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REVIEW OF ENERGY POLICY OBJECTIVES FOR 1990 AND MEMBER STATES' INVESTMENT PROGRAMMES

(Communication from the Commission to the Council)

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COVER NOTE

The attached report analyses progress towards the 1990 Community objectives, and the adequacy of investment plans, on the basis of an examination of national programmes, some of which are in course of revision.

2) In both areas, there are inevitable uncertainties. Supply and demand figures, and hence progress towards objectives, are affected by economic growth assumptions. Without entering into a sterile debate over the merits or demerits of present plans the paper seeks to show firstly that some plans may not be achieved, and secondly that there is scope for further investment in certain areas, notably energy saving/rational use, and coal.

3) The following general findings emerge in relation to the "guidelines" agreed by the Council in May 1980 :

(a) the ratio of 0.7 or less between energy growth and economic growth is likely to be achieved;

(b) oil consumption is likely to be around 43 % of total energy consumption instead of "about 40 %". This, and a failure to achieve the nuclear and coal objectives mentioned below, could entail significant additional oil consumption - perhaps as much as 50 million tonnes per year (1 million barrels per day) in the early 1990's;

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- c) production of 70 to 75 % of electricity from coal and nuclear should be achieved, but only if investment programmes are fulfilled. There is in fact some doubt whether all Member States will succeed in this. This question is examined in greater detail in a separate report (COM/81/65);
 - d) although bigger than at present, the proportion of energy consumption covered by renewable sources will inevitably remain small (2.2 %);
 - e) though progress is being made in adapting energy prices to the attainment of objectives, pricing policies still vary widely within the Community.
- 4) The Commission suggests that the Council should focus discussion on the following questions :
- a) Investment. If economic activity remains below present forecasts for the next decade, what can be done at Community level to maintain energy investment ?

If average annual growth is (say) 2.5 % rather than the overall 3.2 % now forecast by Governments, investment will be discouraged, particularly in countries with the lowest growth rates. Disparities between Member countries will grow and there will be higher oil consumption when satisfactory economic growth is finally resumed. The lower demand for energy in the short term arising from the lower growth rate could lead to a false feeling of security.

The Council should therefore consider as a primary objective the maintenance of energy investment at the levels planned, in particular because of the damage failure would do to the prospects for economic growth.

b) Saving. Do consumers (domestic, commercial, industrial) have sufficient incentives for investment in oil/energy saving? Will the full possibilities be exploited?

Pricing policies will play a key role. But in the current recession, with slack demand, profits and high interest rates, not all companies and private consumers will be prepared to give high priority to energy saving; selective incentives will therefore be necessary both to exploit the full possibilities and to recognise the overall national interest (greater than the interest of individual citizens). Much of the action required must be at national level. But this must be accompanied by greater coordination at Community level, within the framework of agreed Community strategy.

The Community makes an important contribution to the investment effort in the energy sector. Community action must as a priority help to support coherent programmes, instigating and reinforcing action in certain areas which would not occur without external financial support. This is especially the case for investment intended to increase energy saving, particularly in the industrial sector.

The Community must use its existing lending instruments (notably EIB, NCI and ECSC) as well as instruments of interest rebate already available to it to achieve the various priorities more effectively.

It will be appropriate to study, alongside different proposals on investment and their financing, what would be the best use of these Community instruments and how they could possibly be developed in the future.

c) Coal. Should more be done to encourage coal consumption? Should Community coal production be increased in the interests of security of supply?

There is a danger that the necessary investments for coal transport, handling and consumption by the electric utilities, and by industry in general will be delayed, or discouraged by environmental and planning problems. Here again, Community incentive could help to accelerate investment. Maintaining coal production under acceptable economic conditions should be a continuing task for both interested national governments and the Community as such. Investment in economic coal production would increase security of supply and offer some

protection for the Community from rising world coal prices. At the same time the Community must ensure that it can increase and guarantee long-term coal imports. The Commission has analysed coal prospects to the year 2000 (COM(80)117 final) and will shortly table a paper on the use of coal in industry.

(d) Other alternatives to oil. What can be done at Community level to

- (i) ensure that there is no further slippage in nuclear programmes,
- (ii) speed up the introduction of new energies?

In some countries, nuclear investment may fall behind because of low short-term electricity demand and lack of public appreciation of the need. Policy should be to increase nuclear within prudent limits (recognising and seeking to allay the continuing public concern over nuclear safety), and discourage the use of oil for electricity generation. Otherwise any recovery in electricity growth will tend to increase demand for oil (already high). New energies should be encouraged at Community level through continued and broadened programmes of support for research and demonstration projects. In order to facilitate public acceptance of nuclear investment the Commission will continue to ensure the application of the Articles of the Euratom Treaty dealing with health protection; it will pursue research and development in the nuclear field, especially the storage of nuclear waste, both at the Joint Research Centre and through contract research; and in general it will increase the coherence of all its actions on nuclear safety.

(e) Domestic production of oil and gas. Is there scope for increase?

A balance must be struck between overreliance on external sources, and uneconomic production of the Community's own resources.

(f) Prices. Is the Council satisfied that energy prices adequately reflect conditions in world markets, in accordance with the energy pricing principles agreed by the Council in May 1980, and as further considered by Economics and Finance Ministers in the light of the Commission's paper on "Energy and Economic Policy" (COM(80) 583).

How far does the Council believe it has been successful in implementing agreed principles of action in ensuring that increases in the prices of primary energy are passed directly on to the final consumer, but without encouraging corresponding increases in wages and salaries?

What progress may be envisaged in reducing the excessive disparities in prices that continue to exist among Member States or in improving the relationship between prices of competing fuels?

The Commission has been invited by the Council (Economics and Finance) to make a communication on the pricing policy needed to meet energy objectives.

This will be submitted to the Council shortly.

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NOTICE

The report is based on information supplied by Member States during the course of the second half of 1980. The quantitative data are presented on a consistent basis according to the conventions of the Statistical Office of the European Communities, which explains certain small discrepancies with information published by national sources.

Since the report was drafted some Member States have provided complementary or new information. This does not alter the picture for the Community as a whole but it points to some change in the assessment of individual national policies. In particular:

Belgium

Most recent forecasts are based on a lower growth rate assumption and a consequent fall in primary energy consumption from 64 to 58 mtoe in 1990.

The new forecasts point to reduced oil consumption especially in industry (19% instead of 33%) and in non-energy uses (80% instead of 100%), as well as greater penetration of electricity in consumption as a whole (30% instead of 27%).

The share of solid fuels in electricity production is expected to rise (33.7% instead of 23%) while that of nuclear is expected to remain broadly unchanged (46%).

Denmark

A "1981 Energy Plan" is in preparation which could mean changes to certain forecasts.

France

A "programme carburants" (use of non-oil-based motor fuels) was launched at the beginning of 1981.

Ireland

The energy savings programme has been intensified through, for example:

- a quadrupling in the public finance available (£4.76 m in 1981; £1.06 m in 1980);
- increases in the price of oil products in 1980, proposed increases in motor fuel taxes in 1981.

Germany

More recent forecasts, based on a slightly lower growth rate assumption, suggest reductions in gross energy consumption (-36mtoe or 10%) and in oil consumption (-19mtoe or 12%) in 1990. This would constitute appreciable progress in the dissociation of economic growth and growth in energy demand. The share of oil in energy consumption is expected to fall to 39% (instead of 41%), reflecting increased substitution in the industrial and domestic sectors.

Reduced forecasts for nuclear output (38mtoe instead of 41.5) and for the use of natural gas in power stations (9.3% instead of 11.4%) reflect an assumption of reduced electricity demand. The share taken by solid fuels and nuclear together is expected to reach 85%, as initially forecast.

Luxembourg

A number of decisions designed to encourage energy saving were taken towards the end of 1980.

I. INTRODUCTION

1. At its meeting on 13 May 1980, the Council (Energy) decided on new Community energy policy objectives for 1990¹.

In its Resolution, the Council requests the Commission to assess the Member States' energy policy programmes, to submit an annual report, and to make recommendations and proposals with a view to increasing the convergence of the Member States' energy policies, ensuring that that Community's energy objectives are achieved and adapting them to long-term economic trends and energy supply conditions. In addition, the Council (Economics and Finance), recognising the relevance of the problems identified by the Commission in its communication on energy and economic policy, has invited the Commission and the Economic Policy Committee to examine whether the financial and statutory measures adopted by Member States are adequate to ensure the realization of their energy programmes. This examination will be the subject of a communication from the Commission to the Council in the near future.

2. This is the first annual report and it includes Greece, which has adopted the Community's energy policy guidelines. Although Greece has been a member of the Community only since 1 January 1981 the analysis that follows includes figures dating back to 1979.

II. EXAMINATION OF THE GUIDELINES

3. Several basic guidelines have been laid down for the attainment by the Community of its energy policy objectives for 1990.

Although these guidelines basically relate to the Community as a whole and not to each individual Member State, the assessment which the Council has asked the Commission to carry out also necessitates a comparison of the Member States' programmes with the Community guidelines, especially with a view to identifying weak points and possible scope for improvement.

A. PRIMARY ENERGY CONSUMPTION AND GROSS DOMESTIC PRODUCT

4. The first objective is:

"to reduce to 0.7 or less the average ratio for the whole Community of the rate of growth in gross primary energy consumption to the rate of growth of the gross domestic product".

¹See Council Resolution of 9.6.1968, OJ No C 149 of 18.6.1980, p.1.

The Member States' forecasts for the period 1985-90 point to a Community average of about 0.65/0.66. However, a fundamental problem where elasticities are concerned is that they are affected in different ways by a number of specific factors (e.g. the ups and downs of the economic cycle, structural changes in the industrial sector, changes in fuel tax, technological progress).

5. The question of economic growth also complicates matters a great deal. Member States' expectations as regards economic developments vary, so they have based their forecasts on growth rates which in some cases differ considerably from one another, ranging between 1.9 and 5.3%. However, differences in economic activity mean that the intensity of energy use also varies, with the result that the indicative value of the elasticities is again impaired. In addition the assumptions about world economic activity (e.g. oil price levels, trade flows) underlying the national forecasts are too varied to provide a coherent macro-economic scenario for the Community.

6. Furthermore, Member States forecast growth rates, averaging around 3.2% a year for the 1980s, seem to be for the most part on the high side. Economic modelling by the Commission services suggest that an average growth rate of 2.5% a year would be more realistic. This would have effects on the energy economy, some of them contradictory. On the one hand, the level of energy saving would be adversely affected by a less favourable investment climate, thus perhaps reinforcing the effects of recession and leading to higher oil consumption. On the other hand lower economic growth would mean reduced capacity utilization and a consequent reduction in energy and oil use. At present we cannot give a more precise quantification of these and other effects of a reduced rate of growth. But the possibility of lower growth is an important qualification to the basic economic assumptions underlying national forecasts.

7. The following table uses the ratio between specific energy consumption and gross national product as an alternative means of measuring future trends:

Table 1
Economic Growth and Growth in Energy Consumption

(1973 = 100)

	Energy Consumption per Unit of Gross National Product *		
	1979	1990	Change
B	92	86	- 6
DK	94	74	- 20
D	94	83	- 11
F	90	80	- 10
HE	105	124	+ 19
IRL	98	96	- 2
I	95	87/(96)	- 8/+ 1
L	79	78	- 1
NL	96	92/95	- 4/- 1
UK	95	80/79	- 15/- 16
EC	93	82	- 11

8. The following trends emerge with regard to the time horizons 1973, 1979 and 1990:

- considerable progress in Denmark and the United Kingdom,
- particularly poor figures for Greece, worse than average trends in Ireland, the Netherlands, Italy and Belgium, which should therefore endeavour to restrain the growth in energy consumption between now and 1990. However, a more detailed analysis would also have to take account of the specific structural features in countries such as Greece and Ireland where economic and industrial development inevitably entails higher energy demand.

B. CRUDE OIL CONSUMPTION

9. Another target for 1990 set in the Council Resolution is:

"to reduce oil consumption in the Community to a level of about 40% of gross primary consumption".

Table 2 indicates the foreseeable development in the light of present conditions:

Table 2
Crude Oil Consumption as a Proportion
of Total Primary Energy Consumption

	%		mtoe	
	1979	1990	1979	1990
B	52	48	25	30
DK	77	53	16	13
D	51	40	142	143
F	62	31/36	115	76/88
HE	75	54	12	16
IRL	74	65	6	9
I	71	54/(59)	96	97/(117)
L	33	36	1	2
NL	45	47/49	31	38/45
UK	42	39/40	93	90/99
EC ¹	54	42/43	537	514/542

¹ Ignoring the less favourable variant for Italy.

According to these figures, the main positive result of the oil substitution and conservation policy of the eighties would be that oil requirements would remain more or less constant, compared with an increase of around 25% in total gross energy demand (representing about 250 million tonnes oil equivalent (mtoe)). However, the Community target of 40% would be exceeded in 1990 by 24 to 42 mtoe.

According to the forecasts, Belgium, Denmark, Greece, Ireland, Italy and the Netherlands would be above the 40% mark in 1990. It is necessary to take a look at the situation for each country individually.

