsunternehmen,
Schulungsmaßnahmen usw. Seit 1993 steht die Entwicklung von Energiesparfonds auf der Tagesordnung. Außerdem verfügt jedes der MOEL über ein eigenes Energieprogramm. Zu den bisherigen Schwerpunkten des länderübergreifenden Programms (34 Mio. ECU für den Zeitraum 1992-1995) zählen unter anderem, was den Energiesektor betrifft, Studien über Elektrizitäts- und Gasverbundnetze, die Herausbildung eines energiepolitischen Dialogs sowie Schulungs- und Partnerschaftsprojekte.
Die grenzüberschreitenden PHARE-Programme (150 Mio. ECU pro Jahr ab 1994) konzentrieren sich auf die Herausbildung von Netzen und Maßnahmen der Zusammenarbeit in Grenzregionen zwischen MOEL und der Union. Im Energiesektor sind Projekte für Gas- und Elektrizitätsverbundnetze zwischen Bulgarien und Griechenland sowie zwischen der Tschechischen Republik und Deutschland eingeleitet worden.

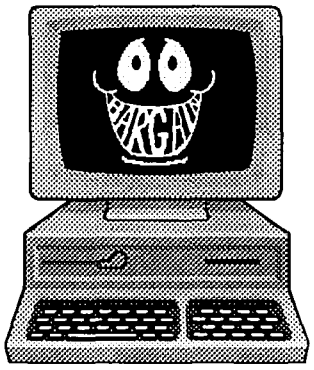
EGKS, EURATOM- UND EIB-DARLEHEN

Im Rahmen des EGKS-Vertrags können Darlehen von bis zu 200 Mio. ECU für Investitionen in den Sektoren Kohle und Stahl in den MOEL vergeben werden. Im Kohlesektor beziehen sich die geplanten Projekte, an denen zumindest ein Unternehmen aus der Gemeinschaft beteiligt sein muß, unter anderem auf die Sicherheits- und Arbeitsbedingungen in Zechen, die Umstrukturierung der Kohleindustrie und Probleme des Umweltschutzes.
Seit März 1994 sind Euratom-Darlehen zur Verbesserung der Sicherheit in kerntechnischen Anlagen auch den MOEL zugänglich.
Die EIB darf den MOEL seit 1990 Darlehen gewähren. Im Energiesektor sind die Projekte der Bank darauf ausgerichtet, Energieeinsparungen zu erzielen und die Umweltsituation zu verbessern.

WEITERE HILFSPROGRAMME

Es muß betont werden, daß die Europäische Union und ihre Mitgliedstaaten auch weiterhin weltweit den Löwenanteil an den Hilfsmaßnahmen für die MOEL bestreiten. Ferner ist festzustellen, daß die EU und ihre Mitgliedstaaten die Mehrheitseigner der Europäischen Bank für Wiederaufbau und Entwicklung sind, die auch Energieprojekte finanziert.

Finally, the Commission's *White Paper on Energy Policy* adopted at the end of 1995 (appearing as a Supplement to *Energy in Europe* as we write, in successive language versions beginning with English, French and German) is downloadable from an ftp site[1] on the Internet.



The ftp address is
ftp.fhg.de (anonymous login) and the sub-directory **/pub/isi.** Here will be found a **Read.Me** file which explains the content of the other files (Word Perfect, English, French, German).

Readers with questions on Internet access or other related matters are invited to Email DG XVII's Information Group (ronald.bailey@mhsg.cec.be or 74000.1254@compuserve.com)

As mentioned, the general objective of the proposal is to ensure equal access for companies (national, non-national, private or state-owned) to the activity of prospecting, exploring and producing hydrocarbons in the Member States and to improve competition in the sector. The principle of non-discrimination plays an important role in this respect in the proposal. Next to this, the basic principles of transparency and objectivity are essential to ensure access and activities on an equal footing. These basic principles apply to all Member States of the Community.

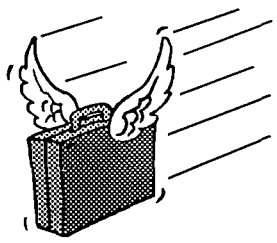
[1] *We should like to acknowledge the courtesy of the Fraunhofer Institute for Systems Technology and Innovation Research, Karlsruhe, in giving the White Paper the benefit of their ftp server's hospitality, as was done for the 1995 Green Paper.*

NOTICE TO READERS

THE EUROPEAN UNION, DG XVII, AND THE INTERNET

In our last issue we briefly alluded to the European Union Internet website, **'Europa'** the URL (world-wide-web address) of which is:

http://www.cec.lu



Readers of ***Energy in Europe*** who have web access would be well advised to visit the site, which celebrates its first birthday as we write having been opened on the occasion of the G7-summit on the Information Society hosted by the Commission in Brussels in February 1995. Our Computing Centre and Information Directorate colleagues responsible for the site management are to be congratulated in that their birthday present was the award of the highest rating for quality - **** - why one more than for restaurants we wonder - by a recognised international agency which classifies web sites.

♦ The site is **interinstitutional**, containing a literally enormous (but fortunately very well-structured and user-friendly!) range of material concerning, or published by, all the institutions of the European Union, including many hyperlinks to other EU and outside sites - too numerous to even try to list, but which range from Member States (now 13 out of the 15) government sites to database sources for R&D such as CORDIS, or again daily reports from news agencies (Telexpress) and other hot items...

♦ In February 1996 the number of *daily* accesses to **Europa** stood at 30 000

♦ All Directorates-General and other Commission departments are in the process of compiling their own sub-section in the site (click on 'The Union's Institutions - Who does what' at the Welcome Page), including staff charts, summary information on programmes, events, and other activities, contact points for further material,and so on, Email links for suggestions comments and requests, and so on. Very shortly the up-dated *Interinstitutitonal Directory of the European Union Institutions* will also be loaded. Indeed the site is under almost daily development.

DG XVII's own pages within Europa are still in course of construction but will be loaded very shortly, possibly by the time we go to print with this number. They will comprise material not only on the Directorate-General itself, with contact points etc and other practical information, but also on the four programmes: Altener, SAVE, Synergy, Thermie (JOULE), and all aspects of energy policy work at EU level. One-page summary sheets will be on-line for nearly all legislation, proposals, and other areas, with details of latest publications and other documentation, and of course an increasing number of hyper-links both to other departments involved and, for example, increasingly to sites of outside organisations such as energy agencies involved in the decentralised implementation of programmes.

Abbreviations and symbols

:	no data available
—	nil
0	figure less than half the unit used
kg oe	kilogram of oil equivalent (41 860 joules NCV/kg)
M	million (10^6)
t	tonne (metric ton)
t – t	tonne for tonne
toe	tonne of oil equivalent (41 860 kjoules NCV/kg)
fob	free on board
cif	cost-insurance-freight
MW	megawatt = 10^3 kWh
kWh	kilowatt hour
GWh	gigawatt hour = 10^6 kWh
J	joule
kJ	kilojoule
TJ	terajoule = 10^9 kJ
NCV	net calorific value
GCV	gross calorific value
ECU	European currency unit
USD	US dollar

EUR 10 Total of member countries of the EC before accession of Spain and Portugal in 1986

EUR 12 Total of member countries of the EC

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