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 reviews the investment situation in the electricity sector of the Community as at 1.1. 1979 and is based on information communicated to the Commission by virtue of Council Regulation (EEC) N° 1056/72 and 1215/76.

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

- Whilst the increase in the expected amount of new, solid fuel burning, electricity production capacity to come into service by 1985 is encouraging, Members States must nevertheless, by the most appropriate means, make efforts to increase the consumption of solid fuels for electricity production at the expense of oil ;

- The reduction in expected nuclear contributions to electricity production in 1985 and 1990 is disturbing. Members States should make every effort to achieve the necessary substantial ordering of new nuclear plants, and should regard the finalising of firm plans in the nuclear sector for the period up to 1990 as a matter of the utmost urgency.

INVESTMENT PROJECTS IN THE ELECTRICITY SECTOR OF THE COMMUNITY

Report on information communicated to the Commission, under Council Regulations N°. 1056/72 and 1215/76, relating to the situation at 1.1.1979 (Information summaries in Annexes 1 and 2)

1. Discussion of Commission conclusions

1.1. Conventional thermal capacity

The decline in the total under construction and planned, evident over the previous four years, has now been reversed. Further positive factors are a significant increase in the amount of solid-fuel-fired capacity in construction and planned and a very small amount of monovalent oil-fired capacity still in planning. Despite these encouraging developments it is clear that existing and new solid-fuel-burning capacities must be utilised to the maximum practicable extent to achieve the forecast (1) minimum solid fuel consumption required in 1985 (124 m.t.o.e.).

1.2. Nuclear capacity

Realistic expectations of total nuclear capacity in the Community by 1985 now indicate some 79 GW gross (73,3 GW net), 4 GW gross less than estimated in last year's report. Taking account of the withdrawal from the communications of a large number of speculative projects, perhaps indicative of an increased level of realism, it is disturbing to observe that in the absence of early decisions on nuclear projects which might be in service in the late 1980's there is a real risk that the momentum of nuclear installation could decline to the extent that total nuclear capacity in service in 1990 could be little more than 100 GW gross (94 GW net).

The clear implication (2) is that by 1985 nuclear is likely contribute 15 mtoe less to electricity production requirements than was foreseen by the Member States in their 1978 forecasts(1). By 1990, in the absence

(1) Member States'National Forecasts, 1978.

(2) Since each 1 GW of nuclear contribution is equivalent to some 1.3 m.t.o.e. per annum.

of major efforts by the Member State Governments to reduce delays in the nuclear decision-making processes, the shortfall in the nuclear contributions could be as much as 63 m.t.o.e. (30%) compared with the 1978 forecasts.

1.3. The need for action

If substantial increases in imported oil or natural gas requirements for electricity production are to be avoided, such reductions in the forecast nuclear contributions must be replaced by production from solid fuels. The following actions by Member State Governments are therefore required:

- ensuring the maximum practicable use of existing and future solid-fuel-burning capacities;
- positive actions to reduce the delays in the decision making processes for new nuclear capacities;
- the taking of all possible measures in the short, medium and long term, to ensure that the solid-fuel-burning capacities are adequate to avoid increases in the use of imported oil or natural gas for electricity production. Such measures should include the conversion of existing and planned plant to use solid fuels instead of hydrocarbons.

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 1.1.1979, together with the evolution as reported during the last five 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

* Nuclear not reported in these years.

.../...

- Conventional thermal - The decline in total capacity under construction and planned which was evident since 1974, has now been reversed due to a significant increase in solid-fuel-fired capacity in construction and planned.

- Nuclear - The capacity under construction and planned is 27,6 GW less than that reported in 1978, due mainly to the withdrawal from the communication of 27,1 GW which were reported in 1978 to be projects of a tentative nature. Nevertheless, the total of 100,6 GW represents a fourfold increase on existing capacity.

- Hydro - The total of 14,8 GW includes both primary conversion and pumped storage plant. In fact at least 9,5 GW is pumped storage plant.

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 1.1.1978 being included.

- no solid-fuel-burning plant was commissioned in 1978 (or 1977) but there are significant increases in the total capacities of plant in construction and planning capable of burning hard coal (+ 13,3 GW) and brown coal (+ 0,3 GW), compared with the situation as at 1.1.1978;

- from 1978 - 1985 inclusive the total added hard coal burning capability is expected to be 17,9 GW;

- of the plant currently in planning, that projected to be capable of burning hard coal or brown coal (19,1 GW) greatly exceeds that capable of burning oil only (1,9 GW);

- of the 34,5 GW of plant in construction and planned with an oil-burning capability, it is known that 12,6 GW is in fact polyvalent plant with a coal capability;

- of the total of 29,1 GW of plant currently under construction, 9,6 GW is capable of burning coal whilst no less than 17,3 GW is capable of burning oil only.

