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COUNCIL DIRECTIVE

of 24 November 1988

on the limitation of emissions of certain pollutants into the air from large combustion plants

(88/609/EEC)

(OJ L 336, 7.12.1988, p. 1)

Amended by:

		Official Journal		
		No	page	date
►**M1**	Council Directive 90/656/EEC of 4 December 1990	L 353	59	17.12.1990
►**M2**	Council Directive 94/66/EC of 15 December 1994	L 337	83	24.12.1994

Amended by:

►**A1**	Act of Accession of Austria, Sweden and Finland	C 241	21	29.8.1994
	(adapted by Council Decision 95/1/EC, Euratom, ECSC)	L 1	1	1.1.1995

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COUNCIL DIRECTIVE

of 24 November 1988

on the limitation of emissions of certain pollutants into the air from large combustion plants

(88/609/EEC)

THE COUNCIL OF THE EUROPEAN COMMUNITIES,

Having regard to the Treaty establishing the European Economic Community, and in particular Article 130 s thereof,

Having regard to the proposals from the Commission [1],

Having regard to the opinions of the European Parliament [2],

Having regard to the opinion of the Economic and Social Committee [3],

Whereas the 1973 [4], 1977 [5], 1983 [6] and 1987 [7] European Communities action programmes on the environment stress the importance of the reduction and prevention of atmospheric pollution;

Whereas in their resolution concerning the action programme on the environment 1987 to 1992, the Council and the Representatives of Governments of the Member States meeting within the Council emphasize the importance for Community action to concentrate as a priority on the reduction at source of air pollution, *inter alia* by adopting and implementing measures concerning emissions from large combustion plants;

Whereas, moreover, under Decision 81/462/EEC [8], the Community became a Party to the Convention on long-range transboundary air pollution;

Whereas Council Directive 84/360/EEC of 28 June 1984 on the combating of air pollution from industrial plants [9] provides for the introduction of certain procedures and measures aiming to prevent or reduce air pollution from industrial plants, particularly those belonging to listed categories, among which are large combustion plants;

Whereas Article 8 of the same Directive 84/360/EEC stipulates that the Council, acting unanimously on a proposal from the Commission shall, if necessary, fix emission limit values for new plants based on the best available technology not entailing excessive costs and taking into account the nature, quantities and harmfulness of the emissions concerned; whereas Article 13 thereof stipulates that Member States shall implement policies and strategies, including appropriate measures, for the gradual adaptation of existing plants belonging to listed categories to the best available technology and taking various specified matters into account;

Whereas the damage to the environment owing to air pollution makes it urgent to reduce and control emissions from new and existing large combustion plants and whereas to this end it is necessary to set overall objectives for a gradual and staged reduction of total annual emissions of sulphur dioxide and oxides of nitrogen from existing combustion plants and to fix emission limit values for sulphur dioxide, nitrogen oxides and dust in case of new plants, in accordance with the principle set out in Article 8 of the Diretive 84/360/EEC;

Whereas such emission limit values for new plants will need to be reviewed in the light of technological developments and the evolution of

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[1] OJ No C 49, 21. 2. 1984, p. 1 and OJ No C 76, 22. 3. 1985, p. 6.
[2] OJ No C 337, 17. 12. 1984, p. 446 and OJ No C 175, 15. 7. 1985, p. 297.
[3] OJ No C 25, 28. 1. 1985, p. 3.
[4] OJ No C 112, 20. 12. 1973, p. 1.
[5] OJ No C 139, 13. 6. 1977, p. 1.
[6] OJ No C 46, 17. 2. 1983, p. 1.
[7] OJ No C 328, 7. 12. 1987, p. 1.
[8] OJ No L 171, 27. 6. 1981, p. 11.
[9] OJ No L 188, 16. 7. 1984, p. 20.

▼B

environmental requirements, and the Commission will submit proposals to this effect;

Whereas in establishing the overall annual emission ceilings for existing large combustion plants due account has been taken of the need for comparable effort, whilst making allowance for the specific situations of Member States; whereas, in establishing the requirements for the reduction of emissions from new plants, due account has been taken of particular technical and economic constraints in order to avoid excessive costs; whereas in the case of Spain there has been granted a temporary and limited derogation from the full application of the emission limit value of sulphur dioxide fixed for new plants, since that Member State considers it needs a particularly high amount of new generating capacity to allow for its energy and industrial growth,

HAS ADOPTED THIS DIRECTIVE:

Article 1

This Directive shall apply to combustion plants, the rated thermal input of which is equal to or greater than 50 MW, irrespective of the type of fuel used (solid, liquid or gaseous).

