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ENERGY OBJECTIVES OF THE COMMUNITY FOR 1990

AND

CONVERGENCE OF POLICIES OF MEMBER STATES

(Communication from the Commission to the Council)

COM(79) 316 final.

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SUMMARY

An examination of the energy policies of the Member States shows that there is quite extensive convergence as regards the principles to be applied in pursuing the 1985 objectives which the Community adopted in 1974 and reiterated in July 1978 and March 1979.

As regards their practical application, however, there are considerable differences, mainly in the following areas :

- the energy saving programmes differ in extent and intensiveness;
- in many cases, the degree of reliance on coal and nuclear energy is likely to be insufficient to bring about a drop in the amount of fuel oil used for generating electricity;
- pricing policies do not always ensure that consumer prices reflect long-term supply costs.

Furthermore, when the Member States' forecasts for 1990 are added together, the resulting picture would seem to be incompatible with the stark necessity to limit oil imports. In view of recent events and of the long-term prospects, this is as vital for the 1990 programme as for the 1985 one. If imports in 1990 are to be kept down to the level fixed for 1985 (i.e. the 1978 level of 470 mt), the following priorities must be kept :

- more intensive energy saving;
- more use of coal and nuclear energy so that these two primary energy sources together cover at least 70 to 75 % of electricity production, which presupposes :
 - . the restoration of the nuclear programmes;
 - . creating new coal-fired capacities at least large enough to cover the shortfall in nuclear energy;
 - . regaining coal production at the 1973 level;
 - . a substantial increase in coal imports from non-Community countries;
- increasing hydrocarbon production to as high a level as possible;
- intensifying public information on energy problems.

These are the main objectives of the draft resolution the Commission is submitting to the Council. Other actions which should contribute to a satisfactory energy supply situation are also proposed.

A vigorous effort must be made without delay if the threat of uncertainty in our energy supplies between now and 1990 is to be overcome. The prospect of an enlarged Community reinforces this need.

There will be a permanent system for monitoring and ensuring the convergence of the Member States' policies in respect of these objectives. The Community could take appropriate steps to back up and supplement these efforts and to ensure greater coherence.

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ENERGY OBJECTIVES OF THE COMMUNITY FOR 1990
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INTRODUCTION

1. At its meeting of 21 December 1978, the Council took note of a Commission communication concerning energy objectives for 1990 and programmes of the Member States (COM/78/613 final), and the Commission expressed its intention of submitting more specific proposals on the objectives for 1990 (see doc. 4487/79 of 30 January 1979, page 1).

In addition, on 12 and 13 March 1979, the European Council restated the objective to reduce Community dependence on imported energy to 50 % by 1985 and fixed a ceiling for oil imports for the same year at the 1978 level ie. 475 mtc. With regard to production, the European Council also emphasized the need to align member States' policies and to adopt common objectives to bring this about.

Lastly, at its meeting of 27 March 1979, the Council asked the Commission to make a comparative study of national policies and to use this as a basis for submitting new guidelines and proposals to the Council.

2. In the first part of this document, the Commission sets out for the Council the conclusions it has drawn from its study on the convergence of Member States' energy policies. The study was based on the programmes sent to the Commission in mid-1978 (see doc. COM/78/613 final) which were updated in February 1979.

The second part sets out proposals on the definition of common objectives for 1990. These are the subject of a draft Resolution.

A vigorous effort is urgently called for as a matter of priority if the Community is to remove the threat to growth and employment posed by uncertainties over energy supply.

PART I

CONVERGENCE OF MEMBER STATES' POLICIES

3. Now, as in 1974, events are showing just how fragile the Community's energy supply really is. They serve to confirm the wisdom of the guidelines which the Community set itself in 1974 on :
- cutting oil imports;
 - energy-saving and the rational use of energy;
 - increasing the use of coal and nuclear power for electricity generation;
 - developing its own conventional energy resources and promoting new energy sources;
 - diversifying and ensuring the security of external supplies;
 - energy pricing policies;
 - investment.
4. In the Commission's opinion, these are the essential criteria upon which to base a study of the convergence of Member States' policies.

The Commission would point out that in addition it has already studied the convergence of Member States' policies with regard to refining (see doc. COM/78/71) and that it will be submitting separate documents on energy-saving policies (see docs. COM/79/312 final and COM/79/313 final) and on coal production, consumption and import policy.

A. Reducing dependence on imported oil

5. Although all Member States agree with this principle, there is an obvious contradiction in the fact that they all, except for Denmark and the United Kingdom, expect to increase their oil imports between now and 1990 (see Annex 1).

Attempts to reduce dependence are evident however in the fact that almost everywhere these imports increases are lower than the increase in general energy demand; the proportion of net oil imports in gross consumption is diminishing (see Annex 1). This even applies in those countries, like Italy and Ireland, whose present energy consumption levels are relatively lower but where demand must be expected to increase sharply as their economies develop.

