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TOWARDS A CONTINUING POLICY FOR
ENERGY EFFICIENCY IN THE EUROPEAN COMMUNITY

(Communication from the Commission)

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EXECUTIVE SUMMARY

A recent analysis carried out by the Commission on future energy consumption in the European Community to the year 1995 in a situation of low oil prices shows that, ceteris paribus and assuming no change in energy policy by the Member States, the improvement of energy efficiency might only reach 15 % or even less instead of the 20 % Community objective set by the Council of Ministers on the 16th of September 1986.

The current situation seems to have led to a degree of complacency in the pursuit of energy saving objectives as indicated by the fall in government spending on energy efficiency initiatives. The Council of Ministers, meeting on the 26th of November, 1986, declared their commitment to the achievement of the Community's energy saving objective of at least a further 20 % improvement by 1995.

This paper examines the background to the current situation in energy efficiency in the Community and presents the rationale behind the continuation of energy efficiency initiatives which respond to the current situation. The key concept is that a long-term continuous effort is necessary. A series of individual instruments which would be essential elements of a energy efficiency policy are highlighted. Some of these instruments already exist in various forms in the Member States while others are being examined by the Commission with a view to proposing Community wide measures.

The continuing efforts in supporting an energy efficiency policy offers the possibility of achieving the Community's objectives while at the same time reducing the possibility of future severe disruptions in the energy supply sector.

The Commission requests the Member States that they should take the findings into account in the pursuit of their national energy efficiency programmes and to agree that this topic should be kept under review by the Council.

1. INTRODUCTION

The energy policies pursued by the European Community and its individual Member States have led to an improvement of 20 % in energy efficiency since 1973. These collective efforts at energy saving have been assisted by pressure from energy prices during the period 1973-1985 and by structural changes in European industry itself. Efforts at oil substitution have led to increased demand shares for natural gas, coal, and nuclear energy. However, the sudden fall in oil prices in 1986 has cast doubts on the ability of the Community to maintain its progress in the field of energy efficiency. In order to analyse the impact of low fossil fuel prices on the pursuit of energy efficiency objectives, the Commission has conducted a study on this issue ¹.

In September of 1986 the Council of Ministers set new energy objectives which the Community should achieve by the year 1995. These objectives which included a further improvement in "the efficiency of final energy demand" of at least 20 % (OJ 86/C 241/01). If this objective is to be achieved then the Community will have to not only maintain its momentum in energy efficiency but may have to increase it. This fact was recognised in the declaration on energy efficiency made by the Council of Ministers on November 26th., 1986. This increased effort will be particularly necessary if the phenomenon of low fossil fuel prices persists.

According to a preliminary analysis by the Commission's services ², and under certain assumptions (2.6 % GDP, 15 \$ oil price from 1986 to 1995), Community Energy Intensity would improve by only 15 % or less, instead of the minimum of 20 % set out in the 1995 objectives.

Annex 1 plots the evolution of overall energy intensity in terms of the ratio between total primary energy required (TPE) and the gross domestic product. The histograms show that overall energy intensity has improved in nine Member States during the period 1973-1983. Increases were recorded in Greece, Portugal and Spain, three countries who have just begun their energy

¹ Study conducted by the Fraunhofer Institute with the assistance of the following European experts : John Cheshire, University of Surrey; Olivier de la Moliniere, CGC; Ian Brown, Association for the Conservation of Energy; Wolfgang Mostert, Birch & Krogboe.

² The Community Energy Outlook to 1995: 7 November 1986.

efficiency programmes. The average rate of improvement for EUR-12 was almost 2 % per annum between 1973 and 1983. This situation may be contrasted with the performance since 1983. The lower figure in Annex 1 shows that energy intensity has increased in seven Member States in the period 1983-85 and that these increases have led to an overall increase for EUR-12 of 0.5 % per annum during this period.

With the period of stagnating or declining prices for fuels and with the end of the economic recession, the conservation process slowed down in almost all Member States and more particularly in those countries which commenced their energy efficiency efforts early. This downward trend in interest in the pursuit of energy efficiency may be confirmed by the fall off in applications by small and medium sized enterprises to avail of the European energy bus service, which carries out energy audits and gives energy efficiency advice.

The increase in energy intensity during recent years and the reduced support for rational use of energy (RUE) are symptomatic of the danger of complacency in energy efficiency during a period of stagnating or falling fossil fuel prices. This situation is not consistent with the declarations made by the Ministers at the November 26th Council.

Other Commission communications have pointed out that obstacles still exist to the achievement of the Community's RUE objectives. These include, lack of related knowledge and transfer of technology, the disparity of rate of return expectations for investments on both the supply and demand side of the energy industry and the separation of expenditure and benefit. A coherent energy efficiency programme must be aimed at the elimination of these obstacles.

