COMMISSION OF THE EUROPEAN COMMUNITIES

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INVESTMENT PROJECTS IN THE ELECTRICITY SECTOR OF THE COMMUNITY

(Report from the Commission to the Council)

Background Statement

INVESTMENT PROJECTS IN THE ELECTRICITY SECTOR OF THE COMMUNITY

The attached report, which is the latest in a series of annual reports reviewing the investment situation in the electricity sector of the Community, is based on information communicated to the Commission by virtue of Council Regulations (EEC) Nos. 1056/72 and 1215/76 relating to the situation as at 1.1.1981.

The Council is requested to NOTE the report and in particular that :

- the amount of solid fuel burning electricity production capacity in construction and planned continues to increase.
- 85,6 GW gross (some 80 GW net) of nuclear capacity is currently expected to be in service by 1985.
- the forecasts made by the Member States in 1980 of a total of 125 GW net of nuclear capacity in service by 1990 can be achieved only if firm decisions are taken quickly concerning sites and the ordering of further nuclear plant. In the absence of such decisions, there is a risk that the total nuclear capacity in service by 1990 will be less than 100 GW net. This in turn would imply some shortfall in the fulfilment of the Community's objective of achieving 70 - 75 % of the primary energy input requirements for electricity production from solid fuels and nuclear by 1990.

INVESTMENT PROJECTS IN THE ELECTRICITY SECTOR OF THE COMMUNITY

Report on information[1] communicated to the Commission,
under Council Regulations Nos. 1056/72 and 1215/76
relating to the situation at 1.1.1981
(Information summaries in Annexes 1 and 2)

DISCUSSION OF COMMISSION CONCLUSIONS

Conventional thermal capacity

1. The total capacity in construction and planned is not significantly changed from that noted in last year's report. It is therefore encouraging to note that the total amount of solid fuel burning capacity in construction and planned (over 53 GW) continues to increase.

2. In those Member States whose (1980) forecasts indicated the greatest dependance on oil in energy inputs for electricity production in 1990 (IRL - 50 %, It - 40/45 %, NL - 33/38 %) there are limited or no prospects of nuclear development by 1990. These Member States in particular should keep their investment efforts under constant review with the object of reducing future oil dependance to a practical minimum.

3. For the second year in succession, no monovalent oil or natural gas capacity is reported in planning. The reduced amount (11,8 GW) of monovalent oil burning capacity still in construction is now all in two Member States (It - 7,2 GW, UK - 4,6 GW). It is significant that the reduction from last year's total is due not only to the commissioning of plant previously in construction but also to plant re-scheduling (to a solid fuel capability) and the complete withdrawal of plant from the programme. Italy and the UK should, therefore, re-examine the possibilities of further reducing the amount of monovalent oil-burning plant remaining in their programmes.

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(1) - The power plant information on which this report is based relates only to thermal power plant of 200 MW and above and hydro plant of 50 MW and above;

- With the inclusion, for the first time, of information from Greece (H), all figures in the report refer to EUR 10, unless otherwise stated;
- All plant capacities are given in Megawatts (MW) or Gigawatts (GW) gross, unless otherwise stated.

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Nuclear capacity

4. Subject to the achievement of current construction schedules, the total nuclear capacity in service in the Community by 1985 is now expected to be 85,6 GW (some 80 GW net). All this plant is either in service or under construction.

5. According to current planning, the total nuclear capacity in service by 1990 would be no more than 119,1 GW (some 112 GW net). Even this amount, however, is dependent not only on the timely completion of current construction programmes but also on the taking of firm decisions concerning start-of-construction dates or sites for over 18 GW of capacity.

6. In 1980, the Member States forecasts indicated that a total of some 125 GW net of nuclear capacity was expected in service in 1990. It is evident that this forecast can only be achieved by the early resolution of current siting problems and a timely increase in the rate of ordering of nuclear plant.

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REVIEW OF INFORMATION RECEIVED

7. Total power plant capacities under construction and planned

Table 1 indicates the total capacities under construction and planned in each sector as at 1.1.1981, together with the evolution as reported during the last seven years :

Table 1 GW gross

		Conventional thermal	Nuclear	Hydro	TOTAL
EUR 9	1.1.1974	72,1	*	13,0	*
"	1.1.1975	60,3	*	12,0	*
"	1.1.1976	50,5	*	11,0	*
"	1.1.1977	46,6	99,4	10,0	156,0
"	1.1.1978	44,6	128,2	14,2	186,6
"	1.1.1979	52,5	100,6	14,8	167,9
"	1.1.1980	66,0	100,7	14,0	180,7
"	1.1.1981	63,9	99,6	11,8	175,3
EUR 10	1.1.1981	67,9	100,2	14,8	182,9

* Nuclear not reported in these years.

Conventional thermal plant

8. Table 2 gives an analysis of the current totals by principal fuel capability categories.

- of the total of 26,8 GW of plant known to be currently under construction, 13,0 GW is capable of burning solid fuel whilst 11,8 GW is capable of burning oil only (It : 7,2 GW, UK: 4,6 GW);
- the total capacities of plant in construction and planning capable of burning solid fuels continues to increase (hard coal: + 2,2 GW, brown coal : + 1,26 GW (EUR 9) compared with the situation at 1.1.1980);
- from 1980 - 1985 inclusive, the total added solid fuel burning capability is expected to be 19,3 GW;