Exceptions to this convergence are Belgium (where the proportion of imported oil consumed will remain at 1977 levels) and the Netherlands (where it will increase from 47 % in 1977 to 58 % in 1990).

The efforts to be made by all Member States between now and 1990 to reduce dependence on imported oil must not finish at that date.

B. Energy-saving programmes

6. In the last three years, the Member States have adopted basic provisions and set up instruments for their energy-saving programmes. Annex 2 shows how much progress has been made since 1975 in introducing a number of the more important long-term measures. The Dutch, Danish, German, British and French programmes are very extensive even though they do not cover all possible fields. Belgium, Luxembourg, Italy and Ireland have not made as much progress as the other Member States since 1975. The table does not include measures already adopted or being prepared in Member States directed at achieving the Community objective of saving 25 million tonnes of oil in 1979. These have been studied separately.

An estimate of public expenditure on energy-saving in 1978 (Annex 3) confirms the impression that four of the Member States have done less to save energy than the others. It should nevertheless be noted that the financing of several programmes is still being discussed, that some programmes include objectives other than energy saving and that it is difficult to estimate accurately the financial effects of tax exemptions on some programmes.

Annexes 2 and 3 should be treated with some caution as not all the measures planned have in fact been implemented and not all the appropriations entered in the budgets have actually been committed. Nevertheless their juxtaposition should give some idea of the efforts made by the public authorities in each Member State and their priorities.

Account should also be taken of the different levels of economic development, growth and pattern of GDP, which explains cases like that of Ireland. The amount of private investment in energy-saving also makes a difference but unfortunately there are no comparative figures available on the subject.

In brief, it can be concluded that energy-saving programmes in Member States have similar objectives but differ considerably as to their intensity and - perhaps, to some extent more justifiably - their methods of implementation.

C. Use of primary energy to generate electricity

7. There are fairly marked differences between policies on production and consumption of electricity.

Demand is expected to increase particularly sharply in France, Ireland and Italy. There is a risk, particularly in Ireland and Italy where the growth rate is higher because they started off at a lower level than the other Member States, that growth will not be accompanied by corresponding development of coal-fired power stations and nuclear plants.

Depending on the Member State, policies on electricity generation are sometimes for and sometimes against less use of hydrocarbons.

8. The success of attempts by Member States to increase the use of solid fuels in power stations can be judged by the fact that between 1974 and 1978 the proportion of these fuels used in conventional thermal power stations increased from 46.4 % to 53.5 %. The degree of success is somewhat limited however if one considers that two countries, Germany and the United Kingdom, together account for 80 % of all Community electricity production based on solid fuels.

Between now and 1990, a further increase of 25 % in the use of solid fuels in power stations is expected and their use should increase everywhere except in France and Germany (see Annex 4). Information available on installation programmes seems to indicate however that there is a danger that the capacity of power stations burning solid fuels will not increase sufficiently to allow the quantities envisaged to be used and the use of petroleum products for electricity generation to be substantially reduced.

9. The different degrees of commitment to nuclear programmes in the various Member States is one area of divergence in the search to cut dependence on imported oil.

Three Member States (Denmark, Luxembourg (*) and the Netherlands) have no nuclear power stations on their programmes for 1990. The extensive programmes proposed in other Member States may well be held up - they are already late if we look ahead to 1985 - or may encounter further obstacles. In Belgium, where the proportion of nuclear-generated electricity is currently the highest, a political debate is to be held on whether or not to continue with the present programme beyond 1985.

The 140 GWe target for nuclear power which Member States set last year for 1990 (see doc. COM/78/613 final) should cover some 210 m toe of primary energy requirements in the electricity sector. We have already been warned to expect a deficit of at least 17 m toe because some programmes have been delayed (**).

In order to reach this 140 Gwe target, capacity of between 60 and 80 GW will have to be installed between 1985 and 1990. This represents some twelve to fifteen new plants a year. In other words, at least twelve new nuclear power stations will have to be ordered each year from 1979 onwards.

10. The Community may be able to help solve the problems holding up the adoption or implementation of nuclear programmes, including the extremely important problem of the fuel cycle.

One promising aspect is that enrichment capacity now being installed should be more than enough to cover the requirements of all the nuclear power stations operating in 1990. All countries with nuclear generating programmes are participating in this field.

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(*) Because of difficulties which have arisen over the possible construction of a nuclear power station, a study on the construction of a coal-fired power station of 600-700 MW has been decided by the Luxembourg Government.