.../...

Table 2

MW gross

Capable of burning	Commissioned in 1978 (1977)	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	- (-)	9649 (6912)	8285 (5734)	9280 (1300)	27214 (13946)
- of which coal only	- (-)	5174 (3154)	3680 (4384)	1900 (660)	10754 (8198)
2. Brown coal	- (-)	- (-)	1525 (1200)	- (-)	1525 (1200)
3. Oil	3076 (4228)	23080 (25110)	3135 (3590)	8260 (3200)	34475 (31900)
- of which oil only	1606 (3245)	17276 (18882)	- (1320)	1920 (2560)	19196 (22762)
4. Natural gas	1760 (1603)	1919 (3350)	1700 (920)	1500 (-)	5119 (4270)
- of which nat. gas only	290 (620)	270 (560)	- (-)	- (-)	270 (560)
5. Fuel unknown or undecided			320 (320)	1600 (1600)	1920 (1920)

Figures in brackets refer to the situation as at 1.1.1978

(*) All except 660 MW expected to be in service by 1985.

.../...

2.3. Nuclear plant

Table 3 shows the current situation.

Table 3

MW gross

Currently	Scheduled to be in service	
	by 1985	after 1985 and date unknown
- in construction	50741	3682
- in planning	6310	39904
TOTALS	57051	43586

- Consideration of a realistic minimum of nuclear capacity which might be in service by 1985 must take account of 1366 MW of which construction is currently stopped due to legal difficulties and of a further 2303 MW scheduled to be in service by 1985 for which no firm start-of-construction dates are available. These two elements alone reduce the probable total nuclear capacity expected in service by 1985 to 79 GW gross (73,3 GW net), subject to the achievement of current construction schedules.

- Beyond 1985 for Denmark, Ireland and the Netherlands, all so far uncommitted to nuclear development, no nuclear projects are reported thus the possibility of nuclear development in these countries before 1990 is remote. To achieve the nuclear contribution forecasts for 1990 by the Member States in 1978 requires at least 150 GW gross (140 GW net), which would imply the taking of early firm decisions for 44 GW gross of capacity over and above that now in service, in construction and firmly decided. In the absence of such decisions the capacity in service by 1990 would be little more than 100 GW gross.

.../...

3. Major transmission lines and cables

3.1. Table 4 shows the current situation.

Table 4

	Commissioned in 1978 (1977)	Under construction	Planned
Overhead lines	1808 (1309)	7072 (6959)	5383 (7528)
Underground cables	- (4)	76 (-)	188 (-)
Underwater cables	- (135)	- (-)	120 (120)
TOTAL	1808 (1448)	7148	5691 (7648)

Figures in brackets refer to the situation at 1.1.1978.

- The total circuit lengths under construction and planned show, at 12.839 circuit kilometers, a decline of some 21% compared with those indicated last year. There was, however, an increase in the total circuit kilometers commissioned in 1978 (1808) compared with 1977 (1448).

- The reduction of the transmission lengths in planning and the fact that planned commissioning is concentrated in the years 1979 to 1983 give rise to the following question which should be seriously considered by the Member State Governments:

- In view of the increasingly difficult situation regarding fuel supplies for electricity production in some Member States, should not new facilities be created and existing facilities strengthened to enable non-hydrocarbon-based electricity to be transferred to those countries which still depend heavily on hydrocarbons for electricity production? Given the authorisation delays inherent in transmission planning, should not the necessary plans be made now?

.../...

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 eligable investment projects, together with all the information requested, are included in the communications.

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COMMISSION
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XVII/D/2

INVESTMENT PROJECTS IN THE ELECTRICITY SECTOR OF THE COMMUNITY

ANNEX I	Electrical power plant situation Position at 1.1.1979
ANNEX II	Summary of Notifications received by the Commission by virtue of Council Regulations N°s 1056/72 and 1215/76.

Annex I

ELECTRICAL POWER PLANT SITUATION (Position at 1.1.1979)

