

# COMMISSION OF THE EUROPEAN COMMUNITIES

COM(80) 628 final

Brussels, 27th October 1980

REPORT FROM THE COMMISSION TO THE COUNCIL

INVESTMENT IN THE ELECTRICITY SECTOR OF THE COMMUNITY

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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 1.1.1980.

The report is confined to an analysis of the information communicated to the Commission and does not deal with possible implications for Community energy policy, which will be treated in a document concerning the reduction of oil use for electricity production to be submitted to the Council later this year.

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

- There is a continued increase in the amount of solid fuel burning electricity production capacity in construction and planned.
- There is a significant amount of nuclear capacity for which firm decisions are still awaited in order to achieve the current expectations of nuclear capacity to be in service by 1990.

## INVESTMENT PROJECTS IN THE ELECTRICITY SECTOR OF THE COMMUNITY

Report on information communicated to the Commission,  
under Council Regulations Nos. 1056/72 and 1215/76,  
relating to the situation at 1.1.1980  
(Information summaries in Annexes 1 and 2)

### 1. Discussion of Commission conclusions

#### 1.1. Conventional thermal capacity

The upward trend of the total capacity in construction and planned, first noted in last year's report, has been continued. There has been a further substantial increase in the amount of solid fuel burning capacity in construction and planned and, for the first time, no monovalent oil, or natural gas, capacity is reported in planning. Nevertheless, there is still a significant quantity (15.9 GW) of monovalent oil-burning capacity in construction which will add to the considerable amount of such capacity brought into service in recent years.

#### 1.2. Nuclear capacity

Realistic expectations of total nuclear capacity in the Community by 1985 now indicate some 79.5 GW gross (74.7 GW net), similar to that estimated in last year's report.

According to the communications received, the total nuclear capacity in service by 1990 would be 123.7 GW gross (116.3 GW net), which total can only be improved upon if firm decisions in favour of further projects, not so far reported, are taken in the next two years. Even this total, 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 and/or sites for over 27 GW and the resolution of legal difficulties for some 4 GW of capacity. Failure to overcome these problems could result in a very substantial reduction in the nuclear capacity in service by 1990.

2. Review of information received

2.1. Total power plant capacities under construction and planned

Table 1 indicates the total capacities under construction and planned in each sector at 1.1.1980, together with the evolution as reported during the last six years:

Table 1

GW gross

As at:	Conventional thermal	Nuclear	Hydro	TOTAL
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	66,2	100,7	14,0	180,9

\* Nuclear not reported in these years.

2.2. Conventional thermal plant

Table 2 gives an analysis of the current totals by principal fuel capability categories, the corresponding figures for the situation at 1.1.1979 being included.

- There are substantial increases in the total capacities of plant in construction and planning capable of burning hard coal (+ 16.9 GW) and brown coal (+ 0.6 GW) as compared with the situation at 1.1.1979;
- from 1979 - 1985 inclusive, the total added solid fuel burning capability is expected to be 20.2 GW ;
- there is no plant currently in planning capable of burning oil only or natural gas only ;
- of the 36.1 GW of plant in construction and planned with an oil burning capability, it is known that 18.0 GW is in fact polyvalent plant with a coal burning capability ;

- of the total of 30.0 GW of plant currently under construction, 11.9 GW is capable of burning solid fuel whilst 15.9 GW is capable of burning oil only (I: 9.1 GW, UK: 6.8 GW).

Table 2

MW gross

Capable of burning	Commissioned in 1979 (1978)	Currently under construction (*) A	In planning - to be in service		TOTAL (A+B+C)
			by 1985 B	after 1985 and date unknown C	
1. Hard coal	3017 (-)	10359 (9649)	6337 (8285)	27489 (9280)	44185 (27214)
- of which coal only	1740 (-)	7721 (5174)	2957 (3680)	12609 (1900)	23287 (10754)
2. Brown coal	- (-)	1550 (-)	600 (1525)	- (-)	2150 (1525)
3. Oil	3493 (3076)	18877 (23080)	1900 (3135)	15350 (8260)	36127 (34475)
- of which oil only	1916 (1606)	15940 (17276)	- (-)	- (1920)	15940 (19196)
4. Natural gas	- (1760)	2897 (1919)	1480 (1700)	- (1500)	4377 (5119)
- of which natural gas only	- (290)	478 (270)	- (-)	- (-)	478 (270)
5. Fuel unknown or undecided			- (320)	1300 (1600)	1300 (1920)

Figures in brackets refer to the situation as at 1.1.1979.

(\*) All except 1720 GW expected to be in service by 1985.

2.3. Nuclear plant

Table 3 shows the current situation.

Table 3.