Article 2

For the purpose of this Directive:

1. ‘emission’ means: the discharge of substances from the combustion plant into the air;
2. ‘waste gases’ means: gaseous discharges containing solid, liquid or gaseous emissions; their volumetric flow rates shall be expressed in cubic metres per hour at standard temperature (273 K) and pressure (101,3 kPa) after correction for the water vapour content, hereinafter referred to as (Nm^3h);
3. ‘emission limit value’ means: the permissible quantity of a substance contained in the waste gases from the combustion plant which may be discharged into the air during a given period; it shall be calculated in terms of mass per volume of the waste gases expressed in mg/Nm^3, assuming an oxygen content by volume in the waste gas of 3 % in the case of liquid and gaseous fuels and 6 % in the case of solid fuels;
4. ‘rate of desulphurization’ means: the ratio of the quantity of sulphur which is separated out at the combustion plant site over a given period by processes especially designed for this purpose, to the quantity of sulphur contained in the fuel which is introduced into the combustion plant facilities and which is used over the same period;
5. ‘operator’ means: any natural or legal person who operates the combustion plant, or who has or has been delegated decisive economic power over it;
6. ‘fuel’ means: any solid, liquid or gaseous combustible material used to fire the combustion plant, with the exception of domestic refuse and toxic or dangerous waste;
7. ‘combustion plant’ means: any technical appartus in which fuels are oxidized in order to use the heat thus generated.

   This Directive shall apply only to combustion plants designed for production of energy with the exception of those which make direct use of the products of combustion in manufacturing processes.

   In particular, this Directive shall not apply to the following plants:

   — plants in which the products of combustion are used for the direct heating, drying, or any other treatment of objects or materials e.g. reheating furnaces, furnaces for heat treatment.
   — post-combustion plants i.e. any technical apparatus designed to purify the waste gases by combustion which is not operated as an independent combustion plant,
   — facilities for the regeneration of catalytic cracking catalysts,

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— facilities for the conversion of hydrogen sulphide into sulphur,

— reactors used in the chemical industry,

— coke battery furnaces,

— cowpers.

Plants powered by diesel, petrol and gas engines or by gas turbines, irrespective of the fuel used, shall not be covered by this Directive.

Where two or more separate new plants are installed in such a way that, taking technical and economic factors into account, their waste gases could, in the judgment of the competent authorities, be discharged through a common stack, the combination formed by such plants is to be regarded as a single unit.

8. 'multi-fuel firing unit' means: any combustion plant which may be fired simultaneously or alternately by two or more types of fuel;

9. 'new plant' menas: any combustion plant for which the original construction licence or, in the absence of such a procedure, the original operating licence was granted on or after ►**M1** 1 July 1990 ◄;

10. 'existing plant' means: any combustion plant for which the original construction licence or, in the absence of such a procedure, the original operating licence was granted before ►**M1** 1 July 1990 ◄.

Article 3

1. Not later than ►**M1** 1 July 1992 ◄, the Member States shall draw up appropriate programmes for the progressive reduction of total annual emissions from existing plants. The programmes shall set out the timetables and the implementing procedures.

2. The programmes shall be drawn up and implemented with the aim of complying, through the appropriate limitation of emissions, at least with the emission ceilings and with the corresponding percentage reductions laid down for sulphur dioxide in Annex I, columns 1 to 6 and for oxides of nitrogen in Annex II, columns 1 to 4 by the dates specified in those Annexes.

3. When the programmes are being carried out, Member States shall also determine the total annual emissions in accordance with Annex IX, point C.

4. In 1994 the Commission, on the basis of the summary reports provided by the Member States pursuant to Article 16, shall make a report to the Council on the implementation of the reductions referred to in this Article, accompanied where necessary by proposals for a revision of the phase 3 reduction targets and/or date for sulphur dioxide and the phase 2 reduction targets and/or date for oxides of nitrogen. The Council shall decide upon such proposals by unanimity.

5. If a substantial and unexpected change in energy demand or in the availability of certain fuels or certain generating installations creates serious technical difficulties for the implementation by a Member State of its programme drawn up under paragraph 1, the Commission at the request of the Member State concerned, and taking into account the terms of the request, shall take a decision to modify, for that Member State, the emission ceilings and/or the dates set out in Annexes I and II and communicate its decision to the Council and to the Member States.

Any Member State may within three months refer the decision of the Commission to the Council. The Council, acting by a qualified majority, may within three months take a different decision.

Article 4

1. Member States shall take appropriate measures to ensure that all licences for the construction or, in the absence of such a procedure, for the operation of new plants contain conditions relating to compliance with the emission limit values fixed in Annexes III to VII in respect of sulphur dioxide, oxides of nitrogen and dust.

▼**M2**

However, Member States may provide that new plants having a retard thermal input of not less than 50 megawatts and not more than 100 megawatts and licensed before the deadline for incorporation of Directive 94/66/EC [1] into national law shall be obliged to comply with the value set in Annex III by no later/than one year after that deadline.

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2. Before 1 July 1995, and in the light of the state of technology and environmental requirements, the Commission shall submit proposals for the revision of the limit values applicable. The Council shall decide upon such proposals by unanimity.

