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STATISTICAL OFFICE OF THE EUROPEAN COMMUNITIES

**ENERGY IN THE
COMMUNITY**

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ON "ENERGY STATISTICS":

- YEARBOOK
- QUARTERLY BULLETIN

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PREFACE

EUROSTAT (Statistical Office of the European Communities) has prepared some twenty tables giving the main features of energy production and consumption in the Community.

The energy situation in the Community is compared with that in the U.S.A., U.S.S.R. and Japan. Then four tables summarise the contributions made by the principal sources to the energy production and consumption in each Member State of the Community of Nine. Finally, information is given on individual types of energy.

EUROSTAT hopes that in the present situation this information will give the reader a better understanding of a sector which, within the Community, employs almost two million workers, accounts for about one quarter of total industrial investment in fixed assets and whose share in the production costs of other branches averages about 6%.

THE COMMUNITY IN THE WORLD

DEVELOPMENT OF PRIMARY ENERGY CONSUMPTION

	1960	1970	1971	1972	Average annual growth rate 1970/60	Per capita energy consumption	
	millions of tons of petroleum equivalent [†]					%	1960
						tep	
EUR-6	327	592	604	641	6,8	1,9	3,2
EUR-9	512	832	840	882	5,5	2,2	3,3
USSR	437	773	798		6,5	2,0	3,3
USA	1 053	1 639	1 679		5,1	5,8	8,1
Japan	90	246	254		15,7	1,0	2,4
-----	-----	-----	-----	-----	-----	-----	-----
WORLD	3 121	5 076	5 178		5,6	1,1	1,4

During the last decade, the energy market has been marked by a great increase in requirements, resulting in an average annual rise of 5,6% in world energy consumption, equivalent to a doubling in 13 years.

While the growth rate in the Community of Nine and in U.S.A. remained below the world average, consumption rose sharply in the Community of Six and even more so in Japan. In 1971, energy consumption in the Community of Nine was about half that of the United States, three times that of Japan and equal to that of the USSR.

As regards per capita consumption, this is very high in the United States, six times the world average, while the level in the Community of Nine and the USSR is lower at two and a half times the world average.

[†] The unit of measurement used is the ton of petroleum equivalent (tpe). This is the amount of energy required to obtain an amount of heat equal to that provided by one ton of petroleum (10 million kcal) from any energy source.

The word ton is used to denote the metric tonne.

RELATIVE IMPORTANCE OF THE COMMUNITY AND CERTAIN MAJOR COUNTRIES

1971	Population		Primary energy production (a)		Primary energy consumption (b)		(b) - (a)
	millions	%	millions tpe	%	millions tpe	%	millions tpe
EEC-6	190	5,2	235	4,5	604	11,7	369
EEC-9	253	7,0	355	6,8	840	16,2	485
USSR	245	6,7	975	18,7	798	15,4	-177
USA	207	5,7	1 464	28,1	1 679	32,4	215
Japan	105	2,9	49	0,9	254	4,9	205
WORLD	3 632	100	5 200	100	5 180	100	-

The relative place in the world market of the Community and other large economic powers reveals the dearth of indigenous resources in the Community and Japan.

Indeed, primary energy production in the Community covered only 42% of its consumption in 1971, that of Japan, even less : 19%. Production in the USSR greatly exceeded domestic requirements, while the United States, although the largest producer, in the world, has to obtain supplies on the foreign market.

DEVELOPMENT OF THE PATTERN OF PRIMARY ENERGY CONSUMPTION

	EEC-9		USSR		USA		JAPAN		MIDDLE	
	1960	1971	1960	1971	1960	1971	1960	1971	1960	1971
	millions of tons of petroleum equivalent									
Hard coal and lignite	327	233	269	309	251	316	44	56	543	671
Crude petroleum	146	489	110	257	415	679	27	172	926	120
Natural gas	9	80	42	201	338	607	1	4	434	059
Primary electrical energy	30	37	16	30	49	76	19	22	218	328
TOTAL	512	840	437	798	1053	1679	90	254	1121	1178
	expressed as a %									
Hard coal and lignite	64,0	27,7	61,6	38,7	23,9	18,8	48,6	22,0	49,4	32,3
Crude petroleum	28,5	58,2	25,1	32,2	39,4	40,5	29,7	67,5	29,7	40,9
Natural gas	1,7	9,5	9,6	25,2	32,0	36,1	1,0	1,5	13,9	20,5
Primary electrical energy	5,8	4,4	3,7	3,8	4,6	4,5	20,9	8,8	7,0	6,3
TOTAL	100	100	100	100	100	100	100	100	100	100

The increase in inland energy consumption has been accompanied in most countries by a drastic change in the consumption pattern.

In the Community, the market has developed differently for each source of energy. The role of coal has continued to become less important compared to that of petroleum, which has grown year by year. While the consumption of coal has decreased by more than 2% annually, consumption of petroleum has risen by an average annual rate of 14%, while natural gas has experienced a spectacular growth.