10. In Belgium, demand for crude oil is expected to rise considerably in absolute terms between now and 1990. One of the possible weak points in Belgium's energy balance sheet in the eighties is likely to be an inadequate shift towards solid fuels (increase from 11.4 to 13 mtoe only). A striking feature of the structure of final energy consumption in Belgium is the disproportionate increase in oil consumption in the industrial sector from 3 mt in 1979 to 7 mt in 1990. In the domestic sector too, oil consumption is expected to remain at a fairly high level between now and 1990, accounting in 1990 for 44% of total demand compared with the Community average of 31%.

11. Denmark is making a considerable effort to reduce its very high level of dependence on oil (in 1979, oil's share was 77%, the highest figure within the Community). Denmark intends:

- to reduce oil imports by 30% (4.6 mt) by 1990,
- to increase imports of solid fuels by nearly 8 mtoe,
- to build up a natural gas supply system supplied from its own gas reserves,
- to expand district heating supplies.

The less favourable aspects of Denmark's energy balance sheet are as follows:

- the high level of oil consumption in the industrial sector,
- the fact that there are no plans for the use of nuclear energy.

12. Like Denmark, Greece is planning a considerable reduction in its extremely high level of oil dependence, which should fall from 75% to 54%. This is to be achieved almost exclusively by means of a planned tripling of domestic coal production to 9.5 mtoe by 1990.

The weak points in the Greek energy balance in 1990 are above all:

- that oil use is expected to grow by nearly 40%;
- a much higher relative level of oil use in industry and the domestic sector than the Community average, despite projected falls;
- no use of natural gas as a source of primary energy;
- the use of nuclear energy is too limited; and
- the low level of projected domestic production of hydrocarbons which could suggest insufficient exploration activity.

13. Ireland is planning to cut back oil's share to below 65% by 1990, but overall the efforts at oil substitution do not appear to be adequate as yet. A considerable increase in coal burn is planned, but there are also a number of negative factors:

- oil imports are to be increased by over 50%;
- energy consumption is growing relatively quickly and energy conservation measures, though recently strengthened, will need time to take effect;
- oil's share (over 71%) in the industrial sector will remain particularly high (67 %) though below the figure for 1979;
- Ireland is another country which does not yet use nuclear energy.

However, an overall assessment of energy policy in Ireland would also have to take into account the country's specific efforts in the industrial policy field.

14. Italy is projecting 54% to 59% for crude oil consumption as a share of total primary energy consumption: after Ireland the second highest figures for the Community. At the same time the new Italian energy programme is very ambitious in several respects:

- extensive energy conservation measures (the aim being to reduce oil requirements by up to 20 mt in 1990),
- massive increase in the use of coal,
- further intensive development of natural gas supplies,
- considerable progress with the use of nuclear energy.

However, it remains to be seen whether these plans can actually be implemented.

15. The Netherlands is the only Community country which is planning not only to increase its oil imports in absolute terms between now and 1990, but also to raise oil's relative share above 40%. The trend expected in the Netherlands therefore clearly runs counter to the Community's oil substitution policy, though the Netherlands has considerable natural gas reserves and is therefore better placed than some of the other countries.

The aspects of the Netherlands' energy balance that are difficult to reconcile with agreed Community guidelines or at least raise serious questions can be summarized as follows:

- although an increase in the use of coal is planned (9 to 11.5 mtoe) in 1990, it is not enough (by comparison, the figures for Denmark, France and Italy are 8 mt, 27 to 32 mt and 29 mt respectively),
- stagnation of the use of natural gas, reduction of over 25% in Dutch natural gas production by 1990,
- considerable increase in the amount of crude oil used in the industrial sector (especially non-energy industrial use) from 45 to 52% (compared with the Community average of 25 to 28%),
- high and rising proportion of crude oil used for electricity generation (see point 25),
- stagnation in the use of nuclear energy (see point 25), whereas an increase could bring the rather low degree of electricity penetration (20% by 1990) to a level comparable with other Member Countries (Community average by 1990 = 35%), thereby reducing oil consumption and enabling a better use of gas resources.

C. ELECTRICITY GENERATION

16. The target agreed to in this respect by the Council in its Resolution of 9 June 1980 is:

"to cover 70 to 75% of primary energy requirements for the production of electricity by means of solid fuels and nuclear energy".

As shown in table 3, the Member States' forecasts indicate a rise in the proportion of electricity generated by means of solid fuels and nuclear energy from 60% to 76 to 77% between 1979 and 1990:

Table 3

Electricity generated by means of solid fuels and nuclear energy¹

	1979	1990
B	51	73
DK	65	80
D	72	85
F	58	87
HE	55	88
IRL	25	37
I	12	48/(44)
L	44	43
NL	14	33/41
UK	82	86
EC	60	77

¹ Including coke oven and blast furnace gas (2.4% in 1979).

Broadly speaking, the Community electricity generation target would thus be attained, but as the following table shows the actual position may be less favourable

Table 4
Sources of energy used for electricity generation

Community (9)	1979		1990	
	mtoe	%	mtoe	%
Solid fuels	125.4	45	163/168	38/39
Petroleum	67.8	24	59/60	14
Gas(*)	35.7	13	29	7
Nuclear energy	37.2	13	160	38/37
Hydro, geothermal, other	14.0	5	14	3
TOTAL	280.1	100	425/431	100
Proportion of nuclear energy and coal (*)	169.3	60	305/310	77
Electricity's share in the coverage of total energy consumption		29		35

(*) Including coke oven and blast furnace gas (5.8 mtoe in 1979).

17. It emerges from this survey, for the Community as a whole, that
- on average, the quantity of solid fuels is expected to increase by approximately 3.5 mtoe per annum; as a result, the proportion represented by solid fuels in total electricity generation would diminish by 6 to 7 percentage points;
 - at best, the amount of petroleum used as a power station fuel would fall by only 9 mt within 11 years; at least 59 mtoe would still be used for electricity generation in 1990, split between countries as follows:

	B	DK	D	F	H	IRL	I	N	UK	EC
Mio t	2.4	1.8	4.9	5.2	1.0	2.6	23.9/ (29.4)	6.1	11.0	58.9/ (64.4)
%	4	3	8	9	2	4	41	10	19	100

- the expansion of nuclear energy is still unsatisfactory, all the more so in that half of this is attributable to one country (France);

- the slow decline in the use of natural gas in power stations once again casts doubt on the seriousness of the declared intentions of the Member States to use natural gas in the domestic sector, small industry and certain types of industrial production in which its characteristics (low polluting, easy to use) can be fully exploited, rather than in power stations in which these advantages are wasted.

18. In Belgium, the increase in electricity generation is expected to be covered largely by nuclear energy and coal. Although a considerable reduction in oil's share is expected, it will still represent 2.4 mt in 1990.

The proportion of natural gas consumed in power stations is expected to rise — although to a comparatively small extent — and to cover over 16% of the electricity generated in Belgium in 1990.

19. In Denmark the Community guidelines should be met and exceeded through increased coal use. No positive decision has yet been taken on nuclear energy. Thus oil used in power stations is expected to remain virtually constant in the 80's.

20. Apart from the United Kingdom, the Federal Republic of Germany is the only country which had already attained the Community electricity generation target for 1990 in 1979. Oil's share in electricity generation is expected to fall to 4% by 1990, but even so this would still represent nearly 5 mtoe.

Critical comments are warranted concerning:

- the very large amount of natural gas used in power stations (in 1979, Germany accounted around half the total amount of natural gas used for electricity generation in the Community, and this is likely still to be the case in 1990),
- sluggish development of nuclear energy, as a result of which it is open to question whether the forecasts to 1990 (development of capacities from 9 to 30 GW) can be achieved.

21. In France, nuclear energy is to be the main source for the generation of electricity. The amount of coal used for electricity generation is at the same time expected to fall from around 14 mtoe at present to 7 mtoe, which could throw doubts on the balance of the electricity programme. An added factor is that in 1990 5 mt of oil could be required in this sector. And after an increase in solid-fuel burning capacity in power stations between 1980 and 1985 (from 12,750 to 15,900 MW), capacity is expected to fall back thereafter to 13,100 MW.

22. On the basis of the remarkable efforts planned to increase the contribution from solid fuels and the — albeit more hesitant — introduction of nuclear power by 1990 Greece could have the highest coverage of electricity production from these two sources in the Community (88%). At the same time oil use is expected to halve to 1 m tons.

23. The electricity generation situation in Ireland is, on the other hand, unsatisfactory. Although the plan is to triple coal input between 1979 and 1990, oil input is also expected to increase further, and will still cover 50% of electricity requirements in 1990. The planned increase in the amount of natural gas used to generate electricity is not in line with agreed Community guidelines although it may be justified by special circumstances. The prolonged delay in the decision to use nuclear energy is another weak point.

24. According to the most recent Italian electricity plans, the intention is to alter as quickly as possible the structure of production, which has so far focused on petroleum. Significant efforts are planned in the coal and nuclear fields which have previously largely been neglected. Nevertheless, a further increase in oil input in power stations is unavoidable. The proportion of electricity planned to be generated in 1990 from coal and nuclear energy (at most 48%) is too low, and oil's share (at least 40%) is too high. Even these figures require full implementation of the coal and nuclear energy plans between now and 1990 which must be regarded as uncertain.

25. On the positive side, there are signs of an increase in the quantities of solid fuels used for the generation of electricity in the Netherlands.

However, there are several weak points:

- high natural gas input (49% share in 1979), which is to be reduced between now and 1990 but will still total around 5 mtoe;
- further rise in oil input (30 to 38% share planned for 1990 compared with a Community average of 14%);
- stagnation in the use of nuclear energy at a level of only 1 mtoe (a discussion paper on the building of three additional nuclear power stations is at present before the Dutch Parliament).

As a result, the Dutch forecasts for 1990 indicate that the Netherlands will have the lowest proportion (33 to 41%) for electricity generated from solid fuels and nuclear energy, so the Netherlands will be a long way from the Community target despite considerable progress compared with the present level of 14%.

26. The United Kingdom already generates about 82% of its electricity from solid fuels and nuclear energy. The United Kingdom is therefore the best placed of all the Community countries in this respect. Where the estimates for 1990 are concerned, positive factors are the increase of nuclear energy capacity to 19 mtoe and extensive substitution of natural gas. On the other hand, there is no significant reduction planned in the amount of oil used, which is expected still to be at a level of 10 to 12 mt in 1990.

27. deals in greater detail with electricity generation in the Community and oil burn in power stations.

D. RENEWABLE ENERGY SOURCES

28. In its Resolution of 9 June 1980, the Council set the following target: "to encourage the use of renewable energy sources so as to increase their contribution to the Community's energy supplies".

The role of renewable energy sources in the coverage of the Community's total energy requirements can be seen from the following table:

Table 5
Role of renewable energy sources¹

	1979		1990 ²	
	mtoe	%(3)	mtoe	%(3)
B	0.08	0.2	0.1	0.2
DK	(0.26)	(1.3)	0.6	2.5
D	2.53	0.9	4.0	1.1
F	5.92	3.2	14.5	6.0
HE	0.3	1.9	0.5	1.6
IRL	0.07	0.8	0.1	0.7
I	4.37	3.2	6.5	3.6
L	0.02	0.5	0.03	0.6
NL	0.34	0.5	0.2	0.2
UK	0.37	0.2	0.4	0.2
EC	14.00	1.4	26.9	2.2

¹ Hydro, geothermal, biomass, solar, wind, wave.

² Average values.

³ Renewable energy sources produced, as a percentage of total gross energy consumption.

29. Public spending on the promotion of renewable energy sources was as follows in 1974 and 1978:

Table 6: Research, Development and Demonstration: Renewable energy sources (*) (**)

	1974		1978 (prov.)	
	M EUA	%	M EUA	%
B	2.0	3.5	4.2	2.1
DK	n/a	-	6.0	3.0
D	26.2	45.7	55.6	27.7
F	15.1	26.4	62.8	31.3
HE	n/a	n/a	n/a	n/a
IRL	-	-	0.5	0.2
I	2.0	3.5	32.5	16.2
L	-	-	-	-
NL	4.3	7.5	18.2	9.1
UK	7.7	13.4	21.0	10.4
<i>Total</i>	57.3	100.0	200.8	100.0
EEC	22.4	-	72.1	-
<i>Grand Total</i>	79.7	-	272.9	-

30. The following points emerge from the two tables given above:

- The contribution of renewable energy sources to the coverage of energy demand in 1990 is expected to be just over 2% on average for the Community as a whole; the increase each year in comparison with 1979 is likely to be fairly small;
- Only in the case of France are there clear expectations of significant achievements in this connection as early as 1990;
- Apart from France, the only significant improvement is likely to be in Italy and — although only where research activities are concerned — the Netherlands and Germany;
- Belgium, Ireland, Luxembourg, the Netherlands, the United Kingdom and Germany are clearly below the average where production is concerned.

(In this context it should be noted however that it is in practice impossible for some countries to increase their use of hydro power).

31. As can be seen from Table 6, there has been a considerable upsurge in research and development activities in recent years. However, the very small contribution expected, and the still unbalanced distribution of research expenditure as between the Member States point to a need to intensify the efforts still further. Recent studies in the agricultural

(*) No figures available for Greece. Totals include hydrogen and nuclear fusion.

(**) Source : XII/1000/79-EN, prepared by the Energy R&D Subcommittee of CREST.

sector have shown that around 100 mtoe of usable bio-wastes arise each year in the Community countries. Even if it was possible to exploit only a tenth of this potential in the medium term this would still reduce the Community's oil import bill by 2%.