MW gross

	Scheduled to be in service	
	<u>by 1985</u>	<u>after 1985 and date unknown</u>
Currently		
- in construction	51335	6478
- in planning	<u>1010</u>	<u>41914</u>
TOTALS	52345	48392

- 2.8 GW of nuclear capacity was commissioned in 1979. The 100.7 GW reported in construction and in planning represents some three and a half times the existing capacity.
- Taking account of 1 GW scheduled to be in service by 1985 for which no firm start-of-construction dates are yet available, the probable total nuclear capacity expected in service by 1985 is 79.5 GW gross (74.7 GW net), subject to the achievement of current construction schedules.
- 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. For Belgium the current nuclear programme, all now in construction, is scheduled to be completed by 1984.
- The total reported nuclear capacity (in construction and planned) scheduled to be in service by 1990 is 95.5 GW, which would mean, taking account of capacity already in service, a maximum nuclear capacity in service by 1990 of 123.7 GW gross (116.3 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 within the next two years.

- It should be noted that, of the above 95.5 GW, firm decisions have not been taken concerning start-of-construction dates and/or sites for no less than 27.2 GW (I: 12.0 GW, F: 5.3 GW, D: 5.2 GW, UK: 4.7 GW) and the construction of 3.7 GW (D) is currently stopped due to legal difficulties. Failure to resolve these problems in time could result in the total nuclear capacity in service by 1990 being no more than 92.8 GW gross (87.2 GW net).

2.4. Hydro

Of the total of 14.0 GW of projects reported (7.6 GW of which are in construction) only 0.8 GW is primary conversion plant, the remainder being either pumped storage or mixed pumped storage/primary conversion plant.

3. Major transmission lines and cables

3.1. Table 4 shows the current situation.

Table 4

Circuit - km

	Commissioned in 1979 (1978)	Under construction	Planned
Overhead lines	1937 (1808)	8564 (7072)	4706 (5383)
Underground cables	17 (-)	126 (76)	142 (188)
Underwater cables	- (-)	92 (-)	140 (120)
TOTAL	1954 (1808)	8782 (7148)	4988 (5691)

Figures in brackets refer to the situation at 1.1.1979.

3.2. - The total circuit lengths under construction and planned are, at 13.770 circuit kilometers, some 7% higher than those indicated last year. There was also an increase in the total circuit lengths commissioned in 1979 (1954) compared with 1978 (1808).

-- The continued reduction of circuit lengths in planning (4988 at 1.1.1980 compared with 5691 at 1.1.1979 and 7648 at 1.1.1978) is disturbing and calls into question the adequacy of provisions being made for the needs of the Community, both in the transfer of electricity within Member States and the possibility of transferring non-oil based electricity between Member States.

#### 4. Value of the report

The quality and scope of the communications received from Member State Governments, on which the value of the report depends, continue to be of a high standard. However, in order to achieve the standard of reporting envisaged by the Council in its approval of the Council Regulations 1056/72 and 1215/76, it is necessary once again to draw attention to the fact that increased efforts by certain Member State Governments are required to ensure that all eligible investment projects, together with all the information requested, are included in the communications.



XVII/D/2

INVESTMENT PROJECTS IN THE  
ELECTRICITY SECTOR OF THE COMMUNITY

- ANNEX I : Electrical power plant situation  
Position at 1.1.1980.
- ANNEX II : Summary of Notifications received by the Commission  
by virtue of Council Regulations N°s 1056/72 and  
1215/76.

## ELECTRICAL POWER PLANT SITUATION (Position at 1.1.1980)

- GW-Gross -

	EUR-9	D	F	I	N	B	L	U.K.	Irl.	Dan.
<b>A. INSTALLED CAPACITY</b> 1) (all generating sets) of which :										
1. Conventional thermal of which : generating sets of 200 MW or more	310,7	87,7	57,9	45,9	17,3	10,9	1,4	79,2	3,0	7,4
2. Nuclear of which : generating sets of 200 MW or more	236,8 116,2	72,4 30,5	30,5 17,8	29,1 14,7	16,8 7,8	8,6 2,4	0,2	69,6 38,6	2,5 0,5	7,4 3,9
3. Hydro	28,2 24,1 45,7	9,1 8,9 6,5	8,5 8,1 18,9	1,2 0,7 15,6	0,5 0,5 -	1,8 1,8 0,5	- - 1,2	7,4 4,1 2,5	- - 0,5	- - 0,0
<b>B. PLANT UNDER CONSTRUCTION</b> 2) E.1.b. Thermal generating sets of 200 MW or more of which : Conventional thermal Nuclear	30,0 57,8 7,6	6,5 12,6 -	1,8 34,0 3,0	9,1 2,0 2,6	0,9 - -	3,9 0,5	- - -	10,1 5,3 1,5	0,9 - -	0,7 - -
E.2.b. Hydro-electric generating sets of 50 MW or more										
<b>C. PROJECTED</b> 2) E.1.c. Thermal generating sets of 200 MW or more of which : Conventional thermal	36,2	15,2	0,6	14,9	2,4	-	-	-	1,8	1,3
Nuclear	42,9	13,9	13,0	10,0	-	-	-	6,0	-	-
E.2.c. Hydro-electric generating sets of 50 MW or more	6,4	-	1,2	3,6	-	-	-	1,6	-	-