In other major countries also there has been a marked tendency to replace coal by petroleum. Nevertheless, in the USA and USSR the proportion of natural gas used has reached a level unknown in the Community.

DEPENDENCE ON IMPORTED ENERGY

	Net imports less bunkers		Degree of dependence, on imported energy ⁺	
	1960	1971	1960	1971
	millions tpe		%	
EUR-6	98	380	29,9	62,9
EUR-9	158	509	30,9	60,3
USA	48	157	4,6	9,3
Japan	31	215	34,7	84,7

(*) Defined by the ratio : $\frac{\text{Net imports less bunkers}}{\text{Primary energy consumption}}$ as a %

The rise in primary energy consumption has meant that the Community, USA and Japan have had to resort increasingly to obtaining supplies from outside sources so that in ten years the net imports of the Community and the USA have more than trebled. Those of Japan have increased sevenfold during the same period.

The only exception to this general tendency among industrialized countries is the USSR, which has an exporting balance of around 100 million tons of petroleum equivalent.

ENERGY IN COMMUNITY COUNTRIES

PRIMARY ENERGY CONSUMPTION +

1972	Hard coal & equiv.		Lignite & equiv.		Crude petroleum & equiv.		Natural gas		Primary electrical energy		TOTAL	
	Mn tpe	%	Mn tpe	%	Mn tpe	%	Mn tpe	%	Mn tpe	%	Mn tpe	%
EUR-9	189,7	21,5	24,4	2,8	524,5	59,5	102,7	11,6	39,7	4,5	882,2	100
EUR-6	112,3	17,5	23,0	3,6	394,3	61,5	79,0	12,3	31,3	4,9	541,0	100
Germany	59,3	23,8	21,7	8,7	137,2	55,2	22,0	8,8	7,6	3,1	268,6	100
France	28,3	17,2	1,0	0,6	110,8	67,3	11,7	7,1	12,8	7,8	164,6	100
Italy	7,7	6,4	0,3	0,2	89,5	73,9	12,8	10,6	10,6	8,7	121,1	100
Netherlands	3,0	5,2	0,0	0,0	28,7	49,6	26,3	45,6	-0,3	-0,5	57,7	100
Belgium	11,5	26,1	0,0	0,0	26,7	60,4	6,0	13,7	-0,1	-0,2	44,2	100
Luxembourg	2,5	52,9	0,0	0,5	1,5	31,0	0,1	2,2	0,6	13,3	4,7	100
United Kingdom	75,3	35,1	-	-	106,9	49,8	23,7	11,1	8,7	4,1	214,6	100
Ireland**	0,7	10,5	1,3	18,7	4,9	69,0	-	-	0,1	1,7	7,0	100
Denmark	1,4	7,0	0,0	0,0	18,6	95,3	-	-	-0,5	-2,3	19,5	100

PRIMARY ENERGY PRODUCTION

1972	Hard coal		Lignite		Crude petroleum		Natural gas		Primary electrical energy		TOTAL	
	Mn tpe	%	Mn tpe	%	Mn tpe	%	Mn tpe	%	Mn tpe	%	Mn tpe	%
EUR-9	176,7	50,1	23,7	6,7	11,8	3,3	100,3	28,5	18,3	10,9	352,7	100
EUR-6	100,1	41,3	22,2	9,1	11,4	4,7	77,3	31,9	29,6	12,2	262,5	100
Germany	72,5	60,3	20,9	17,4	7,1	5,9	13,9	11,6	4,9	4,1	120,1	100
France	19,0	44,5	1,0	2,3	1,5	3,5	6,4	14,9	14,1	33,0	42,7	100
Italy	0,1	0,3	0,2	0,9	1,2	5,0	11,9	49,1	10,5	43,5	28,2	100
Netherlands	1,9	4,0	-	-	1,6	3,4	45,0	92,5	0,1	0,2	48,7	100
Belgium	6,6	98,6	-	-	-	-	0,0	0,5	0,0	0,7	6,7	100
Luxembourg	-	-	-	-	-	-	-	-	0,0	83,9	0,0	100
United Kingdom	76,6	70,6	-	-	0,3	0,3	23,0	21,2	8,6	7,9	108,5	100
Ireland**	0,1	3,9	1,4	87,9	-	-	-	-	0,1	8,1	1,6	100
Denmark	-	-	-	-	0,1	92,9	-	-	0,0	6,2	0,1	100

+ For the reference period and in the corresponding state of the transformation techniques, inland consumption represents the amount of primary energy which the Community or one of its member countries must have available to meet its inland demands.