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Table 2 MW gross

Capable of burning	Commissioned in 1980 (1979)	Currently under construction (*) A	In planning - to be in service: by 1985 B	In planning - to be in service: after 1985 and date unknown C	TOTAL (A+B+C)
1. Hard coal	- (3017)	11180 (*) (10359)	6969 (6337)	28276 (27489)	46425 (44185)
- of which coal only	- (1740)	7208 (7721)	4749 (2957)	9476 (12609)	21433 (23287)
2. Brown coal	300 (-)	1850 950 (**) (1550)	1200 - (**) (600)	4300 2400 (**) (-)	7350 3350 (**) (2150)
3. Oil	1600 (3493)	16130 (18877)	1500 (1900)	19160 (15350)	36790 (36127)
of which oil only	1600 (1916)	11780 (15940)			11780 (15940)
4. Natural gas	270 (-)	2960 (2689)	720 (1480)		3680 (4169)
of which natural gas only	270 (-)	- (270)			- (270)
5. Fuel unknown or undecided				- (1300)	- (1300)

Figures in brackets refer to the situation as at 1.1.1980 (EUR 9)

*) All except 1900 MW expected to be in service by 1985.
**) (EUR 9)

NOTE : Comparisons with previous years should be made with caution, since planning decisions taken in the light of changing circumstances affect the categories of the reported projects. For example, in the "oil only, currently under construction" category the total reduced by 4160 MW between 1.1.1980 and 1.1.1981. Of this 4160 MW, 1600 MW was commissioned in 1980, 640 MW was changed from "oil only" to "hard coal" (remaining "under construction"), the construction of 600 MW was halted and the plant transferred to "hard coal- in planning" and, for the remaining 1320 MW, construction was halted and the plant removed from the programme.

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- for the second year in succession, there is no plant in planning capable of burning oil only or natural gas only ;
- of the 36,8 GW of plant in construction and planned with an oil burning capability, it is known that 22,7 GW is in fact polyvalent plant with a coal burning capability.

Nuclear plant

9. Table 3 indicates the current situation.

Table 3 MW gross

	Scheduled to be in service		
Currently :	by 1985	1986-1990	after 1990 and date unknown
- in construction	50678	7693	1362
- in planning	-	25238 (EUR 9) 25838	14668
TOTALS	50678	32931 (EUR 9) 33531	16030

- 6,6 GW of nuclear capacity was commissioned in 1980. The 100.2 GW reported in construction and in planning represents slightly less than three times the existing capacity ;
- subject to the achievement of current construction schedules, the expected total nuclear capacity in service by 1985 is 85,6 GW (some 80 GW net). this is 6,1 GW more than was indicated in the last report, due entirely to modification of the French programme;
- For Denmark, Ireland, Luxembourg and the Netherlands, all so far uncommitted to nuclear development, no projects are reported, and the possibility of nuclear development in these countries by 1990 is remote. In Belgium the current nuclear programme, all now in construction, is scheduled to be completed by 1984. In Greece, the programme provides for the first nuclear plant to be in service in 1989, although the achievement of this programme must be open to some doubt (see below).

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- The total reported nuclear capacity (in construction and planned) scheduled to be in service by 1990 is 84,2 GW, which would mean, taking account of capacity already in service, a maximum nuclear capacity in service by 1990 of 119,1 GW (some 112 GW net). There is still time for further nuclear projects to be firmly decided upon for commissioning by 1990 although, given the practical considerations of delays in authorisation and construction, such decisions need to be taken in the very near future.

- It should be noted that, of the above 84,2 GW, the communications indicate that firm decisions have not been taken concerning start-of-construction dates or sites for no less than 18,3 GW (F: 9,6 GW, It: 7,0 GW, UK: 1,1 GW, H : 0,6 GW). Failure to resolve these problems in time could result in the total nuclear capacity in service by 1990 being no more than 100,8 GW (some 95 GW net).

Hydro plant

10. Table 4 indicates the current situation.

Table 4 — MW gross

	Commissioned in 1980 (1979)	Under Construction	In planning
Primary conversion (1)	60 (60)	1196 (457)	1976 (351)
Pumped storage	540 (80)	4346 (4116)	3230 (2) (5340)
Mixed pumped storage /primary conversion	190 (480)	3196 (3070)	850 (3) (690)
TOTALS	790 (620)	8738 (7643)	6056 (6381)

Figures in brackets refer to the situation as at 1.1.1980 (EUR 9)

(1) Includes run-of-river and seasonal- and short-term storage

(2) Includes 230 MW for which no start-of-construction date is available

(3) Includes 300 MW for which no start-of-construction date is available.

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Transmission lines and cables

11. Table 5 indicates the current situation.

Table 5 Circuit - km

	Commissioned in 1980 (1979)	Under construction	Planned
Overhead lines	3532 (1947)	6667 (8042)	6968 (5221)
Underground cables	27 (18)	98 (126)	214 (141)
Underwater cables	- (-)	24 (24)	275 (232)
TOTAL	3547 (1965)	6789 (8192)	7457 (5594)

Figures in brackets refer to the situation at 1.1.1980 (EUR 9).

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INVESTMENT PROJECTS IN THE ELECTRICITY SECTOR OF THE COMMUNITY

ANNEX I — Electrical power plant situation
Position at 1.1.1981.

ANNEX II — Summary of Notifications received by the Commission by virtue of Council Regulations n°s 1056/72 and 1215/76.

