# The energy situation in the Community

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(Report from the Commission to the Council)

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### SUMMARY\*

The estimated inland demand for energy in 1979 reached about 985 million tons of oil equivalent (m toe), representing a growth of 5% as compared with the previous year. The demand for energy was undoubtedly inflated by the severe winter and by higher economic growth, GDP in the Community being estimated to have increased by 3.3% over 1978. Inland consumption of oil rose by about 2.7%, the demand for other fuels showing more buoyancy: coal +9.4%, natural gas +7.6%. Electricity consumption increased by about 5.1%.

The economic prospects for the Community in 1980 are relatively poor, with GDP estimated to increase by about 1.2%. Energy demand is expected to increase by only 0.2%. However, inland consumption of oil is forecast to decline by about 2%. These estimates could be on the low side if economic conditions are improved. A 1% rise in GDP could result in 10 million tons more oil to be imported.

## OIL

## (i) The world situation

World oil production is estimated to have risen in 1979 by 2.5 million barrels per day (b/d) to 65 million b/d, 4% above 1978. Of this increase, OPEC countries, in spite of the cutback in Iran, contributed 1 million b/d, a rise of 3%, the North Sea 500,000 b/d, and Mexico, Egypt and Canada together a similar amount.

 <sup>\*</sup> All estimates quoted in this report for the year 1979 are provisional.

Consumption, on the other hand, appears to have risen by only 1 million b/d (1.5%), and fell by some 1.4% in the USA. Stocks rose by the order of 1 million b/d in contrast to the fall of 500,000 b/d in 1978. Oil prices doubled during the year. Expressed in terms of Arabian Light equivalent, official prices moved from \$12.70 per barrel (bbl) in December 1978 to \$18-20/bbl after the Geneva meeting in June 1979, and to \$26-31/bbl by mid-February 1980. Prices above the official range are, however, being charged by a number of OPEC producers.

In 1980 the supply/demand balance seems likely to be at best finely drawn. There is the prospect of a fall in OPEC production if all the cuts so far announced by Member States are implemented, and even if Saudi Arabia continues to produce 1 million b/d above its preferred ceiling of 8.5 million b/d.

## (ii) The Community situation

Inland oil consumption in the EEC rose by about 2.7% in 1979 to reach about 525 million tons (10.5 million b/d), 25 million tons above the agreed target of 500 million tons. Bunker deliveries, however, were down by 13% and the total inland and bunker deliveries showed an increase of about 2%, or 10 million tons over 1978 (Appendix 1). The rise in domestic consumption was due largely to the effect on gasoil and fuel oil deliveries of severe winter weather in the early months of the year. In 1980 inland consumption is forecast to be 8 million tons below 1979 at 517 million tons (10.3 million b/d).

Indigenous production rose by 40% to 89 million tons (1.8 million b/d) from 64 million tons (1.3 million b/d) in 1978, the increase reflecting mainly the first full year's production from the four North Sea fields (Dunlin, Heather, Ninian, Thistle) commissioned in 1978. Community production covered 16% of total requirements and net imports rose slightly from 472 million tons to about 475 million tons (9.5 million b/d). Only a slight further increase in production of 3.3 million tons is foreseen for 1980, for which year net imports are estimated at about 460 million tons (9.2 million b/d), as compared with the agreed import limit of 472 million tons. The cost of net imports in 1980 appears likely to be of the order of \$100 billion compared with \$75 billion in 1979.

The growth in total Community consumption in 1979 was common to all products, but especially marked in gasoil and naphtha. Trends in the consumption of individual products varied greatly between Member States. Thus, while deliveries of motor gasoline rose by 2% for the Community as a whole, they were virtually unchanged in France and Germany but 6% higher in Italy. Fuel oil consumption doubled in the Netherlands, where it replaced natural gas in power stations, and increased substantially in France and Belgium. In Germany and the United Kingdom, on the other hand, consumption remained at about the 1978 level.

Exports of petroleum products were higher, particularly from the Netherlands, France and Germany. Imports, on the other hand, were generally slightly lower, and by more than 10% in the case of Germany. This improvement in the external balance, together with higher domestic consumption, led to an increase in refinery runs by about 30 million tons (0.6 million b/d) to 560 million tons

(11.2 million b/d). The average utilization of total installed distillation capacity (including plant out of service) consequently rose from 66% to 73%.

During 1979 average consumer product selling prices before tax in the Community rose by about \$100 from \$154 to \$247 per ton (Appendix 3). This increase was roughly in line with that in crude oil prices and well below the \$150 per ton rise in the spot market. Community consumer prices rose a further \$36 to about \$283 per ton in February 1980, in response to the rises in official crude oil prices at the turn of the year.