2. THE ELEMENTS FOR CONTINUOUS EFFORTS IN ENERGY EFFICIENCY

The Community and the Member States have already initiated a series of energy saving programmes which have led, either directly or indirectly, to the achievement of a 20 % improvement of energy efficiency in the Community's between 1973 and 1985.

The instruments of a energy efficiency policy presented below are not exhaustive but they include those instruments which would be essential to the successful implementation of such a policy. There has been no attempt to disaggregate by Member State or by sector. Each Member State faces a unique

mix of energy supply and demand problems. Therefore, the solutions, and consequently the policies, adopted by each Member State will be specific to their situation.

These instruments are grouped under three main topics.

Information

- (1) In order to maintain the momentum in the improvement of the rational use of energy it is important that long term investment in machinery, plant and buildings take full advantage of the substantial energy savings available in this area. Decision makers must be made aware of the energy savings available and of the necessity of basing their investments on the long term cost of energy and not short term fluctuations. This policy will lead to a maximization of energy saving in this sector and will result in lower energy cost and the avoidance of costly retrofitting if energy prices were again increasing.

The Commission and the Member States should ensure, principally through their various information programmes, that decision makers in industry are aware of the potential energy savings when making long term investment decisions. For instance, the "breakfast meetings" organised by the U.K. Dept. of Energy seem to have been a useful method of disseminating the energy saving message at the highest levels.

- (2) Lack of information has been identified as one of the major obstacles to the introduction of energy saving technologies. A prerequisite of any successful information programme is that it should reach a specific target audience.

The Commission is active in all aspects of publicizing the benefits of the new saving technologies evolved under the EEC energy demonstration programme. The initiatives undertaken by the Commission have been aimed at augmenting the already substantial efforts of the Member States.

- (3) Each individual energy saving measure can have a significant impact on the reduction of energy demand. However, no single measure will be comprehensive enough to achieve the full potential for the rational use of energy. Therefore, it is important that an energy saving programme consider the integration of a series of measures each aimed at achieving

specific energy saving objectives. An integrated energy saving programme should include information, training and consulting, regulations and a series of financial aids. These integrated programmes should ideally be sector or group specific.

- (4) On-the-spot consulting is one of the most effective methods of transmitting the energy saving message and is particularly applicable to households, small and medium sized enterprises and public institutions. These are the sectors where the greatest lack of information regarding potential energy savings exist. An on-the-spot energy audit followed by a counselling session to indicate where energy savings can be made is a cost effective method of improving energy efficiency. Consultancy schemes are particularly useful in periods of low fuel prices because energy specialists may be able to point out areas where profitable energy saving investments may be made. Member States should continue to support on-the-spot consultancy schemes.

The European energy bus scheme is a useful tool in demonstrating where the potential for energy savings lie and in suggesting possible profitable energy saving investments. In addition, the Commission carries out sectoral audits on the major energy using sectors of European industry e.g. aluminium, glass, brick, ceramic, steel, etc., which provide a good picture of energy utilisation in industry.

- (5) Those professionals who can most influence the implementation of energy saving measures, e.g. planners, architects, plant managers and boiler house staff, should receive energy management training.

The Commission is currently examining the possibility of encouraging training courses for energy managers in small and medium enterprises. This activity will complement the programmes already provided by the Member States and private agencies. The Commission has also been instrumental in setting up the European Federation of Energy Managers as a European forum for the exchange of information and as a vehicle for the professionalization of the role of the energy manager.

- (6) The role of public procurement in assisting market penetration for emerging energy saving technologies cannot be overstressed. The question of market penetration for new energy saving technologies has already been mentioned in. Most suppliers require a minimum market penetration

to proceed with the necessary investment in presenting their technology to the public. While the State cannot influence the individual consumer to accept a novel technological solution, public bodies can help, through their procurement procedures, to establish demonstrated energy saving technologies by causing the economies of scale effects which will permit the widespread availability of the technology. The Member States should pursue a policy of assisting the application of novel energy saving technology by ensuring that public bodies give full consideration to the benefits from the technology during their procurement process. This may best be accomplished by information programmes.

The Commission has assisted in this process by inviting representatives of public bodies to attend workshops and seminars which present the successfully demonstrated technologies from the Community's Demonstration Programme.

- (7) The various demonstration programmes supported by the Commission and the Member States have permitted a large number of innovators to establish the viability, both technically and commercially, of their rational use of energy technologies. However, to date there has not been sufficient market penetration by these successful technologies.

The Commission and the Member States should actively encourage the setting up of centres of excellence for the transfer of technology. Where such centres exist their role in assisting market penetration of RUE technologies should be emphasised.