32. More generally, it is difficult to assess the Member States' policies on renewable energy sources because insufficient information is available. It will be necessary to go into this aspect in greater detail in future reports.

E. ENERGY PRICING AND TAXATION

33. The Council Resolution commits member states " to pursue an energy pricing policy geared to attaining Community energy objectives". Energy pricing should be based on the following principles.

- consumer prices should reflect representative conditions on world markets;
- one of the factors determining consumer prices should be the cost of replacing and developing energy resources;
- greatest possible degree of transparency.

34. All member states are now convinced that the consumer prices of energy must reflect the long term cost of energy supply. since:

- realistic pricing is the best instrument for encouraging energy saving,
- it is essential to protect/^{the} investment in substitutes which is indispensable for our future supplies,
- Subsidising energy prices from public funds is no longer financially tolerable.

35. The response of consumer prices within the Community to the sudden increase in oil prices in 1973-4 was very uneven. In some countries (eg Germany) and for some fuels (especially oil products) prices were quick to respond to changed conditions in world markets, and in some countries (eg Italy) excise taxes were also adjusted in line with the increase in pre-tax prices. But during the following period of relaxation on the world oil market, from 1975-8, and with widely varying rates of inflation within the Community there was a marked disparity in the extent to which real price levels were sustained. In most countries, and especially in the case of domestic gas and electricity, prices were held down under price control regimes of varying degrees of severity.

Up till 1978 the differences between the prices charged within the community both within and between member states tended in the main to increase both in absolute and in relative terms. Since the renewed increase in oil prices in 1979 the general tendency within the Community has been to abandon price control.

The differentials are still of the same general order as in 1973 in relative terms; though much larger in absolute terms, and are still probably greater than can be accounted for by differences in the cost of raw materials, labour, and processing and distribution costs. The incidence of taxation remains well below 1973 levels.

Some of the more striking features of energy pricing within the Community are reviewed below.

36. In Denmark energy consumption has for many years been highly priced and - with the exception of diesel fuel - tax rates are among the highest in the Community. This is a major factor in determining the exceptionally high energy efficiency of the Danish economy.

37. In Germany free market pricing, which of its nature must cover costs, has always been the rule. An additional measure likely to encourage conservation in the electricity field took effect on 1 April 1980 with the reduction of the degressivity of tariffs for heavy consumers. The Government's decision to concentrate on (notably indigenous) coal for electricity generation and for nuclear power to take second place is bound to have an effect on the prices charged to the final consumer.

38. In Greece energy prices are generally low, reflecting the low cost of processing and distribution. A major exception is gasoline which is among the most expensive in the community.

39. A feature of energy pricing in Ireland is that while pre-tax prices are generally high, tax rates remain generally low despite recent steep increases. Non-oil fuels are entirely exempt from tax.

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40. Substantial progress has been made in Italy in recent years in all the main sectors of energy pricing. Taxes on petroleum products have been increased and refinery margins have been brought closer to the community average. In the electricity sector welfare assistance for low-income earners has been reduced, and in some cases progressive tariffs have been introduced for domestic electricity and gas.

41. In Luxembourg, oil products are still priced and taxed well below the levels prevailing elsewhere in the Community, despite recent increases.

42. In the Netherlands the long-term aim is to align natural gas prices for the domestic consumer on gas oil prices. But at present price adjustments are related to the price of fuel oil, and gas prices are below those in other community countries. However progress has been made on electricity prices where the degressivity of tariffs has been reduced.

43. In France there has been a tendency for market prices to prevail. With the growing proportion of electricity generated from nuclear electricity prices are already tending to rise less rapidly than those of other fuels and the Government predicts a marked strengthening of this trend.

44. In the United Kingdom there has been a reversal of energy pricing policy and with the abolition of price control, steep increases in taxes on oil products, and the strength of the pound against other Community currencies UK prices, which have generally been low by Community standards are in general well up to community levels. As in Ireland, no tax is charged on non-oil fuels, though the imposition of strict financial targets on the nationalised gas and electricity undertakings has an economic impact somewhat similar to taxation.

III. ENERGY SAVING

The present situation

45. The Council has laid down detailed guidelines for the Community's energy saving programme in a Resolution¹ accompanying the Resolution on energy policy objectives for 1990. In a separate report (COM(80) 899 final), the Commission has made a detailed comparison of Member States' energy saving programmes with the basic programme annexed to the Resolution. A full implementation of the Council's Resolution on energy saving is essential for the success of the Community's energy policy as a whole, and must be ensured despite the present economic circumstances.

46. In the Seventies, after very substantial early savings, essentially due to the elimination of waste without significant investment, rather slow progress was made in the Community as a whole.

Table 7: Energy conservation since 1974

(cumulative % savings)

	1974	1975	1976	1977	1978	1979
EEC	3	7.5	7.4	8.7	10.4	10.7

Estimates are based on the difference between a level of energy consumption projected on the basis of relationships prior to 1973, but taking account of economic cycles and the climate and observed energy consumption.

47. To achieve a more satisfactory rate of progress in the next decade, it will be essential to maintain a high level of investment on the basis of careful analysis of cost-effectiveness. In view of the likely low economic growth and difficult investment climate, incentives will be required at Community level or Member State level.

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¹OJ N° C 149, 18 June 1980, page 3.

Priorities for immediate action

48. The first priority must be to ensure that every Member State has a basic programme in place on the general lines suggested in the annex to the Council Resolution on energy saving.

Belgium and Italy have yet to adopt comprehensive proposals submitted to their national Parliaments early in 1980. Luxembourg has still to propose a comparable programme to its Parliament.

49. Some Member States still do not have mandatory standards for the construction of new buildings. Others have standards which only cover a part of new construction activity, or are overdue for review. The difference in levels of requirement between standards in Member States is much greater than can be justified by differences of climate or energy prices. The Commission's services will shortly be making a study on this subject available to Member States, and, if necessary, will propose Community legislation in 1981.

50. Recent studies have shown that significant savings remain to be achieved in energy-intensive industries. However, many of these industries are in financial difficulties and are in receipt of financial support from governments

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to assist their restructuration. It is vital that full advantage be taken of the opportunity to improve the efficiency of energy use and introduce substitutes for oil. Equally, Energy Audit Services for small and medium companies are also of proven value; many Member States could be more active in encouraging the development of an appropriate data base and software system (3) readily accessible to all interested firms.

51. Member States with important automobile industries have agreed with their industries voluntary guidelines for the fuel performance of new motor cars but more stringent targets will be required for the future. In most Member States, there is room for greater efforts to improve driving behaviour, and the maintenance of existing cars.
52. With the exception of France, ^{the Netherlands} and Germany, no Member State has yet introduced any significant measures to promote the rational use of energy in agriculture and fisheries.
53. Many Member States are pressing ahead with programmes for the more rational production and use of energy, especially low-grade heat. However the success of such programmes will depend upon continued support from Governments.
54. In general, comparisons of public spending on energy conservation shows wide divergencies between France, Germany, Denmark, the Netherlands and other Member States (4). The United Kingdom, which was amongst the foremost in this respect, is now intermediate between the high and low spenders. The Commission recognizes that levels of public spending will be kept under review to ensure cost-effectiveness, but considers that the full benefit of higher energy prices can only be obtained if an appropriate market framework is in place. This inevitably requires some public expenditure, probably at least of the order of that now observed in France, Germany, Denmark and the Netherlands.

(3) See the Commission's Recommendation to Member States concerning the "Rational Use of Energy in Industry", July 1980 (doc. COM (80) 954), which relates to the energy bus.

(4) COM 80/899 final.

IV. INVESTMENT *

55. In the period 1981-90, the Community countries are planning to invest around 500 thousand million EUA in the energy sector, 80% of this figure being devoted to supply and the remainder being intended for investment to improve energy productivity. The following changes can be observed compared with the estimates made at the end of 1978 :

- where supply is concerned, a 50% increase in investment in the coal and non-nuclear electricity sectors, and
- where demand is concerned, an 80% increase in investment in energy savings.

Table 8 - Investment in Energy Production and Conservation, 1981-90

	Thousand million EUA ¹	%
Solid fuels	41	8
Hydrocarbons	105	21
Electricity	231	47
nuclear	95	
conventional	63	
transmission and distribution	73	
Nouvelles sources	14	3
Energy conservation ²	90	18
District heating ²	13	3
	494	100

(1) Prix et taux de change de 1980

(2) Estimations des services de la Commission.

Table 9 is particularly significant of comparison of energy investment proposed in relation to energy consumption in 1979.

Table 9 - Proposed investment in the period 1981-90 in EUA per toe consumed in 1979

D	F	I	NL	B	L	UK	IRL	DK	HE	EC
483	575	521	319	332	42	474	562	612	707	488

*This section reviews energy investment plans (public and private), forecasts and opportunities in the light of:

- (a) Member States' replies to the Commission's investment questionnaire, and
- (b) the bilateral discussions on energy investment which the Commission and Member States held during the summer of 1980.

56. This volume of investment would represent 2.1% of GDP and 9.3% of gross fixed capital formation - assuming 3.2% economic growth - compared with 1.5% and 6.8% in the period 1968-80. A lower, and more realistic, rate of economic growth of around 2.5% would bring the figures for energy investment to 2.2% and 9.7% respectively, on the basis of the same volume of investment. The level would be lower if the investment programmes, particularly those for coal and electricity, were not carried out in full. In addition, a low rate of growth would have a serious effect on investment in energy conservation, which is more sensitive to cyclical fluctuations and short-term and medium-term economic policy options.

Overall, these orders of magnitude would entail a 40% increase in energy investment's share in gross fixed capital formation compared with the period 1968-80. Combined with an increase in industrial restructuring efforts, this could cause some serious financing problems in the case of projects offering a marginal return and result in substantial transfers between GDP uses.

Table 10 - Energy supplies and GDP

(%)

	1968-1980	1981-1990 (1)		
	Energy investment/ GDP	Energy investment/ GDP	Energy imports/ GDP	Invest.+Imports/ GDP
D	1,28	1,90	3,8	5,7
F	1,42	1,88	3,45	5,33
I	1,24	2,11	6,0	8,11
NL	1,80	1,71	4,1	5,81
B	1,3	1,64	6,12	7,76
L	not available	0,41	11,5	11,91
UK	2,3	2,63	0,13	2,76
IRL	2,0	2,67	7,8	10,47
DK	0,65	1,88	3,5	5,38
HE	not available	3,23	7,2	10,43
EC	1,52	2,06	3,64	5,70

(1) 1980 prices and exchange rates.

57. There are considerable differences from country to country. If the programmes are implemented as planned, Greece, Ireland, the United Kingdom and Italy will devote between 2 and 3.2% of their GDP to energy investment. With the exception of the United Kingdom, these countries will also be spending the most on energy imports. These countries will have to make a considerable effort, but over the period considered and in comparison with others, there is little likelihood that the external position will ease significantly. This is particularly true in the case of Italy where energy investment's share in GDP is expected to double compared with the period 1968-80. Part of the reason for this trend, in Italy and certain other countries, is the low level of energy investment in the past.

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58. These figures need to be interpreted with caution. Replies to the Commission's questionnaire were patchy, and the forecasting of investment poses very great difficulties. Governments are not privy to the investment intentions of all energy suppliers, and investment behaviour is highly sensitive to the state of the economy, and to other political and psychological factors which create the investment climate. The difficulty of forecasting is particularly acute in relation to investment by consumers in energy saving and fuel substitution. Nor is it equally clear in all countries that policy is adequate to ensure that forecast or planned investment will in practice be realised.

59. The bilateral discussions with Member States suggested that among the most serious obstacles to energy investment, particular attention needs to be given to:

Public unease about nuclear, and to a lesser extent coal development.

Uncertainty about energy market developments.

High interest rates and constraints in public expenditure.

Consumer inertia in relation to energy saving.

At a sectoral level the main issues are seen as follows:

60. Energy Efficiency is widely regarded as being the most promising area for extra investment effort. But although the rate of return on investment in energy efficiency is now comparable with that on investment on the supply side, the forecast level of investment in energy saving is only about 18% of the total. It is true that the difficulties of measurement are particularly acute in this area and the forecast in table 8 is based in the main on projections by the Commission. It is also true that many forms of investment in renewal of buildings and machinery have a positive effect on energy efficiency. Nevertheless, on present plans it seems that investment even in the simplest and cheapest forms of insulation and heating control will continue to fall short of potential in many countries.

Recent increases in energy prices have provided a stimulus to investment, which appears to have increased rapidly in some member states (eg France and Germany) in 1979-80. But in others (eg the UK), the effects of recession seem to have outweighed the price stimulus, and observed savings in these countries are due more to reduced levels of industrial activity and domestic comfort than to improved energy efficiency. There is therefore a risk that an economic upturn will lead to a sharp expansion of consumption as seen in 1978 and 1979.