### NATURAL GAS

Total consumption of natural gas in 1979 within the Community was about 173 m toe which represents an increase of about 5% over 1978. Significant increases occurred in Germany (12%), Belgium (9%), the United Kingdom (8%), France (5%) and the Netherlands (5%). This growth in demand was partly due to the harsh winter experienced in the northern Member States as well as to the price advantage of gas.

Overall, there was an increase in the share of primary energy consumption met by gas from 17.1% in 1978 to 17.5% in 1979. This trend is forecast to continue, the share of gas reaching a figure of 18.2% in 1980.

Natural gas production in 1979 within the Community at 137 m toe was 3% higher than in the previous year. Production in the Netherlands, which accounts for almost half of the Community's production, increased by 6% whilst Germany reported an increase of 3%. France,

Italy and the United Kingdom reported falls in production of about 2%, 5% and 1% respectively. With the growth in production, the Netherlands increased deliveries of gas to other Member States; however, a decline in deliveries is forecast for the year ahead.

Member States are increasingly turning to imports of gas from outside the Community, which reached 37 m toe, or 22% of total consumption, in 1979. This represents a growth in imports of about 23% over 1978, which had already increased by 75% over the previous year.

The leading importer, Germany, increased its imports by about 22% in 1979 and accounted for about a third of Community imports, whilst the United Kingdom recorded a large increase, as supplies from Norway built up. Indeed, Norway accounted for almost half of the Community's imports in 1979, whilst the USSR supplied about 38%, Algeria 9% and Libya 5%.

These supplied were used to help meet the growth in total gas demand. Consumption for electricity generation fell slightly, mainly due to the large substitution of fuel oil for gas in this use by the Netherlands. The consumption of gas by the chemical industry as a feedstock remained at the same level in the Community in 1979 at almost 12 m toe; however, this is forecast to rise slightly in 1980.

Final gas consumption for energy purposes increased by almost 13% in 1979, made up of an increase of 15% in the industrial sector and 12% in the domestic and commercial sector. In fact, industry accounted for 43% of final consumption in the Community during 1979,

with significant increases in the United Kingdom and Germany. Domestic and commercial uses also increased significantly in these countries as well as in the Netherlands.

Forecasts for 1980 show a continuation in the major trends with a levelling off in Community gas production and a growth in gas imports by about 20%. The forecast increase in the demand for gas of about 3% in 1980 is mainly due to expected growth in the industrial sector.

## COAL

Hard coal consumption in the Community in 1979 reached about 308 million tons (191 m toe). Almost the whole of the increase of 21 million tons was due to rising demand for electricity generation, particularly in the United Kingdom, but there has also been a modest rise in demand by the steel industry, compensating market contraction elsewhere.

Provisional figures show electricity coal-burn to have been of the order of 177 million tons in 1979 compared to 160 million tons the previous year. However, this further rise has done little to narrow the enormous differences in coal consumption for electricity generation between different Member States; about 77% of all hard coal for electricity generation was used in the United Kingdom and Germany, no more than a marginal reduction in their overwhelming preponderance last year. If brown coal is taken into account, this preponderance is even higher.

The market for coal and coke for steel production at about 77 million tons (coke being reckoned as coal by a factor of 1.3) has witnessed an upturn of about 10%. On the other hand, total demand by foundries and general industry showed a slight drop in 1979, due to problems in the Belgian cement industry, including a strike. The market for domestic solid fuels has continued its slow contraction at a further reduced rate.

For the third year in succession, coal production in the Community has been stable, reaching about 240 million tons (148 m toe) in 1979. Planned pit closures of uneconomic mines in Belgium and France, leading to a drop in output in these two countries, were compensated by rises in Germany and the United Kingdom, particularly in the former.

In the face of stable production, the market rise in consumption has boosted coal imports from outside the Community in 1979 by some 20% to about 58 million tons (37 m toe). Of these, about 29 million tons went to power stations and close on 23 million tons were coking coal.

There has been an upward movement in world market coal prices in 1979 due primarily to rising freight rates. However, on account of the weakness of the dollar, these rises have not fully translated themselves into the Community's currencies. As a result, the need for subsidies for the Community's coal industry has not decreased.

German coal producers' excess stocks of coal and coke have contracted substantially. Elsewhere in the Community, producers' stocks do not greatly exceed working requirements.