3. Member States may require compliance with emission limit values and time limits for implementation which are more stringent than those set out in paragraphs 1 and 2; they may include other pollutants, and they may impose additional requirements or adaptation of plant to technical progress.

Article 5

By way of derogation from Annex III:

1. New plants, of a rated thermal input equal to or greater than 400 MW, which do not operate more than 2 200 hours a year (rolling average over a period of five years), shall be subject to a limit value for sulphur dioxide emissions of 800 mg/Nm^3.

2. New plants which burn indigenous solid fuel, where the emission limit value set for sulphur dioxide for such plants cannot be met, owing to the particular nature of the fuel, without using excessively expensive technology, may exceed the limit values laid down in Annex III.

   Such plants shall at least achieve the rates of desulphurization laid down in Annex VIII.

3. Until 31 December 1999, the Kingdom of Spain may authorize new power plants with a rated thermal input equal to or greater than 500 MW burning indigenous or imported solid fuels, commissioned before the end of 2005 and complying with the following requirements:

   — in the case of imported solid fuels, a sulphur dioxide emission limit value of 800 mg/Nm^3,

   — in the case of indigenous solid fuels, at least a 60 % rate of desulphurization,

   provided that the total authorized capacity of such plants to which this derogation applies does not exceed:

   — 2 000 MWe in the case of plants burning indigenous solid fuels,

   — in the case of plants burning imported solid fuels either 7 500 MWe or 50 % of all the new capacity of all plants burning solid fuels authorized up to 31 December 1999, whichever is the lower.

Article 6

Member States may authorize plants burning indigenous lignite to exceed the emission limit values fixed in accordance with Article 4 if, notwithstanding the application of best available technology not entailing excessive costs, major difficulties connected with the nature of the lignite so require and provided that lignite is an essential source of fuel for the plants.

The Commission shall immediately be informed of such cases, which shall be the subject of consultation with the Commission on the appropriate measures to be taken.

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[1] OJ No L 337, 24. 12. 1994, p. 83.

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Article 7

In order to ensure compliance with the emission limit values for oxides of nitrogen in Annex VI, the licences referred to in Article 4 (1) may require, *inter alia*, appropriate design specifications.

In the event that monitoring reveals that due to unforeseen reasons, the emission limit value is not being complied with, the competent authority shall require the operator to take all appropriate primary measures to achieve compliance as soon as possible and in any case within one year. The Commission shall immediately be informed of such cases and of the results of the remedial measures taken.

The provisions of this Article shall be reviewed on the basis of a proposal from the Commission to be submitted to the Council at the same time as the proposals referred to in Article 4 (2).

Article 8

1. Member States shall ensure that provision is made in the licences referred to in Article 4 (1) for procedures relating to malfunction or breakdown of the abatement equipment. In case of a breakdown the competent authority shall be notified without delay and shall decide upon the appropriate action. The competent authority shall in particular require the operator to reduce or close down operations as soon as practicable and until normal operations can be restored, or to operate the plant using low polluting fuels, except in cases where, in the judgement of the competent authority, there is an overriding need to maintain electricity supplies. It shall in particular ensure that the operator takes all the necessary steps to recommission the abatement equipment as soon as possible.

2. The competent authority may allow a suspension for a maximum of six months from the obligation to comply with the emission limit values provided for in Article 4 for sulphur dioxide in respect of a plant which to this end normally uses low-sulphur fuel, in cases where the operator is unable to comply with these limit values because of an interruption in the supply of low-sulphur fuel resulting from a serious shortage.

3. The competent authority may allow a derogation from the obligation to comply with the emission limit values provided for in Article 4 in cases where a plant which normally uses only gaseous fuel, and which would otherwise need to be equipped with a waste gas purification facility, has to resort exceptionally, and for a short period, to the use of other fuels because of a sudden interruption in the supply of gas. The competent autority shall immediately be informed of each specific case as it arises.

4. Member States shall inform the Commission immediately of the cases referred to in this Article.

Article 9

1. For the purpose of granting the licence referred to in Article 4 (1) for a new plant with a multi-fuel firing unit involving the simultaneous use of two or more fuels, the competent authorities shall set the emission limit values as follows:

— firstly by taking the emission limit value relevant for each individual fuel and pollutant corresponding to the rated thermal input of the combustion plant as given in Annexes III to VII,

— secondly by determining fuel-weighted emission limit values, which are obtained by multiplying the above individual emission limit value by the thermal input delivered by each fuel, the product of multiplication being divided by the sum of the thermal inputs delivered by all fuels,

— thirdly by aggregating the fuel-weighted limit values.

2. In multi-firing units using the distillation and conversion residues from crude-oil refining for own consumption, alone or with other fuels, the provisions for the fuel with the highest emission limit value

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(determinative fuel) shall apply, notwithstanding paragraph 1 above, if during the operation of the combustion plant the proportion contributed by that fuel to the sum of the thermal inputs delivered by all fuels is at least 50 %.