Against this background most member states are reviewing their energy saving policies. At current prices many energy saving investments have become highly attractive on their own merits, and there is a general tendency to place increased reliance on market mechanisms. There is evidence however that strong public support is necessary to sustain and augment efforts to achieve the rational use of energy. Where public support has been reduced, as in the UK, the impact on energy saving investment has been unfortunate. One approach, which has proved very successful in France, is to shift the emphasis in public spending towards assistance to the energy saving industry, in the form of technical and commercial education (and in certain cases financial support) so as to enable it to respond adequately to the potential demand for energy saving equipment arising from developments in energy pricing. It is therefore a matter of some concern that Belgium, Italy, Ireland and Luxembourg have yet to pass legislation providing for significant levels of public support for energy saving.

61. Renewable Resources Most member states continue to give a high priority to research, development and demonstration in the field of renewable resources. However it is generally agreed that the contribution of renewables to commercial energy generation and distribution will remain small at least up till 1990, and table 6 shows investment in this area at around 3% of the total. The most important areas for investment are geothermal heat, the generation of heat from low-value non-conventional fuels and the generation of electricity, especially from wind, for remote rural areas. The scope is

greater at the level of the individual household or firm, eg solar hot water, the recycling of wastes either by direct combustion or processing into synthetic fuels, and marginal hydroelectricity. Here the problems and possibilities, as well as the economic impact are virtually identical to those for energy saving; policies for energy efficiency should be even-handed in their treatment of any technique that reduces the individual's demand for commercially generated energy.

62. Heat The economics of district heating raise special problems. A satisfactory rate of return on investment can be obtained in the long term in many cases, especially where the marginal cost of heat production or recovery is low. But the initial investment in distribution is costly, penetration of the heat market after a network is installed is slow, and it may never reach an economic level in the presence of a low-price competitor such as natural gas. For all these reasons most member states recognise that government support is normally necessary to launch a district heating investment.

But the advantage of district heating go beyond pure economics, since it is the only technique so far developed for the commercial distribution of a wide variety of low-value heat sources. It is the best means of increasing the use of coal for domestic heating in urban areas, and the only practicable way of using low-grade geothermal heat and waste heat from industrial processes including electricity generation. District heating therefore provides a flexible insurance policy for an uncertain future through its unique ability to harness a wide range of forms of energy which would otherwise be wasted. Denmark, France and Germany have strong district heating programmes; the Netherlands and Italy have ambitious plans that have yet to be translated into effective action and in these and other member states there is scope for a marked acceleration of investment plans.

63. Coal Switching to coal is now becoming a main emphasis in the programmes of many member states to a greater extent than is suggested by the 8% allocated to coal investment in table 8. This is because plans for Community coal production are already close to the limit of feasibility, and the main emphasis is on coal imports. This is not to belittle the very substantial investment required to maintain and rationalise domestic production. Existing arrangements for public support of the European coal industry have contributed substantially to the realisation of investment plans, but high interest rates and pressure on public spending seem likely to cause increasing difficulty at a time when the market will not bear prices that fully reflect the cost of production and the scale of public support therefore needs to be expanded. There may also be scope for encouraging the development of deposits outside the traditional coal producing regions, as in the pithead electricity generation projects in Italy and Ireland.

The most immediate outlets for coal in Europe are for electricity, district heating and for use in certain sectors of general industry.

Member States lay particular emphasis on two factors:

a) Facilities for the import and distribution of coal in the Community are insufficient to meet the forecast growth in demand. Substantial investments in coal infrastructure will be needed, especially in areas (eg Ireland and Italy)

where coal has never been an important industrial fuel. The role that public support might play in realising the required support in coal ports, railways and shipping has been a consistent theme of the bilateral discussions;

b) The price advantage of coal is at present such that firms in suitable industries who have to replace furnaces and boilers in the normal course of events have a strong incentive to convert to coal. But because a high proportion of oil fired plant was installed in the 1960's and 1970's the normal rhythm of equipment replacement will defer conversion to coal in many cases until the 1990's. There is

therefore a need for fiscal or direct incentives such as already apply in France and Ireland to accelerate conversion.

There is a need to expand the scale of effort on coal technology particularly as regards the demonstration of advanced combustion techniques, gasification and liquefaction.

64. Electricity Table 8 shows investment in electricity at 47% of total forecast investment, of which 20% is allocated to nuclear power. But there is serious uncertainty as to whether nuclear programmes will in fact proceed at the planned rate. Compared with the political difficulties associated with nuclear energy, financial problems are relatively small for the electricity sector. Access to capital is not a general problem, and the long-term economics of electricity supply are favourable, even in relation to the massive capital requirements for nuclear and other electricity development.

But although there is no long-term difficulty, stagnating demand could slow the process of conversion away from oil. For it is much easier to finance a programme of new coal and nuclear power stations in response to rapidly increasing demand for electricity than as a means to accelerate the retirement of oil-fired plant. A general policy of enlarged financial support for nuclear electricity does not seem to be called for at this stage. But there is a need for selective assistance for the conversion of existing oil and gas fired plant to coal.

65. Hydrocarbons account for 21% of the planned investment shown in table 8. The market seems fully capable of generating the required investment in hydrocarbon production and handling without public support.

There may be a need to expand work on the development and demonstration of hydrocarbon technology, including deep water and tertiary recovery techniques, the development of refining techniques for heavy oil and shale, and liquefaction and handling technology for gas from unfamiliar sources such as the Arctic.

If the Community is to increase reliance on gas imports without running the same risks that already exist in relation to oil, there will be a need to ensure that the Community as a whole does not become excessively dependent on any single source of supply. There may be a need to establish significant reserves within the Community, to strengthen interconnection of national networks, and perhaps to establish reserve pipeline capacity on individual import channels. Investment of this kind is desirable for security rather than commercial reasons and will therefore require public support.

Conclusions

66. The conclusions on Energy Investment are as follows:

On the supply side the established energy industries (oil, coal, gas and electricity) have ambitious plans for investment, and in most cases the scope for the enlargement of ambition is limited; the major exception is nuclear energy where many member states are still planning a cautious or nil rate of development. Assuming sensible pricing policies, obstacles to investment in energy supply are not normally of a financial character (coal production is an exception); but there is a real danger in the current investment climate that low growth could cause a reduction in investment plans, thereby exacerbating oil dependence, and leading to still lower growth. A major priority for energy policy in the 1980's will be to break out of this vicious circle and ensure that the energy supply industries are able to realise, and where possible to enlarge, their investment plans, despite the unfavourable climate for investment as a whole.

On the demand side, on the other hand, the scope for increased investment in energy efficiency and fuel substitution is very large and if the means could be found to realise these investments the economic prospects for the Community would be improved. Investment in energy efficiency not only improves the energy balance, but creates employment, is environmentally

benign, and expands the base of an innovatory industry with great export potential. But there is an urgent need to develop new policy approaches to overcoming consumer inertia and motivating investors at the level of the individual household and firm.

**COMMISSION
DES
COMMUNAUTÉS EUROPÉENNES**

Bruxelles,

**Bilan résumé des prévisions à long terme
de demande et d'offre d'énergie
(Communauté et Etats Membres)**

**Annexe
à
l'Examen des Programmes des Etats Membres
(1980)**

Prévisions à long terme de demande et d'offre d'énergie (*)
Energy demand and supply long-term forecasts (*)

Pays/Country : **COMMUNAUTÉ
EUR-10**

(en mio tev/in m toe)

		1979	1985	1990
I. Indicateurs généraux		General indicators		
Taux croissance PIB		(79/73)	(85/79)	(90/85)
PIB 10 ⁹ UCE (1)		1285.3	1555/1566	1808/1835.5
Taux croissance énergie		+2.3%	+3.2%/+3.3%	+3.1%/+3.2%
Ratio énergie (2)		+1.1%	+2.0%/+2.2%	+2.0%/+2.1%
Coefficient E/PIB		92.8	86.6/87.0	82.0/82.4
		0.48	0.63/0.67	0.65/0.66
II. Demande d'énergie		Energy demand		
A. Consommation intérieure brute d'énergie		Energy gross inland consumption		
Idem corrigée pour conditions climatiques		985.7	1112/1125	1225/1250
soit :		of which :		
Combustibles solides		224.1	244	283/285
Pétrole		536.6	542/554	514/542
Gaz naturel		172.4	211/212	239/236
Électricité primaire etc.		52.6	115	189/187
B. Soutes (produits pétroliers)		Bunkers (oil products)		
		27.5	33/ 34	35/ 36
III. Production intérieure d'énergie		Inland energy production		
		458.1	533/576	577/627
soit :		of which :		
Houille		149.2	149/152	151/157
Lignite et tourbe		31.0	35	39
Pétrole		89.3	108/147	84/123
Gaz naturel		137.5	127/128	115/122
Énergie nucléaire		37.2	97	160
Hydro. + géoth.		12.1	13	14
Autres (nouv. sources)		1.8	4	14/12
IV. Importation nette d'énergie (3)		Energy net imports (3)		
		559.3	612/583	683/659
soit :		of which :		
Combustibles solides		33.8	60/ 57	93/ 89
Pétrole		487.8	(*)467/441	465/455
Gaz naturel		36.2	84	124/114
Électricité		1.5	1	1
V. Mouvements de stocks (4)		Stock changes (4)		
		-4.2		
soit :		of which :		
Combustibles solides		+10.1		
Pétrole		-13.0		
Gaz		- 1.3		

(*) Sources : 1979 : Eurostat.

1985 et 1990 : Prévisions/Forecasts - 1980 National programmes Review -
Données adaptées aux conventions statistiques de l'Eurostat.

(1) Aux prix de 1975. (2) Indice 1973 = 100 / Index 1973 = 100.

(3) Un signe négatif indique une exportation nette / Negative sign means net exports.

(4) - mises en stocks/increase of stocks. + reprises aux stocks/decrease of stocks.

(5) Objectif Tokyo 1985 (488.5 mt.
1985 Tokyo target (

Prévisions à long terme de demande d'énergie (suite)
Energy demand long-term forecasts (continued)

Pays/Country : COMMUNAUTÉ
EUR-10

	1979		1985		1990	
	Energy (m. toe)	of which: oil	Energy (mio tep)	dont : pétrole	Energy (m. toe)	of which : oil
VI. Secteurs de consommation finale d'énergie/Final consumption of energy						
Industrie/Industry	246.1	95.7	288/293	94/99	312/323	78/91
Usages non-énergétiques/Non energy uses	65.1	50.3	80/81	70	88/90	76/78
Transports	148.8	146.0	166/169	162/166	182/188	176/183
Secteurs domestiques, etc./Households, etc.	284.6	137.0	299/300	115	316/318	95/99
T O T A L	744.6	429.0	833/843	441/450	898/919	425/451

	1979		1985		1990	
	Energy (mio tep)	of which: oil	Energy (mio tep)	dont : pétrole	Energy (mio tep)	of which : oil
VII. Couverture de la production d'énergie électrique/Coverage of electrical energy production						
Combustibles solides/Solid fuels	125.4		136/135		163/168	
Pétrole/Oil	67.8		69/74		59/60	
Gas(*)/Gas(*)	35.7		32		29	
Energie nucléaire/Nuclear energy	37.2		97		160	
Hydro, géoth. et autres/ and others	14.0		13		14	
T O T A L	280.1		347/351		425/431	
Part des combustibles solides + nucléaire Share of solid fuels + nuclear energy	60.5 %		69%/68%		77 %	
Ratio électricité/Energie Electricity/Energy ratio	28.6 %		31.3 %		35 %	

(*) Y compris gaz de cokeries et de hauts fourneaux.
(*) Including coke-oven gas and blast-furnace gas.

Prévisions à long terme de demande et d'offre d'énergie (*)
Energy demand and supply long-term forecasts (*)

Pays/Country : HELLAS

(en mio tep/in m toe)

		1979	1985	1990
I. Indicateurs généraux		(79/73)	(85/79)	(90/85)
Taux croissance PIB	General indicators			
	GDP growth rates	+3.7%	+4.5%	+4.5%
PIB 10 ⁹ DR (1)	GDP 10 ⁹ DR (1)	815.8	1060.5	1321.3
Taux croissance énergie	Energy growth rates	+4.5%	+6.8%	+5.3%
Ratio énergie (2)	Energy ratio (2)	104.8	119.2	124.1
Coefficient E/PIB	E/GDP coefficient	1.22	1.51	1.18
II. Demande d'énergie				
Energy demand				
A. Consommation intérieure brute d'énergie	Energy gross inland consumption	15.4	22.87	29.54
Idem corrigée pour conditions climatiques	Idem corrected for climatic conditions	(--)		
soit :				
of which :				
Combustibles solides	Solid fuels	3.6	8.16	12.17
Pétrole	Oil	11.5	14.3	16.0
Gaz naturel	Natural gas	-	0.1	0.1
Electricité primaire etc.	Primary electr. etc.	0.3	0.31	1.27
B. Sources (produits pétroliers)	Bunkers (oil products)	1.0	1.6	2.0
III. Production intérieure d'énergie				
Inland energy production				
		3.4	7.87	11.14
soit :				
of which :				
Bois	Coal	-	-	-
Lignite et tourbe	Lignite and peat	3.1	6.46	9.47
Pétrole	Oil	-	1.0	0.3
Gaz naturel	Natural gas	-	0.1	0.1
Energie nucléaire	Nuclear energy	-	-	0.8
Hydro. + géoth.	Hydro. + geoth.	0.3	0.31	0.47
Autres (nouv. sources)	Others (new sources)	-	-	-
IV. Importation nette d'énergie (3)				
Energy net imports (3)				
		13.5	16.6	20.4
soit :				
of which :				
Combustibles solides	Solid fuels	0.5	1.7	2.7
Pétrole	Oil	13.0	14.9	17.7
Gaz naturel	Natural gas	-	-	-
Electricité	Electricity	0.0	-	-
V. Mouvements de stocks (4)				
Stock changes (4)				
		-0.5	-	-
soit :				
of which :				
Combustibles solides	Solid fuels	0.0		
Pétrole	Oil	-0.5		
Gaz	Gas	-		

(*) Sources : 1979 : Eurostat.
1985 et 1990 : Prévisions/Forecasts - 1980 National programmes Review -
Données adaptées aux conventions statistiques de l'Eurostat.