Coal consumption is expected to remain at about the same level in 1980. Increasing demand by coal-fired power stations in some Member States is likely to compensate slight contractions elsewhere, while consumption by the steel industry is likely to be somewhat lower than last year. On the other hand, the market for coal in general industry, the most promising area for substitution of coal for oil after electricity generation, may grow by some 15% but will still be very modest in absolute terms.

There are no grounds to expect any substantial changes in 1980 in the Community's coal production. Imports, on the other hand, are likely to rise by a further 15% to about 65 million tons.

### ELECTRICITY

## (i) <u>Electricity consumption</u>

In 1979 net electricity consumption increased in the Community by 5.1% to 1186 Twh. At national level, significant increases in consumption took place in Ireland (10.6%), France (6.6%) and Belgium (6.1%). Consumption was markedly affected by the severe winter weather at the start of the year.

Increases in electricity consumption in 1979 were below the Community average in the United Kingdom (4.2%) and in Luxembourg (2.4%). Growth rates in these two countries reflected difficulties in their economies, disappointing industrial production

levels in electrically intensive industries and, in the case of the United Kingdom, continuing significant competition from the gas sector.

Electricity consumption in 1980 is forecast to increase further by about 3.5%. Comparatively high growth is anticipated in France and in Ireland but prospects generally indicate smaller increases than in 1979, owing to the reduced forecasts for economic growth.

(ii) <u>Conventional power stations</u>

Conventional thermal power stations (i.e. those fuelled principally by coal, oil or natural gas) supplied 77% of net electricity production in Community power stations in 1979. Production from these stations was some 5% higher than in 1978. An increase in production at oil-fired power stations was distrubing but was caused principally through the operation of newly completed plant ordered before the 1975 Council Directive restricting the development of power stations using petroleum products. There was also, however, an encouraging increase in production at coal-fired plant. Use of natural gas in power stations is estimated to have fallen for the third consecutive year.

Hydro-electric plant accounted in 1979 for some 12% of electricity production, but was slightly less than in 1978 as weather conditions were not so favourable.

## (iii) Nuclear energy

In the course of 1979, installed nuclear capacity in the Community rose by 2,800 MWe to 28,800 MWe, and net electricity production from nuclear plants reached 127 Twh.

In the year ahead, nuclear plants are expected to come into operation more regularly, particularly in France where the production of electricity of nuclear origin is estimated to rise by 50% as compared with 1979. For the Community as a whole, installed nuclear capacity should reach 30,000 MWe, and the corresponding net electricity production of about 160 Twh will be equivalent to some 13% of total electricity production.

In Germany, a legal decision has raised the ban on the construction of two units, with the reserve of the approval of the local authorities. This decision could result in an easing of the situation with regard to the national nuclear programme.

## NUCLEAR FUELS

The international market continued to await developments, although several users in the Community concluded "spot" contracts or entered into long-term agreements under which prices, negotiated on an annual basis, remain fairly firm. Negotiations between the Australian Government and the Community were begun at the end of the year with the object of an agreement providing guarantees: these should lead to the conclusion of supply contracts for natural uranium.

With regard to the enrichment of uranium, certain "long-term fixed commitment" contracts were converted to "adjustable fixed commitment" type contracts to take account of the development of nuclear programmes.

As to future prospects, conditions of regular supply seem likely to prevail in a market which could be a buyers' market in the short and medium term, subject to the reserve of interventions by the public authorities in producing countries; the long term will be influenced by the extent to which the return of Australia to the market influences quantities and prices.

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## Table 1: Inland consumption of primary energy in the Community

	1	1977		978	19 Estim	79* ates	1980 _ Forecasts	
	M toe	*	M toe	%	M toe	X	M toe	*
Hard coal	172.7	18.9	175.1	18.7	191.6	19-4	191.0	19.3
Lignite	26.8	2.9	26.8	2.9	27.9	2.8	27.9	,2.8
Oil	493.5	54.1	511.6	54.5	525.4	53.3	517.0	52.4
Natural gas	154.2	16.9	160.7	17.1	172.8	17.5	178.0	18.0
Nuclear energy	26.2	2.9	28.5	3.0	31.3	3.2	39.0	4.0
Hydro, geothermal & others	39.2	4.3	35.3	3.8	34.1	3.5	34.2	3.5
TOTAL**	912.6	100.0	938.0	100.0	985.0	100.0	987.1	100.0

\* Provisional data
\*\* Including other fuels

APPENDIX 1 (cont.)