- GW-Gross -

	EUR-9	D	F	I	N	B	L	U.K.	Irl.	Dan.
A. INSTALLED CAPACITY [1] (all generating sets)	303,1	85,7	55,8	44,6	17,6	10,7	1,4	77,6	2,9	6,8
of which :										
1. Conventional thermal	232,2	71,0	30,5	27,9	17,1	8,5	0,2	67,9	2,4	6,8
of which : generating sets of 200 MW or more	112,5	28,8	17,8	14,1	8,0	2,1	-	37,6	0,8	3,3
2. Nuclear	25,6	8,2	6,7	1,2	0,5	1,8	-	7,2	-	-
of which : generating sets of 200 MW or more	21,4	8,0	6,3	0,7	0,5	1,8	-	4,2	-	-
3. Hydro	45,3	6,5	18,6	15,5	-	0,5	1,2	2,5	0,5	0,0
B. PLANT UNDER CONSTRUCTION [2]										
E.1.b. Thermal generating sets of 200 MW or more	29,1	3,9	0,6	9,8	1,6	0,3	-	11,4	0,3	1,3
of which :										
Conventional thermal	54,4	13,5	29,7	2,0	-	3,9	-	5,3	-	-
Nuclear	6,1	-	1,4	2,7	-	0,5	-	1,5	-	-
E.2.b. Hydro-electric generating sets of 50 MW or more										
C. PROJECTED [2]										
E.1.c. Thermal generating sets of 200 MW or more	23,4	9,2	0,6	10,4	1,1 [3]	-	-	(+2,6 (nuclear or (conv.ther.)	1,2	0,9
of which :										
Conventional thermal	46,2	6,5	18,5	10,0	-	-	-	3,7	-	-
Nuclear	8,7	-	3,2	3,6	-	-	-	1,9	-	-
E.2.c. Hydro-electric generating sets of 50 MW or more										

1) Source : Estimated on the basis of figures of EUROSTAT/publications
2) C.R. 1056/72
3) + 1 set : capacity undecided.

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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

- 1979 -

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 1.1.1979

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

COUNTRY	Commissioned during 1978	Total: Under construction	Total: planned	of which : planned year of commissioning (under construction and planned): 1979	1980	1981	1982	1983	1984	1985	1986	(and later) 1987	undecided or unknown 1)
EUR 9	12-8128	110-83547	83-58804 + 1-. + .-10800 + (4-2640) 2)	15-8473	19-13977	22-16726	23-16095	19-15203	15-12135	17-12396	17-13689	31-25908 + 1-. + (4-2640) 2)	15-7749 + .-10800
of which:													
Belgique	-	5-4140	-	1-280		2-1860			2-2200				
Danmark	-	2-1270	2-875	1-620	1-650			1-375		1-500			
D.R. Deutschland	4-2550	18-17423	28-23189	4-2640	1-1299	1-1316	6-4646	7-5944	7-3935	4-3036	5-5419	8-8468	3-3909
France	2-1940	29-30354	7-8340 + .-10800	1-1010	6-6060	8-7670	6-6060	6-6284	4-4880	4-5300	1-1430		.-10800
Ireland	1-270	1-270	4-1200		1-270					1-300	1-300	2-600	
Italia	1-862	24-11760	34-20400	4-1280	2-980	5-2280	5-2280	3-1640	1-660	6-2600	5-3300	15-13300	12-3840
Luxembourg	-	-	-										
Nederland	2-1170	3-1594	2-1060 + 1-.	1-647	1-618		1-329				1-600	1-460 + 1-.	
United Kingdom	2-1336	23-16736	6-3740 + (4-2640) 2)	3-1996	7-4100	6-3600	5-2780	2-960	1-660	1-660	4-2640	5-3080 + (4-2640) 2)	

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

2) This capacity will be nuclear or conventional thermal; the 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 1.1.1979

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								+ (4-2640) 1) 50-23390 + 1-.						+ (4-2640) 1) 33-16195 + 1-.
conventional thermal	56-29124	6-1920	5-2927	2-947	31-15876	11-6714	1-740		2-785	1-600		9-3315	5-2495	
nuclear	54-54423	2-2682	7-7194	3-3291	19-17650	21-21606	2-2000	33-35414 + .-10800	-	1-1430	1-855	4-4180	7-8663	20-20286 + .-10800
of which :														
Belgique														
conventional thermal	1-280					1-280		-						
nuclear	4-3860		2-1930	2-1930				-						
Danmark												2-875 of which :		
conventional thermal	2-1270				2-1270			2-875				(1_500 water + district heating)		
B.R. Deutschland														
conventional thermal	6-3894			1-300		4-2854	1-740	17-9255	1-325				5-2495	11-6435
nuclear	12-13529	2-2682		1-1361		9-9486		11-13934			1-855		4-5213	6-7866
France														
conventional thermal	1-600					1-600		1-600				1-600		
nuclear	28-29754		5-5264		11-12370	12-12120		6-7740 + .-10800		1-1430		2-2860	3-3450	.-10800
Ireland												4-1200		
conventional thermal	1-270				1-270 (estuarine)			4-1200				(estuarine)		
Italia														
conventional thermal	22-9760	6-1920			16-7840			24-10400				2-640	-	22-9760
nuclear	2-2000						2-2000	10-10000						10-10000
Nederland								2-1060	1-460 =	1-600				
conventional thermal	3-1594		2-947	1-647				1-.	(canal)					1-.
United Kingdom														
conventional thermal	20-11456		3-1980		12-6496	5-2980		+ (4-2640) 1) 6-3740						+ (4-2640) 1)
nuclear	8-5280				8-5280							2-1320		4-2420

1) This capacity will be nuclear or conventional thermal; the programme is tentative.