(**) The revision of the programmes compared with how they stood in mid-1978 (208 m toe of nuclear production) had the following effect :

D : - 3.1 m toe	N : - 1.7 m toe	Community : - 16.6 m toe
F : + 2.0 m toe	B : - 0.2 m toe	
I : - 10.2 m toe	DK : - 3.4 m toe	

On the other hand, reprocessing plants may constitute a bottleneck which could hold up the final storage of radioactive waste, a problem which, in some Member States, must be solved before they can begin to commit themselves to a programme of nuclear power stations.

11. According to the programmes announced by Member States last year, solid fuel and nuclear power should together cover between 70 % and 73 % of electricity generation in 1990 (52 % in 1978). For the reasons given above, this is probably an over-estimate. The consumption of fuel oil could well exceed by a substantial amount the 65/70 m toe envisaged for 1990 (63 mtoe in 1978) (*)

This is particularly unacceptable given the risk of sharp rises in oil prices. Considerably more effort should therefore be made to cut back the use of fuel oil in power stations and attempts to increase the overall proportion of coal and nuclear power to 70 or 75 % in 1990 should be pursued.

To give some idea, this would result in the following minimum amounts for the various Member States (although these figures are subject to revision in the light of new developments) : Germany : 72 %; France : 73 %; Italy : 56 %; Netherlands : 42 %; Belgium : 69% (**); United Kingdom : 81 %; Ireland : 57 %; Denmark : 90 %.

In those countries which according to current forecasts will still be heavily dependent on oil for a major proportion of all electricity generation (particularly the Netherlands, Ireland and Italy), priority should be given to the implementation and, if possible, the intensification of programmes for using coal and nuclear power.

12. To conclude, the convergence of policies should be accertuated chiefly in the following areas :

- constant scrutiny of programmes of investment in conventional power stations in order to install as much solid-fuel-fired capacity as possible; strict enforcement of the Council directives restricting the use of oil in power stations (***)
- relaxation of the rules restricting the generation of electricity by existing or future solid-fuel-fired power stations;

(*) Current estimates show that the use of fuel oil will continue to increase sharply until 1985 (82 m toe) and should then drop. Only France and Germany expect to use less oil in 1990 than in 1978.

(***) 75/404/EEC and 75/405/EEC, O.J. L 178, 9 July 1975.

(**) assuming low economic growth

- creating conditions which facilitate the transfer of electricity between Member States;
- removing obstacles to the development of nuclear programmes.

D. Development of internal resources

13. In connection with the development of internal resources, convergence of national action is limited according to the existence and nature of such resources, which provide each Member State with different possibilities.
14. Member States which are coal producers plan to continue with their endeavours to maintain, and if possible increase, production. This should rise from 210 million tce (147 million toe) in 1978 to 240 m tce (162 million toe) in 1990. It is clear that these efforts will involve heavy financial costs - even after allowance is made for further rises in the price of oil over the same period. The table below shows, for the year 1978, the costs arising from steps taken by Member States to aid the coal industry, together with sums invested by the industry.

	D	F	-B	UK	Total
Cost of measures to aid the coal industry (m EUA)	1.750	510	250	210	2.700
Investment by the coal industry (m EUA)	309	70	24	548	943

Member States which are not coal producers are not involved in action of this sort.

The Commission's proposals for Community measures to assist the production and consumption of coal - which would enhance convergence through solidarity between producers and non-producers - have still not been approved by the Council.

15. The scale of investment in exploration for oil and natural gas gives grounds for believing that further discoveries are possible. In view of this, present forecasts of production in 1990 may seem very conservative - perhaps even too conservative.

Although the Member States' policies for oil exploration and exploitation appear to a great extent convergent, their incentives to private initiative for exploration and development of resources must be made effective.

16. Uranium exploration expenditure in the Community rose between 1972 and 1977 from 7 to 25 million dollars approximately. Most of the activity is in France. Major programmes are also in hand in Italy, Germany, Ireland and Denmark (Greenland); smaller programmes are under way in the United Kingdom, Belgium and the Netherlands (see Annexe 5).

Since 1976, Community support under Article 70 of the Euratom Treaty, acting as an incentive and a complement, has led to a significant increase in exploration programmes in Member States other than France.

17. The share in the coverage of requirements in 1990 which present forecasts assign to "new forms of energy" is practically negligible. In all Member States research and development, and even industrial promotion, are in progress, with greater or lesser intensity; but only in the longer term will they have any significant impact.

This activity is unevenly distributed, owing chiefly to the differing natural potential of each country. Thus France and Italy are putting a bigger effort than the other Member States into geothermal and solar energy; the United Kingdom and the Netherlands into wind energy; the United Kingdom into wave energy, etc.

No accurate estimate of spending is available because such data as can be had relate to expenditure on research, development and the support of demonstration projects. The figures in Annex 6 - which show proportionately greater spending in France, Germany and the Netherlands - must therefore be interpreted with caution.