Where the proportion of the determinative fuel is lower than 50 %, the emission limit value is determined on a *pro rata*basis of the heat input supplied by the individual fuels in relation to the sum of the thermal inputs delivered by all fuels as follows:

— firstly by taking the emission limit value relevant for each individual fuel and pollutant corresponding to the rated heat input of the combustion plant as given in Annexes III to VII,

— secondly by calculating the emission limit value of the determinative fuel (fuel with the highest emission limit value according to Annexes III to VII and, in the case of two fuels having the same emission limit value, the fuel with the higher thermal input); this value is obtained by multiplying the emission limit value laid down in Annexes III to VII for that fuel by a factor of two, and subracting from this product the emission limit value of the fuel with the lowest emission limit value,

— thirdly by determining the fuel-weighted emission limit values, which are obtained by multiplying the calculated fuel emission limit value by the thermal input of the determinative fuel and the other individual emission limit values by the thermal input delivered by each fuel, the product of multiplication being divided by the sum of the thermal inputs delivered by all fuels,

— fourthly by aggregating the fuel-weighted emission limit values.

3. As an alternative to paragraph 2, an emission limit value for sulphur dioxide of 1 000 mg/Nm^3 can be applied, averaged over all new plants of the refinery and irrespective of the fuel combinations used.

The competent authorities shall ensure that the application of this provision does not lead to an increase in emissions from existing plants.

4. For the purpose of granting the licence referred to in Article 4 (1) for a new plant with a multi-fuel firing unit involving the alternate use of two or more fuels, the emission limit values set in Annexes III to VII corresponding to each fuel used shall apply.

Article 10

Waste gases from combustion plants shall be discharged in controlled fashion by means of a stack.

The licence referred to in Article 4 (1) shall lay down the discharge conditions. The competent authority shall in particular ensure that the stack height is calculated in such a way as to safeguard health and the environment.

Article 11

Where a combustion plant is extended by at least 50 MW, the emission limit value to be applied to the new part of the plant shall be fixed in relation to the thermal capacity of the entire plant. This provision shall not apply in the cases referred to in Article 9 (2) and (3).

Article 12

In the case of construction of combustion plants which are likely to have significant effects on the environment in another Member State, the Member States shall ensure that all appropriate information and consultation takes place, in accordance with Article 7 of Council Directive 85/337/EEC of 27 June 1985 on the assessment of the effects of certain public and private projects on the environment. ([1])

([1]) OJ No L 175, 5. 7. 1985, p. 40.

▼B

Article 13

1. Member States shall take the necessary measures to ensure the monitoring, in accordance with Annex IX, of emissions from the combustion plants covered by this Directive and of all other values required for the implementation of this Directive. Member States may require that such monitoring shall be carried out at the operator's expense.

2. The measuring methods and/or equipment used in order to determine the concentrations of sulphur dioxide, dust, oxides of nitrogen and oxygen and the other values required in order to monitor implementation of this Directive, and all other equipment used in order to evaluate the results, shall correspond to the best industrial measurement technology and shall provide reproducible and comparable results.

The determination methods must be approved by the competent authorities.

3. The competent authorities shall make available information relating to the performance criteria for measuring, calibration and data-handling equipment or methods used to this end and shall forward this information to the Commission.

Article 14

The Member States shall take appropriate measures to ensure that the operator informs the competent authorities within reasonable time limits about the results of the continuous measurements, the checking of the measuring equipment, and the individual measurements and about all other measurements carried out in order to assess compliance with this Directive.

Article 15

1. In the event of continuous measurements, the emission limit values set out in Annexes III to VII shall be regarded as having been complied with if the evaluation of the results indicates, for operating hours within a calendar year, that:

a) none of the calendar monthly mean values exceeds the emission limit values; and

b) in the case of:

   — sulphur dioxide and dust: 97 % of all the 48 hourly mean values do not exceed 110 % of the emission limit values,

   — oxides of nitrogen: 95 % of all the 48 hourly mean values do not exceed 110 % of the emission limit values.

The periods referred to in Article 8 as well as start up and shut down periods shall be disregarded.

2. In cases where only discontinuous measurements or other appropriate procedures for determination are required, the emission limit values set out in Annexes III to VII shall be regarded as having been complied with if the results of each of the series of measurements or of the other procedures defined and determined according to the rules laid down by the competent authorities do not exceed the emission limit values.

3. In the cases referred to in Article 5 (2) and (3), the rates of desulphurization shall be regarded as having been complied with if the evalutation of measurements carried out pursuant to Annex IX, point A.2, indicates that all of the calendar monthly mean values or all of the rolling monthly mean values achieve the required desulphurization rates.

The periods referred to in Article 8 as well as start up and shut down periods shall be disregarded.

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Article 16

1. Member States shall, not later than 31 December 1990, inform the Commission of the programmes drawn up in accordance with Article 3 (1).