E1. THERMAL POWER STATIONS - Planned projects - Decisional aspects

Generating sets with a capacity of 200 MW or more

Situation 1.1.1979

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: site (A)	main contractor (B)	capacity (C)	type of fuel (D)	start of work date (E)	commissioning (F)	Possible; in study	Status unknown or not reported	Remarks
COMMUNITY													
convent.thermal		50-23390 1-.	5-1890	26-11460 1-.	16-7840 1-.	24-10400	1-.	7-2380 1-.	14-4900 1-.	12-4260 1-.	4-1400	15-8640	
nuclear		33-35414 .-10800 4) +(4-2640) 5)	5-6310	14-13927 .-10800 +(4-2640)5)	10-10000 .-10800 +(4-2640)	10-9320 +(4-2640)	.-10800 +(4-2640)	+(4-2640)	4-3927 .-10800 +(4-2640)	4-3927 .-10800 +(4-2640)		14-15177	
Danmark													
convent.thermal	coal/oil	2-875	1-375 1)								1-500 2)		1) governmental authorisation availed 2) pre-projects; national heat plan
B.R. Deutschland		28-23189	1-315	2-2607					2-2607	2-2607	1-300	24-19967	
convent.thermal		17-9255										15-8640	
	coal	8-3780	1-315								1-300	6-3165	of which : 6-2725 from informal sources
	coal/oil	1-750										1-750	
	coal/oil/gas	1-230										1-230	coal upgrading scheme
	coal/nat.gas	4-2970										4-2970	of which : 2-1500 from informal sources and 1-720 MW in authorisation stage
	brown coal	3-1525										3-1525	
nuclear		11-13934		2-2607					2-2607	2-2607		9-11327	of which : 5-6536 from informal sources
France		7-8340 + .-10800	6-6910	.-10800	.-10800		.-10800		.-10800	.-10800		1-1430	
convent.thermal	coal	1-600	1-600									-	
nuclear		6-6740 + .-10800 4)	5-6310	.-10800	.-10800		.-10800		.-10800	.-10800(p)		1-1430 3)	3). C.R.1056/72-situation 1.1.78 : reported : firm. situation 1.1.79 : not reported at all 4) for the programmes 1980 and 1981 : decisions already taken on 15.2.79 concern an output capacity of 10000 MW for the total of the 2 years
Ireland													
convent.thermal	coal	4-1200	2-600								2-600		
Italia		34-20400		34-20400	26-17840	32-18400		6-1920	12-3840	10-3200			
convent.thermal		24-10400		24-10400	16-7840	24-10400		6-1920	12-3840	10-3200			12-320 MW: decision CIPE 20.9.73
	coal/oil	12-6560		12-6560	10-5920	12-6560							12-320 MW: " " " art.7 of law 330
	oil	6-1920		6-1920		6-1920			6-1920	6-1920			decision CIPE 20.9.73;art.7 of law 330
	unknown	6-1920		6-1920	6-1920	6-1920		6-1920	6-1920	4-1280			authorisation procedure in hand 4-1280 MW:authorisation procedure in hand
nuclear		10-10000		10-10000	10-10000	8-8000							
Nederland		2-1060		2-1060				1-460	2-1060	2-1060			
convent.thermal		1-.		1-.	1-.		1-.	1-.	1-.	1-.			
	coal/oil	1-600		1-600					1-600	1-600 (p)			
	deriv.gas/oil or coal	1-460		1-460				1-460	1-460	1-460 (p)			
	unknown	1-.		1-.	1-.		1-.	1-.	1-.	1-. (p)			
United Kingdom		10-6380		6-3960	4-2640	6-3960	4-2640	4-2640	6-3960	6-3960		4-2420	Ref.Statement by Sec.of State on 25.7.78:
convent.thermal	unknown (see remarks)	(4-2640) 5)		(4-2640)	(4-2640)	(4-2640)	(4-2640)	(4-2640)	(4-2640)	(4-2640) (p)		5)	type and fuel undecided; this capacity will be nuclear or convent.thermal
nuclear		6-3740		2-1320		2-1320			2-1320(p)	2-1320 (p)		4-2420 6)	The whole programme is tentative and subject to revision

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BALANCE SHEET OF INVESTMENT PROJECTS
IN CONVENTIONAL THERMAL POWER STATIONS (excluding nuclear)
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