It will be observed that the share of Community expenditure in the total rose from less than 16% in 1976 to 21 % in 1978. With the new proposals from the Commission this might rise to 30 % in the next few years. This demonstrates the coordinating, incentive and supplementing role played by the Community in this field.

E. Diversification and security of supplies from outside the Community

18. From this point of view, a satisfactory evolution is forecast for all Member States. The share of oil in net energy imports will fall appreciably between now and 1990 and the share of solid fuels and particularly of natural gas will increase. In this connection, it should be noted that natural gas imports of 121 million toe are forecast for 1990 and firm contracts have already been signed for over 100 million toe per annum.

In the case of Belgium and Luxembourg, however, the breakdown of imports between energy sources is not expected to change substantially, but these countries already have an external supply structure in which oil is less important than elsewhere.

The Netherlands is a net exporter at present but its position will deteriorate appreciably and by 1990 its natural gas exports will no longer offset oil imports almost twice those of 1977. But this country's domestic gas production capacity provides it with a standby supply capable of replacing at least part of any shortfall in oil supplies. The risk arising from the greatest dependence on imported oil will thus be partly offset.

The United Kingdom might become a net energy exporter before 1985, depending on the level of its oil production.

It is clear that this nearly general quest for greater diversification of resources and of their geographical origin is likely to enhance security of supply. To be fully effective, however, it should be combined with an approach coordinated at Community level and with a coherent overall view of the Community's relations with the energy-producing countries.

19. There remains the risk of oil supplies being interrupted with greater or lesser severity; events in Iran have confirmed how essential are the measures taken by the Community and implemented convergently by the Member States to

promote short-term security of supply : building of stocks, coordination of stock, management, harmonized restrictions of consumption, etc.

20. Greater coherence should be the aim in relations with energy-supplying countries; the Commission has already emphasized the need for this, and indicated how to achieve it, in recent communications to the Council on external measures by the Community in the energy sector (COM/79/23 final) and cooperation with the developing countries in the field of energy (COM/78/355 final; COM/79/155 final).

F. Pricing

21. Energy pricing policy falls within the wider framework of economic and social policies where priorities may sometimes conflict with those of energy policy proper.

Yet the outlook for the energy market militates in favour of an attempt to achieve convergence of energy pricing policies.

The spread of prices of most energy products in the Community has considerably widened since 1973 : in 1978, for example, prices of the principal oil products varied between countries by a factor of two (see Annex 7). Differences in the level of tax or duty are important in this connection but do not entirely explain the disparities.

A number of parallel trends can be observed, however. Generally speaking, for example, there has been a reduction since 1973 in the regressivity of gas and electricity tariffs. Since this accords with the aims of energy-saving policies it should be accentuated in countries where regressivity is still relatively high.

In several Member States real prices to the consumer of certain forms of energy remained stable, or fell - even after 1973. While rises in the price of fuel oil have been general, although differing in amount, the price of petrol in real terms has fallen in Belgium and the Netherlands, and risen very slightly in Germany and the United Kingdom (see Annex 7).

Greater convergence of energy-pricing policies - while recognising the need for flexibility - therefore seems to be essential, so long as the tendency for energy prices to rise seems unavoidable. And rises in the price of energy would give the consumer an incentive to save energy, stimulate investment, and encourage the development of new forms of energy and energy substitution.

Any measure which keeps energy prices artificially low or which entails unjustified divergencies would act against the objective of encouraging the consumer to save energy, of stimulating investment, of bringing on new sources and achieving substitution.

Pricing policies must also take into account specific problems such as that of energy resources used as industrial raw materials; here the scope for substitution is extremely small.

G. Investment

22. Energy-related investment by Member States depends markedly on the potential of each to develop this or that natural resource, on the present size and the characteristics of its existing plant in the energy sector, and on the growth of requirements. Strictly speaking, therefore, it would be incorrect to talk of "convergence" in this connection.

It must be pointed out, however, that disparities in the burden of energy-related investments on the economy, like disparities in the import burden, are a factor of divergence between national economies themselves (see Annex 8).

The carrying out of energy saving investments and the production of substitute fuels is indispensable to the maintenance of economic growth. To be effective and not to accentuate disequilibria within the Community, they must be done in a co-ordinated way, so that the burden is fairly shared. The Community has an important role to play in this respect.

PART II

OBJECTIVES FOR 1990

23. As 1985 draws near, only limited influence can be exerted on the situation in that year. Most of the major policy orientations and investment decisions will not show their effects until after about ten years. What is decided now or in the next year or so will therefore determine the Community's energy situation around 1990. But these decisions must also enable us to start off in the following period on a sound footing, although this will be more shrouded in diverse uncertainties.

These objectives for 1990 will provide guidelines for producers and consumers. They will also permit continuous monitoring of convergence of the Member States' policies.