** 1971

DEPENDENCE OF COMMUNITY COUNTRIES ON IMPORTED ENERGY
classified in decreasing order of dependence

1972	Primary energy consumption	Primary energy production	Net imports less bunkers	Degree of dependence on imported energy ⁺
	millions of tons of petroleum equivalent			%
Denmark	19,5	0,1	19,8	99,6
Luxembourg	4,7	0,0	4,7	99,5
Belgium	44,2	6,7	36,6	82,8
Ireland **	7,0	1,6	5,7	81,0
Italy	121,1	24,2	98,2	81,0
France	164,6	42,7	123,4	75,0

EUR-9	888,2	352,7	536,1	60,8
EUR-6	641,0	242,5	408,0	63,0

Germany	248,6	120,1	132,0	53,1
United Kingdom	214,6	108,5	106,7	49,7
Netherlands	57,7	48,7	9,0	15,6

+ defined by the ratio : $\frac{\text{Net imports less bunkers}}{\text{Primary energy consumption}}$

** 1971

As a result of increasing petroleum consumption, the Community, like most of its Member Countries, has become dependent on imports for the greater part of its energy supplies. The ratio of net imports (less bunkers) to domestic consumption of primary energy has risen from 30% in 1960 to 63% in 1972 for the Community of Six. The dependence of the Community of Nine on imported energy also exceeds 60% at present. The decreasing degree of dependence of the Netherlands, on the other hand, could give the false impression that this country is more or less able to meet its own energy requirements. It should be explained, however, that more than half the national production of natural gas is exported to other Community countries and that half the inland energy consumption then has to be covered by imported crude petroleum.

CONSUMPTION OF ENERGY BY MAJOR SECTORS

1972	Consumption of the energy sector	Final consumption				TOTAL
		non-energy	energy			
			industry	transport	households, etc. (+)	
EUR-9		millions of		tons of petroleum equivalent		
Solid fuels	3,6	-	45,1	0,6	37,1	86,4
Liquid fuels	31,7	52,8	104,6	109,8	129,1	428,0
Gaseous fuels	8,5	7,2	56,4	0,9	43,6	116,6
Electrical energy	21,0	-	95,8	5,3	89,2	211,3
Heat	-	-	1,0	-	2,1	3,1
TOTAL	64,8	60,0	302,8	116,6	301,1	845,3
	(7,7%)	(7,1%)	(35,8%)	(13,8%)	(35,4%)	(100%)
expressed as a %						
Solid fuels	5,6	-	14,9	0,5	12,3	10,2
Liquid fuels	48,9	88,0	34,5	94,2	42,9	50,6
Gaseous fuels	13,1	12,0	18,6	0,8	14,5	13,8
Electrical energy	32,4	-	31,6	4,5	29,6	25,0
Heat	-	-	0,3	-	0,7	0,4
TOTAL	100	100	100	100	100	100

+ Including commerce, handicrafts, public authorities, agriculture, fishing and service

The greatest users of energy are industry and households, each of which consumes one third of the total demand.

Petroleum products alone form half the total of different sources of energy.

Electrical energy comes second with one quarter of consumption; one third of this however is energy produced from residual fuel oil by thermal power plants.

In two sectors, non-energy and transport, petroleum products occupy a position where they are both predominant and difficult to replace in the medium term.

PER CAPITA ENERGY CONSUMPTION

1972	TOTAL PRIMARY ENERGY	Total industry	Transport	Households, etc.	Gross national product at market prices
	kilogrammes of petroleum equivalent				Ecu*
EUR-9	3 465	1 189	458	1 182	3 039
EUR-6	3 359	1 429	445	1 113	3 153
Germany	4 030	1 690	515	1 411	3 839
France	3 198	1 387	462	1 012	3 504
Italy	2 232	964	335	690	2 014
Netherlands	4 334	1 539	503	1 686	3 197
Belgium	4 553	2 101	429	1 537	3 347
Luxembourg	13 716	10 786	743	1 760	3 478
United Kingdom	3 847	1 570	492	1 357	2 646
Ireland	2 364**	757	415	1 026	1 761
Denmark	3 907	931	612	2 003	3 888

* unit of account of the European Communities

** 1971

Hasty conclusions should not be drawn from the per capita consumption figures, even if, in certain cases, they are indicative of the standard of living and of the level of industrialisation. In the households sector, climatic conditions influence consumption to a great extent and it is obvious that within Europe, for the same standard of comfort, the consumption of a country in the South will always be lower than that of a country with a more rigorous climate.

Similarly, in regard to industrial consumption, allowance must be made for the industrial structure of the country, as well as the specific consumption of different branches of industry. The high level of per capita industrial consumption of the Grand-Duchy, for example, is due almost exclusively to the iron and steel industry, an intensive user of energy, which constitutes about 60% of the country's industrial activity.