	Commissioned	Under Construction	Planned
A1 POSITION AT 1.1.1977	*(283) 103976	(64) 31694	(26) 14907
B1 EVOLUTION DURING 1977			
1. Plant commissioned	+(12) + 5148	-(12) - 5148	
2. Beginning of construction (Plant reported planned 1.1.77)		+ (6) + 2550	- (6) - 2550
3. Projects withdrawn			- (8) - 5280
4. New projects not reported planned at (1.1.77)		+ (1) + 680	+(21) + 8100
5. Adjustments	- 24	- (1) - 272	- 23
A2 POSITION AT 1.1.1978	*(295) 109100	(58) 29424	(33) 15154
B2 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 modificationsn adjustments		+ 17	- 50
A3 POSITION AT 1.1.1979	(302) 112466	(56) 29124	(50) 23390

* Estimated on the base of EUROSTAT figures

(§)-This capacity will be nuclear or conventional thermal ; not included in total.

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

Position at 1 Jan. 19..	Country	Commissioned during preceding year	Total: Under construction	Total: Planned	of which : planned year of commissioning (under construction and planned): 1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	Year of commissioning undecided or unknown; Projects in study
'77	COMMUNITY	20-9231	64-31694	26-14907	16-7054	11-5176	13-7110	13-6010	11-5974	10-5517	2-1260	-	4-2240	4-2300	6-3960		{(+(1-1050) 2)3)
'78		12-5258	58-29424	33-15154		12-5606	15-8056	13-6608	10-4820	11-6201	5-3167	3-1560	5-2900	1-660			{ 14-5000
'79		7-3366	56-29124	{ 30-23390 {+(4-2640 2) {+ 1-.			13-6563	11-5958	9-6500	12-5789	12-6847	7-3567	11-4730	9-5310	7-3700	{+(4-2640) 2) { 3-1710 { 1-.	12-3840
	of which :																
'77	Belgique	1-300	1-280	-		1-280											
'78		-	1-280	-			1-280										
'79		-	1-280	-													
'77	Danmark	1-275	3-1625	-	1-315	-	1-640	1-670									
'78		1-315	2-1280	-			1-620	1-660									
'79		-	2-1270	2-875			1-620	1-650			1-375		1-500				
'77	B.R. Deutschland	7-3630	10-5037	4-2937	5-1883	-	3-1740	-	2-1414	4-2937							
'78		2-633	8-4404	7-4414		3-1250	3-1740			5-3621	{(1-707) 1) { 2-1307	{(1-707) 1) 2-900					
'79		3-1250	6-3894	17-9255			3-1740	-	-	3-1720	{(1-707) 1) { 3-3272	{(1-707) 1) 5-2247	3-1670	2-1450	1-300	1-750	
'77	France	2-1400	2-1400	-	2-1400												{ (in study 1-200)
'78		2-1400	1-600	2-800					1-600		1-600						
'79		-	1-600	1-600					1-600		1-600						
'77	Ireland	1-250	2-520	1-270	1-250	1-270		1-270									
'78		1-250	2-540	-		1-270	-	1-270									
'79		1-270	1-270	4-1200				1-270					1-300	1-300	1-300	1-300	
'77	Italia	4-1280	22-9010	7-2920	4-1280	3-960	2-640	(6-2190)	7-3600	4-1960	1-660	-	1-320	1-320			
'78		4-1280	22-9760	16-5120		2-640	3-960	5-2280	7-3260	4-1960	1-660	-	1-320	-	-		15-4800
'79		-	22-9760	24-10400			4-1280	2-980	5-2280	5-2280	3-1640	1-660	5-1600	4-2300	4-2640	1-660	12-3840
'77	Nederland	1-260	6-3670	3-1520	2-1250	2-1170	1-650	1-600	-	1-320	1-600	-	1-600				
'78		2-1270	4-2408	3-1520		2-1170	1-620	1-618	-	1-320	1-600	-	1-600				+(3-1950) 2)3)
'79		2-1170	3-1594	2-1060			1-667	1-618		1-329				1-600	1-460	1-.	
'77	United Kingdom	3-1836	18-10152	11-7260	1-676	6-2496	6-3440	4-2280	2-960	1-300	-	-	2-1320	3-1980	6-3960		
'78		-	18-10152	5-3300		3-1996	7-4116	5-2780	2-960	1-300		1-660	3-1980	1-660		1989 :	
'79		1-676	20-11456	(4-2540) 2)			3-1996	6-3440	3-1620	3-1460	2-960	1-660	1-660	1-660		(4-2640) 2)	

1) Alternative for other units for which construction is stopped by court-order. Not included in totals.
2) This capacity will be 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