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

2) C.R. 1056/72

PROJETS D'INVESTISSEMENT DANS LE  
SECTEUR DE L'ELECTRICITE DE LA COMMUNAUTE

Sommaire des données reçues par la Commission  
en vertu des Règlements du Conseil n°s 1056/72 et 1215/76

- 1980 -

Contenu :

Feuille n°	Situation au ... ou évolution pendant ...	
11/2	1.1.1980	<u>CENTRALES THERMIQUES</u> (nucléaires incl.) Par pays et année prévue de mise en service
11/3	1.1.1980	Par pays et type de système de refroidissement
11/4	1.1.1980	Projets programmés - Aspects décisionnels.
11/5	1.1.1978 - 1.1.1980	<u>CENTRALES THERMIQUES CLASSIQUES</u> (nucléaires exclues) - Bilan sommaire
11/6	1.1.1978 } 1.1.1979 } 1.1.1980 }	Par pays et année prévue de mise en service
11/7	" " "	
11/8	1.1.1978 - 1.1.1980	<u>CENTRALES NUCLEAIRES</u> Bilan sommaire
11/9	1.1.1978 } 1.1.1979 } 1.1.1980 }	Par pays et année prévue de mise en service
11/10	1.1.1980	
11/11	1.1.1978 - 1.1.1980	<u>CENTRALES HYDRAULIQUES</u> Bilan sommaire
11/12	1.1.1978 } 1.1.1979 } 1.1.1980 }	Par pays, catégorie et année prévue de mise en service
11/13	1.1.1980	

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 1.1.1980

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

COUNTRY	Commissioned during 1979	Total		of which : planned year of commissioning (under construction and planned)											Undecided or unknown 1)
		Under construction	planned	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990/.	
EUR 9	43-8047	115-87799	105-77820 + .-1300	18-11658	20-15189	25-17622	20-14455	17-14920	22-13704	29-22651	12-10042	15-11593	12-10687 +.-1300	19-16390	11-6708
of which:															
Belgique	1-300	4-3860	-			2-1860		2-2200							
Danmark	1-630	1-660	3-1260	1-660			1-375	1-375	1-510						
B.R.Deutschland	4-2640	23-19088	36-29180		1-1299	2-2063	8-6226	7-5335	11-5114	11-7391	1-1362	2-2633	3-3907	6-7430	7-5508
France	2-1914	34-35844	11-13640	5-5050	8-7670	7-6660	5-5274	5-5890	5-5480	7-9170	3-4290				
Ireland	-	3-870	6-1800	1-270					1-300	1-300	1-300	1-300			4-1200
Italia	2-640	22-11120	37-24920	3-960	4-1960	8-3920	4-1620	1-660	3-1640	6-3280	5-2960	9-6900	7-5580	9-6560	
Luxembourg	-	-	-												
Nederland	1-647	2-957	.-2370	1-618		1-339				1-600	1-470		.-1300		
United Kingdom	2-1276	26-15400	10-5950	7-4100	7-4260	5-2780	2-960	1-660	1-660	3-1910	1-660	3-1760	2-1200	4-2400	

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



Generating sets with a capacity of 200 MW or more

Situation 1.1.1980

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

Country	Fuel	Total projected	Wise (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	commissi- sioning			
		A	B	C	D	E	F						
COMBUNITY convent., thermal nuclear		{ 64-34896 •-1300 41-42924	18-9182 6-7740	{ 46-25714 •-1300 27-25187	{ 40-23454 •-1300 22-20000	28-15520 18-13950	{ 3-1800 •-1300 12-10000	•-1300	{ 22-12594 •-1300 15-13937	(22-12594 •-1300 15-13937	- - •-9997		
Denmark convent., thermal	coal/oil	3-1260	2-750 <sup>1)</sup>	1-510 <sup>2)</sup>					1-510	1-510		1) Environmental and local construction approval awaited. 2) national heat plan.	
B.R. Deutschland convent., thermal nuclear	coal coal/nat. gas	36-29180 25-15246 23-13756 2-1480 11-13934	14-7832 12-6352 2-1480	14-11351 11-7414 3-3937	11-7414 11-7414				14-11351 11-7414 3-3937	14-11351 11-7414 3-3937	8-9997 8-9997		
France convent., thermal nuclear	coal (scharbon brun)	11-13640 1-600 10-13040	6-7740 6-7740 <sup>3)</sup>	5-5900 1-600 4-5300 A)	5-5900 1-600 4-5300	1-600 1-600	4-5300 4-5300		5-5900 1-600 4-5300	5-5900 1-600 4-5300		3) national programme 1980. 4) programme 1981.	
Ireland convent., thermal	coal	6-1800	2-600	4-1200 (P)	4-1200				4-1200	4-1200			
Italia convent., thermal nuclear	coal/oil	37-24920 27-14920 10-10000	37-24920 27-14920 10-10000	35-22920 27-14920 8-8000	33-23640 23-13640 10-10000				3-1800 3-1800	3-1800 3-1800		2-640 MW: decision CIPE 20.9.73- art. 7 of law 330 25-14280 MW: decision CIPE 11.1.80	
Nederland convent., thermal	coal/oil deriv. gas/oil unknown	{ 2-1070 •-1300 1-600	{ 2-1070 •-1300 1-600	1-470 •-1300	{ 1-600 •-1300 1-600				{ 2-1070 •-1300 1-600	{ 2-1070 •-1300 (P) 1-600		number of sets unknown	
United Kingdom nuclear		10-5950		10-5950	8-4700	10-5950	8-4700		8-4700	8-4700			