Annexe 9 shows that the objectives proposed below are compatible with the prospects for the enlarged Community. The economic and energy situations in Greece and the other two candidate countries are, perhaps to a greater extent than in the present Member States, exposed to the effects of an unfavourable evolution on the world oil market. Effort towards greater convergence, helped by Community action, will be equally indispensable for these countries.

24. The forecasts of the member States show that the evolution of the Community's energy balance between now and 1990 might be as follows :

1978(estimates)

Million toe

	Domestic production	Net imports	Gross consumption(*)	(%)
solid fuels	172,8	25,6	203,2	21
oil	64,5	470,0	541,7	55
natural gas	135,1	30,8	163,4	17
nuclear energy	28,3	-	28,3	3
others	32,7	2,7	35,4	4
Total	433,4	527,1	972,0	100
%	46	54	100	-

(*) Variations in stocks explain any differences between the sum of the first two columns and the third.

1990 (forecasts)

Million toe

	Domestic production	Net imports	Gross consumption	(%)
solid fuels	194	57	251	18
oil	87/147	572/497	659/644	47/46
natural gas	115/130	121	236/251	17/18
nuclear energy	204	-	204	15
others	39	4	43	3
Total	639/714	754/679	1393	100
%	46/51	54/49	100	

Source: replies by the member States in document COM/78/613 final, updated in mid-February 1979. They correspond with an annual average rate of economic growth of 3.9 %.

5. According to the assumptions for economic growth underlying these forecasts, the "energy/GNP" ratio could be by 1985 equal to or lower than the objective of 0,8 fixed by the European Council in July 1978 and could move towards 0.68 in the period 1986-1990.

Taking account of the uncertainties surrounding the development of the economy and the success of energy saving policies, a ratio of below 0.7 by 1990, would not be unreasonable.

26. The reasons for a ceiling on oil imports in 1985 are no less valid for a ceiling in 1990 (*).

World oil supply prospects do not seem to justify more than a stabilisation or at the most a slight increase over the amount of 470 m.tonnes of net imports set as a limit for 1985 by the European Council in March 1979.

The sum of member States' forecasts does not seem to be compatible with this constraint. This would be the case even if nuclear programmes were implemented without further slippage and if domestic hydrocarbon production were to approach the top of the ranges shown.

Since these two elements of the balance are subject to great uncertainties and that furthermore coal consumption capacity is in danger of being below the forecast level of available supplies, it is necessary to act more on energy demand, to counter the risk of inadequate domestic energy supplies.

27. The achievement of the objective of limiting oil imports to 470 mtoe while holding overall dependence to 50%, will require the simultaneous fulfillment of the following conditions :

- the setting up by all member states of energy saving programmes aimed at bringing about a permanent dissociation between economic growth and growth in energy consumption, particularly by supporting investment in energy saving;
- the pursuit and if possible the acceleration of nuclear programmes. The public concern caused by the recent accident in a power station in the USA suggests that there should be a better organisation of activities

concerning the safe operation of plant and the continual training of staff. Such action, of which the Community component is evident by virtue of the scale of the problem, is a prerequisite if those member States

(*) c.f. COM/78/613 final, para. 8 et. seq.

which have not yet decided on or started a nuclear programme are to do so. Coal and nuclear together should cover at least 70-75% of electricity production.

- a greater increase in coal-burning power station capacity than that now forecast; it should in any event make up for possible delays in nuclear programmes. Coal consumption capacity in industry as a whole should also be increased
- the reversal in the decline of coal production (147 mtoe or 210 mtce in 1978; 175 mtoe or 250 mtce in 1990) under satisfactory economic conditions
- hydrocarbon production towards the top of the ranges forecast by member States for 1990 (oil : 147 mtoe; natural gas: 130 mtoe) and if possible at a higher level, depending on the results of exploration
- at least a doubling of coal imports, implying a more positive commitment on the part of consumers.

28. The period up to 1980 must be exploited to create the conditions for satisfactory long-term supplies. In this respect, there should be an intensification of technical and scientific research at national and community level and a better co-ordination of national policies

New energy sources and energy savings make up the priority area of such research. Particular emphasis should in addition be put on the gasification and liquefaction of coal as well as on combustion techniques.