PETROLEUM

PRODUCTION AND SUPPLY OF CRUDE PETROLEUM IN THE WORLD

1972	Production of crude petroleum A	Purchases by EUR-9		Purchases by USA		Purchases by Japan	
		B	B/A	C	C/A	D	D/A
	mn tons	mn tons	%	mn tons	%	mn tons	%
AMERICAS	868	15	2	63	7	1	0
of which:							
USA	532(1)	0	0	/	/	0	0
Canada	88(2)	-	-	42	48	-	-
Venezuela	167	14	8	14	8	0	0
MIDDLE EAST	901	360	40	22	2	167	19
of which:							
Iran	254	63	25	7	3	79	31
Saudi Arabia	286	131	46	9	3	31	11
Kuwait and Nejd	182	80	44	2	1	38	21
Iraq	67	37	55	0	0	0	0
Emirates	87	40	46	4	5	12	14
AFRICA	274	170	62	23	8	5	2
of which:							
Libya	105	80	76	5	5	0	0
Algeria	52	31	60	4	8	-	-
Nigeria	90	50	56	12	13	3	3
PAC EAST	122	1	1	8	7	32	26
of which:							
Indonesia	54	1	2	8	15	32	59
China	30(2)	-	-	-	-	-	-
EUROPE (excl. EUR-9)	420	13	3	0	0	0	0
of which:							
USSR	394	13	3	0	0	0	0
Rumania	14	0	0	-	-	-	-
Countries not specified	-	2	/	-	-	-	-
TOTAL NON-COMMUNITY COUNTRIES	2 587	560	22	/	/	/	/
EUR-9	12	/	/	-	-	-	-
TOTAL WORLD	2 599	/	/	116	5	205	8

(1) including natural gas liquids

(2) including shale oils and bituminous sand oils

Production of crude petroleum by the Community of Nine is negligible, representing only 0.4% of world production and meeting only 2% of Community requirements. For this reason the Community of Nine is the largest world importer of crude petroleum, purchasing almost a quarter of world production (equivalent to half the international trade in crude petroleum). Two areas are the principal suppliers to the Community: the Middle East with 64% of imports and Africa with 30%. In 1972, the principal countries supplying the Community were, in order of importance: Saudi Arabia (23% of imports), Kuwait (14%), Libya (14%), Iran (11%), Nigeria (9%). These figures indicate the closeness of the commercial ties of both purchasers and sellers, since the Community of Nine purchases 62% of Africa's crude petroleum production and 40% of that of the Middle East.

RESOURCES AND PROCESSING OF CRUDE PETROLEUM IN THE COMMUNITY

Millions of tons

1972	Crude petroleum production	Crude petroleum imports	Crude petroleum resources	Crude petroleum processed	Refining capacity
EUR-9	11,8	560 ⁽¹⁾	571,8 ⁽¹⁾	579,4 ⁽²⁾	731
Germany	7,1	104,4	111,5	111,4	133
France	1,5	117,8	119,3	120,0	145
Italy	1,2	118,8	120,0	121,8	174
Netherlands	1,6	67,8	69,4	69,9	99
Belgium	-	36,2	36,2	36,5	42
United Kingdom	0,3	107,7	108,0	107,0	124
Ireland	-	2,4	2,4	2,6	3
Denmark	0,1	10,0	10,1	10,2	11

(1) after deducting trade within the Community

(2) including amounts drawn from stocks

European strategy as regards economics of petroleum is to transport the raw material in bulk from non-Community countries and refine it at the place of consumption. The Community of Nine does not re-export any crude petroleum, the slight differences recorded between resources and crude petroleum processed are due to stock movements and some trade between member countries.

It will be noted, in particular, that at the end of 1972, the Community of Nine had ample refining capacity (atmospheric distillation) with 731 million t/year, amounting to 25% of world capacity. The Community thus has the greatest refining capacity, more than the United States (652 million t/year), the USSR (350 million t/year) and Japan (215 million t/year).

NET PRODUCTION OF PETROLEUM PRODUCTS FROM REFINERIES

Millions of tons

1972	Refinery gas	LPG	Motor gasoline	Aviation fuels	Kerosene	Gas, diesel & light fuel oil	Residual fuel oil	Other products ⁺	TOTAL
EUR-9	3,1 (0,8%)	10,3 (1,9%)	70,2 (13,0%)	16,1 (3,0%)	8,2 (1,5%)	171,0 (31,7%)	207,0 (38,3%)	53,9 (10,0%)	539,8 (100%)
Germany	1,8	2,7	15,5	1,4	0	41,9	29,1	10,4	102,8
France	0,3	2,5	15,5	3,2	0	43,0	36,5	9,5	110,5
Italy	0,2	2,2	13,9	2,2	4,1	25,2	55,4	11,1	114,3
Netherlands	0,1	0,8	5,3	3,3	1,3	19,5	26,6	9,2	66,1
Belgium	0,1	0,4	4,5	1,2	0,1	11,6	13,4	3,2	34,5
United Kingdom	0,5	1,5	13,6	4,6	2,6	25,5	41,0	10,1	99,4
Ireland	-	0	0,5	0,1	-	0,7	1,3	-	2,6
Denmark	0,1	0,2	1,4	0,1	0,1	3,6	3,7	0,4	9,6