Regulations

- (8) Energy labelling is particularly useful as an informational tool especially in the case of households. The system is specifically applicable to mass market products, e.g. domestic appliances.

A framework EEC directive (together with an implementing directive for electric ovens) has been adopted and other implementing directives should be adopted soon. This directive stipulates in practice that domestic appliances should have labels indicating -inter alia- the energy consumption on the basis of standardized testing procedures. All Member States should introduce such a scheme in their legislations.

With a view to submitting to the Council the implementing directives, the Commission has already instructed the European Standards bodies, CEN and CENELEC, to accelerate their work in order to allow the Council to approve these directives.

- (9) Regulation and standards are useful tools for ensuring that industry produce goods which have been developed to account for the optimum energetic performance. Standards are required in particular for : boilers of central heating systems; ventilation, air conditioning and heat recovery; and buildings. Target standards can also be applied to consumer mass market products.

As in the domestic appliance area (see point 8. above), an information scheme for buildings would stimulate improved energy efficiency by designers, builders and landlords as well as assisting in market transparency. The Commission intends to submit soon a proposal for a directive in this specific area. Moreover the Commission is active through it's contacts with CEN in setting up RUE standards for equipment e.g. heat exchangers. The Commission will also report on the heat generator directives.

- (10) Combined heat and power is a valuable way of increasing efficiency of primary energy use. However, there are currently many barriers which are impeding its wider adoption. Efforts should be made to minimize these obstacles, particularly with regard to the sale of electricity to the public grid.

- (11) The State can greatly assist in supporting the energy efficiency efforts of industry by concluding sector specific voluntary agreements. These types of voluntary agreements have been in operation since 1979 and have been successful in improving energy efficiency particularly in the automotive and domestic appliance industries. There is, however, scope for further agreements which would substantially improve the energy efficiency of equipment and assist in the achieving of the Community's 1995 objectives. The immediate areas for the negotiation of voluntary agreements are : electrical appliances; boilers; air conditioning equipment; and cars, busses and trucks.

Stimulation of investments

- (12) Measures aimed at encouraging energy efficiency investment by the provision of Government financial incentives ought to be more cost effective during periods of low fuel prices. The calculation of the internal rate of return for an energy saving project is highly dependant on the projected level of fuel prices during the life of the project. In periods of low fuel price or anticipated low fuel prices project profitability may be reduced below the minimum acceptable. Member States can improve the profitability of these projects by continuing to provide project finance through the provision of grants or soft loans. They may also support them by the provision of tax incentives.

At Community level both the EEC financial support for demonstration projects and EIB loans contribute preciously to stimulate investments in energy efficiency.

Financial incentives are most useful when applied to long term investments such as buildings, control equipment, heat exchangers, heat pumps, district heat, combined heat and power small hydro plants and wind converters.

In order to ensure the maximum return for the State's financial assistance, incentives should be closely linked with consultancy and information programmes.