BALANCE SHEET OF INVESTMENT PROJECTS  
IN CONVENTIONAL THERMAL POWER STATIONS (excluding nuclear)  
IN THE COMMUNITY (E.I.)  
 - 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
A1 <u>POSITION AT 1.1.1978</u>	<u>(295) 109100</u>	<u>(58) 24424</u>	<u>(33) 15154</u>
B1 EVOLUTION DURING 1978			
1. Plant commissioned	+ (7) + 3366	- (7) - 3366	
2. Beginning of construction (Plant reported planned 1.1.78)		+ (5) + 3049	- (5) - 3049
3. Projects withdrawn			- (3) - 1520
4. New projects not reported planned at (1.1.1978)			{ + (25) +12855 + (1) + + (4 + 2640)(1)
5. Size modifications, adjustments	- 639	+ 17	- 50
A2 <u>POSITION AT 1.1.1979</u>	<u>(302) 111827</u>	<u>(56) 29124</u>	<u>(50) 23390</u>
B2 EVOLUTION DURING 1979			
1. Plant commissioned	+ (9) + 4557	-(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)		+(2) + 808	{ +(35) +19127 + ( ) + 1300
5. Size modifications, adjustments		- 3	+ 869
A 3 <u>POSITION AT 1.1.1980</u>	<u>(311) 116384</u>	<u>(59) 29986</u>	<u>(64) 34896 + ( ) 1300</u>

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	Commissioned during preceding year	Total		1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990/.	Year of commissioning or undecided or unknown; Projects in study
		Under construction	Planned														
'78	12-5148	58-29424	33-15154	12-5606	15-8056	13-6608	10-4820	11-6201	5-3167	3-1560	5-2900	1-660	7-3700	1-	(2)		{ (+3-1950)233 16-5000 12-3840
'79	7-3366	56-29124	{ 50-23390 { (4-2640)(2) + 1-	<del>13-6563</del>	<del>13-6563</del>	11-5958	9-4500	12-5789	12-6847	7-3567	11-4730	9-5310	7-3700	3-1710	(4-2640)		
'80	10-5233	59-29986	{ 64-34896 { + - 1300	<del>12-5948</del>	<del>12-5948</del>	12-5948	9-4840	14-7066	12-5545	8-4307	16-7497	19-11231	7-3730	7-4200	{ 3-1580 { + - 1300		10-5378
'78	-	1-280	-	1-280	1-280	1-660	-	-	1-375	1-375	1-500	-	-	-	-	-	-
'79	-	1-280	-	<del>1-280</del>	<del>1-280</del>	1-650	-	-	1-375	1-375	1-510	-	-	-	-	-	-
'80	4-300	-	-	1-280	1-280	1-660	-	-	-	-	-	-	-	-	-	-	-
'78	1-315	2-1280	-	1-620	1-620	1-660	-	-	1-375	1-375	1-500	-	-	-	-	-	-
'79	-	2-1270	2-875	<del>1-620</del>	<del>1-620</del>	1-650	-	-	1-375	1-375	1-510	-	-	-	-	-	-
'80	1-630	1-660	3-1260	1-660	1-660	1-660	-	-	-	-	-	-	-	-	-	-	-
'78	2-633	8-4404	7-4414	3-1250	3-1740	-	-	5-3621	{ (1-707) (1) { 2-1307 (1) { (1-707) (1)	{ (1-707) (1) { 2-900 { (1-707) (1)	3-1670	2-1450	1-300	1-750	-	-	(in study 1-200 after 6-178 1980)
'79	3-1250	6-3894	17-9255	3-1740	3-1740	-	-	3-1720	5-3272	5-2247	10-4787	11-7391	1-300	1-300	-	-	-
'80	3-1740	12-6459	25-15246	3-1740	3-1740	-	-	1-747	4-1990	5-2612	10-4787	11-7391	1-300	1-300	-	-	-
'78	2-1400	1-600	2-800	1-600	1-600	1-600	1-600	1-600	1-600	1-600	1-600	1-300	1-300	1-300	1-300	1-300	4-1200
'79	-	1-600	1-600	1-600	1-600	1-600	1-600	1-600	1-600	1-600	1-600	1-300	1-300	1-300	1-300	1-300	4-1200
'80	-	3-1800	1-600	1-600	1-600	1-600	1-600	1-600	1-600	1-600	1-600	1-300	1-300	1-300	1-300	1-300	4-1200
'78	1-250	2-540	-	1-270	-	1-270	1-270	1-270	1-600	1-600	1-600	1-300	1-300	1-300	1-300	1-300	4-1200
'79	1-270	1-270	4-1200	1-270	1-270	1-270	1-270	1-270	1-600	1-600	1-600	1-300	1-300	1-300	1-300	1-300	4-1200
'80	-	3-870	6-1800	1-270	1-270	1-270	1-270	1-270	1-600	1-600	1-600	1-300	1-300	1-300	1-300	1-300	4-1200
'78	4-1280	22-9760	16-5120	2-640	3-960	5-2280	7-3260	4-1960	1-660	1-660	1-320	-	-	-	-	-	15-4800
'79	-	22-9760	24-10400	4-1280	4-1280	2-980	5-2280	5-2280	3-1640	1-660	5-1680	4-2300	4-2640	1-660	1-660	1-660	12-3840
'80	2-640	20-9120	27-14920	2-640	4-1280	3-980	4-1960	8-3920	4-1620	1-660	2-640	5-2280	5-2960	6-3900	3-1580	6-3560	12-3840
'78	2-1270	4-2408	3-1520	2-1170	1-620	1-618	-	1-320	1-600	-	1-600	1-600	1-460	1-	-	-	+ (3-1950)233
'79	2-1170	3-1594	2-1060	1-647	1-647	1-618	-	1-320	1-600	-	1-600	1-600	1-470	1-	-	-	15-4800
'80	1-647	2-957	2-2370	1-647	1-647	1-618	-	1-320	1-600	-	1-600	1-600	1-470	1-	-	-	12-3840
'78	-	18-10152	5-3300	3-1996	7-4116	5-2780	2-960	1-300	2-940	1-660	3-1980	1-660	1-660	1-660	1-660	1-660	10-5378
'79	1-676	20-11456	(4-2640)(2)	3-1996	3-1996	6-3440	3-1620	3-1460	2-940	1-660	1-660	1-660	1-660	1-660	1-660	1-660	10-5378
'80	2-1276	18-10120	-	3-1996	3-1996	6-3440	4-2280	5-1450	2-940	1-660	1-660	1-660	1-660	1-660	1-660	1-660	10-5378

