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## THE ENERGY SITUATION IN THE COMMUNITY

Situation 1974 - Outlook 1975

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The Energy Situation in the Community  
Situation 1974 - Outlook 1975

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I. The Economic Outlook for 1975

Great uncertainties as to the world level of economic activity in 1975 make any forecast for the Community in particular, highly tentative. The likelihood of a continued stagnation in output and rising unemployment on a world scale provides a backdrop to the economic forecasts for the Community which are given below.

In fact, recent developments within the Community indicate a worsening of the economic situation, which could persist until the spring of 1975. Whilst exports to third countries have increased rapidly, internal demand, on the other hand, declined noticeably during the autumn of 1974. In general the rate of investment has slowed down. In most Member States the construction industry is showing a decline and domestic consumption during the autumn evinced less rapid growth. Whilst agricultural production did not make any notable advance, industrial production stagnated in the autumn. In certain industrial sectors, such as steel and chemicals, there was fair growth despite significant price increases, but in others, particularly motor vehicle production, there was a marked decline in the course of the year. In these conditions, unemployment tended to increase in all the Member States. Inflation continued at a very high rate although there were some marked differences as between the Member countries.

It is expected that economic activity in the Community will grow at a relatively modest rate in the first half of 1975. External demand for Community products is likely to slacken somewhat. With regard to internal demand, there are however some signs of recovery. In most Member States, balance of payments deficits will severely limit the possibilities of pursuing policies of expansion.

The gross domestic product of the Community, which increased in real terms by more than 2% in 1974, is likely to grow by 2½% in 1975. The employment situation could worsen in the months ahead. In almost all of the Member States, inflation is likely to persist. The balance of payments situation will depend to a very large extent on the future

price of crude oil, but the deficits are probably going to decline in several member countries. For the Community as a whole the balance of payments ( on goods, services, factor income and current transfers account) is estimated to have been \$16 milliard in 1974 and is forecast as \$11.5 milliard for 1975.

Table I - The principal economic indicators - The Community (1)

	1973	1974	1975
		Estimates	Forecasts
Gross Domestic Product	+ 5,6	+ 1,8	+ 1,5
Industrial Production	+ 8,3	+ 1,0	+ 1,5
Steel Production (10 <sup>6</sup> t)	150,1	155,7	152,0

II. The Demand for Energy

The estimated demand for the inland consumption of energy in the Community in 1974 reached approximately 926 million tons of oil equivalent (toe), representing a decrease in consumption of about 1½ per cent over 1973, compared with an increase of about 6 per cent in the year 1973. The inland consumption of oil products in 1974 was around 524.5 million toe, equivalent to a decline of about 28 million toe or 6 per cent as compared with 1973. However, the decline in oil demand was largely offset by increased consumption of natural gas and primary electricity.

With regard to the possible level of demand for energy in 1975, in view of the considerable economic uncertainty on the one hand, and on the other, the extent to which measures may be taken to discourage oil consumption in the year ahead in the Member States, it is particularly difficult to make a forecast for the Community. It seems that energy demand may be stabilised at the 1974 level, with oil consumption continuing to be subject to the downward pressures of high prices and restrictive measures, and with a degree of further substitution of other fuels for oil.

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1) The estimates for 1974 and 1975 contained in this document were prepared in January 1975 and have since been modified in the light of more recent developments (May 1975).

Table IA: Inland consumption of primary energy in the Community

	1972		1973		1974		1975	
	Mio toe	%	Mio toe	%	Mio toe	%	Mio toe	%
Coal	189.6	21	195.2	21	189.4	20	196.0	22 -21
Lignite	24.3	3	25.3	3	25.8	3	27.0	3
Oil	524.8	59	552.6	59	524.5	57	485 - 515	53 -54
Natural Gas	102.8	12	117.5	13	140.8	15	153.0	17
Primary Electricity (& others)	40.7	5	41.6	4	45.5	5	49.0	5
Total	882.2	100	932.2	100	926.0	100	910 - 940	100

III. The market situation and outlook

A. Petroleum

1. Supply

The disruption of supplies, widespread fears of shortages, and high spot prices, which characterised the months following the October 1973 war, were succeeded in 1974 by relatively stable supply conditions. Although the embargo on crude shipments to the U.S.A. and Holland continued into 1974, crude production was generally maintained throughout the year at above the reduced level of world demand, higher exports by S.Arabia, Iran and Nigeria having offset sharp reductions elsewhere in the Middle East and in Africa. Production in 1974 by the principal suppliers of crude to the Community compared with 1973 as follows:

TABLE II: PRODUCTION IN ME/AFRICA 1973/74

1.000 b/d	Jan/December		% ±
	1973	1974	
S.Arabia	7,600	8,483	+ 11.6
Iran	5,897	6,056	+ 2.7
Abu Dhabi	1,303	1,414	+ 8.6
Kuwait	3,022	2,548	- 15.7
Iraq	1,966	1,871	- 4.8
Rest	1,151	1,146	- 0.5
<b>Total Middle East</b>	<b>20,939</b>	<b>21,518</b>	<b>+ 2.8</b>
Libya	2,182	1,606	- 26.4
Algeria	1,074	1,028	- 4.2
Nigeria	2,054	2,271	+ 10.6
	<b>26,249</b>	<b>26,423</b>	<b>+ 0.7</b>

The cost of crude oil in the Gulf was increased more than twofold with effect from January 1st following the 130% rise in posted prices. Retroactive increases in state participation, by reducing the proportion of oil available to the concession-holders at the lower equity price further

raised the average cost of oil to the international companies. In principle, this proportion fell typically from 75% to 40%, a figure which was however exceeded in a number of cases where the state partner chose not to produce the whole of his share. Where the 40/60 ratio did in fact apply, f.o.b. prices rose on average by about 6.20 \$/bbl from 1st January 1974.

TABLE III: EVOLUTION OF CRUDE OIL PRICES Oct 73/Dec.74 (\$/bbl)

	Posted Price	Tax-Paid Cost of Equity Crude	Buy-back Oil
October 73	3.01	1.93	2.80
November 73	5.05	3.24	4.69
January 74	11.65	8.36	10.83
Nov./Dec.74	11.25	9.92	10.46

The increase in Nov/Dec. 1974 was made by substantially raising the cost of equity oil ( by 1.56 \$/bbl) and reducing that of buy-back oil by 37 ¢/bbl, thus diminishing ( from 1 \$/bbl to 20 ¢/bbl) the advantage of the concession-holders vis à vis state oil companies and independents. It was further decided by OPEC that the average price would be calculated on a 40/60 equity/state oil basis, regardless of the proportions actually lifted, and that prices would be fixed at the new levels until September 1975.

The evolution in the prices of African crudes has been somewhat different in that they began the year greatly overpriced in terms of Middle Eastern crudes. Thus the buyback price for Libyan has fallen during the course of the year from \$16 to under \$ 12.

The general rise in f.o.b. crude prices has been only slightly offset by the steady decline of the tanker freight market. Towards the year-end VLCC rates were in the break-even area in spite of a spate of charters in anticipation of higher oil prices. No improvement is likely in 1975; on the contrary, as African crude prices decline to competitive levels, the situation will deteriorate further for fleet owners.

TABLE IV: OCEAN FREIGHTS ( POINTS OF WORLD SCALE)

	SPOT FREIGHT RATES			AFRA	
	1) PG - UKC crude (200/250,000t)	2)	3) Med - UKC Products (20,000t)	Mullion Index VLCC	
<u>beginning:</u>					
January	-		300	186	87
March	78		220	144	81
June	85		175	156	79
September	43		140	109	78
December	33		150	105	73

1) Persian Gulf                      2) United Kingdom/Continent      3) Mediterranean

2. Supply Prospects for 1975

Provided war is avoided in the Middle East, it seems reasonable to expect that crude will remain in ample supply in 1975. The policy pursued in this respect by S.Arabia and Iran has kept control in their hands and achieved its stated objectives of putting pressure on product selling prices, and hence on oil industry margins. It is likely therefore to be continued.

Once the take-over of ARAMCO is completed, the move to a single pricing system will probably follow within a few months. With this change the international companies will lose most of their residual advantage in access to crude and the stage will be set for greater direct participation in the world market by the national oil companies of the producing countries.



The level of prices in 1975 is a matter for conjecture. The most reasonable working assumption is perhaps that OPEC policy will be aimed at maintaining revenue in real terms. After the moratorium on price increases in 1975, adjustments will no doubt be made to compensate the producing countries for the effects of world inflation and perhaps for the further fall in demand. However it seems reasonable to think that there will not be further gross increases in prices in 1975; price reductions, on the other hand, are scarcely to be expected.

European International Markets

TABLE V: ROTTERDAM QUOTATIONS (LOW)

US \$ per MT

	1972	1973				1974				
Month end	Dec.	Sep.	Oct.	Nov.	Dec.	Jan.	Mar.	Jun.	Sept.	Dec.
Reg. Gasoline	42	79	98	165	150	138	180	120	101	105
Gasoil	35	82	133	230	150	107	92	87	91	93
Fuel Oil 1% S	22	25	34	85	140	85	65	65	67	77
3.5% S	15	15	28	70	130	70	62	62	63	69

In the fourth quarter of 1973 the expectation of shortages, and heavy U.S. demand, pushed the prices of spot crude oil and products on the international exchanges to levels far above selling prices in Community countries.