TOTAL INLAND USE OF PETROLEUM PRODUCTS

Millions of tons

EUR-9	2,4 (0,5%)	9,0 (1,9%)	67,7 (14,0%)	12,0 (2,5%)	6,8 (1,4%)	162,2 (33,7%)	166,2 (34,5%)	55,5 (11,5%)	482,4 (100%)
Germany	1,1	2,0	18,6	2,3	0,1	59,3	28,9	15,9	128,2
France	0,4	2,5	14,5	1,8	0	41,8	29,8	8,7	99,5
Italy	0,2	1,9	10,5	1,7	2,2	17,1	39,8	9,7	83,1
Netherlands	0,1	0,4	3,4	0,8	1,2	7,3	5,7	5,9	24,8
Belgium	0,1	0,5	2,5	0,4	-	8,9	9,3	2,9	24,6
Luxembourg	-	0	0,1	0	0	0,6	0,7	0,2	1,5
United Kingdom	0,4	1,4	15,9	4,0	3,0	20,4	41,4	11,3	97,8
Ireland	-	0,1	0,7	0,3	0,1	1,0	2,4	0,2	4,8
Denmark	0,1	0,2	1,6	0,7	0,2	6,4	8,2	0,7	18,1

⁺ mainly non-energy

Resources of crude petroleum processed in the Community of Nine during 1972 enabled almost 540 million tons of refined products to be produced after allowing for refining losses, refineries own consumption and stock variations. Of total production 70% was gas and fuel oils, 13% motor gasoline and 10% non-energy products (naphthas, bitumen, lubricating oils, etc.). In 1972, this production covered inland uses amounting to 482 million tons, net exports to non-Community countries of 14 million tons, and bunkering totalling 37 million tons, leaving a surplus of 7 million tons which was put into stock.

INLAND USE AND FOREIGN TRADE IN PETROLEUM PRODUCTS

millions of tons

1972	$\frac{A}{B}^+$	$A - B^+$	Imports	Exports	Balance of Foreign Trade (imports-exports)	Bunkers
EUR-9	112%	+ 57,4	(103,1) ++	(117,5) ++	- 14,4	37,0
Germany	80%	- 25,4	37,3	7,8	+ 29,5	4,0
France	111%	+ 11,0	9,0	12,4	- 3,4	4,9
Italy	137%	+ 31,2	5,6	27,8	- 22,2	7,8
Netherlands	266%	+ 41,3	8,2	37,5	- 29,3	11,4
Belgium	140%	+ 9,9	6,1	13,2	- 7,1	2,9
Luxembourg	0 %	- 1,5	1,5	0	+ 1,5	-
United Kingdom	102%	+ 1,6	20,4	15,8	+ 4,6	5,2
Ireland	54%	- 2,2	3,0	0,6	+ 2,4	0,1
Denmark	53%	- 8,5	12,0	2,4	+ 9,6	0,7

+ A = production
B = inland use

++ including trade within the Community

The first two columns of this table, obtained from the totals on the preceding page, show the extent to which inland uses of petroleum products are covered by production. This varies greatly depending on the country and affects foreign trade. The four countries with a surplus obviously have an exportable balance and supply the countries with a deficit.

These figures show that trade in petroleum products between Member countries reaches very high levels, the greatest movement being from the Netherlands to Germany. The figures show in addition that production also covers bunkering requirements.

The Community has a surplus of, and exports, residual fuel oils and jet fuels while it has a deficit of, and thus imports, non-energy products such as lubricants, bitumens and petroleum coke.

USE OF PETROLEUM PRODUCTS BY MAJOR SECTORS

Millions of tons

1972	Transformations		Industry		Transport	Agriculture and fishing	Households etc.	TOTAL
	Electric power stations	Gas works	Energy uses	Non-energy uses				
EEB-9	72,7 (15,1%)	4,0 (0,8%)	107,6 (22,3%)	52,1 (10,8%)	112,9 (23,4%)	10,8 (2,2%)	122,2 (25,3%)	482,4 (100%)
Germany	9,6	0,5	25,7	16,3	29,9	1,5	44,5	128,2
France	12,8	0,7	26,7	7,7	22,7	3,2	25,6	99,5
Italy	16,9	0,2	17,1	9,2	17,2	2,0	20,6	83,1
Netherlands	2,5	0	2,5	6,0	6,6	0,4	6,8	24,8
Belgium	4,9	0	4,8	2,7	4,7	0,4	7,1	24,6
Luxembourg	0,1	0	0,7	0	0,3	0	0,4	1,5
United Kingdom	21,0	2,2	25,5	9,5	27,1	2,1	10,4	97,8
Ireland	1,1	0,1	1,3	0,2	1,3	0,2	0,6	4,8
Denmark	3,8	0,2	3,3	0,5	3,1	1,0	6,2	18,1