MBL/jb (July 1981)

Annex I

ELECTRICAL POWER PLANT SITUATION IN THE COMMUNITY

(Position at 1.1.1981)

- GW - gross -

	EUR-10	B.R. Deutschland	France	Italia	Nederland	Belgique	Luxembourg	United Kingdom	Ireland	Danmark	Hellas
A. INSTALLED CAPACITY 1) (All generating sets)	326.6	87.7	65.0	47.7	17.7	11.6	1.4	79.4	3.2	7.4	5.5
of which :											
1. Conventional thermal	242.9	72.0	30.5	30.6	17.2	8.6	0.2	69.7	2.7	7.4	4.1
of which : generating sets of 200 MW or more	121.0	30.6	17.8	16.0	8.5	2.4	-	39.0	0.8	3.9	2.0
2. Nuclear	34.9	9.1	15.1	1.2	0.5	1.8	-	7.2	-	-	-
of which : generating sets of 200 MW or more	30.6	8.9	14.6	0.7	0.5	1.8	-	4.1	-	-	-
3. Hydroelectric	48.7	6.6	19.4	15.9	-	1.2	1.2	2.5	0.5	0.0	1.4
B. PLANT UNDER CONSTRUCTION 2)											
E.1.b. Thermal generating sets of 200 MW or more											
of which :											
Conventional thermal	26.8	4.3	3.0	8.1	0.9	-	-	7.9	0.9	0.7	0.9
Nuclear	59.7	12.6	34.7	2.0	-	3.9	-	6.5	-	-	-
E.2.b. Hydroelectric generating sets of 50 MW or more	8.7	-	4.0	2.3	-	-	-	1.5	-	-	0.8
C. PROJECTED 2)											
E.1.c. Thermal generating sets of 200 MW or more											
of which :											
Conventional thermal	41.1	15.2	-	17.9	1.5	-	-	0.6	1.5	1.3	3.1
Nuclear	40.5	14.4	12.0	10.0	-	-	-	3.5	-	-	0.6
E.1.c. Hydroelectric generating sets of 50 MW or more	6.0	-	0.1	3.6	-	-	-	0.2	-	-	2.1

1) Source : Estimated on the basis of figures of EUROSTAT/publications.

2) Source : Notifications received by the Commission by virtue of Council Regulations N°s 1056/72 and 1215/76.

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ANNEX II
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INVESTMENT PROJECTS IN THE ELECTRICITY SECTOR OF THE COMMUNITY

Summary of Notifications received by the Commission
by virtue of Council Regulations N°s 1056/72 and 1215/76

- 1981 -

Contents :

E.1. THERMAL POWER STATIONS (Including nuclear power stations)

Generating sets with a capacity of 200 MW or more

By country and planned year of commissioning - Position at 1.1.1981

Pairs of figures : number of sets and MW of total capacity

COUNTRY	Commissioned during 1980	Total		of which : planned year of commissioning (under construction and planned)											
		Under construction	Planned	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	Undecided or unknown (1)
EUR-10	13-8780	110-86512	119-81611	28-19992	25-16056	14-12260	23-18821	22-16597	20-12739	26-19395	14-10189	17-11223	15-10761	7-5520	18-14570
of which :															
Belgique	-	4-3860	-		2-1860		2-2000								
Danmark	-	1- 670	3-1260	1-670			1- 375	2- 885							
B.R.Deutschland	-	19-16973	36-29621	2-2046	4-1737	3-3376	7-5346	9-6882	7-3659	11-7810	1-1304	1-1303	1-1301		9-11830
France	7-6610	35-37714	9-12030	9-8680	6-6070	6-6284	8-8520	5-6730	4-4880	4-5720	2-2860				
Hellas	1- 300	3- 900	11-3700	1- 300		1- 300	2- 600	3- 900	3-1000	1- 300	1- 300	2- 900			
Ireland	1- 270	3- 900	5-1500					1- 300	1- 300	1- 300					5- 1500
Italia	3-1300	20-10140	44-27940	4-1620	7-2920	3-1640	2-1320	1- 240	3-1640	5-2960	8-4600	12-7920	12-8260	5-4320	2- 640
Luxembourg	-	-	-												
Nederland	-	2- 925	3-1460	1- 596	1-329				1- 600	1-360	1- 500				
United Kingdom	1- 300	23-14430	8-4100	10-6080	5-3140	1- 660	1- 660	1- 660	1- 660	3-1945	1- 625	2-1100	2-1200	2-1200	2- 600

(1) Dates not yet decided or unknown ; projects in study or probable projects ; programme is tentative.

E.1. THERMAL POWER STATIONS

Generating sets with a capacity of 200 MW or more

By country and by TYPE OF COOLING SYSTEM

Position at 1.1.1981

Pairs of figures : Number of sets and MW of total capacity

COUNTRY	POWER PLANT UNDER CONSTRUCTION	of which : by cooling system						PROJECTED POWER PLANT	of which : by cooling system					
		fresh water			sea or (estuarine)	tower	unknown		fresh water			sea or (estuarine)	tower	unknown
		fresh water	river	river + tower					fresh water	river	river + tower			
COMMUNITY (EUR - 10)														
conventional thermal	53-26779	7-2240	8-4705	1-475	20-10410	17-8949		82-41105	4-1465	4-2010	4-1965	9-3100	26-14305	35-18260
nuclear	57-59733	2-2682	7-8034	3-3291	23-22180	20-21546	2-2000	37-40506	-	-	1-1301	2-1100	18-23805	16-14300
of which :														
Belgique														
nuclear	4-3860		2-1930	2-1930				-						
Danmark														
conventional thermal	1-670				1- 670			3-1260				3-1260 of which : 1-510 water+district heating		
B.R.Deutschland														
conventional thermal	8-4344			1-475(river+heat		7-3869		25-15245	2-825	1-550	4-1965		18-11905	
nuclear	11-12629	2-2682		1-1361	supply)	8-8586		11-14376			1-1301		9-11775	1-1300
France														
conventional thermal	5-3000		3-1800			2-1200		-					-	
nuclear	30-34714		5-6104		13-15650	12-12960		9-12030					9-12030	
Hellas														
conventional thermal	3- 900					3- 900		10-3100				2- 700	8-2400	
nuclear	-							1- 600						1- 600
Ireland														
conventional thermal	3- 900				3- 900 (estuarine)			5-1500				1- 300 (estuarine)		4-1200
Italia														
conventional thermal	18-8140	7-2240			11-5900			34-17940	2-640			1-240		31-17060
nuclear	2-2000						2-2000	10-10000						10-10000
Nederland														
conventional thermal	2- 925		2- 925					3-1460		3-1460 of which : 2- 860 (canal)				
United Kingdom														
conventional thermal	13-7900		3-1980		5-2940	5-2980		2- 600				2- 600		
nuclear	10-6530				10-6530			6-3500				2-1100		4-2400