In January 1974, in spite of huge increases in crude oil postings, international product prices fell substantially, as fears of scarcity receded, gasoil to less than half the November figure. Gasoline, however, remained in short supply and its price high until U.S. demand fell away in the second quarter following the lifting of the embargo.

For much of the year oil product prices have remained fairly steady at a depressed level. Fuel oil, however, showed a substantial seasonal gain towards the year-end. Crude imports after the embargo were at higher levels than the level of consumption subsequently justified, with the result that stocks of most main products remained at high levels during the year.

The export market contracted, U.S. product imports, for example, falling by about 11% in 1974, while crude imports were 5.5% higher. For September/November the corresponding figures were - 17% and + 10%.

There is little reason to suppose that the present situation will change greatly in 1975. Countries traditionally importing products will meet a larger proportion of their reduced requirements from national refineries so that the volume of international product movements will contract by more than the fall in world demand. Assuming ample crude supply, therefore, product prices are likely to remain depressed.

### 3. Domestic Markets

There was an estimated fall in consumption in the Community of about 6% compared with 1973. Figures varied widely from country to country according to the degree of substitution of other fuels for oil. The Netherlands, Germany and Denmark recorded particularly large falls, mainly attributable to the greater use of coal and gas for industrial purposes and domestic heating. To some extent the reduction in oil consumption was due to the impact of energy savings measures.

Consumption of gasoil for heating, and of heavy fuel oil, showed the largest decline; motor gasoline declined less, while gasoil in road transport use actually increased slightly over 1973 as a result of the greater use of public transport.

National selling prices, whether free or controlled, tended to rise more slowly than average crude costs until the last quarter, but increases effective in December or early January 1975 have brought the average rise in the official or scheduled prices of the main products for the Community as a whole during 1974 into line with that in average crude prices. The position however varies greatly from country to country.

TABLE VI: EVOLUTION OF COMMUNITY PRE-TAX PRICES IN 1974

U.S.\$/MT	<u>Dec.73</u>			<u>Jan.75</u>			Increase in mean
	Low	Mean	High	Low	Mean	High	
Regular Gasoline	95	115	130	160	200	245	85
Gasoil: Automotive	90	102	125	130	155	180	53
Heating	65	81	100	120	125	145	44
Fuel Oil ( High Sulphur)	26	32	40	70	80	100	48
Arabian Light (average cost,40% Equity)		27			77		50

The range of prices within the Community widened considerably during the crisis, narrowed somewhat during 1974 and increased again in December/January 1975. Discrepancies between member states c.i.f. crude costs, although still relatively small, increased because of differences in the proportion of equity oil in the imports of different countries; very different policies were followed by member states in apportioning to products the increase in crude oil costs, particularly as between gasoline and residual fuel oil.

During the first quarter independent importers of products were unable to compete with the products of domestic refineries. Concern about regular supplies at acceptable prices prompted the associations of independents in France and Germany to form joint purchasing agencies. However, by the second quarter depressed prices at Rotterdam enabled independent distributors once again to compete with, and even under-cut, major companies.

#### 4. Prospects for Domestic Markets in 1975

It seems likely that consumption will decline further during 1975. If tax increases continue to fall principally on gasoline, the consumption of this product may fall more than that of others. Automotive gasoil, on the other hand, seems likely to remain at 1974 levels or even above. Since conversions that could easily be made from gasoil or fuel oil to coal or gas have probably already been largely completed, the 1975 decline in the consumption of these products should be less than in 1974.

The outlook for the refining industry is not encouraging. Utilisation of plant, particularly in Benelux and Italy, is likely to be low in view of the contraction of both export and domestic demand. The introduction of the single pricing system for crude oil will remove the disability of the independent refiners, and national oil companies, who will compete on more even terms with majors.

Profit expectations for the industry will thus be adversely affected by the combination of falling demand, rising unit costs, low international product prices, and growing competition for a contracting market.

5. North Sea Oil Prospects - U.K. Sector

The report of May 1974 to the British Parliament, " Production and Reserves of Oil and Gas in the United Kingdom" listed ten North Sea oilfields as commercial. In order of being declared commercial, they are:

Forties ( Dec.1971), Auk, Brent, Argyll, Piper, Beryl, Dunlin, Thistle, Montrose and Ninian (April 1974).

Since then, five more fields, Cormorant, Claymore, Maureen, Hutton and Heather have been declared commercial.