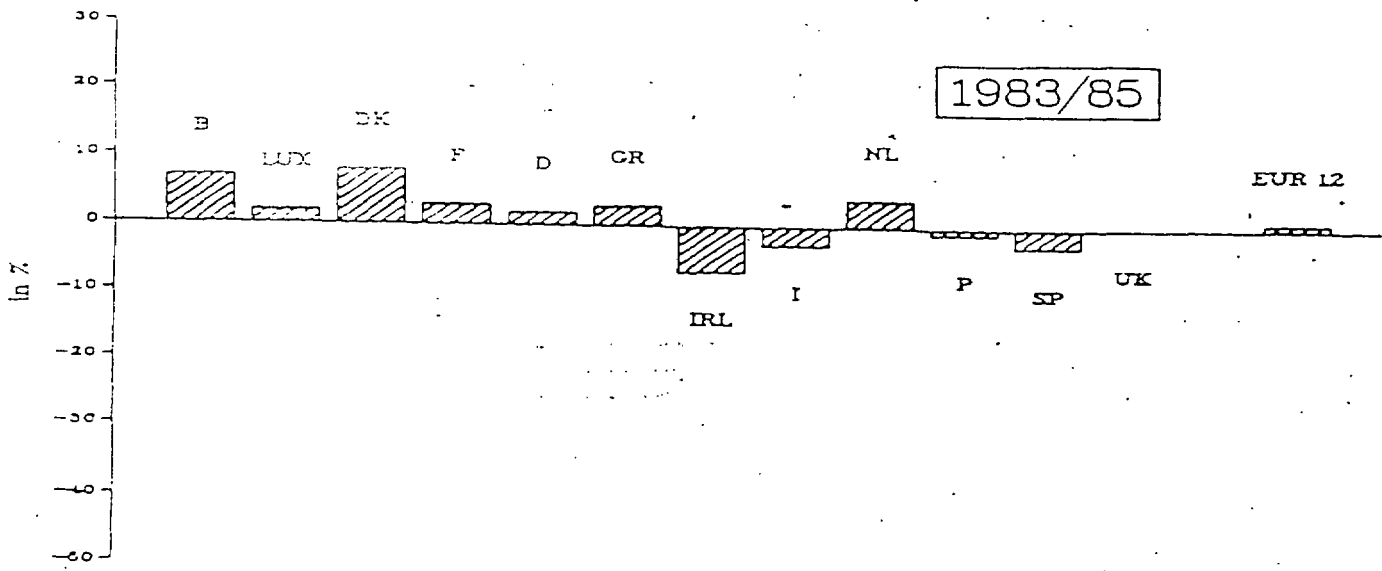
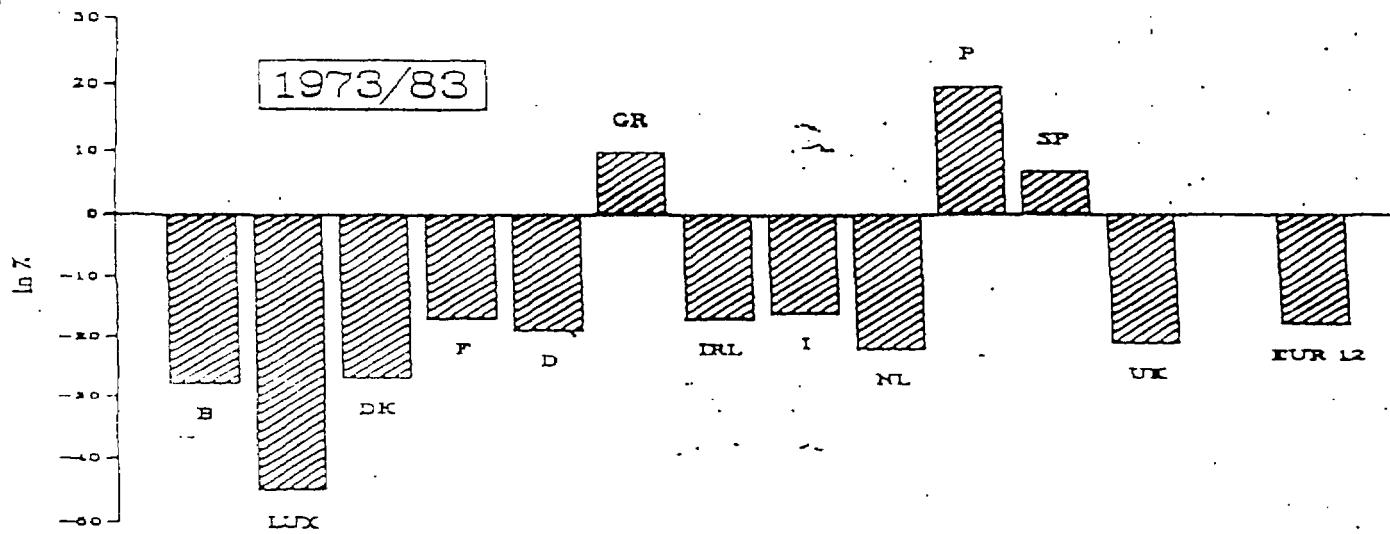
- (13) Third party financing is a means of funding energy saving investments by an outside company, using the energy savings themselves to pay for that investment. At the core of this new (for Europe) mechanism is the energy service company (ESCO) which brings together the financial capacity and energy/engineering ability to ensure a profitable energy saving investment. This mechanism for assisting investment in energy saving has already been widely applied in North America but is a fairly recent phenomenon in Europe. The Commission urges the Member States to consider seriously how they can assist the establishment and successful operation of energy service companies within their own jurisdiction.

The Commission carried out a study on the potential for third party financing in Europe and will hold a seminar on the subject in Luxembourg on Oct. 8 and 9th, 1987. A model European contract for third party

financing will be presented at this seminar. The Commission intends to encourage the application of third party financing in several potential market sectors.

- (14) The energy utilities must be brought more into the energy saving process. As professionals in the energy sector these institutions represent a vast repository of energy expertise which is as yet untapped in the cause of energy saving. The utilities should be encouraged to view themselves as energy service companies and not simply producers and distributors of power.

The Commission will examine with the electricity, gas, and district heating utilities the mechanisms whereby they would provide an integrated package to small energy consumers which should include : experts employed by the utilities visiting private homes and small and medium enterprises on request to advise on measures to improve energy economy; the provision of low interest loans for the recommended investment; and close cooperation with electronic firms and manufacturers of space heating systems in the development and testing of improved and new products.



ANNEX 1 : Changes of overall energy intensity of EC Member Countries 1973 to 1983 and 1983 to 1985