E.1. PROJECTED THERMAL POWER STATIONS - Decisional aspects

Generating sets with a capacity of 200 MW or more

Situation 1.1.1981

Pairs of figures : number of sets and MW of total capacity
(P) = provisional

Country	Fuel	Total projected	Firm (decided)	Decisional process uncomplete	of which decisions have NOT been taken for						Possible, in study	Status unknown or not reported	Remarks
					Site	Main contractor	Capacity	Type of fuel	Start of work date	Commis-sioning			
					A	B	C	D	E	F			
COMMUNITY (EUR-10)													
convent. thermal		82-41105	14-6755	62-30689	43-22160	51-24190	13- 4320	1-500	21-8519	18-6440		6-3661	
nuclear		37-40506	2-2440	24-23690	22-22590	17-14100	11-11990	1-600	14-13690	14-13690		11-14376	
Danmark													
convent. thermal	coal/oil	3- 1260	2-750 [1]	1-510 [2]					1-510	1-510			1) Approval from Planning Office ; Environmental and local construction approval exists. 2) National heat plan.
B.R.Deutschland													
convent. thermal		36-29621	10-5405	10-6479	2-1500	3-1950			5-3029	1-450		16-17737	3) 2-1122 MW:start of work depends on not existing supply contracts;1-707 MW:1.1.80-under construction, start of work awaiting court judgement ; authorisation:10.6.1981. 4) 1.1.80 : under construction.
		25-15245										5-3361	
	coal	20-12125	9-4685	8-5279	2-1500	3-1950			5-3029 [3]	1-450		3-2161	
	coal/nat.gas	1- 720	1- 720										
	brown coal	4-2400		2-1200 [4]								2-1200	
nuclear		11-14376										11-14376	
France													
nuclear		9-12030	2-2440	7-9590	7-9590		7-9590		7-9590	7-9590			5) National programme 1981. 6) Programme 1982 : 5-6730 MW. Programme 1981 : 2-2860 MW.
		9-12030	2-2440 [5]	7-9590 [6]	7-9590		7-9590		7-9590	7-9590			
Hellas													
convent. thermal		10- 3100	2- 600	8-2500	4-1300	8-2500	2- 700		1- 300	1- 300			
nuclear		1- 600		1- 600	1- 600	1- 600		1- 600	1-600(P)	1-600(P)			
Ireland													
convent. thermal	coal	5- 1500		4-1200 (P)	4-1200	4-1200	4-1200		4-1200	4-1200		1- 300	
Italia													
convent. thermal	coal/oil	44-27940		44-27940	41-27060	44-27940	6-1920		6-1920	6-1920			7) 2-640 MW : decision CIPE 20.9.73, art. 7 of law 330. 32-17300 MW : decision CIPE 11.1.80.
nuclear		34-17940 [7]		34-17940	31-17060	34-17940	6-1920		6-1920	6-1920			
		10-10000		10-10000	10-10000	10-10000							
Nederland													
convent. thermal		3- 1460		3- 1460	2- 1100		1- 500	1- 500	2- 960	3-1460			Electr. Plan SEP
	coal/oil	2- 1100		2- 1100	2- 1100		1- 500	1-500 [8]	1- 600	2-1100(P)			8) Coal/oil or coal/gas
	deriv.gas/oil	1- 360		1- 360					1- 360	1- 360			
United Kingdom													
convent. thermal	coal	8- 4100		8- 4100	4- 2400	8-4100	4-2400		8-4100	8-4100			9) Consideration is being given to the conversion of a power plant (construction halted) to coal firing. 10) 2-1100 MW : construction subject to necessary consents and safety clearances.
		2- 600 [9]		2- 600		2- 600			2- 600	2- 600			
nuclear		6- 3500		6- 3500	4- 2400	6-3500	4-2400		6-3500	6-3500			
		10)											

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BALANCE SHEET OF INVESTMENT PROJECTS
IN CONVENTIONAL THERMAL POWER STATIONS (excluding nuclear) II/5
IN THE COMMUNITY (E.T.)
- Generating sets with a capacity of 200 MW or more -

Pairs of figures :
(Number of sets) MW of corresponding total capacity

	In service	Under construction	Planned
EUR - 9			
1. POSITION AT 1.1.1979	(302) 111827	(56) 29124	(50) 23390
1. EVOLUTION DURING 1979			
1. Plant commissioned	+(10) + 5233	-(10) - 5233	
2. Beginning of construction (plant reported planned 1.1.79)		+(11) + 5290	-(11) - 5290
3. Projects withdrawn			-(10) - 3200
4. New projects not reported planned at (1.1.1979)		+ (1) + 600	(+(35) +19127 (+(.) + 1300
5. Size modifications, adjustments	+ 64	- 3	+ 869
EUR - 9			
2. POSITION AT 1.1.1980	(311) 117124	(58) 29778	(64) 34896 +(.) 1300
2. EVOLUTION DURING 1980			
1. Plant commissioned	+ (5) + 1870	-(5) - 1870	
2. Beginning of construction (plant reported planned 1.1.80)		+(2) + 900	- (2) - 900
3. Projects withdrawn		-(7) - 3827	- (6) - 3681
4a. New projects not reported planned at (1.1.1980)		+(2) + 920	+(11) + 5330
4b. Construction halted (conversion a.o.), returned to planning phase			+ (5) + 2507
5. Size modifications, adjustments		- 22	- 147
3. POSITION AT 1.1.1981			
EUR - 9	(316) 118994	(50) 25879	(72) 38005
EUR - 10	(323) 121000	(53) 26779	(82) 41105