(1) Aux prix de 1975. (2) Indice 1973 = 100 / Index 1973 = 100.

(3) Un signe négatif indique une exportation nette / Negative sign means net exports.

(4) - mises en stocks/increase of stocks. + reprises aux stocks/decrease of stocks.

(*) Objectif Tokyo 1985 (16.5 mt.
1985 Tokyo target (

Prévisions à long terme de demande d'énergie (suite)
Energy demand long-term forecasts (continued)

Pays/Country : HELLAS

	1979		1985		1990	
	Energy (m. toe)	of which: oil	Energie (mio tep)	dont: pétrole	Energy (m. toe)	of which: oil
VI. Secteurs de consommation finale d'énergie/Final consumption of energy						
Industrie/Industry	4.2	2.8	6.2	4.0	8.1	4.5
Usages non énergétiques/Non energy uses	0.5	0.4	0.7	0.4	0.7	0.4
Transports	3.7	3.7	4.6	4.6	5.4	5.4
Secteurs domestiques, etc./Households, etc.	2.7	2.0	4.5	3.2	5.6	3.8
T O T A L	11.1	8.9	16.0	12.2	19.8	14.1

	1979		1985		1990	
	Energy (m. toe)	of which: oil	Energie (mio tep)	dont: pétrole	Energy (m. toe)	of which: oil
VII. Couverture de la production d'énergie électrique/Coverage of electrical energy production						
Combustibles solides/Solid fuels	2.8		6.9		10.2	
Pétrole/Oil	2.0		1.3		1.0	
Gaz(*)/Gas(*)	-		-		-	
Energie nucléaire/Nuclear energy	-		-		0.8	
Hydro, géoth. et autres/ and others	0.3		0.31		0.47	
T O T A L	5.1		8.51		12.47	
Part des combustibles solides + nucléaire Share of solid fuels + nuclear energy	55 %		81 %		88 %	
Ratio électricité/Energie Electricity/Energy ratio	33 %		37 %		42 %	

(*) Y compris gaz de cokeries et de hauts fourneaux.
(*) Including coke-oven gas and blast-furnace gas.

Annexe

Prévisions à long terme de demande et d'offre d'énergie (*)
Energy demand and supply long-term forecasts (*)

Pays/Country : **COMMUNAUTÉ
EUR-9**

(en mio tep/in m toe)

		1979	1985	1990
I. Indicateurs généraux		General indicators		
Taux croissance PIB		GDP growth rates		
		(79/73)	(85/79)	(90/85)
		+2.2%	+3.2%/+3.3%	+3.0%/+3.2%
PIB 10⁹ UCE (1)		GDP 10⁹ EUA (1)		
		1264.9	1528.5/1539.5	1775.2/1802.5
Taux croissance énergie		Energy growth rates		
		+1.0%	+1.9%/+2.1%	+1.9%/+2.1%
Ratio énergie (2)		Energy ratio (2)		
		92.7	86.0/86.5	81.3/81.8
Coefficient E/PIB		E/GDP coefficient		
		0.45	0.59/0.64	0.63/0.66
II. Demande d'énergie		Energy demand		
A. Consommation intérieure brute d'énergie		Energy gross inland consumption		
Idem corrigée pour conditions climatiques		Idem corrected for climatic conditions		
		970.29	1088.7/1102.2	1195.2/1220.5
soit :		of which :		
Combustibles solides		Solid fuels		
		(952.4)		
Pétrole		Oil		
		220.51	235.6/235.8	270.5/273.0
Gaz naturel		Natural gas		
		525.04	527.1/539.4	497.8/525.7
Electricité primaire etc.		Primary electr. etc.		
		172.44	211.2/212.2	238.6/235.5
B. Soutes (produits pétroliers)		Bunkers (oil products)		
		52.30	114.8	188.3/186.3
		26.51	31.1/32.1	32.7/33.7
II. Production intérieure d'énergie		Inland energy production		
		454.74	524.5/567.8	565.8/615.9
soit :		of which :		
Houille		Coal		
		149.20	149.3/152.3	150.9/156.9
Lignite et tourbe		Lignite and peat		
		27.88	28.5	29.9
Pétrole		Oil		
		89.27	106.7/146.0	83.6/122.9
Gaz naturel		Natural gas		
		137.49	126.8/127.8	114.6/121.4
Energie nucléaire		Nuclear energy		
		37.19	96.5	159.4
Hydro. + géoth.		Hydro. + geoth.		
		11.88	12.3	13.2
Autres (nouv. sources)		Others (new sources)		
		1.80	4.4	14.2/12.2
IV. Importation nette d'énergie (3)		Energy net imports (3)		
		545.68	595.3/566.5	662.1/658.3
soit :		of which :		
Combustibles solides		Solid fuels		
		33.29	57.8/ 55.0	89.7/ 86.2
Pétrole		Oil		
		474.75	451.5/425.5	446.8/436.4
Gaz naturel		Natural gas		
		36.21	84.4	124.1/114.2
Electricité		Electricity		
		1.43	1.6	1.5
V. Mouvements de stocks (4)		Stock changes (4)		
		-3.59		
soit :		of which :		
Combustibles solides		Solid fuels		
		+10.14		
Pétrole		Oil		
		-12.47		
Gaz		Gas		
		-1.26		

(*) Sources : 1979 : Eurostat.

1985 et 1990 : Prévisions/Forecasts - 1980 National programmes Review -
Données adaptées aux conventions statistiques de l'Eurostat.

(1) Aux prix de 1975. (2) Indice 1973 = 100 / Index 1973 = 100.

(3) Un signe négatif indique une exportation nette / Negative sign means net exports.

(4) - mises en stocks/increase of stocks. + reprises aux stocks/decrease of stocks.

(*) Objectif Tokyo 1985 (472 mt.

1985 Tokyo target (

Prévisions à long terme de demande d'énergie (suite)
Energy demand long-term forecasts (continued)

Pays/Country : COMMUNAUTE
EUR-9

	1979		1985		1990	
	(m. toe)		(mio tep)		(m. toe)	
	Energy	of which: oil	Energy	dont : pétrole	Energy	of which : oil
VI. Secteurs de consommation finale d'énergie/Final consumption of energy						
Industrie/Industry	241.90	92.85	281.4/286.9	90.5/ 94.7	303.9/315.0	73.3/ 86.5
Usages non énergétiques/Non energy uses	64.57	49.87	79.7/80.4	69.3/ 69.8	87.3/ 89.5	75.5/ 77.3
Transports	145.12	142.32	160.9/164.4	157.8/161.3	176.5/182.1	171.1/177.7
Secteurs domestiques, etc./Households, etc.	281.87	135.04	294.6/295.7	111.5/111.6	310.3/312.6	91.4/ 95.1
T O T A L	733.46	420.08	816.6/827.4	429.1/437.4	878.0/899.2	411.3/436.6

	1979		1985		1990	
	(mio tep)		(m. toe)		(mio tep)	
	Energy	of which: oil	Energy	dont : pétrole	Energy	of which : oil
VII. Couverture de la production d'énergie électrique/Coverage of electrical energy production						
Combustibles solides/Solid fuels	122.62		129.1/128.3		152.6/157.6	
Pétrole/Oil	65.83		67.7/ 72.7		57.4/ 58.4	
Gaz(*)/Gas(*)	35.67		32.6		29.1	
Energie nucléaire/Nuclear energy	37.19		96.5		159.4	
Hydro, géoth. et autres/ and others	13.69		12.7		13.5	
T O T A L	275.00		338.6/342.8		412.0/418.0	
Part des combustibles solides + nucléaire Share of solid fuels + nuclear energy	60.5 %		68.3 %/67.3 %		77 %	
Ratio électricité/Energie Electricity/Energy ratio	28.5 %		31 %		34.5 %	

(*) Y compris gaz de cokeries et de hauts fourneaux.) 1979 : 6.66 m tep
(*) Including coke-oven gas and blast-furnace gas.)

Bruxelles, décembre 1980

Prévisions à long terme de demande et d'offre d'énergie (*)
Energy demand and supply long-term forecasts (*)

Pays/Country : BELGIQUE

(en mio tep/in m toe)

		1979	1985	1990
I. Indicateurs généraux		(79/73)	(85/79)	(90/85)
Taux croissance PIB	General indicators GDP growth rates	+2.3%	(+3%)	(+3%)
PIB 10 ⁹ BFR (1)	GDP 10 ⁹ BFR. (1)	2545	3039	3523
Taux croissance énergie	Energy growth rates	+0.9%	+2.5%	+2.4%
Ratio énergie (2)	Energy ratio (2)	92.0	88.2	85.5
Coefficient E/PIB	E/GDP coefficient	0.39	0.83	0.80
II. Demande d'énergie				
A. Consommation intérieure brute d'énergie				
Idem corrigée pour conditions climatiques	Energy demand Energy gross inland consumption Idem corrected for climatic conditions	48.61 (46.4)	55.6	62.5
soit :	of which :			
Combustibles solides	Solid fuels	11.36	12.5/10.7	13.0
Pétrole	Oil	25.19	26.2/28.0	30.0
Gaz naturel	Natural gas	9.32	10.8	11.7
Electricité primaire etc.	Primary electr. etc.	2.74	6.1	7.8
B. Soutes (produits pétroliers)				
	Bunkers (oil products)	2.51	3.0	3.0
II. Production intérieure d'énergie				
	Inland energy production	7.38	11.0	12.7
soit :	of which :			
Houille	Coal	4.50	4.7	4.7
Lignite et tourbe	Lignite and peat	-	-	-
Pétrole	Oil	-	-	-
Gaz naturel	Natural gas	0.03	0.0	0.0
Energie nucléaire	Nuclear energy	2.77	6.2	7.9
Hydro. + géoth.	Hydro. + geoth.	0.02	0.1	0.1
Autres (nouv. sources)	Others (new sources)	0.06	-	-
IV. Importation nette d'énergie (3)				
	Energy net imports (3)	45.01	47.6	52.8
soit :	of which :			
Combustibles solides	Solid fuels	6.76	7.8/6.0	8.3
Pétrole	Oil	28.99	29.2/31.0(*)	33.0
Gaz naturel	Natural gas	9.37	10.8	11.7
Electricité	Electricity	-0.11	-0.2	-0.2
V. Mouvements de stocks (4)				
	Stock changes (4)	-1.27	-	-
soit :	of which :			
Combustibles solides	Solid fuels	+0.10		
Pétrole	Oil	-1.29		
Gaz	Gas	-0.08		

(*) Sources : 1979

: Eurostat.

1985 et 1990 : Prévisions/Forecasts - 1980 National programmes Review -
Données adaptées aux conventions statistiques de l'Eurostat.

(1) Aux prix de 1975. (2) Indice 1973 = 100 / Index 1973 = 100.

(3) Un signe négatif indique une exportation nette / Negative sign means net exports.

(4) - mises en stocks/increase of stocks. + reprises aux stocks/decrease of stocks.