Position at 1 Jan.19	Fuel	Commissioned during preceding year	Total: Under construction	Total: Planned	of which : by planned year of commissioning (under construction and planned): 1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	Undecided
'77	TOTAL FUELS	20-9231	64-31694	26-14907	16-7054	11-5176	13-7110	13-6010	11-5974	10-3517	2-1260	-	4-2240	4-2300	6-3960		- +(3-1950) 2) 3) 16-5000
'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			12-3840
'79		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 2) + 1-.	
	of which :																
'77	Coal	3-1810	5-3154	4-2937			3-1740		2-1414	4-2937	(1-700	1-700) 1)					
'78		-	5-3154	8-5044			3-1740			4-2871	2-1307	2-960	1-660	1-660			
'79		-	8-5174	13-5580			2-1040			1-740	4-2522	4-1982	4-1910	3-1660	2-600	1-300	
'77	Brown coal	1-600	-	-							1-600	1-600					
'78		-	-	2-1200							1-600	2-925					
'79		-	-	3-1525													
'77	Petr.products	10-4306	44-21157	3-1640	10-4581	7-3066	7-3420	10-4890	8-4240	4-1940	1-660						8-2560
'78	(non gaseous)	8-3245	38-18882	10-3880		6-2906	9-4416	10-5060	7-3580	5-2260	1-660		2-1320				8-2560
'79		3-1606	35-17276	6-1920			6-2616	7-3760	7-3580	7-3420	5-2600	1-660					
'77	Natural gas	-	2-890	1-270	2-890			1-270									
'78		1-620	2-560	-		1-290		1-270									
'79		1-290	1-270	-				1-270									
'77	Coal/Petr.prod.	1-720	3-1890	3-1240			2-1290	1-600	1-320	1-320			1-600				+(3-1950 2) 3) 2-640
'78		-	6-3158	4-1990			2-1240	2-1278	2-640	1-750			1-600				
'79		-	7-3875	16-8785			3-1967	2-1268	1-320	2-1070	1-375		5-1780	4-2580	4-2640	1-660	
'77	Coal/Deriv. gases	-	-	-					1-600								
'78		-	1-600	-					1-600								
'79		-	1-600	-													
'77	Coal/Petr.prod./Gas	-	-	-													
'78		-	-	-						1-230							
'79		-	-	1-230													
'77	Coal/Natural gas	-	-	-													
'78		-	-	-							1-750		1-720	1-750		1-750	
'79		-	-	4-2970													
'77	Petr.prod./Natur.gas	5-1795	7-3773	2-920	3-1283	3-1830	1-660			1-320	1-600						
'78		2-983	5-2790	1-320		4-2130	1-660			1-320							
'79		3-1470	3-1649	-			1-660	1-660		1-329							
'77	Petr.prod./Deriv.gas	-	2-530	-				1-250									
'78		-	1-280	-		1-280									1-460		
'79		-	1-280	1-460		1-280	1-280										
'77	Deriv.gas/Nat.gas/	-	-	-													
'78	Petr.prod.	-	-	1-600							1-600						
'79		-	-	-													
'77	Derived gas	-	-	-													
'78		-	-	1-200													1-200 (in study)
'79		-	-	-													
'77	Unknown or undecided			13-7900									3-1640	4-2300	6-3960		5-1600
'78				6-1920									1-320				4-1280
'79				6-1920 + 1-. +(4-2640 2)									1-320	1-320		1-. (4-2640) 2)	

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MBL/jb - July 1979.

II/8

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

	Commissioned	Under construction	Projected
A1 POSITION AT 1.1.1977	(.) 14321	(50) 49194	(50) 50215
B1 EVOLUTION DURING 1977	complete information not available		
A2 POSITION AT 1.1.1978	(.) 17454	(52) 52375	(72) 75824
B2 EVOLUTION DURING 1978			
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(1) +(4) -2640
5. Size modifications, adjustments	- 764(2)	+ 40	+ 117
A3 POSITION AT 1.1.1979	(.) 21452	(54) 54423	(33) 35414 +(.) 10800 +(4 - 2640)(1)