E.1. CONVENTIONAL THERMAL POWER STATIONS (excluding nuclear)

Generating sets with a capacity of 200 MW or more

By country and planned year of commissioning

Pairs of figures : number of sets and MW of total capacity

Posit. at 1.1.19'		Commission. during preceding year	Total Under construct.	Total Planned	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	Year of commissioning undecided or unknown; Projects in study
'79	EUR-9	7-3366	56-29124	50-23390 +(4-2640(2) + 1-.	13-6563	11-5958	9-4500	12-5789	12-6847	7-3567	11-4730	9-5310	7-3700	1-. 3-1710	+(4-2640) (2)			12-3840
'80	" "	10-5233	58-29778	64-34896 +. -1300		12-5948	9-4840	14-7066	11-5337	8-4307	16-7497	19-11231	7-3730	7-4200	3-1580 +.-1300	6-3560		10-5378
'81	" "	5-1870	50-25879	72-38005			14-7673	16-7406	6-3650	10-5922	12-6297	11-5532	16-9064	9-5100	9-4920	8-4260	2-1320	9-2740
'81	EUR-10	6-2170	53-26779	82-41105			15-7973	16-7406	7-3950	12-6522	15-7197	14-6532	17-9364	10-5400	10-5220	8-4260	2-1320	9-2740
	of which :																	
'79	Belgique	-	1-280	-	1-280													
'80		1-300	-	-														
'81			-	-														
'79	B.R.Deutschland	3-1250	6-3894	17-9255	3-1740	-	-	3-1720	(1-707(1) 5-3272	(1-707(1) 5-2247	3-1670	2-1450	1-300	1-750				(in study 1-200)
'80		3-1740	12-6459	25-15246				1-747	3-1782	5-2612	10-4787	11-7391						6-4178(aft.
'81			8-4344	25-15245			1-747	4-1737	1-750	4-2367	7-4212	6-3332	10-6444					1986)
'79	Danmark	-	2-1270	2-875	1-620	1-650			1-375		1-500							
'80		1-630	1-660	3-1260		1-660			1-375	1-375	1-510							
'81			1-670	3-1260			1-670			1-375	2-885							
'79	France	-	1-600	1-600			1-600		1-600									
'80		-	3-1800	1-600			1-600	1-600	1-600		1-600							
'81		-	5-3000	-			1-600	1-600	1-600	2-1200								
'81	Hellas	1- 300	3-900	10-3100			1-300		1-300	2-600	3-900	3-1000	1-300	1-300	1-300			
'79	Ireland	1-270	1-270	4-1200		1-270					1-300	1-300	1-300	1-300				
'80		-	3-870	6-1800		1-270					1-300	1-300	1-300	1-300				4-1200
'81		1-270	3-900	5-1500							1-300	1-300	1-300					5-1500
'79	Italia	-	22-9760	24-10400	4-1280	2-980	5-2280	5-2280	3-1640	1-660	5-1680	4-2300	4-2640	1-660				12-3840
'80		2-640	20-9120	27-14920		3-960	4-1960	8-3920	4-1620	1-660	2-640	5-2280	5-2960	6-3900	3-1580	6-3560		
'81		3-1300	18-8140	34-17940			4-1620	7-2920	3-1640	2-1320	1-240	2-640	4-1960	8-4600	9-4920	8-4260	2-1320	2-640
'79	Nederland	2-1170	3-1594	2-1060	1-647	1-618		1-329				1-600	1-460	1-.				
'80		1-647	2-957	.-2370		1-618		1-339				1-600	1-470		.-1300			
'81			2-925	3-1460			1-596	1-329				1-600	1-360	1-500				
'79	United Kingdom	1-676	20-11456	(4-2640)(2)	3-1196	6-3440	3-1620	3-1460	2-960	1-660	1-660	1-660			(4-2640)			
'80		2-1276	18-10120	-		6-3440	4-2280	3-1460	2-960	1-660	1-660	1-660			(2)			
'81		1-300	13-7900	2-600			6-3440	3-1820	1-660	1-660	1-660	1-660						2-600

(1) Alternative for other units for which construction was stopped by court-order. Not included in totals.
(2) Nuclear or conventional thermal.