(*) Objectif Tokyo 1985 (31, mt.
1985 Tokyo target (

Prévisions à long terme de demande d'énergie (suite)
Energy demand long-term forecasts (continued)

Pays/Country : BELGIQUE

	1979		1985		1990	
	Energy (m. toe)	of which: oil	Energie (mio tep)	dont : pétrole	Energy (m. toe)	of which : oil
VI. Secteurs de consommation finale d'énergie/Final consumption of energy						
Industrie/Industry	13.86	3.14	19.1	6.5	21.4	7.0
Usages non énergétiques/Non energy uses	3.18	2.39	3.0	3.0	3.5	3.5
Transports	5.75	5.66	7.1	7.0	8.6	8.5
Secteurs domestiques, etc./Households, etc.	14.46	8.02	14.4	7.0	15.3	6.8
T O T A L	37.25	19.21	43.6	23.5	48.8	25.8

	1979		1985		1990	
	Energy (m. toe)	of which: oil	Energie (mio tep)	dont : pétrole	Energy (m. toe)	of which : oil
VII. Couverture de la production d'énergie électrique/Coverage of electrical energy production						
Combustibles solides/Solid fuels	2.71		4.6/2.8		4.0	
Pétrole/Oil	4.18		0.9/2.7		2.4	
Gaz(*)/Gas(*)	2.68		2.7		2.8	
Energie nucléaire/Nuclear energy	2.77		6.2		7.9	
Hydro, géoth. et autres/ and others	0.08		0.1		0.1	
T O T A L	12.42		14.5		17.2	
Part des combustibles solides + nucléaire Share of solid fuels + nuclear energy (*)	51 %		79 %	67 %	73 %	
Ratio électricité/Energie Electricity/Energy ratio	25 %		26 %		27 %	

(*) Y compris gaz de cokeries et de hauts fourneaux) 1979 : 0.81

(*) Including coke-oven gas and blast-furnace gas

Bruxelles, décembre 1980

Prévisions à long terme de demande et d'offre d'énergie (*)
Energy demand and supply long-term forecasts (*)

Pays/Country : DANMARK

(en mio tep/in m toe)

		1979	1985	1990
I. Indicateurs généraux		General indicators		
Taux croissance PIB	GDP growth rates	(79/73) +1.7%	(85/79) +3.9%	(90/85) +4.0%
PIB 10 ⁹ DKR (1)	GDP 10 ⁹ DK (1)	242.8	305.7	372.1
Taux croissance énergie	Energy growth rates	+0.6%	+0.5%	+2.8%
Ratio énergie (2)	Energy ratio (2)	93.7	77.8	73.5
Coefficient E/PIB	E/GDP coefficient	0.35	0.13	0.70
II. Demande d'énergie		Energy demand		
A. Consommation intérieure brute d'énergie		Energy gross inland consumption		
Idem corrigée pour conditions climatiques		Idem corrected for climatic conditions		
soit :		of which :		
Combustibles solides	Solid fuels	4.35	6.45	7.85
Pétrole	Oil	15.67	13.28	12.94
Gaz naturel	Natural gas	-	1.20	3.03
Electricité primaire etc.	Primary electr. etc.	0.29	0.30	0.60
B. Scutes (produits pétroliers)		Bunkers (oil products)		
		0.42	0.5	0.5
II. Production intérieure d'énergie		Inland energy production		
soit :		of which :		
Houille	Coal	-	-	-
Lignite et tourbe	Lignite and peat	-	-	-
Pétrole	Oil	0.43	2.80	2.80
Gaz naturel	Natural gas	-	1.20	3.03
Energie nucléaire	Nuclear energy	-	-	-
Hydro. + géoth.	Hydro. + geoth.	0.00	-	-
Autres (nouv. sources)	Others (new sources)	-	0.30	0.60
IV. Importation nette d'énergie (3)		Energy net imports (3)		
soit :		of which :		
Combustibles solides	Solid fuels	4.62	6.45	7.85
Pétrole	Oil	15.29	(*) 10.98	10.64
Gaz naturel	Natural gas	-	-	-
Electricité	Electricity	0.29	-	-
V. Mouvements de stocks (4)		Stock changes (4)		
soit :		of which :		
Combustibles solides	Solid fuels	-0.27	-	-
Pétrole	Oil	+0.37	-	-
Gaz	Gas	-	-	-

(*) Sources : 1979 : Eurostat.
1985 et 1990 : Prévisions/Forecasts - 1980 National programmes Review - Données adaptées aux conventions statistiques de l'Eurostat.

(1) Aux prix de 1975. (2) Indice 1973 = 100 / Index 1973 = 100.
(3) Un signe négatif indique une exportation nette / Negative sign means net exports.
(4) - mises en stocks/increase of stocks. + reprises aux stocks/decrease of stocks.
(*) Objectif Tokyo 1985 (11 mt.
1985 Tokyo target (

Prévisions à long terme de demande d'énergie (suite)
Energy demand long-term forecasts (continued)

Pays/Country : DANMARK

	1979		1985		1990	
	Energy (m. toe)	of which: oil	Énergie (mio tep)	dont : pétrole	Energy (m. toe)	of which : oil
<u>VI. Secteurs de consommation finale d'énergie/Final consumption of energy</u>						
Industrie/Industry	3.32	2.23	3.76	2.42	4.48	2.27
Usages non énergétiques/Non energy uses	0.41	0.41	0.61	0.61	0.71	0.71
Transports	3.41	3.39	4.21	4.20	5.11	5.05
Secteurs domestiques, etc./Households, etc.	9.46	7.25	8.58	4.09	9.84	2.80
T O T A L	16.60	13.28	17.16	11.32	20.14	10.83

	1979		1985		1990	
	Energy (m. toe)	of which: oil	Énergie (mio tep)	dont : pétrole	Energy (m. toe)	of which : oil
<u>VII. Couverture de la production d'énergie électrique/Coverage of electrical energy production</u>						
Combustibles solides/Solid fuels	3.62					
Pétrole/Oil	1.91					
Gaz(*)/Gas(*)	-					
Energie nucléaire/Nuclear energy	0.00					
Hydro, géoth. et autres/ and others						
T O T A L	5.53		7.35		8.80	
Part des combustibles solides + nucléaire	65 %		78 %		80 %	
Share of solid fuels + nuclear energy						
Ratio électricité/Energie	28.7 %		35 %		36 %	
Electricity/Energy ratio						

(*) Y compris gaz de cokeries et de hauts fourneaux

(*) Including coke-oven gas and blast-furnace gas

Prévisions à long terme de demande et d'offre d'énergie (*)
Energy demand and supply long-term forecasts (*)

Pays/Country : **DEUTSCHLAND**

(en mio tep/in m toe)

		1979	1985	1990
I. Indicateurs généraux	General indicators	(79/73)	(85/79)	(90/85)
Taux croissance PIB	GDP growth rates	+2.3%	+3.5%	+3.0%
PIB 10 ⁹ DM (1)	GDP 10 ⁹ DM (1)	1203	1478	1712
Taux croissance énergie	Energy growth rates	+1.2%	+2.4%	+1.9%
Ratio énergie (2)	Energy ratio (2)	93.7	87.6	82.8
Coefficient E/PIB	E/GDP coefficient	0.52	0.69	0.63
II. Demande d'énergie				
A. Consommation intérieure brute d'énergie				
Idem corrigée pour conditions climatiques		280.86	322.9	354.3
soit :		(273.9)		
soit :				
Combustibles solides	Solid fuels	80.21	90.9	101.9
Pétrole	Oil	142.00	142.5	142.5
Gaz naturel	Natural gas	45.34	60.9	62.8
Electricité primaire etc.	Primary electr. etc.	13.31	28.6	47.1
B. Soutes (produits pétroliers)		2.97	3.0	3.0
II. Production intérieure d'énergie				
Inland energy production		121.86	134.2	154.4
soit :				
soit :				
Houille	Coal	61.75	63.1	64.0
Lignite et tourbe	Lignite and peat	26.09	26.0	27.4
Pétrole	Oil	5.08	4.5	4.5
Gaz naturel	Natural gas	15.68	13.4	13.0
Energie nucléaire	Nuclear energy	10.73	25.4	41.5
Hydro. + géoth.	Hydro. + geoth.	1.46	1.8	1.9
Autres (nouv. sources)	Others (new sources)	1.07	-	2.1
IV. Importation nette d'énergie (3)				
Energy net imports (3)		162.46	191.7	202.9
soit :				
soit :				
Combustibles solides	Solid fuels	-12.13	1.8	10.5
Pétrole	Oil	144.09	(°) 141.0	141.0
Gaz naturel	Natural gas	30.45	47.5	49.8
Electricité	Electricity	0.05	1.4	1.6
V. Mouvements de stocks (4)				
Stock changes (4)		-0.49	-	-
soit :				
soit :				
Combustibles solides	Solid fuels	+4.50		
Pétrole	Oil	-4.20		
Gaz	Gas	-0.79		

(*) Sources : 1979 : Eurostat.
1985 et 1990 : Prévisions/Forecasts - 1980 National programmes Review - Données adaptées aux conventions statistiques de l'Eurostat.

(1) Aux prix de 1975. (2) Indice 1973 = 100 / Index 1973 = 100.

(3) Un signe négatif indique une exportation nette / Negative sign means net exports.

(4) - mises en stocks/increase of stocks. + reprises aux stocks/decrease of stocks.

(°) Objectif Tokyo 1985 (141 mt.
1985 Tokyo target (

Prévisions à long terme de demande d'énergie (suite)
Energy demand long-term forecasts (continued)

Pays/Country : DEUTSCHLAND

	1979		1985		1990	
	Energy (m. toe)	of which: oil	Énergie (mio tep)	dont : pétrole	Energy (m. toe)	of which: oil
VI. Secteurs de consommation finale (+) d'énergie/Final consumption of energy						
Industrie/Industry	67.21	21.13	75.8	18.0	82.1	18.0
Usages non énergétiques/Non energy uses	21.79	19.23	* 26.6	23.0	28.7	24.0
Transports	38.21	37.27	39.2	38.0	41.7	40.5
Secteurs domestiques, etc./Households, etc.	85.24	50.21	96.4	48.0	100.9	45.0
T O T A L	212.45	127.84	238.0	127.0	253.4	127.5

	1979		1985		1990	
	Energy (m. toe)	of which: oil	Énergie (mio tep)	dont : pétrole	Energy (m. toe)	of which: oil
VII. Couverture de la production d'énergie électrique/Coverage of electrical energy production						
Combustibles solides/Solid fuels	48.62		53.3		61.2	
Pétrole/Oil	6.55		6.8		4.9	
Gaz(*)/Gas(*)	17.36		15.2		14.2	
Énergie nucléaire/Nuclear energy	10.73		25.4		41.5	
Hydro, géoth. et autres/ and others	2.53		1.8		1.9	
T O T A L	85.79		102.5		123.7	
Part des combustibles solides + nucléaire Share of solid fuels + nuclear energy (*)	72 %		79 %		85 %	
Ratio électricité/Énergie Electricity/Energy ratio	30.5 %		32 %		35 %	

(*) Y compris gaz de cokeries et de hauts fourneaux) 1979 : 2.53 (+) estimations de la Commission
(*) Including coke-oven gas and blast-furnace gas) (+) Commission's estimates

Bruxelles, décembre 1980

Prévisions à long terme de demande et d'offre d'énergie (*)

Energy demand and supply long-term forecasts (*)

Pays/Country : FRANCE

(en mio tep/in m toe)

		1979	1985	1990
I. Indicateurs généraux		(79/73) (85/79) (90/85)		
Taux croissance PIB	General indicators GDP growth rates	+2.9%	+3.5%	+3.5%
PIB 10 ⁹ FF (1)	GDP 10 ⁹ FF (1)	1672	2055	2441
Taux croissance énergie	Energy growth rates	+1.1%	+2.5%	+2.4%
Ratio énergie (2)	Energy ratio (2)	89.7	84.5	80.2
Coefficient E/PIB	E/GDP coefficient	0.38	0.71	0.69
II. Demande d'énergie				
A. Consommation intérieure brute d'énergie				
Idem corrigée pour conditions climatiques	Energy demand Energy gross inland consumption Idem corrected for climatic conditions	185.30 (182.6)	214.5	241.6
soit :	of which :			
Combustibles solides	Solid fuels	31.80	33.1	32.4/27.4
Pétrole	Oil	114.88	98.2	75.7/87.7
Gaz naturel	Natural gas	21.25	27.1	38.4/33.4
Electricité primaire etc.	Primary electr. etc.	17.37	56.1	95.1/93.1
B. Soutes (produits pétroliers)				
	Bunkers (oil products)	4.72	5.0	5.0
III. Production intérieure d'énergie				
	Inland energy production	38.45	73.5	109.2/107.2
soit :	of which :			
Houille	Coal	12.04	10.1	7.1
Lignite et tourbe	Lignite and peat	0.82	1.0	1.0
Pétrole	Oil	2.19	1.8	3.0
Gaz naturel	Natural gas	6.52	4.5	2.6
Energie nucléaire	Nuclear energy	10.96	46.9	80.0
Hydro. + géoth.	Hydro. + geoth.	5.79	5.8	6.2
Autres (nouv. sources)	Others (new sources)	0.13	3.4	9.3/7.3
IV. Importation nette d'énergie (3)				
	Energy net imports (3)	154.60	146.0	137.4/139.4
soit :	of which :			
Combustibles solides	Solid fuels	17.98	22.0	24.3/19.3
Pétrole	Oil	121.41	(*)101.4	77.7/89.7
Gaz naturel	Natural gas	14.72	22.6	35.8/30.8
Electricité	Electricity	0.49	-	-0.4
V. Mouvements de stocks (4)				
	Stock changes (4)	-3.03	-	-
soit :	of which :			
Combustibles solides	Solid fuels	+0.96		
Pétrole	Oil	-4.00		
Gaz	Gas	+0.01		

(*) Sources : 1979 : Eurostat.

1985 et 1990 : Prévisions/Forecasts - 1980 National programmes Review - Données adaptées aux conventions statistiques de l'Eurostat.

(1) Aux prix de 1975. (2) Indice 1973 = 100 / Index 1973 = 100.

(3) Un signe négatif indique une exportation nette / Negative sign means net exports.

(4) - mises en stocks/increase of stocks. + reprises aux stocks/decrease of stocks.

(*) Objectif Tokyo 1985. (111 mt.