Demand in this table shows certain special features. Approximately 16% of refined petroleum products are not consumed as produced, but undergo further transformation in electric power stations and gas works. The important share taken by consumption by industry for non-energy uses is clearly brought out here; the petrochemical industry (naphthas) and civil engineering works (bitumens) are the principal consumers. Final demand for heating of buildings (households, commerce, handicrafts, offices, etc.) which amounts to a quarter of inland use, varies greatly, depending on the temperature. In this respect, 1972 can be considered a normal year. This latter sector consumes 4 grades of products, which are used for different purposes: gas oils or light fuel oils for central heating (77%), residual fuel oil for heating blocks of flats and other large buildings (15%), Kerosene for stoves (5%) and LPG (butane-propane) mainly for cooking (3%).

USE OF PETROLEUM PRODUCTS IN THE TRANSPORT SECTOR

EUR-9

- 1972 -

millions of tons

BREAKDOWN BY USER			BREAKDOWN BY PRODUCT		
Railways	3,0	2,6%	Gasolines	67,1	59,4%
Road Transport	94,4	83,6%	Diesel oil for road transport	25,4	22,5%
Aviation	12,1	10,8%	Jet fuel	12,0	10,6%
Inland waterways	3,4	3,0%	Fuel oils	6,5	5,8%
			Lubricating oils	1,9	1,7%
TOTAL	112,9	100%	TOTAL	112,9	100%

Excluding bunkering which may be regarded as exports, the transport sector uses 23% of the petroleum products consumed in the Community of Nine, that is to say about the same amount as households and as the energy consumption of petroleum products by the whole of industry.

Of the 113 million tons used by the transport sector, approximately 33 million are used for goods transport, while passenger transport (passengers, baggage and post) accounts for 80 million.

The small amounts used by the railways are partly explained by the fact that electricity supplies 64% of traction energy.

Road transport is the main consumer with 94 million tons divided unequally between gasoline (71%), gas-oil for road transport (27%) and lubricating oils (2%).

Except for the railways, the transport sector uses virtually no source of energy other than petroleum products.

COAL

SUPPLIES OF COAL

Millions of tons of coal equivalent

1972	Production (a)	Imports from non-Community countries				Balance of trade with- in the Community	Availa- bility (b)	(a) / (b)	Stocks at collieries end of 1972
		Total	of which :						
			USA	Poland	USSR				
EEC-9	252,5	31,7	13,0	10,1	3,6	-	204,2	89 %	24,1
Germany	103,5	5,2	3,0	1,6	0,0	- 9,8	98,9	105 %	9,1
France	27,1	5,0	1,7	1,6	1,2	+ 6,0	38,1	71 %	3,7
Italy	0,1	8,9	3,3	3,1	1,7	+ 3,0	12,0	1 %	0,1
Netherlands	2,8	2,5	1,4	0,5	0,0	- 0,9	4,4	64 %	0,6
Belgium	9,5	2,8	1,0	0,9	0,2	+ 3,0	15,3	62 %	0,4
Luxembourg	-	-	-	-	-	+ 0,3	0,3	-	-
United Kingdom	109,4	4,4	2,6	0,7	-	- 1,1	112,7	97 %	10,2
Denmark	-	2,2	0,0	1,7	0,5	+ 0,0	2,2	-	-
Ireland	0,1	0,7	0,0	-	-	+ 0,1	0,9	11 %	-

In addition to hard coal, brown coal is an important primary energy source: 31,7 million tons of coal equivalent were produced by the Community in 1972, of which more than 80% was consumed by power stations.

As regards the Community's coal imports, Australia also occupies an important place alongside the countries mentioned above, providing more than 2,7 million tons of coal in 1972. Coking coal heads the list of grades imported.

CONSUMPTION OF COAL

millions of tons of coal equivalent

1972	GROSS INLAND CONSUMPTION (+)	Transformations			Collieries own Consumption	Final energy consumption
		Total	of which:			
			Power stations	Coke ovens		
EUR-9	276,5 (100 %)	219,7 (79 %)	104,5 (38 %)	104,1 (38 %)	4,4 (2 %)	52,0 (19 %)
Germany	96,2	84,2	34,7	44,8	2,7	8,9
France	37,9	28,2	10,1	14,9	0,5	9,5
Italy	11,4	10,4	0,8	9,5	0,0	1,0
Netherlands	4,2	3,6	0,9	2,2	0,0	0,6
Belgium	15,7	12,1	2,4	9,3	0,0	3,6
Luxembourg	0,3	-	-	-	-	0,3
United Kingdom	108,1	79,4	54,0	23,4	1,2	27,1
Ireland	0,9	0,1	0,0	-	0,0	0,8
Denmark	1,8	1,6	1,6	-	-	0,2

(+) availability less exports to non-Community countries \pm stock variations.