5.1. continued : By type of fuel and by planned year of commissioning

Posit. at 1.1.19'	Fuel	Commissioned during preceding year	Total Under construction	Total Planned	of which : by planned year of commissioning (under construction and planned) 1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	Undecided
	TOTAL FUELS																	
'79	EUR - 9	7-3366	56-29124	{ 50-23390 (+(4-2640)2) (+ 1-.	13-6563	11-5958	9-4500	12-5789	12-6847	7-3567	11-4730	9-5310	7-3700	{ 3-1710 (+(4-2640) (+ 1-.				12-3840
'80	EUR - 9	10-5233	8-29778	{ 64-34896 (+ .-1300		12-5948	9-4840	14-7066	11-5337	8-4307	16-7497	19-11231	7-3730	7-4200	3-1580 +.-1300	6-3560		10-5378
'81	EUR - 9	5-1870	50-25879	72-38005			14-7673	16-7406	6-3650	10-5922	12-6297	11-5532	16-9064	9-5100	9-4920	8-4260	2-1320	9-2740
'81	EUR - 10	6-2170	53-26779	82-41105			15-7973	16-7406	7-3950	12-6522	15-7197	14-6532	17-9364	10-5400	10-5220	8-4260	2-1320	9-2740
	of which :																	
'79	Coal	-	8-5174	14-5810	2-1040			2-970	4-2522	4-1982	4-1910	3-1660	2- 600	1- 300				{ 6-4178(after
'80		3-1740	14-7721	29-15566				2-1347	3-1782	5-2672	9-3917	12-7591	1- 300	1- 300				(+4-1200 1986)
'81		-	13-7208	27-14225			1-747	3-1631	2-1350	4-2517	8-4452	6-3092	9-5544					7-2100
	Brown coal																	
'79	EUR - 9	-	-	3-1525					1- 600	2- 925								
'80	EUR - 9	-	3-1550	1- 600					1- 600	1- 600	2- 950							
'81	EUR - 9	-	2-950	4-2400						2- 950		2-1200	2-1200					
'81	EUR - 10	1- 300	5-1850	14-5500			1-300		1-300	4-1550	3- 900	5-2200	3-1500	1- 300	1- 300			
'79	Petr.products	3-1606	35-17276	6-1920	6-2616	7-3760	7-3580	7-3420	5-2600	1- 660								8-2560
'80	(non gaseous)	4-1916	33-15940	-		7-3080	8-4240	11-5380	6-2580	1- 660	-							
'81		4-1600	23-11780	-			8-4080	9-4080	4-2300	2-1320								
'79	Natural gas	1- 290	1- 270	-		1- 270												
'80			1- 270	-		1- 270												
'81		1- 270	-	-														
'79	Coal/Petr.prod.	-	7-3875	16-8785	3-1967	2-1268	1- 320	2-1070	1- 375		5-1780	4-2580	4-2640	1- 660				-
'80		2-1277	2-1278	31-16780		2-1278	-	-	1- 375	1- 375	3-1150	6-2880	5-2960	6-3900	3-1580	6-3560		-
'81			5-2381	39-20300			2-1266	1- 475	-	1- 375	3-1125	3-1240	4-1960	9-5100	9-4920	8-4260	2-1320	2- 640
'79	Coal/ Deriv.	-	1- 600	-			1- 600							of which:				
'80	gases	-	1- 600	-			1- 600							1 C/O or				
'81		-	1- 600	-			1- 600							C/NG				
'79	Coal/natural	-	-	4-2970					1- 750		1- 720	1- 750		1- 750				
'80	gas	-	1- 760	2-1480							2-1480	1- 760						
'81		-	2- 991	1- 720				1-231		1- 760	1- 720							
'79	Petr.prod./	3-1470	3-1649	-	1- 660	1- 660		1-329										
'80	Nat. Gas	-	3-1659	-		2-1320		1-339										
'81		-	4-1969	-			2- 980	2-989										
'79	Deriv.gas/	-	1- 280	1- 460	1- 280								1- 460					
'80	Petr. prod.	1- 300	-	1- 470									1- 470					
'81		-	-	1- 360									1- 360					
'79	Unknown or undecided			{ 6-1920 1-. (+(4-2640) 2)							1- 320	1- 320		1-. (4-2640) 2)				4-1280
'80				.-1300											.-1300			-
'81				-														

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BALANCE SHEET OF INVESTMENT PROJECTS IN NUCLEAR POWER STATIONS IN THE COMMUNITY (E.1.)

- Generating sets with a capacity of 200 MW or more -

Pairs of figures :
(Numbers of sets) and MW of corresponding total capacity

	In service	Under construction	Projected
EUR - 9			
A1 POSITION AT 1.1.1979	(45) 21452	(54) 54423	(33) 35414 +(.) 10800 +(4 +2640)(1)
B2 EVOLUTION DURING 1979			
1. Plant commissioned	+(3) + 2814	-(3) - 2814	
2. Beginning of construction (Plant reported planned 1.1.79)		+(5) + 6310	-(5) - 6310
3. Projects withdrawn			-(.) -10800
4. New projects not reported projected at 1.1.79			+(13) +14010
5. Size modifications,adjustments	- 118	- 106	- 190
EUR - 9			
A2 POSITION AT 1.1.1980	(48) 24148	(56) 57813	(41) 42924
B2 EVOLUTION DURING 1980			
1. Plant commissioned	+(7) + 6610	-(7) - 6610	
2. Beginning of construction (Plant reported planned 1.1.80)		+(8) + 8990	-(8) - 8990
3. Projects withdrawn			-(4) - 2400
4. New projects not reported projected at 1.1.80			+(7) + 7830
5. Size modifications,adjustments		- 460	+ 542
A3 POSITION AT 1.1.1981			
EUR - 9			(36) 39906
EUR - 10	(55) 30758	(57) 59733	(37) 40506