29. The Commission proposes that the Council should endorse these guidelines by adopting the attached draft resolution.

Draft resolution on energy objectives for 1990

THE COUNCIL

- Having taken note of the Communication from the Commission on "Community Energy Objectives for 1990 and Convergence of the Policies of the member States"
- Having regard to its Resolutions of 17 September 1974, 17 December 1974 and 13 February 1975 (*)
- Having regard to the conclusions reached by the European Council of July 1978 and of March 1979, fixing for 1985 the following objectives :
 - . to reduce to 0.8 the ratio between the increase in the demand for energy and economic growth
 - . to limit oil imports to the 1978 level, i.e. 470 million tonnes
- Whereas adequate and secure energy supplies at as low a price as possible is a necessary condition for the pursuit of the Community's economic and social objectives
- Whereas the general energy policy guidelines of the Community are as follows :
 - a) reduction of oil imports
 - b) energy saving and the rational use of energy
 - c) increasing the use of solid fuels and nuclear energy for electricity production
 - d) development of domestic resources of conventional forms of energy and promotion of new energies
 - e) diversification and security of external supply
 - f) price policies aiming at covering the costs of supplying energy, ensuring the equilibrium of the energy balance and encouraging energy-saving
- Having regard to the long-term prospects for supply and demand trends on the world market and, in particular, the risk of further increases in the price of oil

(*) OJ C.153 of 9 July 1975, pages 1, 2 and 6.

- Whereas Community action can help to stabilize the world energy market by means of cooperation with the energy-producing countries and with the consumer countries, in particular the developing countries
- Whereas it is necessary to provide guidelines for the action of the member States, both producers and consumers of energy by means of long-term quantitative objectives for the Community.

Having compared the energy policies of the member States and examined their convergences;

APPROVES the following Community energy policy objectives for 1990 :

- 1) To gradually reduce below 0.7 the ratio between the growth of energy consumption and economic growth
- 2) To limit to 50% the Community's dependence on energy imported from non-Community countries and more particularly to restrict to 470 million tonnes the level of net imports of oil (the level reached in 1978).

AFFIRMS the need, to achieve these aims, for convergent actions by the member States and actions by the Community in the following areas :

1. a stepping up of energy-saving measures
2. an increase in the use of solid fuels and of nuclear energy which, together, should cover 70 to 75% at least of the production of electricity. This means that each member State should contribute to the achievement of this overall percentage for the Community, particularly in the following areas :
 - a) a return to the coal output of 1973 (250 mtce = 175 mtoe) under satisfactory economic conditions
 - b) a significant increase in the imports of coal from non-Community countries in relation to the 1978 level (31 mtce = 22 mtoe)
 - c) creation of greater solid-fuel-burning capacities in power stations and, in certain industries
 - d) restoration of nuclear energy programmes as far as possible in fully satisfactory conditions of safety.
3. adaptation of refining capacities to the changed structure of the world oil market
4. an increase in the production of hydrocarbons so as to reach the upper level of the present estimates (147 mtoe of oil, 130 mtoe of natural gas); encouragement of exploration for this purpose;

5. Encouragement of the search for and the utilization of renewable sources of energy;
6. Development of trade in energy products between the member States;
7. Orderly achievement of the necessary investments
8. Pursuit of energy price policies aimed at :
 - gradually ensuring that consumer prices reflect the long-term development of supply costs
 - avoidance of artificially low prices and reducing the regressivity of tariffs
 - ensuring market transparency
 - gradually simplifying and harmonizing price and consumer tax practices.
9. Increased public information on all aspects of the energy problem so as to make the public aware of urgencies and priorities;

RECOMMENDS that the member States draw on the above objectives and guidelines in drawing up their energy policies and reinforce the convergence of such policies;

CONFIRMS its will to adopt the Community measures needed to complete or strengthen the actions launched by the member States to further these ends

CONFIRMS its will to contribute to the long-term stability of the world energy market by means of a constructive dialogue with the producing countries and by cooperating with the consumer countries, particularly the developing countries;

CALLS ON the Commission to provide it with a periodic report on the convergence of the policies of the member States in respect of these objectives and guidelines and to propose measures likely to achieve them.

Trend in oil imports

	Net imports of oil in 1990		Share of net imports of oil in gross energy consumption (%)	
	in mio toe	base 1977=100	1977	1990
D	157	115	52	42
F	124	111	61	44
I	123	129	68	51
N	63	175	47	58
B	35	130	57	58
L	2	121	32	27
UK	47/-28	89/ -	25	17/-
IR	11	193	75	66
DK	10	62	83	45
EC	572/497	118/103	51	41/49

Source: doc. COM(78)613 final, updated mid-February 1979

PUBLIC SECTOR BUDGET 1978: ENERGY SAVING PROGRAMMES

(M EUA)

	B	D	DK	F	I	IRL	L	NL	UK	TOTAL EEC
1. General Information Campaigns	-	4.4	0.3	2.3	-	0.4	-	1.5	4.2	13.1
2. Renovation of existing buildings	-	288	41	0.35	-	-	-	73	35 ⁽³⁾	437,4
3. Aids to investment in industry	-	23	29	34	-	-	-	27	8 ⁽³⁾	121
4. Demonstration projects	-	20 ⁽¹⁾	5	8	-	-	-	1	3	37
5. Research and development ⁽⁴⁾	4	33	3	42	10	0.2	-	7	40	139.2
6. Other	-	-	-	-	-	-	-	5 ⁽¹⁾	30 ⁽²⁾	35
TOTAL (millions of EUA	4	368.4	78.3	86.7	10	0.6	-	114	120.2	782,7
(EUA per capita	0,4	6,0	15,4	1,6	0,2	0,2	-	8,3	2,2	3,0