In 1972, Community production of products derived from the processing of coal amounted to 81,5 million tons of coke (of which 59,0 was consumed by the iron and steel industry) and 8,0 million tons of coal briquettes, consumed almost exclusively by households.

Apart from the consumption of coal (30 million tons) and coal briquettes, the "household" sector and small consumers also used 9,3 million tons of coke and 7,2 million tons of brown coal briquettes. Total coal consumption by this sector is thus more than 50 million tons which shows its great importance for the coal industry.

NATURAL GAS

SUPPLIES OF NATURAL GAS

thousands of teracalories
(Gross Calor Value)

1972	PRODUCTION	Imports from		GAS AVAILABLE (+)	Proportion of gas available covered by		
		Netherlands	Algeria & Libya		Indigenous gas	Netherlands gas	Algerian & Libyan gas
EEC-9	1 089,2	(208,8)	28,5	1 121,3	97,5 %	43,8 %	2,5 %
Germany	145,5	88,3	-	237,7	62,9 %	37,1 %	-
France	68,6	54,1	7,5	129,5	53,0 %	49,8 %	6,2 %
Italy	129,8	-	13,2	143,0	90,8 %	-	9,2 %
Netherlands	491,2	-	-	287,0	100 %	100 %	-
Belgium	-	65,1	-	65,1	-	100 %	-
Luxembourg	-	1,3	-	1,3	-	100 %	-
United Kingdom	250,0	-	7,7	257,7	97,0 %	-	3,0 %

(+) Production + imports - exports

Natural gas constitutes 70% of all available gases in the Community of Nine. In the Netherlands, the corresponding figure is as high as 93%.

Since 1968, the Netherlands has been the Community's largest producer of natural gas and its annual production has more than quadrupled over this period and accounts for 45% of Community production, almost half of which goes to meet the requirements of other Community countries.

Production of natural gas has increased rapidly in the last few years in the United Kingdom, the second largest producer, and is now thirteen times greater than in 1968.

These two countries will remain the Community's principal producing countries for some time, since they own 83% of the Community confirmed reserves.

CONSUMPTION OF NATURAL GAS

Thousands of teracalories
(Gross Calor Value)

1972	GROSS INLAND CONSUMPTION (+)	Transformations Power Stations	Transformations Gas Works	Industrial Consumption (Energy and non-energy)	Consumption by households, etc.
EUR-9	1 121,7 100%	220,7 19,7%	87,5 7,8%	457,9 40,8%	316,7 28,2%
Germany	240,7 100%	62,2 25,8%	3,2 1,3%	122,0 50,7%	49,1 20,4%
France	128,2 100%	21,7 16,9%	5,4 4,2%	51,5 40,2%	41,0 32,0%
Italy	139,9 100%	9,8 7,0%	4,7 3,4%	89,1 63,7%	31,4 22,4%
Netherlands	287,0 100%	88,1 30,7%	- -	85,6 29,8%	112,4 39,2%
Belgium	66,0 100%	20,3 30,8%	- -	29,5 44,7%	13,2 20,0%
Luxembourg	1,3 100%	0,2 15,4%	- -	0,8 61,5%	0,2 15,4%
United Kingdom	258,7 100%	18,3 7,1%	74,2 28,7%	79,5 30,7%	69,3 26,8%

(+) Including own consumption and losses in the supply systems

The greatest industrial consumer of gas, the chemical industry, accounts for 41% of total industrial consumption. The iron and steel industry and non-metallic minerals industry each consume 17% of the industrial total.

Natural gas is still being introduced into households at a high annual rate in all countries (it has grown by more than 43% from 1971 to 1972 throughout the Community), due to the great expansion of the heating of buildings.

In the United Kingdom, however, much of the natural gas is at present still being transformed in gas works and 70% of the amount processed is distributed to the households sector, bringing real consumption by this sector up to 120,000 teracalories.

ELECTRICAL ENERGY

NET PRODUCTION OF ELECTRICAL ENERGY BY ENERGY SOURCES

1972	NET TOTAL PRODUCTION (+)	Hydros	Nuclear	Conventional thermal power stations					Total
				Hard and brown coal	Petroleum products	Natural gas	Derived gases & others		
EUR-9	906,7	111,1	51,8	342,3	287,8	82,8	28,5	741,4	
	TWh			expressed as %					
EUR-9	906,7 100	12,3	5,7	37,7	31,7	9,1	3,2	81,7	
Germany	257,2 100	5,2	3,4	62,9	14,9	9,0	4,6	91,4	
France	163,7 100	29,7	8,4	18,6	33,9	5,5	3,9	61,9	
Italy	129,7 100	32,7	2,7	2,4	55,2	2,6	2,5	62,7	
Netherlands	47,2 100	-	0,7	4,4	20,5	71,5	2,9	99,3	
Belgium	35,7 100	1,6	0,1	15,5	51,3	20,7	10,8	98,3	
Luxembourg	2,2 100	42,7	-	0,5	20,4	3,2	33,1	57,2	
United Kingdom	245,3 100	1,8	10,4	54,6	30,2	2,5	0,5	87,8	
Ireland	6,5 100	10,3	-	25,5	64,2	-	-	89,7	
Denmark	19,4 100	0,1	-	18,8	81,1	-	-	99,9	