At the latest one year after the end of the different phases for reduction of emissions from existing plants the Member States shall forward to the Commission a summary report on the results of the implementation of the programmes.

An intermediate report is required as well in the middle of each phase.

2. The reports referred to in paragraph 1 shall provide an overall view:

— of all the combustion plants covered by this Directive,

— of emissions of sulphur dioxide, and oxides of nitrogen expressed in tonnes *per annum* and as concentrations of these substances in the waste gases,

— of measures already taken or envisaged with a view to reducing emissions, and of changes in the choice of fuel used,

— of changes in the method of operation already made or envisaged,

— of definitive closures of combustion plants already effected or envisaged,

— and, where appropriate, of the emission limit values imposed in the programmes in respect of existing plants.

When determining the annual emissions and concentrations of pollutants in the waste gases, Member States shall take account of the provisions of Articles 13, 14 and 15.

3. The Commission shall organize regular comparisons of the programmes referred to in Article 3 (1) with the Member States in order to ensure harmonized implementation of the programmes at Community level.

The Commission shall take particular care to ensure that the implementation of the programmes produces the expected results in terms of the overall reduction in emissions and shall, if necessary, make appropriate proposals.

4. Member States applying Article 5 will report thereon annually to the Commission.

Article 17

1. Member States shall bring into force the laws, regulations and administrative provisions necessary for them to comply with this Directive no later than 30 June 1990. They shall forthwith inform the Commission thereof.

2. Member States shall communicate to the Commission the texts of the provisions of national law which they adopt in the field governed by this Directive.

Article 18

This Directive is addressed to the Member States.

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ANNEX I

CEILINGS AND REDUCTION TARGETS FOR EMISSIONS OF SO_2 FROM EXISTING PLANTS (1) (2)

Member State		1	2	3	4	5	6	7	8	9
	0	Emission ceiling (ktonnes/year)			% reduction over 1980 emissions			% reduction over adjusted 1980 emissions		
	SO_2 emissions by large combustion plants 1980	Phase 1	Phase 2	Phase 3	Phase 1	Phase 2	Phase 3	Phase 1	Phase 2	Phase 3
		1993	1998	2003	1993	1998	2003	1993	1998	2003
Belgium	530	318	212	159	− 40	− 60	− 70	− 40	− 60	− 70
Denmark	323	213	141	106	− 34	− 56	− 67	− 40	− 60	− 70
▼M1										
Germany	5 000	3 000 (3)	2 000	1 500	− 40 (3)	− 60	− 70	(3)	—	—
▼B										
Greece	303	320	320	320	+ 6	+ 6	+ 6	− 45	− 45	− 45
Spain	2 290	2 290	1 730	1 440	0	− 24	− 37	− 21	− 40	− 50
France	1 910	1 146	764	573	− 40	− 60	− 70	− 40	− 60	− 70
Ireland	99	124	124	124	+ 25	+ 25	+ 25	− 29	− 29	− 29
Italy	2 450	1 800	1 500	900	− 27	− 39	− 63	− 40	− 50	− 70
Luxembourg	3	1,8	1,5	1,5	− 40	− 50	− 60	− 40	− 50	− 50
Netherlands	299	180	120	90	− 40	− 60	− 70	− 40	− 60	− 70
Portugal	115	232	270	206	+ 102	+ 135	+ 79	− 25	− 13	− 34
United Kingdom	3 883	3 106	2 330	1 553	− 20	− 40	− 60	− 20	− 40	− 60
▼A1										
Austria	90	54	36	27	− 40	− 60	− 70	− 40	− 60	− 70
Finland	171	102	68	51	− 40	− 60	− 70	− 40	− 60	− 70
Sweden	112	67	45	34	− 40	− 60	− 70	− 40	− 60	− 70

▼B

(1) Additional emissions may arise from capacity authorized on or after 1 July 1987.

(2) Emissions coming from combustion plants authorized before 1 July 1987 but not yet in operation before that date and which have not been taken into account in establishing the emission ceilings fixed by this Annex shall either comply with the requirements established by this Directive for new plants or be accounted for in the overall emissions from existing plants that must not exceed the ceilings fixed in this Annex.

►M1 (3) Germany must comply with the value shown under this heading from 1 January 1996 onwards. ◄

▼B

ANNEX II

CEILINGS AND REDUCTION TARGETS FOR EMISSIONS OF NO_x FROM EXISTING PLANTS (1) (2)