E.1. NUCLEAR POWER STATIONS

Generating sets with a capacity of 200 MW or more

By country and planned year of commissioning

Pairs of figures : number of sets and MWe of total capacity

Country	Commis. during preceding year	Total under construction	Total planned	of which : planned year of commissioning (under construction and planned) 1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	Year of commissioning undecided or unknown 1)
COMMUNITY																	
EUR - 9	5-4762	54-54423	33-35414 + .-10800 (+(4-2640)2)	2-1910	8-8019	13-12226	11-10306	7-8356	8-8568	6-7666	8-8379	9-9148	11-10050	1-1300 (+4-2640)2)			3-3909 +.-10800
EUR - 9	3-2814	56-57813	41-42924		6-5710	11-10349	11-10556	8-8910	9-10613	6-6207	10-11420	5-6312	8-7393	9-9107	13-12830		1-1330
EUR - 9	7-6610	57-59733	36-39906			13-12019	9-8650	7-8310	11-12299	7-9400	6-6207	9-10031	4-4789	6-5403	7-6501	5-4200	9-11830
EUR - 10	7-6610	57-59733	37-40506			13-12019	9-8650	7-8310	11-12299	7-9400	6-6207	9-10031	4-4789	7-6003	7-6501	5-4200	9-11830
of which :																	
Belgique	-	4-3860	-			2-1860			2-2000								
	-	4-3860	-				2-1860		2-2000								
	-	4-3860	-				2-1860		2-2000								
B.R.Deutschland	1-1300	12-13529	11-13934	1- 900	1-1299	1-1316	3-2926	2-2672	2-1688	1-1366	3-3969	3-3488	2-2630	1-1300			3-3909
	1- 900	11-12629	11-13934			1-1299	1-1316	4-4236	2-2723	1- 327		1-1362	2-2633	3-3907	6-7430 of which: 1-1366 earlier possible		1-1330
		11-12629	11-14376			1-1299		2-2626	3-2979	2-2670	1- 327	1-1366	1-1304	1-1303	1-1301		9-11830
France	2-1940	28-29754	6- 7740 (+.-10800	1-1010	6-6060	7-7070	6-6060	5-5684	4-4880	4-5300	1-1430						.-10800
	2-1914	31-34044	10-13040		5-5050	7-7070	6-6060	4-4674	5-5890	4-4880	7-9170	3-4290					
	7-6610	30-34714	9-12030			8-8080	5-5470	5-5684	6-7320	5-6730	4-4880	4-5720	2-2860				
Hellas	-	-	1- 600											1- 600			
Italia	1-862	2-2000	10-10000							1-1000	1-1000	5-5000	5-5000				
		2-2000	10-10000							1-1000	1-1000		3-3000	4-4000	3-3000		
		2-2000	10-10000								1-1000	1-1000		3-3000	4-4000	3-3000	
United Kingdom	1-660	8-5280	6-3740 +(4-2640)2)		1-660	3-1980	2-1320				3-1980	1- 660	4-2420	(4-2640)2)			
		8-5280	10-5950		1-660	3-1980	2-1320				2-1250	1- 660	3-1760	2-1200	4-2400		
		10-6530	6-3500			4-2640	2-1320					3-1945	1- 625	2-1100	2-1200	2-1200	

tes not yet decided : projects in study or probable projects ; the programme is tentative or subject to revision.
clear or conventional thermal ; the programme is tentative.

E.1. NUCLEAR POWER STATIONS - continued

By reactor type, country and size of sets

Situation 1.1.1981

Pairs of figures : number of sets and MWe of total capacity

Reactor type	Country	Size of sets MWe	Total	Under construction	Projected
TOTAL OF ALL TYPES	COMMUNITY		93-99639	57-59733	36-39906
of which : AGR advanced gas cooled	United Kingdom	660	10-6530	10-6530	-
BWR boiling water	COMMUNITY		5-5936	5-5936	
	B.R.Deutschland	1310 and 1316	3-3936	3-3936	-
	Italia	1000	2-2000	2-2000	
PWR pressurized water	COMMUNITY		61-72914	39-45408	22-27506
	United Kingdom	550	2-1100	-	2-1100
	B.R.Deutschland	1299 to 1366	17-22434	6-8058	11-14376
	Belgique	930	2-1860	2-1860	-
	"	1000	2-2000	2-2000	-
	France	1010	21-21210	19-19190	2-2020
	"	1430	17-24310	10-14300	7-10010
HTR high temperature	B.R.Deutschland	308	1-308	1-308	-
FBR fast breeder	COMMUNITY		2-1551	2-1551	-
	B.R. Deutschland	327	1-327	1-327	-
	France	1224	1-1224	1-1224	-
Undecided or unknown	United Kingdom	600	4-2400	-	4-2400
	Italia	1000	10-10000	-	10-10000

MBL/jb (July 1981)

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BALANCE SHEET OF INVESTMENT PROJECTS
IN HYDRO-ELECTRIC POWER STATIONS IN THE COMMUNITY (E.2.)
- Generating sets with a capacity of 50 MW or more -

Pairs of figures :
(Number of sets) and MW of corresponding total capacity

		Under construction		Projected	
	EUR - 9				
A1	POSITION AT 1.1.1979	(38)	6116	(54)	8473
B1	EVOLUTION DURING 1979				
	1. Plant commissioned	- 4	- 620		
	2. Beginning of construction (Plant reported planned 1.1.1979)	+ 14	+ 2122	- 14	- 2122
	3. Projects withdrawn			-	
	4. New projects not reported projected at 1.1.1979			-	
	5. Size modifications			+	30
	6. Adjustments		+ 25		
	EUR - 9				
A2	POSITION AT 1.1.1980	(48)	7643	(40)	6381
B2	EVOLUTION DURING 1980				
	1. Plant commissioned	- (6)	- 789		
	2. Beginning of construction (Plant reported planned 1.1.80	+ (8)	+ 993	- (8)	- 993
	3. Projects withdrawn			- (7)	- 1558
	4. New projects not reported projected at 1.1.1980			+ (1)	+ 61
	5. Size modifications				
	6. Adjustments		+ 18		
A3	EUR - 9 - POSITION AT 1.1.1981	(50)	7865	(26)	3891
	EUR - 10- POSITION AT 1.1.1981	(60)	8738	(42)	6065

E2. HYDRO-ELECTRIC POWER STATIONS

Generating plant of 50 MW or more
By country and by planned year of commissioning