(1) Alternative for other units for which construction is stopped by court-order. Not included in totals.

(2) Nuclear or conventional thermal.

(3) Not reported by C.R. 1056/72 ; 2000 MW base-load capacity.



E.1. continued: By type of fuel and by planned year of commissioning

Posit. at 1.1.19	Fuel	Commissioned during preceding year	Total		of which: by planned year of commissioning (under construction and planned)													
			Under construction	Planned	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990/	Undecided
'78	TOTAL FUELS	12-5148	58-29424	33-15154	2-5606	15-8056	13-6608	10-4820	11-6201	5-3167	3-1560	5-2900	1-660	3-1710			{ (+3-1950) 233 } 16-5000	
'79		7-3366	56-29124	50-23390	13-6563	11-5958	9-4500	12-5789	12-6847	7-3567	11-4730	9-5310	7-3700	{ (+4-2640) 2 } 1-			12-3840	
'80		10-5233	59-29986	64-34896	12-5948	9-4840	14-7066	12-5545	8-4307	16-7497	19-11231	7-3730	7-4200	3-1580	6-3560	10-5378		
				2-1200														
'78	Coal		5-5154	8-5044	3-1740			4-2871	2-1307	2-960	1-660	1-660	2-600	1-300			-	
'79			8-5174	14-5810	2-1040			2-970	4-2522	4-1982	4-1910	3-1660	2-600	1-300			-	
'80		3-1740	14-7721	29-15566				2-1347	3-1782	5-2672	9-3917	12-7591	1-300	1-300			{ 6-4178 (after { + 4-1200 (1986)}	
'78	Brown coal			2-1200						1-600	1-600							
'79				3-1525						1-600	2-925							
'80			1-1550	1-600						1-600	1-600	2-950						
'78	Petr.products (non gaseous)		38-18882	10-3880	6-2906	9-4416	10-5060	7-3580	5-2260	1-660	2-1320							
'79			35-17276	6-1920		6-2616	7-3760	7-3580	7-3420	5-2600	1-660							
'80			33-15940			7-3080	8-4240	11-5360	6-2580	1-660							8-2560 8-2560	
'78	Natural gas		2-560		1-290		1-270											
'79		1-290	1-270				1-270											
'80			2-478				1-270		1-208									
'78	Coal/Petr.prod.		6-3158	4-1990		2-1240	2-1278	2-640	1-750	1-375	1-600	1-600					{ (+3-1950) 233 } 2-640	
'79			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	3-1150	6-2880	5-2960	6-3900	3-1580	6-3560		
'78	Coal/Deriv.gases		1-600					1-600										
'79			1-600					1-600										
'80			1-600					1-600										
'78	Coal/Natural gas			4-2970						1-750								
'79			1-760	2-1480														
'80																		
'78	Petr.prod./Nat.gas		5-2790	1-320	4-2130	1-660			1-320									
'79		2-983	3-1649			1-660			1-329									
'80		3-1470	3-1659			2-1320			1-339									
'78	Deriv.gas/Petr.prod.		1-280		1-280													
'79		1-300	1-280															
'80			1-470															
'78	Deriv.gas/Nat.gas/Petr.prod.			1-600						1-600								
'79																		
'80																		
'78	Derived gas			1-200														
'79																		
'80																		
'78	Unknown or undecided			6-1920														
'79				6-1920														
'80				1-1300														
'80																		