(+) including Italy's geothermal production : 2.4 TWh

More than 80% of Community production comes from conventional thermal power stations. Although the use of hydrocarbons is increasing steadily each year, solid fuels are still the main source of electrical energy at Community level, although the proportion of coal used in 1972 was only slightly greater than that of petroleum products.

At national level, the share from each type of energy source varies greatly according to the pattern of the production facilities and supply possibilities.

Average specific consumption of conventional thermal power stations was approximately 250 grammes of petroleum equivalent in 1972.

With the British contribution nuclear power plants now provide almost 6% of total production.

FUEL CONSUMPTION IN CONVENTIONAL THERMAL POWER STATIONS

For production of electrical energy only

1972	ALL FUELS	Hard coal	Brown coal	Petroleum products (non-gaseous)	Natural gas	Derived gases & others	
	in millions of tons of petroleum equivalent						
EUR-9	188,2	73,2	18,8	69,2	19,2	7,8	
	10 ⁶ tep	expressed as %					
EUR-9	188,2	100	38,9	10,0	36,8	10,2	4,2
Germany	58,7	100	42,3	30,0	14,0	8,7	5,3
France	23,7	100	29,5	2,5	52,4	8,4	7,2
Italy	19,0	100	3,0	1,0	86,1	4,7	5,2
Netherlands	11,3	100	5,4	-	22,4	69,3	2,9
Belgium	8,7	100	17,8	-	50,8	19,9	11,5
Luxembourg	0,4	100	0,8	-	32,1	5,1	62,0
United Kingdom	60,3	100	62,6	-	34,0	2,7	0,7
Ireland	1,6	100	1,3	33,9	64,8	-	-
Denmark	4,3	100	19,7	-	80,3	-	-

Flexibility of power stations with respect to the fuel consumed may considerably alter the breakdown shown.

On 1 January 1972, 23% of the installed thermal capacity in the Community of Six was equipped to burn petroleum products only and almost 30% consisted of multi-fuel equipment, in which one or more other fuels could be used instead of fuel oil. It can thus be assumed that in 1972, when supply on the market had guided choice towards petroleum products, approximately half the fuel oil consumption could, in theory, have been transferred to other fuels, subject to their availability.

Pattern of conventional thermal power plants in EUR-6, by type of fuel which could be used shown as a % of the total installed capacity (as at 1.1.1972):

Single fuel plant :		Multi-fuel plant :	
Hard and brown coal	38%	Coal/petroleum	15%
Petroleum products	23%	Coal/gas	4%
Natural gas)	5%	Petroleum/gas	11%
Derived gases)		Coal/Petroleum/gas	3%

CONSUMPTION OF ELECTRICAL ENERGY

1972	CONSUMPTION BY INLAND MARKET	Total industry	Transport	Domestic uses	Other uses (+)	Per capita consumption	
						Total	of which domestic use
	in thousand million kWh					in kWh	
EUR-9	841,7 (100 %)	443,1 (52,7 %)	23,0 (2,7 %)	218,6 (26,0 %)	157,0 (18,6 %)	3 305	858
Germany	252,5	137,0	8,6	55,7	51,2	4 092	902
France	146,8	86,0	6,1	26,6	28,1	2 850	517
Italy	116,9	74,4	3,8	23,6	15,1	2 154	436
Netherlands	43,2	23,2	0,9	10,0	9,0	3 240	751
Belgium	32,7	22,1	0,8	6,1	3,8	3 369	625
Luxembourg	2,7	2,2	0,0	0,2	0,3	7 987	568
United Kingdom	225,7	92,0	2,7	86,7	44,3	4 045	1 554
Ireland	5,8	2,0	-	(2,5)	(1,2)	1 919	(830)
Denmark	15,3	4,2	0,1	(7,2)	(3,8)	3 066	(1 410)

(+) Commerce, handicrafts, services and public authorities.

During recent years, consumption of electrical energy in the Community has increased by nearly 7,2% annually, equivalent to a doubling in ten years.

While industry remains the principal consumer, the growth of industrial consumption, which is very sensitive to economic fluctuations, averages just under 6%. On the other hand, the steady rise of consumption by the domestic sector and tertiary sectors (10 to 11%) means that this category of consumers accounts for an increasing proportion of total demand.

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