There have been delays in building the production platforms for these fields, although the Graythorp I jacket for the Forties field is now in position and work is going ahead on getting the platform modules in place. Delay is expected, however, on the Auk field platform and no production from that field is likely before 1976. By the end of that year, it is thought that Forties, Auk, Argyll and Piper will be in production, although the larger of these fields, Forties, will have only two out of four platforms in position. There is the possibility also of production from Brent and Beryl before the end of 1976. The estimated production for 1975 is  $2\frac{1}{2}$  million tons, and for 1976 about 20 million tons.

Proven reserves of oil in the U.K. sector were estimated in the May 1974 report as 895 million tons for the ten fields declared commercial by then. Proven reserves are those which on the available evidence are virtually certain to be technically and economically producible. Additional reserves in the "probable" category ( i.e.those with a better than 50% chance of being technically and economically producible) expected from those ten fields, other significant discoveries and future discoveries from work done under existing licences, are estimated as 1095 million tons. The total of proven and probable reserves is therefore about 2 billion tons. Additional possible reserves, with a less than 50% chance of being producible, might be of the order of a further 1 billion tons.

B. Coal

The increase in the price of oil has had the effect of slowing down the structural decline of coal in the Community, coal having been substituted for oil in certain uses. In 1975, coal production in the four principal producing countries should remain at the level of two years ago - about 240 million tons of coal equivalent (tce). In these countries, and particularly in the United Kingdom and Germany, a serious attempt is being made by the public authorities to maintain coal production in the short and medium term.

TABLE VII Production of Coal in the Community

	<u>Million t.c.e.</u>			<u>Per Cent</u>	
	1973	1974	1975	1974 - 1973	1975 - 1974
Germany	98.8	94.7	95.8	- 4.1	+ 1.1
Belgium	8.0	7.7	7.5	- 3.7	- 2.6
France	23.3	20.6	20.8	-11.7	+ 1.0
Netherlands	1.7	1.0	-	-41.1	-
United Kingdom	118.3	102.5 (*)	115.5	-31.4	+12.7
Total	250.1	226.6	239.6	- 9.6	+ 5.8

\* Loss of production due to strikes

Imports of coal from third countries - about 40 million tons - increased notably in 1974 and should remain at least at the same level in 1975, to ensure that estimated demand is met. However the prices at which the coal imports were made were significantly higher than a year ago. Intra-Community trade was notably higher in 1974; this was essentially due to supplies from Germany which, in large part owing to lifting of stocks at the minehead, has contributed to meeting the increased demand from other Member States.

With regard to demand, deliveries to coke ovens have been a significant factor in 1974, reflecting the high level of activity in the steel industry. Steel production of 156 million tons is estimated for the year, about 6 million tons more than in 1973. Initial estimates for 1975 are somewhat lower and consequently the supply of coke ovens could be at about the same level as in 1974, about 107 million tons. However, at the present time there are indications of a slackening in the level of activity in the steel industry; given the usual timelag, this situation could adversely affect the level of coke production and the demand for coal.

The demand of power stations for coal could rise from 113 million tons in 1973 to about 117 million tons in 1975. This slow growth would be a reflection of import difficulties in a tight world market situation and of price levels in respect of steam coal.

Among other consumption sectors, mention should be made of the domestic market, where the fear of a shortage of heating oil has led to recovery in the sale of coal-burning stoves, and seems to be having a significant effect in slowing down the decline observed during several years. A light recovery is also expected in both the markets for patent fuels and lignite briquettes.

In conclusion, the balanced supply and demand situation in the coal market in 1974 was due to additional imports and to drawing upon stocks at the minehead. In 1975, in order to meet demand, it will be necessary to maintain a high level of imports from third countries and to use existing stocks at the minehead. However, the tight world coal market situation could be relieved by a significant reduction in the level of economic activity. As far as the Community as a whole is concerned, the objective of security of supply and the actual trend in coal prices are two considerations which could affect the level of demand in the year ahead.

C. Gas

1. Natural Gas Reserves

In January 1974, total proven and probable Community reserves rose 2.3% from 4,870 to 4,983 milliard m<sup>3</sup>. While this appears modest, two factors should be stressed:

- (a) Confirmed new reserves covered 150 milliard m<sup>3</sup> production for the year as well as adding 113 milliard m<sup>3</sup> to reserves yet to be produced; and
- (b) Totals shown represent the sum of proven and probable reserves and so do not illustrate the upgrading from probable to proven.

During 1974 several new discoveries have been made or confirmed within the Community. While no official information is yet available they can be summarized as follows:

Italy: Deep drilling at Malossa near Milan discovered a new field. ENI estimate reserves of 50 milliard m<sup>3</sup>, but rumours suggest it could total 150 milliard m<sup>3</sup>. Offshore in the Adriatic, close to the Yugoslavian median line, there are reports of a 70 milliard m<sup>3</sup> find which, however, may not be developed at present.