**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 :  
(Number of sets) and MW of corresponding total capacity

	In service	Under construction	Projected
<b>A1 POSITION AT 1.1.1978</b>	(40) 17454	(52) 52375	(72) 75824
<b>B1 EVOLUTION DURING 1978</b>			
1. Plant commissioned	+(5) + 4762	-(5) - 4762	
2. Beginning of construction (Plant reported planned 1.1.78)		+(7) + 6770	-(7) - 6770
3. Projects withdrawn			-(.) - 27120
4. New projects not reported projected at 1.1.1978			+(3) + 4163 +(4) + 2640(1)
5. Size modifications, adjustments	- 764 (2)	+ 40	+ 117
<b>A2 POSITION AT 1.1.1979</b>	(45) 21452	(54) 54423	(33) 35414 +(.) 10800 +(4 + 2640)(1)
<b>B2 EVOLUTION DURING 1979</b>			
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		- 106	- 190
<b>A3 POSITION AT 1.1.1980</b>	(48) 24266	(56) 57813	(41) 42924

(1) This capacity was to be nuclear or conventional thermal ; not included in total

(2) Difference due to actual interim ratings of commissioned sets.

**II. NUCLEAR POWER STATIONS**

Generating sets with a capacity of 200 MWe or more  
By country and planned year of commissioning

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

Position at Jan. 19'	Country	Commissioned during preceding year	Total		of which : planned year of commissioning (under construction and planned)														Year of commissioning undecided or unknown 3)
			under construction	planned	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990		
'78 '79	COMMUNITY	4-3507 5-4762	52-52375 54-54423	72-75824 33-35414 + 10800 +(4-2640) 4	7-6740	9-8567 2-1910	9-5578 8-8019	14-13697 13-12226	6-7774 11-10306	6-5902 7-8356	6-7180 8-8558	10-9615 6-7666	10-6600 8-8379	9-6620 9-9148	2-1320 11-10050	1-1300	36-45666 3-3909 + 10800		
'80		3-2814	56-57813	41-42924 +(4-2640) 4			6-5710	11-10349	11-10556	8-8910	9-10613	6-6207	10-11420	5-6312	8-7393	9-9107 +(4-2640) 4	1-1330		
'78 '79 '80	of which Belgique	- - -	2-1800 4-3860 4-3860	2-2000 - -		1-900	1-900	2-1860	2-1860	2-2000 2-2000	2-2000 2-2000			2-2000					
'78 '79 '80	B.R., Deutsch-land	1-907 1-1300 1-900	13-14763 3-3624 12-13529 11-12629	11-13814 7-9106 11-13934 11-13934	2-2200 (of which from informal sources) 2)	2-1607 1-900	2-1398 1-1299	3-3987 1-1316 1-1299	4-5334 3-2926 1-1316	2-1630 2-2672 4-4236	1-1300 2-1688 2-2723	2-2105 1-1366 1-327	3-3969	3-3488 1-1362	2-2630 2-2633	1-1300 3-3907	7-9106 3-3909 1-1330		
'78 '79 '80	France	2-1940 2-1940	27-28342 28-29754	22-29780 6-7740 + 10800 10-13040	3-3030	6-6060 1-1010	5-5050 6-6060	7-7070 7-7070	2-2440 6-6060	4-4272 5-5684	4-4880 4-4880	3-3870 4-5300	1-1430	3-4290			15-21450 1-10800		
'78 '79 '80	Italia	- 1-862	3-2850 2-2000 2-2000	13-13750 10-10000 10-10000	1-850				1-1000 1-1000 1-1000	1-1000	1-1000 1-1000	5-5000 3-3000	1-1000 1-1000	5-5000 3-3000	4-4000 3-3000		13-13750		
'78 '79 '80	United Kingdom	1-660 1-660	7-4620 8-5280	23-15180 6-3740 +(4-2640) 4 10-5950	1-660		2-1320 1-660	4-2640 3-1980	2-1320			4-2640	10-6600 3-1980	7-4620 1-660	2-1320 4-2420	(4-2640) 4			
'80			8-5280	10-5950		1-660	3-1980	3-1980	2-1320			2-1250	2-1250	1-660	3-1760	2-1200 4-2400			

1) In total of 1978 included from informal sources : Luxembourg, 1-1300 MWe. Not included in total: Fedreland (2,200 MWe) base load capacity, which was to be nuclear or coal/oil.  
 2) Not reported by C.E. 1056/72.  
 3) Dates not yet decided; projects in study or probable projects; the programme is tentative or subject to revision.  
 4) Nuclear or conventional thermal; the programme is tentative.