	1978-1977	1979-1978 * Estimates	1980-1979 Forecasts
Gross Domestic Product	+ 3.1	+ 3.3	+ 1.2
Energy inland consumption of which:	+ 2.8	+ 5.0	+ 0.2
– Oil – Solid fuels – Natural gas – Nuclear energy – Hydro, geothermal & others	+ 3.7 + 1.4 + 4.2 + 8.8 - 9.9	+ 2.7 + 9.4 + 7.6 + 9.8 + 1.2	- 1.6 - 0.3 + 3.0 + 24.6 + 0.3

Table 2: Percentage variation in GDP and energy consumption

## Table 3: Energy supply in the Community

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	<u>S:</u> <u>Energy</u>	supply in t	ne communit	<u>۷</u>	· • · · · · · · · · · · · · · ·	(m	toe)	
	1	977		1978		1979*	1980	
	Produc- tion	Net imports**	Produc- tion	Net imports**	Produc= tion	Net imports**	Produc- tion	Net imports**
Solid fuels	174.3	27.5	172.3	24-8	173.8	29.5	175.6	38.3
Oil	48.6	480.0	63.6	472.1	89.0	474.7	93.6	460.0
Natural gas	139_4	16.6	133.0	29.6	137.1	37.2	128.0	51.8
Primary electricity, etc.	61.6	3.9	60.7	3.1	62.8	2.8	69.9	3.3
TOTAL	423.9	528.0	429.6	529.6	462.7	544.2	467.1	553.4

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\* Provisional data \*\* Imports minus exports

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	1978	· 78/79 ※ <u>+</u>	1979* estimates	79/80 % <u>+</u>	1980
Consumption					
Inland**	511.6	+ 2.7%	525.4	- 1.6%	517.0
Bunkers	30.3	-12.8%	26.6	+12.8%	30.0
Total	541.9	+ 1.9%	552.0	- 0.9%	547.0
Production	63.6	+40.0%	89.0	+ 3.4%	92.0
Stock change	- 6.1		+11.7		+ 5.0
<u>Net imports</u>	472.2	+0.5%	474.7	- 3.0%	460.0

## Table 4: EEC - oil consumption, production and imports

(millions of tonnes)

\* Provisional data.

\*\* Including refiners' own consumption and losses.

## APPENDIX 2

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				(in million t	ons)
	1978	1978/1979 % <u>+</u>	1979* (est.)	1979/1980 % <u>+</u>	1980
<u>Consumption</u> **					
EEC	542	+ 1.9	552	~ 0.9	547
USA	888	- 1.4	876	- 0.6	871
JAPAN	267	+ 2.0	272	-	272
	1698	-	1700	-'0.6	1690
Production					
EEC	64	+40.0	89	+ 3.4	.92
USA	482	-	482	- 1.2	476
JAPAN	-	-	-	-	-
	546	+ 4.6	· 571	- 0.5	568
<u>Stock_changes</u>				1	
EEC	- 6		+12		· + 5
USA	- 8	1	+ 4		-
JAPAN	-		+ 5		-
	-15		+21		+ 5
<u>1mports</u>			ī		
EEC	472	+ 0.5	475	+ 3.0	460
USA	398	-	398	-	395
JAPAN	267	+ 3.4	277	- 1.8	272
	1137	+ 1.1	1150	- 2.0	1127

EEC, USA AND JAPAN: Estimated oil consumption, production and imports 1978-1980 (in million tons)

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\* Provisional data \*\* Including bunkers, refinery own use and losses, direct crude burning.

<u>Sources</u>: EEC : Eurostat and Commission estimates USA : Chase Manhattan and IPAA. JAPAN: OECD and Petroleum Economics Ltd.

## APPENDIX 3

				(	\$/tonne)
	12/78	6/79	12/79	Index 12/79 (12/78=100)	11/2/80
Premium motor gasoline	265	320	390	147	440
Domestic heating oil (gasoil)	170	235	300	177	348
Residual fuel 3% S	97	124	168	173	187
Average all products*	154	194	247	160	283

Table 1: Average EEC consumer prices excluding taxes

\*Estimated for yield of Arabian Light 34° API on atmospheric distillation

Table 2: Average EEC consumer prices including taxes

(\$/tonne) Index 12/79 (12/78=100) 12/78 6/79 12/79 676 752 884 131 Premium motor gasoline Domestic heating oil (gasoil) 221 299 382 171 Residual fuel 3% S 100 127 175 175 Average all products\* 278 330 406 146

\* Estimated for yield of Arabian Light 34° API on atmospheric distillation

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## APPENDIX 3 (cont.)