Germany: The first interesting offshore find, as yet unquantified, has been made in block A 6/1. Onshore there has been a new find near Velzen.

France: A new structure has been found 20 kms. from the Lacq field.

Ireland: A reservoir of 30 milliard m<sup>3</sup> has been found offshore Cork.

During 1975 further discoveries can be hoped for based on the levels of activity foreseen. One new area of potential interest will be in the French offshore region south of the Channel, where seismic evaluation is now complete and exploration is expected to start soon. In other areas, notably in the U.K. sector of the North Sea, there may also be new finds but most work will be on delineation and evaluation of already discovered structures and reclassification of "possible" reserves into the probable or proven category. Activity in the Norwegian sector will also be interesting near the 50 milliard m<sup>3</sup> Heimdall field and its adjacent structures.

2. Trend of the market for natural gas

(a) Production, intra-Community trade and imports

In 1975 marginal production drops are expected in France and Italy but Germany, the Netherlands and the U.K. plan increases which should up indigenous production by 11.6% over 1974. The largest increase is in Netherlands production, up to 18.7% on 1974, with corresponding increases in exports to Germany, France and Belgium and a major increase (48.3%) in supply to Italy as this, the newest of the NAM export contracts, approaches full contract volume.

Foreign imports look misleading because of the figures for France. The 1975 forecast of 24,000 Tcal is less than the 1974 total of 30,694 Tcal because, for 1974 full contractual performance for Algerian LNG imports was assumed. However liquifaction plant problems limited French imports to about 21,000 Tcal. Thus 1975 does, in fact, represent a modest increase over 1974.

The following table shows the sources of supply for (1974) and 1975 as percentages of total requirements.

TABLE VIII

	Production		Community Import		Foreign Import	
	(1974)	1975	(1974)	1975	(1974)	1975
Germany	(46.5)	43.9	(48.7)	50.2	(4.8)	5.9
France	(40.2)	39.4	(47.3)	46.6	(12.5)	*14.0
Italy	(73.8)	60.5	(7.4)	17.0	(18.8)	22.5
Netherlands	(200.9)	201.9	(-100.9)	-101.9	-	-
Belgium	-	-	(100)	100	-	-
Luxemburg	-	-	(100)	100	-	-
U.K.	(97.0)	97.7	(-)	-	(3.0)	2.3
Total	(93.9)	94.3	(-)	-	(6.1)	5.7

\* modified to reflect probable actual 1974 level

This movement towards a greater level of Community self-sufficiency in 1975 will be out back in future years when supplies from Norway start and as Russian and Algerian deliveries increase.



(b) Pattern of gas consumption

It is not possible to make any assessment of the pattern of future gas consumption because of the lack of correlation between the prices for gas and other fuels. Since gas is presently cheaper than other fuels and since supply is limited, direction of the market appears inevitable. Probably the domestic and commercial sectors of the market will be allowed to expand freely while the proportion of industrial sales diminishes. It is to be hoped that the first and most noticeable diminution will be in the use of natural gas in power stations, with no new power station supplies being contracted except in very special cases.

3. Gas Prices

(a) To consumers

Because of the long term nature of most gas supplies and the high proportion of indigenous production, the gas market has not been directly affected by the energy crisis. Thus, despite several increases, consumer prices are still significantly lower than oil prices in all Member States. The following approximate comparisons illustrate the relationships:-

TABLE IX

Country	Gas Price	Heavy Fuel Price	Effective Gas Discount
Germany	100 DM/toe	190 DM/t	47.4%
France	235 FF/toe	300 FF/t	21.7%
Italy	17000 L/ toe	42000 L/t	59.5%
Holland	93Fl/toe	190 Fl/t	51.0%
Belgium	1050 FB/toe	3500 FB/t	70.0%

These figures relate to industrial sales where comparison with heavy fuel oil is valid. In the domestic sector a comparison with home heating oil would show a similar relationship.

(b) Supply Prices from Producers

Actual contract prices and escalation provisions are, of course, confidential. However in several supply contracts escalation has brought about only modest increases despite the oil price crisis. In most cases suppliers have overcome this by offering increased supply volumes if price and escalation are revised for the total volume. In 1975 this practice is expected to continue where suppliers have available sufficient additional gas to provide an adequate incentive to the buyers. But even more drastic action is possible and unilateral price modification may now be envisaged especially

in view of the new draft law being considered by the Netherlands. This law " The Natural Gas Price Law" dated 7th October, 1974 would allow the Dutch Government to impose minimum prices for their export gas sales.

D. Electricity

The electricity sector has had to bear the impact of the radical change in the energy supply situation chiefly on two fronts:

- altered patterns of primary fuel supply of power stations due to abrupt modifications in the relative cost and availability of the different primary sources.
- reduced growth rates of demand.