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

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

E1. 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

Position at 1 Jan.19'	Country	Commissioned during preceding year	Total under construction	Total planned	of which : planned year of commissioning (under construction and planned) 1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	Year of commissioning undecided or unknown 3)
'77	COMMUNITY	5-4219	50-49194	50-50215 1)	9-8544	4-3996	15-13165	7-7250	12-12967	11-12085	4-5172	7-7600	6-5660	8-7730	6-3960			11-11280
'78		4-3507	52-52375	72-75824		7-6740	9-8567	9-8578	14-13697	6-7774	6-5902	6-7180	10-9615	10-6600	9-6620	2-1320		36-45606
'79		5-4762	54-54423	33-35414			2-1910	8-8019	13-12226	11-10306	7-8356	8-8568	6-7666	8-8379	9-9148	11-10050	1-1300	3-3909
				+ .-10800														+ .-10800
				+(4-2640) 4)													+(4-2640) 4)	
	of which																	
'77	Belgique	-	2-1800	2-1960			1-900	1-900		2-1960					2-2000			
'78		-	2-1800	2-2000			1-900	1-900										
'79		-	4-3860	-					2-1860			2-2000						
'77	B.R.Deutschland	3-2899	13-14198	12-15155	3-3070	1-1316	3-2905	1-1300	6-6907	4-4755	2-2600	2-2600						3-3900
			6-6446	10-13000	(of which from informal sources) 2)													
'78		1-907	13-14763	11-13814		2-2200	2-1607	1-1308	3-3987	4-5334	2-1630	1-1300	2-2105					7-9106
			3-3624	7-9106	(of which from informal sources) 2)													
'79		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
			3-3624	5-6536	(of which from informal sources) 2)													
'77	France	-	24-24712	11-11430	3-2950	2-2020	6-6060	5-5050	6-6060	5-5370	2-2572							6-6060
'78		2-1940	27-28342	22-29780		3-3030	6-6060	5-5050	7-7070	2-2440	4-4272	4-4880	3-3870					15-21450
'79		2-1940	28-29754	6-7740			1-1010	6-6060	7-7070	6-6060	5-5684	4-4880	4-5300	1-1430				.-10800
				(+ .-10800														
'77	Italia	-	3-2850	13-13750	1-850							5-5000	5-5000	5-5750				13-13750
'78		-	3-2850	13-13750		1-850						1-1000	1-1000					
'79		1-862	2-2000	10-10000									1-1000	1-1000	5-5000	5-5000		
'77	United Kingdom	2-1320	8-5634	12-7920	2-1674	1-660	5-3300						1-660	3-1980	6-3960			2-1320
'78		1-660	7-4620	23-15180		1-660		2-1320	4-2640				4-2640	10-6600	7-4620	2-1320		
'79		1-660	8-5280	6-3740				1-660	3-1980	2-1320				3-1980	1-660	4-2420	(4-2640)	4)
				(+(4-2640) 4)														

1) In total of 1978 included from informal sources : Luxembourg, 1-1300 MWe. Not included in total : Nederland (2.200 MWe) base load capacity, which will be nuclear or coal/oil.
2) Not reported by C.R.1056/72.
3) Dates not yet decided : projects in study or probable projects; the programme is tentative or subject to revision.
4) This capacity will be nuclear or conventional thermal; the programme is tentative.

E.1. NUCLEAR POWER STATIONS - continued

By reactor type, country and size of sets
Situation 1.1.1979

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		87-89837 + .-10800	54-54423	33-35414 + .-10800
of which : AGR advanced gas cooled	United Kingdom	660	12-7920	8-5280	4-2640
BWR boiling water	COMMUNITY		6-6836	6-6836	-
	B.R. Deutschland	900	1-900	1-900	-
	" "	1310 and 1316	3-3936	3-3936	-
	Italia	1000	2-2000	2-2000	-
PWR pressurized water	COMMUNITY		58-65222	37-40448	21-24774
	United Kingdom	550	2-1100	-	2-1100
	B.R. Deutschland	855	1-855	-	1-855
	" "	1299 to 1366	16-21137	6-8058	10-13079
	Belgique	930	2-1860	2-1860	-
	"	1000	2-2000	2-2000	-
	Italia	1000	2-2000	-	2-2000
	France	1010	26-26260	24-24240	2-2020
	"	1430	7-10010	3-4290	4-5720
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	(660)	(4-2640)	-	(4-2640) 1)
	Italia	1000	8-8000	-	8-8000
	France	1010 or 1430	.-10800	-	.-10800

1) This capacity will be nuclear or conventional thermal; not included in totals.

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 POSITION AT 1.1.1977	(32) 5542	(33) 4510
B1 EVOLUTION DURING 1977		
1. Plant commissioned	- (4) - 462	-
2. Beginning of construction (plant reported planned 1.1.1977)	+ (8) + 1016	- (8) - 1016
3. Projects withdrawn	- -	- (6) - 480
4. New projects not reported planned at 1.1.1977	- -	+(29) + 4868
5. Size modifications, adjustments	+ (4) + 180	+ (2) + 16
A2 POSITION AT 1.1.1978	(40) 6276	(50) 7898
B2 EVOLUTION DURING 1978		
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
A3 POSITION AT 1.1.1979	(38) 6116	(54) 8473