		в	DK	D	F	IRL	I	NL	UK	EEC
1977	Q 3	100.70	101.10	103.60	102.65	101.50	98,10	102.10	102.15	101.80
	Q 4	102.00	101.80	104.60	104.10	103.10	98.40	102.50	101.80	102.40
1978	Q 1	102.00	99.40	104.00	103.85	102.90	97.85	102.55	101.40	101.85
	Q 2	101.70	101.50	102.30	104.20	102.90	97.65	101.95	101.20	101.55
	Q 3	100.55	100.95	102.55	104.70	102.15	97.60	101.45	101.20	101.55
	Q 4	104.65	104.40	105.30	106.45	104.10	99.70	103.80	103.75	104.05
1979	Q 1	110.25	113.40	113.40	111.30	111.00	107.20	112.60	111.40	111.10
	Q 2	124.90	136.50	138.30	128.35	124.90	125.35	130.20	133.65	131.10
	Q 3	150.75	168.15	167.65	159.90	151.20	156.10	161.85	163.35	161.50

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Table 3: Average CIF prices of crude oil imported into Member States (\$/tonne)

Table 4: Index of CIF crude oil costs in national currencies (1977 01 = 100)

1977	Q 3	103.65	103.80	99.05	101.95	100.90	102.65	101.40	101.65	101.45
	Q4	102.35	104.60	96.60	102.20	97.65	102.50	99.50	96.90	100.00
1978	Q 1	94.95	95.85	89.60	100.25	94,90	100.00	92.80	90.80	95.20
	Q2	95.50	97.20	88.10	97.25	91.80	99.85	91,90	95.15	94.80
	Q 3	92.85	94.40	85.35	93.25	91.30	97.00	89.40	90,45	91.35
	Q 4	87.60	90.00	80.45	90.95	88.40	97.45	83.80	89.05	88.60
1979	Q 1	104.20	107.50	106.60	103.90	104.70	108.50	106.90	105.70	106.00
	Q 2	122.00	134.60	132.70	122.60	118.50	. 126.70	127.30	122.80	126.40
	Q 3	141,60	161.80	154.80	147.90	140.50	153.60	153.10	139.40	142.10
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## APPENDIX 4

		Production	Imports	Export s	Stock 1 variation	Inland consumption
1978	Coal	238.1	45.3	2.9	+ 5.9	286.4
	Coke	65.1	0.8	7.5	+ 3.3	61.7
	Lignite + peat	131.8	1.5	-	+ 0.7	134.0
	TOTAL in toe <sup>2</sup>	172.6	31.1	7.2	+ 5.9	202.4
1979*	Coal	238.7	58.2	2.3	+12.4	307.5
	Coke	67.9	0.7	8.0	+ 7.3	67.9
	Lignite + peat	133.3	1.9	-	- 0.3	134.9
	TOTAL in toe <sup>2</sup>	173.8	37.7	7.6	+ 5.7	210.1
980	Coal	239.8	64.7	1.7	+ 4.4	307.2
	Coke	65.9	0.8	3.6	+ 1.9	65.0
	Lignite + peat	139.0	1.9	-	- 0.3	140.6
	TOTAL in toe <sup>2</sup>	175.6	43.1	3.6	- 0.1	215.0

## Summary of coal supply situation in the Community

 $(in 10^{6}t = t)$ 

\* Provisional data

 $^1$  Including statistical variation, products from recuperation and production of small mines.  $^2{\rm Primary}$  energy production.

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	(Twh)
Year	EUR-9
1977	1 081.5
1978	1 128.6
1979	1 186.1
1980	1 227.6
Variations:	
1978/77	+ 4.3%
1979/78	+ 5.1%
1980/79	+ 3.5%
	+ 5.5%

## Table 1: Net consumption of electric energy (including losses)

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Table 2: Total net production

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EUR-9		Share by energy source			
	Total	Hydraulic	Geothermal	Nuclear	Conventional thermal
1978 1979 1980	1 123.6 1 178.7 1 223.0	140_9 139_9 134_9	2.4 2.4 2.5	115.1 127.0 159.9	865.2 909.4 925.7
Variations: 1979/78 1980/79	+ 4.9% + 3.7%	- 0.7% - 3.6%	+ 0.6% + 0.6%	+ 10.3% + 25.9%	+ 5.1% + 1.8%
Share in total: 1978 1979 1980	100% 100% 100%	12.5% 11.9% 11.0%	0.2% 0.2% 0.2%	10.3% 10.8% 13.1%	77.0% 77.1% 75.7%

APPENDIX 5

European Communities - Commission

The energy situation in the Community Situation 1979 - Outlook 1980 (Report from the Commission to the Council)

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