II/10

E.1. NUCLEAR POWER STATIONS - continued

By reactor type, country and size of sets  
 Situation 1.1.1980

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

Reactor type	Country	Size of sets MWe	Total	under construction	Projected
<u>TOTAL OF ALL TYPES</u>	<u>COMMUNITY</u>		<u>97-100737</u>	<u>56-57813</u>	<u>41-42924</u>
of which :					
AGR advanced gas cooled	United Kingdom	{ 600 and 625 660	4-2450	- -	4-2450
BWR boiling water	COMMUNITY B.R. Deutschland	1310 and 1316	8-5280 5-5936 3-3936	8-5280 5-5936 3-3936	- - - -
	Italia	1000	2-2000	2-2000	-
PWR pressurized water	COMMUNITY United Kingdom B.R. Deutschland " Belgique " Italia France "	550 855 1299 to 1366 930 1000 1000 1010 1430	65-74812 2-1100 1-855 16-21137 2-1860 2-2000 2-2000 27-27270 13-18590	40-44738 - - 6-8058 2-1860 2-2000 - 24-24240 6- 8580	25-30074 2-1100 1-855 10-13079 - - 2-2000 3-3030 7-10010
HTR high temperature	B.R. Deutschland	308	1-308	1-308	-
FBR fast breeder	COMMUNITY B.R. Deutschland France	327 1224	2-1551 1-327 1-1224	2-1551 1-327 1-1224	- - -
Undecided or unknown	United Kingdom Italia	600 1000	4-2400 8-8000	- -	4-2400 8-8000

**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
A1 <u>POSITION AT 1.1.1978</u>	<b>(40) 6276</b>	<b>(50) 7898</b>
B1 <u>EVOLUTION DURING 1978</u>		
1. Plant commissioned	- (2) - 160	-
2. Beginning of construction (Plant reported planned 1.1.1978)	- -	-
3. Projects withdrawn	- -	-
4. New projects not reported projected at 1.1.1978	- -	+ (5) + 950
5. Size modifications	- -	- 240
6. Adjustments		- (1) - 135
A2 <u>POSITION AT 1.1.1979</u>	<b>(38) 6116</b>	<b>(54) 8473</b>
B2 <u>EVOLUTION DURING 1979</u>		
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	
A3 <u>POSITION AT 1.1.1980</u>	<b>(48) 7643</b>	<b>(40) 6381</b>