Member State	0	1	2	3	4	5	6
	NO_x emission (as NO_2 by large plants 1980 (ktonnes/year)	NO_x emission ceiling (ktonnes/year)		% reduction over 1980 emissions		% reduction over adjusted 1980 emissions	
		Phase 1	Phase 2	Phase 1	Phase 2	Phase 1	Phase 2
		1993 (3)	1998	1993 (3)	1998	1993 (3)	1998
Belgium	110	88	66	− 20	− 40	− 20	− 40
Denmark	124	121	81	− 3	− 35	− 10	− 40
▼M1							
Germany	1 090	872 (4)	654	− 20	− 40	—	—
▼B							
Greece	36	70	70	+ 94	+ 94	0	0
Spain	366	368	277	+ 1	− 24	− 20	− 40
France	400	320	240	− 20	− 40	− 20	− 40
Ireland	28	50	50	+ 79	+ 79	0	0
Italy	580	570	428	− 2	− 26	− 20	− 40
Luxembourg	3	2,4	1,8	− 20	− 40	− 20	− 40
Netherlands	122	98	73	− 20	− 40	− 20	− 40
Portugal	23	59	64	+ 157	+ 178	− 8	0
United Kingdom	1 016	864	711	− 15	− 30	− 15	− 30
▼A1							
Austria	19	15	11	− 20	− 40	− 20	− 40
Finland	81	65	48	− 20	− 40	− 20	− 40
Sweden	31	25	19	− 20	− 40	− 20	− 40

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(1) Additional emissions may arise from capacity authorized on or after 1 July 1987.

(2) Emissions coming from combustion plants authorized before 1 July 1987 but not yet in operation before that date and which have not been taken into account in establishing the emission ceilings fixed by this Annex shall either comply with the requirements established by this Directive for new plants or be accounted for in the overall emissions from existing plants that must not exceed the ceilings fixed in this Annex.

(3) Member States may for technical reasons delay for up to two years the phase 1 date for reduction in NO_x emissions by notifying the Commission within one month of the notification of this Directive.

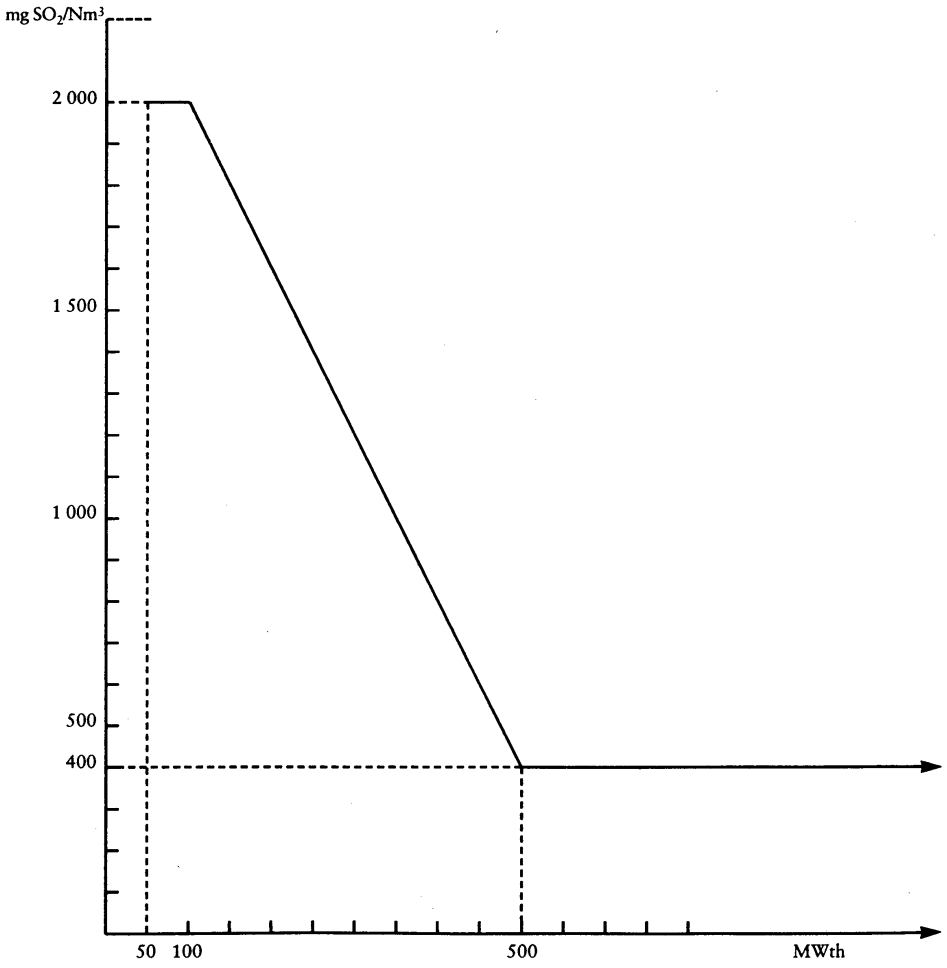
►M1 (4) Germany must comply with the value shown under this heading from 1 January 1996 onwards. ◄