Pairs of figures : number of sets and MW of total capacity

Position at 1.1.19..	Country and Category	Commissioned during preceding year	Total under construction	Total projected	of which by planned year of commissioning (under construction and projected) 1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990/.
	COMMUNITY															
'79	EUR-9	2-160	38-6116	54-8473 1) 2)	9-1329	6- 708	9-1417	11-2073	6-1014	18-2258	17-2650	5- 750	2-500			4-1360
'80	EUR-9	4-620	48-7643	40-6381 1) 2)		10-1382	9-1402	12-2178	6-1014	16-1958	11-1850	13-1850	2-500			4-1360
'81	EUR-9	6-790	50-7865	26-3891 1) 2)			10-1830	15-1977	8-1508	6-711	13-2100	17-2600	2-500	-	-	
'81	EUR 10	6-790	60-8738	42-6056 1) 2)			13-2130	15-1977	8-1508	13-1284	15-2310	21-3070	6-1085	2-180	4-720	
	of which :															
	Seasonal storage		8- 863	13-1746			4- 557	4- 306		1- 61	2- 210	2- 170	4- 585		4-720	
	short-term storage run-of-river	1- 60	5- 333	3- 230				1- 75		5- 308				2-180		
	pumped storage	3-540	23-4346	18-3000			8-1508	6-1088	4-1000		8-1250	13-2000	2- 500			
	season.+pump.storage	2-190	21-2881	6- 850 1)			1- 65	4- 508	4- 508	4- 600	5- 850	6- 900				
	short-term+pump.storage		3- 315	-						3- 315						
	BELGIQUE															
'79	pumped storage		3- 540	-	3- 540											
'80	" "		3- 540	-		3- 540										
'81	" "	3-540	-	-												
	FRANCE															
'79	seasonal storage		-	5- 535				2- 292	1- 133	2- 110						
'80	" "		2 322	3- 243				2- 322	1- 133	2- 110						
'81	" "		5- 563	1- 61			1- 357	4- 306		1- 61						
'79'80 '81	run-of-river		-	1- 58 4) -						1- 58						
'79'80	pumped storage		4- 900	5- 750				4-900			5- 750					
'81	" "		9-1670	-			4- 920					5- 750				
'79	short -term+pump.storage		2- 480	2- 140	2- 480					2- 140						
'80	" " " "	2- 480	-	2- 140 4)						2- 140						
'81	" " " "		-	-												
'79 '80 '81	season.+pump.storage		- 12-1800	12-1800 -						6- 900 3) 4- 600 3)	6- 900 3) 4- 600 3)	4- 600 3)				
	ITALIA															
'79	short -term storage		3- 195	1- 50		2- 120	1- 75			1- 50						
'80		1- 60	2- 135	1- 50			1- 60	1- 75		1- 50						
'81		1- 60	1- 75	1- 50				1- 75		1- 50						
'79	pumped storage	2- 160	9-1256	18-3000	1- 80	4- 588	4- 588			6-1000	6-1000	4- 500	2- 500			
'80	" "	1- 80	8-1176	18-3000		4- 588	4- 588			6-1000	6-1000	4- 500	2- 500			
'81	" "		8-1176	18-3000			4- 588	4- 588			8-1250	8-1250	2- 500			
'79	season.+pump.storage		11-1245	4- 550 1)	3- 229		2- 254	3- 381	3- 381			1- 250				
'80			11-1270	4- 550 1)		3- 254	2- 254	3- 381	3- 381		1- 250					
'81		2- 190	9-1081	4- 550 1)			1- 65	4- 508	4- 508		1- 250					
	UNITED KINGDOM															
'79'80	pumped storage		6-1500	6-1590 2)			2- 500	2- 500	2- 500							4-1360
'81	" "		6-1500	2- 230 2)				2- 500	4-1000							(first set 1992 others post '92)
	HELLAS															
'81	seasonal storage		3- 300	12-1685			3- 300				2- 210	2- 170	4- 585		4-720	
	short -term storage		4- 258	2- 180						4- 258				2-180		
	season.+pump.storage		-	2- 300								2- 300				
	short-term+pump.storage		3- 315	-						3- 315						

1) Included : 3-300 MW work suspended
2) included : 2-230 MW construction postponed indefinitely

3) 8 x 150 MW pumpturbines
4 x 150 MW Pelton-turbines
4) delayed for environmental reasons.

E.3./E.4. TRANSMISSION LINES AND CABLES

By country and planned year of commissioning

Position at 1.1.1981

Circuit - km

Country	Voltage (kV)	Commissioned during 1980	Total		of which : planned year of commissioning (under construction and planned					
			under construction	planned	1981	1982	1983	1984	1985	1986
Belgique	Overhead 380	142,6	135,8	181,4	135,8		181,4			
Danmark	Overhead 400	285		174		18.		9	83	64
	Underground 400			40					40	
France	Overhead 400	1524,8	2098	2158	774	2016	704	406	356	
	Underwater 270DC			90					90	
	Underground 270DC			72					72	
B.R.Deutschland	Overhead 400	1184,6	1033,4	1457,9(*)	905,4	83	338,6	216,6	553	264,7
Hellas	Overhead 400	1,0	704	940	32	366	306	370	350	220
	Underwater 150			43			43			
	Underground 150	11,5								
Ireland	Overhead 420			450					235	215
	Underground 220		13,9		13,9					
	110		1,2	14	1,2		14			
Italia	Overhead 380	364,0	2117,7	816,7	970,6	576,6	689,5	368,7	330,0	
	Underwater 380	-	16,0	-		16,0				
Nederland	Overhead 380	-	36	355(**)	36			80		
	Underwater 150/380			50(***)						
	Underground 150		34		34					

Note : the table includes also the transmission lines which are conceived for 345 kV and more but are or will be exploited for a certain time with a lower voltage.

(*) 130 kM without date of commissioning - (**) 255 kM without date of commissioning - (***)without date of commissioning.

Continuation : II/13

Country	Voltage (kV)	Commissioned during 1980	Total		of which : planned year of commissioning (under construction and planned)					
			under construction	planned	1981	1982	1983	1984	1985	1986
United Kingdom	Overhead 400	30,4	541,8	454,6	231,8	182	298	277	47,6	20
	Underground 400	15,2	49	5,6	49				5,6	
	130			9,2		6		3,2		
	270			73,0					73,0	
	Underwater 270 DC			92					92	