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

Position at 1.1.19..	Country and Category	Commissioned during preceding year	Total projected		of which by planned year of commissioning (under construction and projected)															
			under construction	projected	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990/			
'78 '79 '80	COMARITI of which: seasonal storage short-ter storage run-of-river pumped storage season.+pump.storage short-ter+pump.storage	4-462 2-160 4-620 1-60 1-80 2-480	40-6276 39-6116 48-7643 2-322 2-135 21-4116 23-3070	50-7898 1) 2) 54-8473 1) 2) 40-6381 1) 2) 3-243 1-58 29-5340 2) 4-550 1) 2-140	<del>3-240</del> <del>15-2032</del> <del>9-1329</del> <del>10-1388</del> <del>1-60</del> <del>7-1128</del> <del>3-254</del>	3-240 15-2032 9-1329 10-1388 1-60 7-1128 3-254	6-1098 6-708 6-1014 6-1014 1-50 1-50 6-1000 4-600 2-140	10-1500 17-2650 11-1850 13-1850 6-1000 5-850	8-874 6-1014 6-1014 1-133 1-75 6-1400 3-381 2-500 3-381	17-2873 11-2073 12-2178 2-322 1-75	8-874 6-1014 6-1014 1-133 1-75 6-1400 3-381 2-500 3-381	9-1098 18-2658 16-1958 2-110 1-50 6-1000 4-600 2-140	10-1500 17-2650 11-1850 13-1850 6-1000 5-850	10-1500 17-2650 11-1850 13-1850 6-1000 5-850	10-1500 17-2650 11-1850 13-1850 6-1000 5-850	2-500 2-500	4-1600	4-1360 4-1360		
'78 '79 '80	Belgique pumped storage		3-540 3-540	- -	<del>3-540</del> <del>3-540</del>	3-540 3-540														
'78 '79 '80	F.R. Deutschland pumped storage	1-248	- -	0-135 -	- -	- -														
'78 '79 '80 '78 '79 '80 '79 '80 '78 '79 '80	France seasonal storage " " " " run-of-river " " pumped storage " " " " short-ter+pump.stor. " " " " season.+pump.storage		- 2-322 - - 4-900 4-900 4-900 2-480 2-480 - 12-1800	5-535 5-535 3-243 1-58 1-58 5-750 5-750 2-140 2-140 2-140 12-1800	- - - - 4-900 4-900 4-900 2-480 2-480 - -	2-292 2-292 2-322 2-450 2-450 4-900 4-900	3-243 1-133 1-133 2-450 2-450 4-900 4-900	2-110 2-110 1-58 1-58 5) 2-140 2-140 5) 6-900 3) 4-600 3) 4-600 3)	6-1000 5-750 5-750 6-1000 5-850	2-292 2-292 2-322 2-450 2-450 4-900 4-900	3-243 1-133 1-133 2-450 2-450 4-900 4-900	2-110 2-110 1-58 1-58 5) 2-140 2-140 5) 6-900 3) 4-600 3) 4-600 3)	6-1000 5-750 5-750 6-1000 5-850	6-1000 5-750 5-750 6-1000 5-850	2-110 2-110 1-58 1-58 5) 2-140 2-140 5) 6-900 3) 4-600 3) 4-600 3)	4-600 4-600 2-500 2-500	4-1600	4-1360 4-1360		
'78 '79 '80 '78 '79 '80	Italia " " " " pumped storage " " " " season.+pump.storage " " " " " "	1-60 2-160 1-80	3-195 3-195 11-1416 9-1256 18-1176 11-1245 11-1245 11-1270	1-50 1-50 16-2500 18-3000 18-3000 3-300 1) 4-550 1) 4-550 1)	3-195 3-195 11-1416 9-1256 18-1176 11-1245 11-1245 11-1270	1-75 1-60 6-1000 4-588 4-588 2-254 2-254 2-254	1-75 1-60 6-1000 4-588 4-588 3-381 3-381 3-381	1-50 1-50 6-1000 6-1000 6-1000 1-250	1-50 1-50 6-1000 6-1000 6-1000 1-250	1-75 1-60 6-1000 4-588 4-588 3-381 3-381 3-381	1-75 1-60 6-1000 4-588 4-588 3-381 3-381 3-381	1-50 1-50 6-1000 6-1000 6-1000 1-250	1-50 1-50 6-1000 6-1000 6-1000 1-250	1-50 1-50 6-1000 6-1000 6-1000 1-250	1-50 1-50 6-1000 6-1000 6-1000 1-250	2-500 2-500 2-500 2-500	4-1600	4-1360 4-1360		
'78 '79 '80	United Kingdom pumped storage " " " "		6-1500 6-1500 6-1500	6-1830 2) 6-1590 2) 6-1590 2)	<del>6-1500</del> <del>6-1500</del> <del>6-1500</del>	2-500 2-500 2-500	2-500 2-500 2-500	2-500 2-500 2-500	2-500 2-500 2-500	2-500 2-500 2-500	2-500 2-500 2-500	2-500 2-500 2-500	2-500 2-500 2-500	2-500 2-500 2-500	2-500 2-500 2-500	4-1600	4-1360 4-1360			

(1) included: 3-300 MW work suspended  
(2) included: 2-230 MW work postponed indefinitely  
(3) 8 x 150 MW pump-turbines  
(4 x 150 MW Pelton-turbines)  
(4) from informal sources  
(5) delayed for environmental reasons.

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

By country and planned year of commissioning

Position at 1.1.1980

Country	Voltage (kV)	Commissioned during 1979	Total		of which : planned year of commissioning (under construction and planned)							
			under construction	planned	1980	1981	1982	1983	1984	1985	1986	
Belgium	Overhead 380	-	294,2	181,4	158,4	135,8	181,4					
	Overhead 380	22	402	83	266		46	26	64	83		
Denmark	Underground 400			40						40		
	Overhead 400											
France	Overhead 400	852	2898	1640	1718	102	1658	704			356	
	Underwater 270 (DC)			90				90				
	Underground 270 (DC)			72				72				
F.R.G.	Overhead	362	963	1645*	417	1275	157	372	145	73		38
	Underground											
Ireland	220 kV	14	1	12,5	1		12,5					
	110 kV		< 1	< 1	< 1		< 1					
Italy	Overhead 380	344	3007		604	455	1411	265	272			
	Overhead 380	180	36				36					
Netherlands	Underwater			± 50								
	Overhead 400	177	964	1157	1081	138	140	520	9	224		178
United Kingdom	Underground 400 AC	3,2	61	5,6	29							5,6
	132 AC			10								4
	270 DC		64					6				64
	Underwater 270 DC		92					92				92

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.