▼M2

ANNEX III

EMISSION LIMIT VALUES FOR SO_2 FOR NEW PLANTS

Solid fuel



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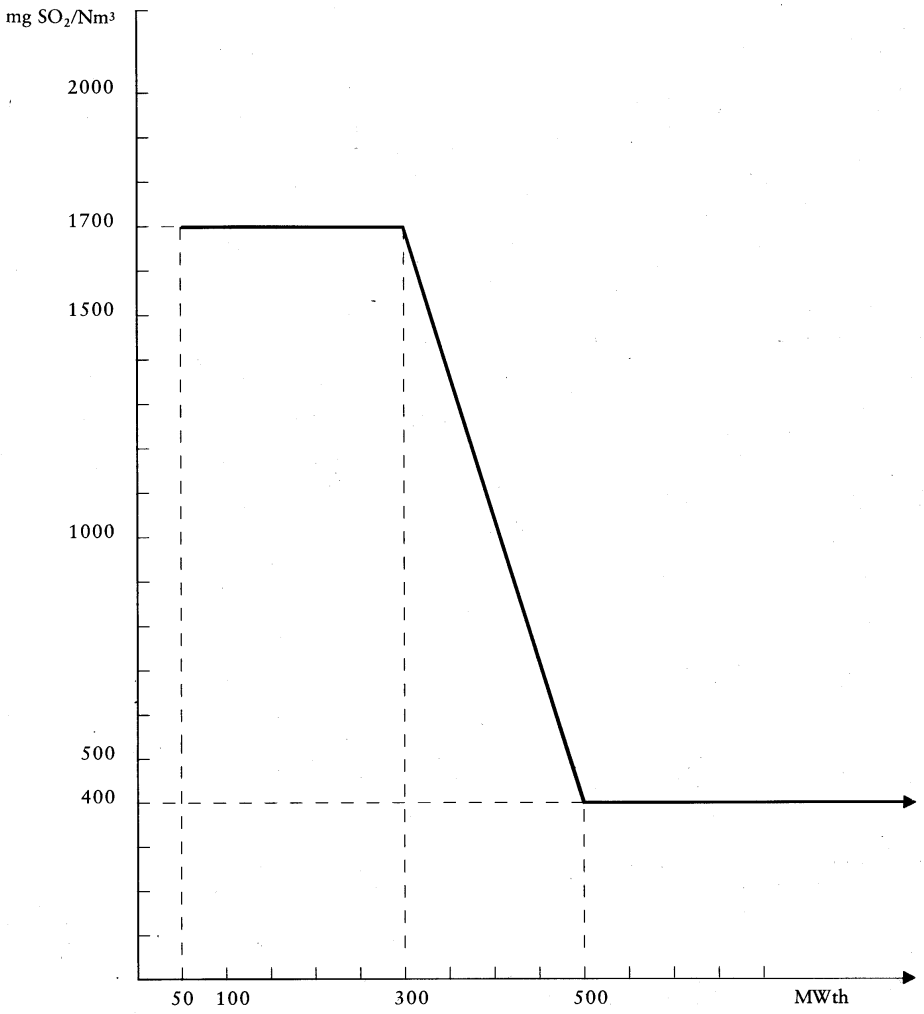
ANNEX IV

EMISSION LIMIT VALUES FOR SO_2 FOR NEW PLANTS

Liquid fuels



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ANNEX V

EMISSION LIMIT VALUES FOR SO_2 FOR NEW PLANTS

Gaseous fuels

Type of fuel	Limit values (mg/Nm^3)
Gaseous fuels in general	35
Liquefied gas	5
Low calorific gases from gasification of refinery residues, coke oven gas, blast-furnace gas	800
Gas from gasification of coal	(1)

(1) The Council will fix the emission limit values applicable to such gas at a later stage on the basis of proposals from the Commission to be made in the light of further technical experience.

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ANNEX VI

EMISSION LIMIT VALUES FOR NO_x FOR NEW PLANTS

Type of fuel	Limit values (mg/Nm^3)
Solid in general	650
Solid with less than 10 % volatile compounds	1 300
Liquid	450
Gaseous	350

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ANNEX VII

EMISSION LIMIT VALUES FOR DUST FOR NEW PLANTS

Type of fuel	Thermal capacity (MW)	Emission limit values (mg/Nm^3)
Solid	≥ 500 < 500	50 100
Liquid (1)	all plants	50
Gaseous	all plants	5 as a rule 10 for blast furnace gas 50 for gases produced by the steel industry which can be used elsewhere

(1) A limit value of 100 mg/Nm^3 may be applied to plants with a capacity of less than 500 MWth burning liquid fuel with an ash content of more than 0,06 %.