- (1) Principally combined heat and power, district heating and waste heat.
 (2) Principally energy saving in public buildings.
 (3) No estimate provided for the value of tax reductions, accelerated depreciation.
 (4) These estimates are not final.
- Sources: Questionnaire on Member States' energy programmes April 1978.
 : Replies to questionnaire circulated by DG IV 25/8/1978.
 : Work of groups of experts.
 : Population : EUROSTAT

Sources of electricity production, 1978-1990

A. in m toe

Country	1978 (1)				1990 (2)			
	Solid fuels	Oil	Nuclear energy	Other	Solid fuels (3)	Oil (3)	Nuclear energy (3)	Other
D	46.5	7.0	7.4	16.8	52.7	7.1	58.2	25.6
F	12.9	11.9	6.4	18.7	6.8	6.4	70.0	17.8
I	1.6	21.1	0.9	14.9	6.8	24.0	45.0	16.2
N	1.1	2.3	0.8	9.4	5.8	7.4	2.7	4.6
B	2.4	3.9	2.6	2.3	3.7/7.0	2.6/5.3	7.9	2.6
UK	45.3	13.1	7.1	2.2	58.0	15.0/17.0	20.0	3.0/1.0
IR	0.7	1.6	-	0.1	2.6	1.9	0.8	0.7
DK	2.9	2.2	-	-	4.0	0.7	3.4	-
EEC (3)	113.4 (4)	63.1	25.2	64.4	140/144 (4) (5)	65/70 (5)	208.0 (5)	70/68

(1) Source : EUROSTAT (estimates)

(2) Source : doc. COM/78/613 final

(3) Including Luxembourg

(4) Figure includes +/- 25 m toe lignite and peat

(5) The revised estimates of nuclear capacity made at the beginning of 1979 meant 166 m toe less nuclear energy production in 1990 than the 208 m toe given here. The shortfall breaks down as follows : D -3.1, F + 2.0, I -10.2, N -1.7, B -0.2 and DK -3.4. The figures for conventional thermal electricity generation (chiefly oil and coal-based) therefore represent a minimum which will probably be exceeded in most member States.

B.

	1978				1990			
	Solid fuels	Oil	Nuclear energy	Other	Solid fuels	Oil	Nuclear energy	Other
D	59.8	9.0	9.5	21.7	36.7	4.9	40.5	17.9
F	25.8	23.9	12.8	37.5	6.5	6.1	66.7	20.7
I	4.2	54.8	2.3	38.7	7.4	26.1	48.9	17.6
N	8.1	16.9	5.9	69.1	28.3	36.0	13.2	22.5
B	21.5	34.8	23.2	20.5	22.0/30.7	16.8/23.2	234.6/47.0	13.6/10.1
UK	66.9	19.3	10.5	3.3	60.4	15.6/17.7	20.8	3.2/1.1
IR	29.2	66.7	-	4.1	43.3	31.6	13.3	11.8
DK	63.4	48.1	-	-	49.4	8.6	42.0	-
EEC	42.6	23.7	9.5	24.2	29.0	13.7/14.2	44/42	13.3/14.8

(See table A. for notes)

ANNEX 5

Total uranium exploration expenditure within the Community

x 1,000 EJA

Member State	1975-77	1978 (estimate)	1979 (estimate)
B	40	150	400
D	6,400	3,000	3,000
DK	160	70	400
F	43,360	25,000	30,000
IRL	500	2,000	3,000
IT	8,000	3,500	6,000
L	-	-	-
NL	-	40	20
UK	240	150	200
Total	58,700	33,910	43,020
Community support (Art.70)	6.000	5.000	5.000

Source : Commission's estimate - based on article 70 and publication of INEA/IAEA - uranium resources, production and demand - December 1977

ANNEX 6

Expenditure of the member States and the Community on Research and Development and aid to demonstration projects in the field of new forms of energy and in energy savings

(A = million EUA ; B = EUA per head of population)

Country	1976		1977		1978	
	A	B	A	B	A	B
Belgium	n.d.		8.51	0.87	7.8	0.79
Denmark	n.d.		n.d.		n.d.	
Federal Republic of German	55.5	0.9	58.6	0.95	96.4	1.57
France	77.6	1.47	95.0	1.79	120.2	2.26
Ireland	0.09	0.03	0.38	0.12	0.71	0.22
Italy	27.6	0.49	35.3	0.63	50.7	0.90
Luxembourg	-	-	-	-	-	-
Netherlands	12.8	0.93	18.4	1.33	19.3	1.39
United Kingdom	40.7	0.73	45.1	0.81	61.0	1.09
Total member States	(215.4)		(261.15)	(1.01)	(356.11)	(1.37)
Community* (million EUA)	34.7	0.13	56.6	0.22	76.2	0.29
(% of total member States)	(16,1%)	.	(21.7%)		(21.4%)	
Total member States + Community	(250)	.	(317.75)	(1.23)	(432.3)	(1.67)

* Direct and indirect actions.