Primary sources

Improved hydraulic conditions in 1974 ( as compared with the two preceding rather dry years), the commissioning of new hydraulic plant in France, and of important nuclear capacities in Germany and France have helped to increase the primary part of electric output and reduce fuel demand correspondingly. These same factors, given normal hydro conditions, will raise primary electricity generation in the Community to just over 200 TWh in 1975 ( against 182 in 1974 and 166 in 1973), which will then contribute 17.7% of overall electricity generated (of which 10.6% primary hydro, 0.2% geothermal, and 6.9% nuclear against 5.3% in 1973).

Growing use is being made of pumped storage, though production from this secondary source contributes only 0.7% to electricity generation and primary energy must first be provided by other power stations during off-peak periods. There remains an 81.6% contribution to electricity production to be generated in 1975 which must be furnished by conventional thermal power plant. Investments generally having been planned on the basis of the higher previous increase rate, there will be no lack of capacity to provide for this production ( or more if need be). However, the breakdown of this production by type of fuel will essentially differ from what could have been expected two years earlier.

Changes brought about by the end-1973 events in the pattern of fuel consumption by power stations are difficult to appreciate because of the difficulty of defining the "normal" input pattern for any given period. One worthwhile attempt at evaluating these changes is based on two sets of estimates of public supply power station input in 1974, the first established in September 1973 and the second in October 1974, by the competent national authorities.

Table X sets out the differences, by type of fuel, between the two

estimates in tons of oil equivalent and in percent.

Community

TABLE X

	10 <sup>6</sup> M toe	Percentage Change
Petroleum products (non-gaseous)	- 11.091	- 16.3
Hard coal	- 1.271	- 2.1
Lignite and peat	- 1.986	- 8.6
Natural gas	+ 2.486	+ 11.5
Derivative gases ( and sundry)	+ 0.059	+ 2.9
All fuels	- 11.803	- 6.7

Conclusions which follow from the available information are:

1. Estimates of 1974 fuel-oil use in power stations have been reduced within one year for every one of the Member countries by percentages ranging from 0.7% (Italy) to 35.2% (Germany), the Community average being a reduction by 16.3% or 11.1 million tons of oil equivalent (t.o.e.)
2. At the same time, expectations of total fuel demand by power stations for the same year have also been reduced, by 11.8 million t.o.e.
3. Certain competing fuels are showing signs of expansion at the expense of oil input estimates in all countries ( except Denmark):
  - hard coal and natural gas in France and Germany;
  - hard coal alone in Belgium and Italy;
  - natural gas alone in the U.K. and Netherlands;
  - peat in Ireland;
  - smaller amounts of derivative gases in Germany, Belgium and Italy.

These additions to former estimates of these fuel inputs amount to a total of 5.9 million t.o.e.

4. On the other hand, such replacement seems to have been limited by the lack of elasticity of indigenous fuel supply, so that the technical possibilities for fuel oil substitution were not fully exploited.
  - brown coal supply to German power stations was being restrained by reinforced demand of briquetting plants;

- Dutch coal input in power stations shows a faster reduction than originally projected, as the coal involved seems to have found other markets;
- natural gas input figures were reduced for Italy and Belgium, due to better valorisation of that fuel elsewhere;
- the result of industrial unrest in the British mining industry early in the year has brought the 1974 power station input expectations down by 3.5 millions toe ( 5 million t.c.e.) for the United Kingdom.

In 1975 the following fuel consumption of power stations ( industrial self-producers included) can be expected in the Community under normal weather and hydrological conditions ( 1973/74 figures for reference):

Table XI Total fuel consumption of power stations for generation of electricity and of commercial heat, 1973 - 75: Community

	<u>Million t.o.e.</u>			<u>Per cent</u>			<u>% of inc. 1975/74</u>
	1973	1974	1975	1973	1974	1975	
Petroleum products (non-gaseous)	73.9	69.7	71.4	35.9	33.7	32.7	15
Hard coal	78.8	76.1	80.4	38.2	36.8	36.8	37
Lignite and peat	20.9	22.5	24.0	10.1	10.9	11.0	13
Natural gas	23.5	29.3	32.7	11.4	14.1	14.9	29
Derivative gases (and sundry)	9.0	9.4	10.1	4.4	4.5	4.6	6
All fuels	206.1	207.0	218.6	100.0	100.0	100.0	100

All types of fuel are likely to participate in meeting the increase in fuel demand for electricity generation. Fuel-oil use, although expanding again with increasing total fuel demand of power stations, will be declining relatively, and in some countries even in volume (Belgium, United Kingdom, Germany). Over a third of the increase will be covered by coal, permitting it to stabilize its share of 37% ( in spite of a reduction in Germany and due chiefly to normalization in the United Kingdom). Nearly thirty percent of fuel demand increase will be covered by natural gas, chiefly in Germany and the Netherlands. These movements in the demand pattern are partly dictated by the commissioning of new generating plants ordered long before the change in supply conditions.