1985 Tokyo target (

Prévisions à long terme de demande d'énergie (suite)
Energy demand long-term forecasts (continued)

Pays/Country : FRANCE

	1979		1985		1990	
	Energy (m. toe)	of which: oil	Energie (mio tep)	dont : pétrole	Energy (m. toe)	of which : oil
VI. Secteurs de consommation finale d'énergie/Final consumption of energy						
Industrie/Industry	46.36	21.13	52.1	17.5	56.6	4.8/10.8
Usages non énergétiques/Non energy uses	12.75	10.17	11.2	11.2	12.9	12.9
Transports	31.18	30.57	35.9	35.1	39.7	36.9/37.9
Secteurs domestiques, etc./Households, etc.	54.08	31.42	53.9	21.3	57.0	10.1/13.6
T O T A L	144.37	93.29	153.1	85.1	166.2	64.7/75.2

	1979		1985		1990	
	Energy (m. toe)	of which: oil	Energie (mio tep)	dont : pétrole	Energy (m. toe)	of which : oil
VII. Couverture de la production d'énergie électrique/Coverage of electrical energy production						
Combustibles solides/Solid fuels	14.40		11.5		7.0	
Pétrole/Oil	11.82		5.9		5.2	
Gaz(*)/Gas(*)	3.29		3.9		1.9	
Energie nucléaire/Nuclear energy	10.96		46.9		80.0	
Hydro, géoth. et autres/ and others	5.91		6.2		6.5	
T O T A L	46.38		74.4		100.6	
Part des combustibles solides + nucléaire Share of solid fuels + nuclear energy (*)	58 %		81 %		87 %	
Ratio électricité/Energie Electricity/Energy ratio	25.3 %		35 %		41.5 %	

(*) Y compris gaz de cokeries et de hauts fourneaux) 1979 : 1.54
(*) Including coke-oven gas and blast-furnace gas)

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Prévisions à long terme de demande et d'offre d'énergie (*)
Energy demand and supply long-term forecasts (*)

Pays/Country : IRELAND

(en mio tep/in m toe)

		1979	1985	1990
I. Indicateurs généraux		(79/73)	(85/79)	(90/85)
Taux croissance PIB	General indicators GDP growth rates	+3.6%	+5.3%	+5.0%
PIB 10 ⁹ IR£ (1)	GDP 10 ⁹ IR£ (1)	4.293	5.857	7.476
Taux croissance énergie	Energy growth rates	+3.3%	+5.2%	+4.7%
Ratio énergie (2)	Energy ratio (2)	98.0	97.4	96.2
Coefficient E/PIB	E/GDP coefficient	0.92	0.98	0.94
II. Demande d'énergie				
A. Consommation intérieure brute d'énergie				
Idem corrigée pour conditions climatiques	Energy demand Energy gross inland consumption Idem corrected for climatic conditions	8.49 (8.4)	11.5	14.5
soit :		of which :		
Combustibles solides	Solid fuels	1.70	2.4	3.9
Pétrole	Oil	6.28	7.9	9.4
Gaz naturel	Natural gas	0.44	1.1	1.1
Electricité primaire etc.	Primary electr. etc.	0.07	0.1	0.1
B. Soutes (produits pétroliers)		0.05	0.1	0.1
II. Production intérieure d'énergie		1.18	2.5	2.5
soit :		of which :		
Houille	Coal	0.03	0.1	0.1
Lignite et tourbe	Lignite and peat	0.64	1.2	1.2
Pétrole	Oil	-	-	-
Gaz naturel	Natural gas	0.44	1.1	1.1
Energie nucléaire	Nuclear energy	-	-	-
Hydro. + géoth.	Hydro. + geoth.	0.07	0.1	0.1
Autres (nouv. sources)	Others (new sources)	-	-	-
IV. Importation nette d'énergie (3)		7.10	9.1	12.1
soit :		of which :		
Combustibles solides	Solid fuels	0.79	1.1	2.6
Pétrole	Oil	6.31	(°) 8.0	9.5
Gaz naturel	Natural gas	-	-	-
Electricité	Electricity	-	-	-
V. Mouvements de stocks (4)		+0.26	-	-
soit :		of which :		
Combustibles solides	Solid fuels	+0.24		
Pétrole	Oil	+0.02		
Gas	Gas	-		

(*) Sources : 1979

: Eurostat.

1985 et 1990 : Prévisions/Forecasts - 1980 National programmes Review -
Données adaptées aux conventions statistiques de l'Eurostat.

(1) Aux prix de 1975. (2) Indice 1973 = 100 / Index 1973 = 100.

(3) Un signe négatif indique une exportation nette / Negative sign means net exports.

(4) - mises en stocks/increase of stocks. + reprises aux stocks/decrease of stocks.

(°) Objectif Tokyo 1985 (8 mt.

1985 Tokyo target (

Prévisions à long terme de demande d'énergie (suite)
Energy demand long-term forecasts (continued)

Pays/Country : IRELAND

	1979		1985		1990	
	Energy (m. toe)	of which: oil	Energy (mio tep)	dont: pétrole	Energy (m. toe)	of which: oil
VI. Secteurs de consommation finale d'énergie/Final consumption of energy						
Industrie/Industry	2.10	1.50	3.1	2.3	4.2	2.8
Usages non énergétiques/Non energy uses	0.20	0.20	0.4	-	0.4	-
Transports	1.81	1.81	2.6	2.6	3.3	3.3
Secteurs domestiques, etc./Households, etc.	2.40	0.85	2.9	0.7	3.2	0.7
T O T A L	6.51	4.36	9.0	5.6	11.1	6.8

	1979		1985		1990	
	Energy (mio tep)	of which: oil	Energy (m. toe)	dont: pétrole	Energy (mio tep)	of which: oil
VII. Couverture de la production d'énergie électrique/Coverage of electrical energy production						
Combustibles solides/Solid fuels	0.65		0.9		1.9	
Pétrole/Oil	1.69		2.3		2.6	
Gas(*)/Gas(*)	0.19		0.6		0.6	
Energie nucléaire/Nuclear energy	-		-		-	
Hydro, géoth. et autres/ and others	0.07		0.1		0.1	
T O T A L	2.60		3.9		5.2	
Part des combustibles solides + nucléaire	25 %		23 %		37 %	
Share of solid fuels + nuclear energy	31 %		34 %		36 %	
Ratio électricité/Energie						
Electricity/Energy ratio						

(*) Y compris gaz de cokeries et de hauts fourneaux
(*) Including coke-oven gas and blast-furnace gas

Bruxelles, décembre 1980

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Prévisions à long terme de demande et d'offre d'énergie (*)
Energy demand and supply long-term forecasts (*)

Pays/Country : ITALIA

(en mio tep/in m toe)

		1979	1985	1990
I. Indicateurs généraux		General indicators		
Taux croissance PIB	GDP growth rates	(79/73) +2.5%	(85/79) +3.5%	(90/85) +3.5%
PIB 10 ⁹ LIT (1)	GDP 10 ⁹ LIT (1)	145 062	178 325	211 797
Taux croissance énergie	Energy growth rates	+1.7%	+2.9%	+2.3% (+4.5%)
Ratio énergie (2)	Energy ratio (2)	95.1	91.9	86.7 (96.4)
Coefficient E/PIB	E/GDP coefficient	0.68	0.83	0.66 (1.29)
II. Demande d'énergie		Energy demand		
A. Consommation intérieure brute d'énergie		Energy gross inland consumption		
Idem corrigée pour conditions climatiques		Idem corrected for climatic conditions		
soit :		of which :		
Combustibles solides	Solid fuels	10.14	15.3	29.3
Pétrole	Oil	96.33	109.4	96.8 (116.8)
Gaz naturel	Natural gas	22.79	28.9	37.0
Electricité primaire etc.	Primary electr. etc.	5.62	6.6	16.5
B. Soutes (produits pétroliers)		Bunkers (oil products)		
		5.19	6.0	6.6
II. Production intérieure d'énergie		Inland energy production		
soit :		of which :		
Houille	Coal	-	0.3	1.0
Lignite et tourbe	Lignite and peat	0.33	0.3	0.3
Pétrole	Oil	1.71	2.3	2.5
Gaz naturel	Natural gas	11.09	6.7	6.7
Energie nucléaire	Nuclear energy	0.79	2.0	10.0
Hydro. + géoth.	Hydro. + geoth.	4.17	4.1	4.5
Autres (nouv. sources)	Others (new sources)	0.20	0.5	2.0
IV. Importation nette d'énergie (3)		Energy net imports (3)		
soit :		of which :		
Combustibles solides	Solid fuels	8.74	14.7	28.0
Pétrole	Oil	99.70	(*) 113.1	100.9 (120.9)
Gaz naturel	Natural gas	12.10	22.2	30.3
Electricité	Electricity	0.46	-	-
V. Mouvements de stocks (4)		Stock changes (4)		
soit :		of which :		
Combustibles solides	Solid fuels	+1.07	-	-
Pétrole	Oil	+0.11	-	-
Gaz	Gas	-0.40	-	-

(*) Sources : 1979

: Eurostat.

1985 et 1990 : Prévisions/Forecasts - 1980 National programmes Review -

Données adaptées aux conventions statistiques de l'Eurostat.

(1) Aux prix de 1975. (2) Indice 1973 = 100 / Index 1973 = 100.

(3) Un signe négatif indique une exportation nette / Negative sign means net exports.

(4) - mises en stocks/increase of stocks. + reprises aux stocks/decrease of stocks.

(*) Objectif Tokyo 1985 (124 mt.

1985 Tokyo target (

Prévisions à long terme de demande d'énergie (suite)
Energy demand long-term forecasts (continued)

Pays/Country : ITALIA

	1979		1985		1990	
	(m. toe)		(mio tep)		(m. toe)	
	Energy	of which: oil	Energy	dont : pétrole	Energy	of which : oil
VI. Secteurs de consommation finale: <u>d'énergie/Final consumption of energy</u>						
Industrie/Industry	38.22	16.18	44.4	15.1	47.7(53.1)	10.9(15.2)
Usages non énergétiques/Non energy uses	8.65	6.20	10.0	6.8	11.7(12.0)	8.3(8.6)
Transports	24.04	23.40	27.5	26.6	31.6(34.7)	30.5(33.6)
Secteurs domestiques, etc./Households, etc.	34.55	20.80	37.1	17.8	41.8(48.4)	15.0(20.6)
T O T A L	105.46	66.58	119.0	66.3	132.8(148.2)	64.7(78.0)

	1979		1985		1990	
	(mio tep)		(m. toe)		(mio tep)	
	Energy	of which: oil	Energy	dont : pétrole	Energy	of which : oil
VII. Couverture de la production d'énergie électrique/Coverage of electrical energy production						
Combustibles solides/Solid fuels	2.59		5.0		18.0	
Pétrole/Oil	22.51		34.4		23.9(29.4)	
Gaz(*)/Gas(*)	3.12		3.2		3.7	
Energie nucléaire/Nuclear energy	0.79		2.0		10.0	
Hydro, géoth. et autres/ and others	4.36		4.1		4.5	
T O T A L	33.37		48.7		60.1(65.6)	
Part des combustibles solides + nucléaire Share of solid fuels + nuclear energy (*)	12.3 %		16 %		48 % (44 %)	
Ratio électricité/Energie Electricity/Energy ratio	25 %		30 %		33 %	

(*) Y compris gaz de cokeries et de hauts fourneaux) 1979 : 0.73
(*) Including coke-oven gas and blast-furnace gas)

() Les données entre parenthèses pour 1990 ne sont pas incluses dans le total communautaire.
() Figures between brackets for 1990 are not included in the Community totals.

Bruxelles, décembre 1980

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Prévisions à long terme de demande et d'offre d'énergie (*)
Energy demand and supply long-term forecasts (*)

Pays/Country : LUXEMBOURG

(en mio tep/in m toe)

		1979	1985	1990
I. Indicateurs généraux		General indicators		
Taux croissance PIB	GDP growth rates	(79/73) +1.0%	(85/79) +3.0%	(90/85) +3.0%
PIB 10 ⁹ LFR (1)	GDP 10 ⁹ LFR (1)	94.57	112.92	130.90
Taux croissance énergie	Energy growth rates	-2.9%	+3.3%	+2.4%
Ratio énergie (2)	Energy ratio (2)	79.0	80.5	78.0
Coefficient E/PIB	E/GDP coefficient	-2.9	1.1	0.8
II. Demande d'énergie		Energy demand		
A. Consommation intérieure brute d'énergie		Energy gross inland consumption		
Idem corrigée pour conditions climatiques		Idem corrected for climatic conditions		
soit :		of which :		
Combustibles solides	Solid fuels	3.84	4.67	5.25
Pétrole	Oil	(3.7)		
Gaz naturel	Natural gas	1.84	1.85	2.16
Electricité primaire etc.	Primary electr. etc.	1.28	1.90	1.90
		0.47	0.55	0.70
		0.25	0.37	0.49
B. Soutes (produits pétroliers)		Bunkers (oil products)		
		-	-	-
II. Production intérieure d'énergie		Inland energy production		
soit :		of which :		
Houille	Coal	0.02	0.03	0.03
Lignite et tourbe	Lignite and peat	-	-	-
Pétrole	Oil	-	-	-
Gaz naturel	Natural gas	-	-	-
Energie nucléaire	Nuclear energy	-	-	-
Hydro. + géoth.	Hydro. + geoth.	0.01	0.02	0.02
Autres (nouv. sources)	Others (new sources)	0.01	0.01	0.01
IV. Importation nette d'énergie (3)		Energy net imports (3)		
soit :		of which :		
Combustibles solides	Solid fuels	3.90	4.64	5.22
Pétrole	Oil	1.88	1.85	2.16
Gaz naturel	Natural gas	1.32 (*)	1.90	1.90
Electricité	Electricity	0.47	0.55	0.70
		0.23	0.34	0.46
V. Mouvements de stocks (4)		Stock changes (4)		
soit :		of which :		
Combustibles solides	Solid fuels	-0.08	-	-
Pétrole	Oil	-0.04		
Gas	Gas	-0.04		
		-		

(*) Sources : 1979

: Eurostat.