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) 1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988/ post 1988	1000	over 1000
'77	COMMUNITY	11-1716	32-5542	33-4510 1)2)	5-542	11-1310	4-790	13-1980	11-2000	14-2650	2-250					4-1600		
'78		4-462	40-6276	50-7898 1)2)		3-240	15-2032	6-1088	12-2204	17-2873	8-874	9-1098	10-1500	.-135				
'79		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		1-340	3-1020
	of which :									2-292	1-133	2-110						
	seasonal storage		-	5-535								1-50						
	short-term storage		3-195	1-50				2-120	1-75			1-58						
	run-of-river		-	1-58								6-1000	11-1750	4-500	2-500		1-340	3-1020
	pumped storage	2-160	22-4196	29-5340 2)			4-620	4-588	6-1088	6-1400	2-500	6-900	6-900	1-250				
	seasgn.+pump.storage		11-1245	16-2350 1)			3-229		2-254	3-381	3-381	2-140						
	short-term+pump.stor.		2-480	2-140			2-480											
	Belgium																	
'77'78'79	pumped storage		3-540	-			3-540											
	B.R. Deutschland																	
'77	pumped storage	4-684	1-248	-	1-248													
'78	" "	1-248	-	.-135										.-135 6)				
'79	" "	-	-	-														
	France																	
'78	seasonal storage	-	-	5-535						2-292	3-243							
'79	" "	-	-	5-535						2-292	1-133	2-110						
'77	run-of-river	1-114	-	-														
'78'79	" "		-	1-58								1-58						
'77	pumped storage	2-360	5-954	-	1-54					4-900								
'78	" "	1-54	4-900	4-600					2-450	2-450			4-600					
'79	" "		4-900	5-750						4-900			5-750					
'77	short-term+pump.stor.	2-160	4-640	-	2-160	2-480												
'78	" " " "	2-160	2-480	2-140			2-480					2-140						
'79	" " " "		2-480	2-140			2-480					2-140						
'78'79	season.+pump.storage		-	12-1800								6-900 3)	6-900 3)					
	Italia																	
'77	short-term storage		3-191	6-480		3-191		6-480 4)										
'78	" " "		3-195	-			3-195											
'79	" " "		3-195	1-50				2-120	1-75			1-50						
'77	pumped storage	1-169	7-1240	22-3500	1-80	3-410	1-250	5-1000	9-1500	8-1250	2-250							
'78	" "		11-1416	16-2500		3-240	4-588	4-588	6-1000	8-1250	2-250							
'79	" "	2-160	9-1256	18-3000			1-80	4-588	4-588			6-1000	6-1000	4-500	2-500			
'77	season.+pump.storage		3-229	3-300 1)		3-229												
'78	" " "		11-1245	3-300 1)			3-229		2-254	3-381	3-381							
'79	" " "		11-1245	4-550 1)			3-229		2-254	3-381	3-381			1-250				
	Luxembourg																	
'77	pumped storage	1-239 5)	-	-														
	United Kingdom																	
'77	pumped storage		6-1500	2-230 2)				2-500	2-500	2-500						4-1600		
'78	" "		6-1500	6-1830 2)				2-500	2-500	2-500							1-340	3-1020
'79	" "		6-1500	6-1590 2)					2-500	2-500	2-500							

1) included : 3-300 MW work suspended
2) included : 2-230 MW construction postponed undefinitely
3) 8 x 150 MW pumpturbines
   4 x 150 MW Pelton-turbines
4) reported 1.1.74 and 1.1.75
5) source : EUROSTAT
6) from informal sources

E.3./E.4. TRANSMISSION LINES AND CABLES
(345 KV and more)

By country and planned year of commissioning

Position at 1.1.1979

Country	Voltage (KV)	Commissioned during 1978	Total under construction	Total planned	of which : planned year of commissioning (under construction and planned) 1979	1980	1981	1982	1983	1984	1985	1986	later
Belgium	Overhead 380	-	33	558,2	33	558,2							
Denmark	Overhead 380	-	330	83	22	298					83		
	underground 400			20							20		
France	Overhead 400	1336	2144	3282	1106	2668	240	352	704		356		
	underwater 270 (DC)			120									120
F.R.G.	Overhead	389,2	1777,8	901	943	700,8	812	121	102				
Ireland	underground 220	-	12					12					
Italy	Overhead 380	16	2279,6		495,4	397,2	1009,6	377,4					
Nederland	Overhead 380	-	180	-	180								
United Kingdom	Overhead 400	66,5	327,3	558,5	143,7	137,3	176	133,4	282	13,4			
	underground 400 AL		64,2	168,5	21,6	42,6			5,6	9,0 **			
	* 250 DC								154 *				
	** 275 AL												