### Development of Electricity Consumption

Overall electricity demand, which in 1973 rose by 7.8% for the Community as a whole, increased by only 2.9% in 1974. The estimated increase for 1975 is 6.5% ( a figure which, however, is inflated by the extremely low level of consumption during the first months of 1974). In fact, the growth tendencies prevailing in the second half of 1974, of between 4 and 5% annually for the Community as a whole, are likely to persist through 1975.

Several factors contributed to the slump in demand at the beginning of 1974. The extremely mild weather, combined with appeals by public authorities to reduce energy use to the utmost and measures imposing such reductions ( commercial and motorway lighting, heating in public buildings and the like) were followed by tariff increases - motivated by fuel cost rises ( often 25% to 30% and more) - which in many cases were big enough to influence consumers' habits. This latter effect, together with a new reluctance to invest in electricity consuming equipment, appears to be of a more enduring nature. Community figures were influenced also by the effects of the industrial unrest in the British mining industry.

The following comments relate to the leading consuming groups:

- Domestic electricity consumption ( including commerce, agriculture, public services) even after the serious slow-down, continues to show growth rates above the overall increases: + 7% in 1975, + 4% in 1974.
- industrial demand is more closely in line with domestic demand than in previous years: + 6% in 1975, + 3% in 1974.
- electricity demand in the transportation sector is continuing to increase only slowly: + 2% per annum.
- the energy sector's demand for electricity ( other than power station use) is not expanding and may even show some reduction in 1975.

E. Nuclear Power

The increase in oil prices and the uncertainty as to oil supplies have consolidated the competitive position of nuclear power. It now appears as the only energy source for electricity power generation which is capable of considerable growth in the medium term. The importance of its role has been confirmed by the decisions to expand programmes for the development of nuclear power.

In France there has been a very marked increase in the rhythm of development of nuclear power stations, as well as a decision to construct a plant for the separation of isotopes. The decision has been taken to introduce six power plants in 1974 and seven more in the following year, including a fast breeder unit of 1200 MWe. Thus about 20,000 MWe should be in operation in 1980 as compared with 13,000 MWe as previously estimated. Given the introduction of six or seven plants a year, total capacity will reach about 50,000 MWe by end 1985.

The Federal Republic of Germany has not announced a new nuclear programme but it seems that priority will be given to the simplification of procedures relating to the selection of sites. In order to reduce the delay in construction, certain State administrations have plans for the reservation of sites in anticipation of orders, in line with practice in France. It should thus be possible to maintain the objective of an installed nuclear capacity of 45 to 50,000 MWe in 1985.

The United Kingdom, after a long period of investigation, has pronounced in favour of heavy water reactors and has launched a programme of 4,000 MWe.

In Italy, ENEL has resumed its programme of nuclear power development with an order for four plants of 1000 MWe each, with a view to realising its initial programme.

The doubling of capacity of the power stations of Doel and Tihange and the construction of two other plants is foreseen in Belgium, whilst Luxembourg is examining a scheme for constructing a nuclear power station of 1200 MWe in the Moselle valley.

Ireland equally has decided to construct its first nuclear power plant, to be put into operation by 1980.

In Denmark also a project for its first nuclear plant is under discussion at the Parliamentary level. On the other hand, in the Netherlands projects have been deferred for about three years.

It is currently estimated that a nuclear park of about 170 GWe should be achieved in the Community as a whole by end 1985. However, the services of the Commission estimate that nuclear capacity could reach a total of about 200 GWe by that year.

If 1974 generally has been a year of decision in favour of nuclear power in the Community, 1975 should see the necessary steps being undertaken to realise the established targets. Some constraints could exist in respect of the protection of the environment, construction capacity and financing the necessary investments.

Electricity production from nuclear plants within the Community rose in 1974 to about 60 TWh, corresponding to an overall installed capacity of 13,400 MWe at the end of the year. Currently the United Kingdom has the largest nuclear park (5600 MWe), followed by Germany (3400 MWe) and France (2950 MWe). About 5000 MWe could be added in 1975, increasing nuclear capacity within the Community to around 18,000 MWe.

1. Natural uranium

The increasing demand for natural uranium and the virtual certainty of sustained market growth due to the important nuclear programmes undertaken has led over the past year to a complete reversal of conditions from a buyer's to a seller's market.

Present world production of uranium is almost 15,000 tonnes a year, but this will need to increase extremely rapidly to meet projected demand. The demand growth estimated for natural uranium exceeds the corresponding maximum growth rate over any 20 year period in this century for such commodities as petroleum, copper or zinc.