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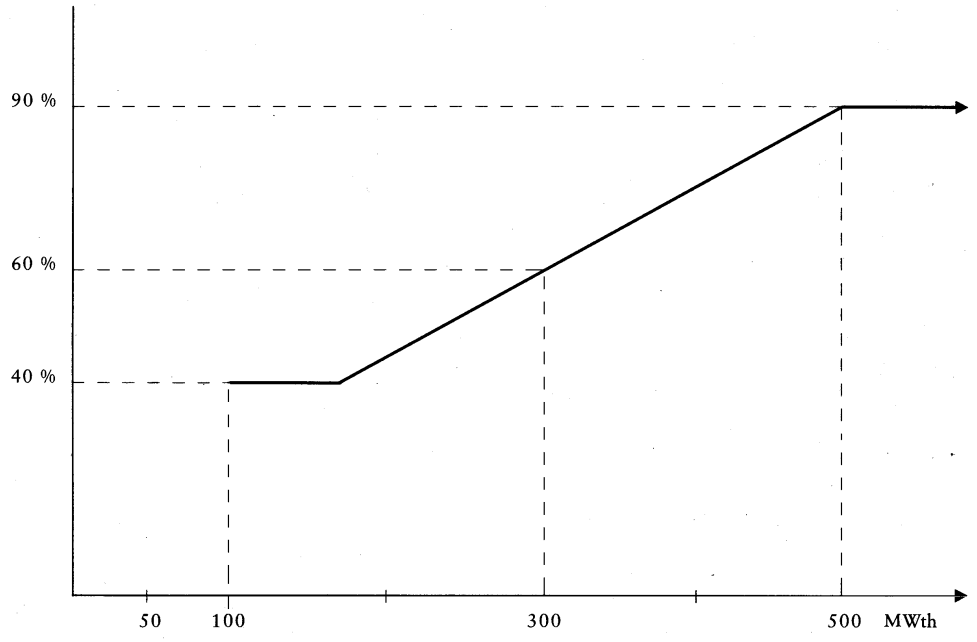
ANNEX VIII

RATES OF DESULPHURIZATION

(pursuant to Article 5 (2))



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ANNEX IX

METHODS OF MEASUREMENT OF EMISSIONS

A. **Procedures for measuring and evaluating emissions from new plants**

1. Concentrations of SO_2, dust, NO_x and oxygen shall be measured continuously in the case of new plants with a rated thermal input of more than 300 MW. However, monitoring of SO_2 and dust may be confined to discontinuous measurements or other appropriate determination procedures in cases where such measurements or procedures, which must be verified and approved by the competent authorities, may be used to obtain concentration.

   In the case of plants not covered by the first subparagraph, the competent authorities may require continuous measurements of those three pollutants and of oxygen to be carried out where considered necessary. Where continuous measurements are not required, discontinuous measurements or appropriate determination procedures as approved by the competent authorities shall be used regularly to evaluate the quantity of the abovementioned substances present in the emissions.

2. In the case of plants which must comply with the desulphurization rates fixed by Article 5 (2) and (3), the requirements concerning SO_2 emission measurements established under paragraph 1 shall apply. Moreover, the sulphur content of the fuel which is introduced into the combustion plant facilities must be regularly monitored.

3. The competent authorities shall be informed of substantial changes in the type of fuel used or in the mode of operation of the plant. They shall decide whether the monitoring requirements laid down in paragraph 1 are still adequate or require adaptation.

4. Continuously-operating measuring systems shall be checked at regular intervals in consultation with the competent authorities. The instruments for the measurement of concentrations of SO_2, dust, NO_x and oxygen shall undergo basic calibrationn and an examination of their operation at appropriate regular intervals. The continuously-operating measuring equipment shall be calibrated in accordance with a reference measuring method approved by the competent authority.

B. **Determination of total annual emissions of new plants**

The competent authorities shall obtain determination of the total annual emissions of SO_2 and NO_x. When continuous monitoring is used, the operator of the combustion plant shall add up separately for each pollutant the mass of pollutant emitted each day, on the basis of the volumetric flow rates of waste gases. Where continuous monitoring is not in use, estimates of the total annual emissions shall be determined by the operator on the basis of paragraph A.1 to the satisfaction of the competent authorities.

Member States shall communicate to the Commission the total annual SO_2 and NO_x emissions of new combustion plants at the same time as the communication required under paragraph C.3 concerning the total annual emissions of existing plants.

C. **Determination of the total annual emissions of existing plants**

1. Member States shall establish, starting in 1990 and for each subsequent year, a complete emission inventory for existing plants covering SO_2 and NO_x:

   — on a plant by plant basis for plants above 300 MWth and for refineries;

   — on an overall basis for other combustion plants to which this Directive applies.

2. The methodology used for these inventories shall be consistent with that used to determine SO_2 and NO_x emissions from combustion plants in 1980.

   By 1990 Member States shall inform the Commission of full details of methods and base data used for establishing the emissions of SO_2 and NO_x from existing combustion plants, referred to respectively in Annexes I and II, column 0.

3. The results of this inventory shall be communicated to the Commission in a conveniently aggregated form within nine months from the end of the year considered.

   The methodology used for establishing such emission inventories and the detailed base information shall be made available to the Commission at its request.

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4. The Commission shall organize a systematic comparison of such national inventories and, if appropriate, shall present proposals to the Council aiming at harmonizing emission inventory methodologies, for the needs of an effective implementation of this Directive.