ANNEX. 7

Consumer selling prices for petrol and heavy fuel oil

Country	Range of prices in 1978 (highest = 100) (*)		Changes in real prices 1973-1978 (1978 price expressed as an index, with 1973 = 100)	
	Petrol	Fuel-oil	Petrol	Fuel-oil
D	51,5	54,7	104,6	174
F	65,9	51,9	122,1	166
I	<u>100</u>	65,5	146,8	176,4
N	54,9	52,2	97,2	172,6
B	55,2	48,9	97,2	127,1
L				
UK	53,8	77,6	107,5	198,5
IR	65,9	<u>100</u>	133,7	203,5
DK	51,5	56	114,4	167,2

(*) Prices expressed in terms of a comparable scale of purchasing power.

Energy objectives and enlargement

In adopting energy objectives for 1990, the Council should take into consideration the approaching enlargement of the Community.

1. The energy prospects of Greece are characterised, as for most of the present member states, by a heavy dependence on imported energy (57 % in 1990) and particularly on imported oil. The necessary development of the Greek economy will probably lead to a rate of growth of energy consumption higher than the average for the Community of nine. Overall, the objectives which the Commission proposes to adopt are equally valid, subject to possible revisions of the figures, for the enlarged Community.

In the interim, the various aspects of Greek energy policy and their convergence with the policies of the present member states should be examined according to the appropriate procedures.

2. The later adherence of Spain and Portugal will also not significantly modify the overall state of the Community energy balance in 1990 - although energy consumption is on a bigger scale : 122 mtoe, against 33 mtoe in Greece and 15 mtoe in Portugal. Like Greece, these countries will experience a high rate of growth of energy consumption, and will remain heavily dependent on imported oil. Concerning primary fuel supplies, Spain has not insignificant uranium resources. Hydrocarbon exploration in Spain and on its continental shelf has been going on for some years.
3. Even more perhaps than for the present members of the Community, the combined weight of energy imports and of investments in production and energy saving will represent for Greece, Spain and Portugal an overriding necessity yet at the same time a heavy constraint on the economy.
4. Statistical indications of the energy prospects for 1990 of the Community enlarged to ten and to twelve are shown in the attached tables.

TABLE 1

Energy consumption per head

	1978 (estimates)	1990 (forecasts)
EUR - 9	3,6	4,9
Greece	1,6	3,3
Spain	2,0	3,7
Portugal	1,2	1,5

TABLE 2

Energy forecasts of the three countries for 1990

	<u>Production</u> (mtoe)		
	Greece (1)	Spain (1)	Portugal
Solid fuels	9	15	0,1
Oil	1	9	-
Natural gas	0,2	-	-
Nuclear	3	23	1,4
Hydro	1	9	1,5
Total	14,2	56	3,0
		<u>Net imports</u>	(mtoe)
Solid fuels	1	3	0,5
Oil	18	52	11
Natural gas	-	11	-
Nuclear	-	-	-
Hydro	-	-	-
Total	19	66	11,5
Gross internal consumption	33,2	122	14,5
Degree of dependence (%)	57,2	54	79,3

Energy balance for the enlarged Community

mtoe	EUR - 9	EUR - 10 ^(*)	EUR - 12 ^(**)
<u>Production</u>			
Solid fuels	193	202	217
Oil	87/147	88/148	97/157
Natural gas	116/131	116/131	116/131
Nuclear	208	211	235
Hydro	39	40	51
Total	643/718	657/732	716/791
<u>Net imports</u>			
Solid fuels	55	56	60
Oil	580/505	598/523	661/586
Natural gas	122	122	133
Nuclear	-	-	-
Hydro	4	4	4
Total	761/686	780/705	858/783

	EUR-9		EUR-10		EUR-12	
	mtoe	%	mtoe	%	mtoe	%
Total						
Solid fuels	248	18	258	18	277	18
Oil	667/652	48/46	687/672	48/47	758/743	48/47
Natural gas	238/252	16/18	238/232	16/17	249/263	16/17
Nuclear	208	15	211	15	235	15
Hydro	43	3	44	3	55	3
Total	1404	100	1437	100	1574	100

(*) EUR-9 plus Greece

(**) EUR-9 plus Greece, Spain and Portugal.