The year 1974 has also seen a growth in the activities of the main producer states with uranium reserves, in re-defining their policies over foreign ownership and exports. This has meant that Community based producers engaged in prospecting and production activities outside the Community are exposed to increasing uncertainty as to what they will be permitted to produce, own and export and under which fiscal conditions. With the long lead times required to find and bring an uranium orebody into production and the need to increase



significantly the rate of new uranium discoveries, it is vital that the risk investment required is made available now. With the present ruling higher prices for natural uranium, viable uranium exploration targets are probably available within the Community, in addition to the reserves of France of about 40,000 tonnes which currently support a production for domestic needs of 1,500 tonnes per annum.

Worldwide, as prices have become more remunerative, prospecting activity is increasing. The proposed gradual lifting of the U.S.A. embargo on imported uranium ( which was imposed to protect the domestic industry over the period 1978 to 1984) has also encouraged worldwide exploration activity.

NATURAL URANIUM

TABLE XII

WORLD RESERVES * (Reasonably assured resources up to \$ 10 per lb. U <sub>3</sub> O <sub>8</sub> ). (1)	Thousands of tonnes U	%
U.S.A.	260	27
South & S.W.Africa	200	21
Canada	185	19
Australia	160	17
Niger	40	4
France	37	4
Gabon	20	2
Other	45	6
Total	947	100

\* Nininger, R.IAEA, Vienna - Proceedings of Athens Symposium (1974)  
Exclusive of China, USSR and Associated East European States ( for  
which no data are available)

(1) Definition - Uranium Resources Production & Demand - OECD, Paris (1973).

2. Enriched Uranium

The investment decisions taken within the Community at the beginning of 1974 imply a European enrichment capacity of about 12,000 tons/year of U.T.S. which should be operational by 1982 ( 9000 tons/year EURODIF and 2500 tons/year for URENCO). In view of the foreseeable growth in demand, the European promoters have already announced their intention of increasing capacity.

The present situation in respect of the supply of enriched uranium in the Community is marked by two categories of problems:

- supply of power plants whose first needs will arise before 1.7.1982
- supply of power plants whose first needs will arise after that date.

The dates indicated above correspond to the arrangements made by USEAC for the conclusion of long term contracts, arrangements which inevitably apply to consumers throughout the world, taking account of the quasi-monopolistic position of USEAC in the supply of enriched uranium until very recently.

For the supply of power stations whose first needs will arise before 1.7.1982, consumers within the Community will be obliged to diversify their supplies from the European producers (EURODIF, URENCO), from the Russian producer (TECHSNABEXPORT) and from the American producer (USEAC).

With regard to the European producers, it was clear to them at the end of 1973/early 1974 that the production capacity foreseen in their respective development programmes would be saturated; in a number of cases they have even found it impossible to satisfy some demands from European consumers.

In respect of TECHSNABEXPORT, European consumers should be able to conclude contracts under reasonable and relatively flexible conditions.

As far as USEAC is concerned, supply difficulties for the Community have resulted from the new criteria which were fixed in May, 1973 for the conclusion of contracts. These criteria, apart from fairly hard commercial terms, require that new long term contracts should be concluded eight years before the first delivery and agreement to be reached before the 30th June, 1974. As a result of the acceleration of nuclear programmes in the world as a whole, the number of requests for long term contracts by 30th June, 1974 exceeded the estimates. Since then USEAC

has not been able to follow up all orders received.

USEAC, which until now was firmly committed to the extent of 273 GWe, was obliged to review the whole situation and to divide the difference between the whole of the firm commitments (364 GWe) and the amount previously agreed (273 GWe) into two categories:

- firm long term supply contracts
- conditional contracts which were due to be concluded before end 1974.

Independently of reserved positions in respect of the conditional contracts, USEAC will assume no further contractual supply arrangements for first needs arising after 1.7.1982.

Depending on how the problems resulting from conditional contracts are resolved, it appears that, until 1982, all consumer needs will be covered and even with a certain margin of security. For their part, EURODIF and URENCO hold quantities in support and reserve in various forms. Thus as a whole the supply situation until 1982 appears to be relatively satisfactory.

For the supply of power stations whose first needs appear after 1.7.1982, a fundamental strategic supply problem exists within the Community. Faced with this problem, it is essential that the Community should be able to rely on its own producers and more particularly to determine, within the minimum delay, the economic conditions and the amounts of enriched services in respect of which EURODIF and URENCO would be in a position to undertake firm supply engagements after 1.7.1982.

In this situation, 1975 will be an important year for investment decisions to be taken by the Community, either internally or in third countries having natural uranium resources.