1985 et 1990 : Prévisions/Forecasts - 1980 National programmes Review -

Données adaptées aux conventions statistiques de l'Eurostat.

(1) Aux prix de 1975. (2) Indice 1973 = 100 / Index 1973 = 100.

(3) Un signe négatif indique une exportation nette / Negative sign means net exports.

(4) - mises en stocks/increase of stocks, + reprises aux stocks/decrease of stocks.

(*) Objectif Tokyo 1985 (2 mt,

1985 Tokyo target (

Prévisions à long terme de demande d'énergie (suite)
Energy demand long-term forecasts (continued)

Pays/Country : LUXEMBOURG

	1979		1985		1990	
	Energy (m. toe)	of which: oil	Energie (mio tep)	dont : pétrole	Energy (m. toe)	of which : oil
VI. Secteurs de consommation finale d'énergie/Final consumption of energy Industrie/Industry	2.47	0.33	3.02	0.72	3.44	0.60
Usages non énergétiques/Non energy uses	0.04	0.04	0.04	0.04	0.04	0.04
Transports	0.47	0.46	0.51	0.51	0.57	0.57
Secteurs domestiques, etc./Households, etc.	0.63	0.43	0.82	0.56	0.93	0.62
T O T A L	3.61	1.26	4.39	1.83	4.98	1.83

	1979		1985		1990	
	Energy (m. toe)	of which: oil	Energie (mio tep)	dont : pétrole	Energy (m. toe)	of which : oil
VII. Couverture de la production d'énergie électrique/Coverage of electrical energy production	0	0	-	-	-	-
Combustibles solides/Solid fuels	0.04	0.04	0.20	0.20	0.20	0.20
Pétrole/Oil	0.26	0.26	-	-	-	-
Gas(*)/Gas(*)	-	-	0.03	0.03	0.03	0.03
Energie nucléaire/Nuclear energy	0.02	0.02	-	-	-	-
Hydro, géoth. et autres/ and others	0.32	0.32	0.23	0.23	0.23	0.23
T O T A L	0.64	0.64	0.46	0.46	0.46	0.46
Part des combustibles solides + nucléaire Share of solid fuels + nuclear energy (*)	44 %	44 %	43 %	43 %	43 %	43 %
Ratio électricité/Energie Electricity/Energy ratio	14 %	14 %	12 %	12 %	13 %	13 %

(*) Y compris gaz de cokeries et de hauts fourneaux) 1979 : 0.14

(*) Including coke-oven gas and blast-furnace gas

Prévisions à long terme de demande et d'offre d'énergie (*)
 Energy demand and supply long-term forecasts (*)

Pays/Country : NEDERLAND		(en mio tep/in m toe)		
		1979	1985	1990
I. Indicateurs généraux		General indicators		
Taux croissance PIB	GDP growth rates	(79/73) +2.6%	(85/79) +2.7%/+3.2%	(90/85) +1.9%/+2.0%
PIB 10 ⁹ HFL (1)	GDP 10 ⁹ HFL (1)	238.1	278.9/288.1	306.1/328.6
Taux croissance énergie	Energy growth rates	+1.9%	+2.5%/+3.6%	+1.1%/+1.0%
Ratio énergie (2)	Energy ratio (2)	95.9	93.0/98.1	91.5/94.1
Coefficient E/PIB	E/GDP coefficient	0.73	0.93/1.13	0.58/0.71
II. Demande d'énergie		Energy demand		
A. Consommation intérieure brute d'énergie		Energy gross inland consumption		
Idem corrigée pour conditions climatiques		Idem corrected for climatic conditions		
soit :		of which :		
Combustibles solides	Solid fuels	3.29	7.1	9.0/11.5
Pétrole	Oil	30.54	36.4/41.6	38.7/45.0
Gaz naturel	Natural gas	32.38	33.6	33.8
Électricité primaire etc.	Primary electr. etc.	1.25	1.2	1.2
B. Soutes (produits pétroliers)		Bunkers (oil products)		
		8.05	10.5	11.5
III. Production intérieure d'énergie		Inland energy production		
soit :		of which :		
Houille	Coal	-	-	-
Lignite et tourbe	Lignite and peat	-	-	-
Pétrole	Oil	1.58	2.0	2.0
Gaz naturel	Natural gas	70.78	62.6	52.7
Énergie nucléaire	Nuclear energy	0.90	1.0	1.0
Hydro. + géoth.	Hydro. + geoth.	-	-	-
Autres (nouv. sources)	Others (new sources)	0.34	0.2	0.2
IV. Importation nette d'énergie (3)		Energy net imports (3)		
soit :		of which :		
Combustibles solides	Solid fuels	3.49	7.1	9.0/11.5
Pétrole	Oil	38.71	44.9/50.1 (*)	48.2/54.8
Gaz naturel	Natural gas	-38.39	-29.0	-18.9
Électricité	Electricity	0.01	-	-
V. Mouvements de stocks (4)		Stock changes (4)		
soit :		of which :		
Combustibles solides	Solid fuels	-0.20	-	-
Pétrole	Oil	-1.70	-	-
Gaz	Gas	-0.01	-	-

(*) Sources : 1979 : Eurostat.
 1985 et 1990 : Prévisions/Forecasts - 1980 National programmes Review -
 Données adaptées aux conventions statistiques de l'Eurostat.
 (1) Aux prix de 1975. (2) Indice 1973 = 100 / Index 1973 = 100.
 (3) Un signe négatif indique une exportation nette / Negative sign means net exports.
 (4) Une variation négative des stocks indique une diminution des stocks / Decrease of stocks.

Prévisions à long terme de demande d'énergie (suite)
Energy demand long-term forecasts (continued)

Pays/Country : NEDERLAND

	1979		1985		1990	
	Energy (m. toe)	of which: oil	Energie (mio tep)	dont : pétrole	Energy (m. toe)	of which : oil
<u>VI. Secteurs de consommation finale d'énergie/Final consumption of energy</u>						
Industrie/Industry	21.39 (8.75)	9.27 (6.95)	28.6/32.5	13.4/17.0	31.6/38.0	14.3/19.7
Usages non énergétiques/Non energy uses	7.45	7.36	10.8/11.5	7.6/8.1	11.4/12.6	8.0/8.8
Transports	21.93	3.58	9.9/10.4	9.8/10.3	10.9/11.5	10.8/11.4
Secteurs domestiques, etc./Households, etc.	59.52	27.16	26.0/26.1	4.0/4.1	25.8/26.2	3.4/3.6
T O T A L			75.3/80.5	34.8/39.5	79.7/88.3	36.5/43.5

	1979		1985		1990	
	Energy (m. toe)	of which: oil	Energie (mio tep)	dont : pétrole	Energy (m. toe)	of which : oil
<u>VII. Couverture de la production d'énergie électrique/Coverage of electrical energy production</u>						
Combustibles solides/Solid fuels	0.74		2.7		4.1/6.0	
Pétrole/Oil	4.89		5.4/6.2		6.2/6.0	
Gaz(*)/Gas(*)	7.45		6.3		5.2	
Energie nucléaire/Nuclear energy	0.90		1.0		1.0	
Hydro, géoth. et autres/ and others	0.34		-		-	
T O T A L	14.32		15.4/16.2		16.5/18.2	
Part des combustibles solides + nucléaire Share of solid fuels + nuclear energy (*)	14 %		27 %/25 %		33 %/41 %	
Ratio électricité/Energie Electricity/Energy ratio	21 %		20 %/19 %		20 %/20 %	

(*) Y compris gaz de cokeries et de hauts fourneaux) 1979 : 0.38
(*) Including coke-oven gas and blast-furnace gas)

Prévisions à long terme de demande et d'offre d'énergie (*)
Energy demand and supply long-term forecasts (*)

Pays/Country : UNITED KINGDOM

(en mio tep/in m toe)

		1979	1985	1990
I. Indicateurs généraux		(79/73)	(85/79)	(90/85)
Taux croissance PIB	General indicators GDP growth rates	+1.0%	+1.9%/+2.5%	+2.0%/+2.9%
PIB 10 ⁹ UK£ (1)	GDP 10 ⁹ UK£ (1)	112.7	126.4/130.9	139.9/151.2
Taux croissance énergie	Energy growth rates	+0.0%	-0.0%/+0.6%	+0.9%/+1.6%
Ratio énergie (2)	Energy ratio (2)	94.6	84.1/84.3	79.6/78.8
Coefficient E/PIB	E/GDP coefficient	0	0/0.24	0.45/0.55
II. Demande d'énergie				
A. Consommation intérieure brute d'énergie				
Idem corrigée pour conditions climatiques	Energy demand Energy gross inland consumption	220.52	219.8/228.1	230.3/246.5
soit :	Idem corrected for climatic conditions	(217.9)		
Combustibles solides	of which : Solid fuels	75.81	66.0/68.0	71.0/76.0
Pétrole	Oil	92.86	91.3/96.6	89.8/99.1
Gaz naturel	Natural gas	40.44	47.1/48.1	50.1/52.0
Electricité primaire etc.	Primary electr. etc.	11.41	15.4	19.4
B. Scoutes (produits pétroliers)				
	Bunkers (oil products)	2.60	3.0/4.0	3.0/4.0
III. Production intérieure d'énergie				
	Inland energy production	193.51	217.0/260.3	197.6/249.7
soit :	of which :			
Houille	Coal	70.88	71.0/74.0	74.0/80.0
Lignite et tourbe	Lignite and peat	-	-	-
Pétrole	Oil	78.27	93.3/132.6	68.8/108.1
Gaz naturel	Natural gas	32.95	37.3/38.3	35.4/42.2
Energie nucléaire	Nuclear energy	11.04	15.0	19.0
Hydro. + géoth.	Hydro. + geoth.	0.37	0.4	0.4
Autres (nouv. sources)	Others (new sources)	-	-	-
IV. Importation nette d'énergie (3)				
	Energy net imports (3)	27.58	5.8/-28.2	35.7/0.8
soit :	of which :			
Combustibles solides	Solid fuels	1.15	-5.0/-6.0	-3.0/-4.0
Pétrole	Oil	18.94	(*) 1.0/-32.0	24.0/-5.0
Gaz naturel	Natural gas	7.49	9.8	14.7/9.8
Electricité	Electricity		-	-
V. Mouvements de stocks (4)				
	Stock changes (4)	+2.03	-	-
soit :	of which :			
Combustibles solides	Solid fuels	+3.78		
Pétrole	Oil	-1.75		
Gaz	Gas			

(*) Sources : 1979 : Eurostat.

1985 et 1990 : Prévisions/Forecasts - 1980 National programmes Review -
Données adaptées aux conventions statistiques de l'Eurostat.

(1) Aux prix de 1975. (2) Indice 1973 = 100 / Index 1973 = 100.

(3) Un signe négatif indique une exportation nette / Negative sign means net exports.

(4) - mises en stocks/increase of stocks. + reprises aux stocks/decrease of stocks.

(*) Objectif Tokyo 1985 (- 5 mt.
1985 Tokyo target (

Prévisions à long terme de demande d'énergie (suite)
Energy demand long-term forecasts (continued)

Pays/Country : UNITED KINGDOM

	1979		1985		1990	
	Energy (m. toe)	of which: oil	Energie (mio tep)	dont : pétrole	Energy (m. toe)	of which: oil
VI. Secteurs de consommation finale d'énergie/Final consumption of energy						
Industrie/Industry	46.98	17.94	51.5/53.1	14.6/15.2	52.4/57.1	12.6/14.4
Usages non énergétiques/Non energy uses	13.80	9.27	17.0	17.0	18.0/19.0	18.0/19.0
Transports	32.80	32.39	34.0/37.0	34.0/37.0	35.0/40.0	35.0/40.0
Secteurs domestiques, etc./Households, etc.	59.12	12.48	54.5/55.5	8.0	55.5/57.4	7.0
T O T A L	152.70	72.08	157.0/162.6	73.6/77.2	160.9/173.5	72.6/80.4

	1979		1985		1990	
	Energy (m. toe)	of which: oil	Energie (mio tep)	dont : pétrole	Energy (m. toe)	of which: oil
VII. Couverture de la production d'énergie électrique/Coverage of electrical energy production						
Combustibles solides/Solid fuels	49.30		45.3/46.3		49.4/52.5	
Pétrole/Oil	12.25		10.4/12.8		10.4/11.6	
Gaz(*)/Gas(*)	1.33		0.5		0.5	
Energie nucléaire/Nuclear energy	11.04		15.0		19.0	
Hydro, géoth. et autres/ and others	0.37		0.4		0.4	
T O T A L	74.29		71.6/75.0		79.7/84.0	
Part des combustibles solides + nucléaire	82 %		85 %/82 %		86 %	
Share of solid fuels + nuclear energy (*)	34 %		33 %		35 %/34 %	
Ratio électricité/Energie						
Electricity/Energy ratio						

(*) Y compris gaz de cokeries et de hauts fourneaux) 1979 : 0.55
(*) Including coke-oven gas and-blast-furnace gas

53.