Directive 2001/80/EC of the European Parliament and of the Council of 23 October 2001 on the limitation of emissions of certain pollutants into the air from large combustion plants (repealed)

ANNEX I $\mbox{CEILINGS AND REDUCTION TARGETS FOR} \\ \mbox{EMISSIONS OF SO}_2 \mbox{ FROM EXISTING PLANTS}^{(1)(2)}$

Memb	er0	1	2	3	4	5	6	7	8	9
State	SO ₂ emission by	Emissi mseiling	on (ktonne	s/year)		uction o missions			uction o ed 1980 ons	ver
	large combu plants 1980kt	1993	Phase 2 1998	Phase 3 2003	Phase 1 1993	Phase 2 1998	Phase 3 2003	Phase 1 1993	Phase 2 1998	Phase 3 2003
Belgiun	n530	318	212	159	-40	-60	-70	-40	-60	-70
[F1Bulga	ntia734	1 410	1 300	1 190	-19	-25	-31	-19	-25	-31]
[F2Czecl Republi		919	303	155	35	79	89	35	79	89]
Denmar	k323	213	141	106	-34	-56	-67	-40	-60	-70
German	y2 225	1 335	890	668	-40	-60	-70	-40	-60	-70
[F2Eston	i 2 40	123	91	76	49	62	68	49	62	68]
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
[F2Cypro	₁ §7	29	32	34	+71	+88	+100	+71	+88	+100
Latvia	60	40	30	25	30	50	60	30	50	60
Lithuan	ia 63	52	64	75	68	61	54	68	61	54]
Luxemb	durg	1,8	1,5	1,5	-40	-50	-60	-40	-50	-50
[F2Hung	a720	429	448	360	40	38	50	40	38	50
Malta	12	13	17	14	+14	+51	+17	+14	+51	+17]
Netherla	a 209	180	120	90	-40	-60	-70	-40	-60	-70
Portuga	1115	232	270	206	+102	+135	+79	-25	-13	-34
[F2Polan	₽ 087	1 454	1 176	1 110	30	44	47	30	44	47
[F1Roma	เล็หโ	692	503	518	23	-10	-8	23	-10	-8]
Sloveni	a125	122	98	49	2	22	61	2	22	61
Slovaki	a450	177	124	86	60	72	81	60	72	81]

United Kingdon		3 106	2 330	1 553	-20	-40	-60	-20	-40	-60
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

Textual Amendments

- **F1** Inserted by Council Directive 2006/105/EC of 20 November 2006 adapting Directives 73/239/EEC, 74/557/EEC and 2002/83/EC in the field of environment, by reason of the accession of Bulgaria and Romania
- **F2** Inserted by Act concerning the conditions of accession of the Czech Republic, the Republic of Estonia, the Republic of Cyprus, the Republic of Latvia, the Republic of Lithuania, the Republic of Hungary, the Republic of Malta, the Republic of Poland, the Republic of Slovenia and the Slovak Republic and the adjustments to the Treaties on which the European Union is founded.

ANNEX II $\label{eq:ceilings} \mbox{CEILINGS AND REDUCTION TARGETS FOR } \\ \mbox{EMISSIONS OF NO}_X \mbox{ FROM EXISTING PLANTS}^{(3)(4)}$

Member	0	1	2	3	4	5	6
State	NO _x NO _x emission ceilings(ktonnes/ year)		% reduction over 1980 emissions		% reduction over adjusted 1980 emissions		
	NO ₂)	Phase 1	Phase 2	Phase 1	Phase 2	Phase 1	Phase 2
	by large combustic plants 1980kton		1998	1993ª	1998	1993 ^a	1998
Belgium	110	88	66	-20	-40	-20	-40
[F1Bulgaria	155	125	95	-19	-39	-19	-39]
[F2Czech Republic	403	228	113	43	72	43	72]
Denmark	124	121	81	-3	-35	-10	-40
Germany	870	696	522	-20	-40	-20	-40
[F2Estonia	20	10	12	52	40	52	40]
Greece	36	70	70	+94	+94	0	0
Spain	366	368	277	+1	-24	-20	-40

a 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.

France	400	320	240	-20	-40	-20	-40
Ireland	28	50	50	+79	+79	0	0
Italy	580	570	428	-2	-26	-20	-40
[F2Cyprus	3	5	6	+67	+100	+67	+100
Latvia	10	10	9	4	10	4	10
Lithuania	21	8	11	62	48	62	48]
Luxembou	rĝ	2,4	1,8	-20	-40	-20	-40
[F2Hungary	68	33	34	51	49	51	49
Malta	1,7	7	2,5	+299	+51	+299	+51]
Netherland	ls122	98	73	-20	-40	-20	-40
Portugal	23	59	64	+157	+178	-8	0
[F2Poland	698	426	310	39	56	39	56
[F1Romania	a 135	135	77	-1	-43	-1	-43]
Slovenia	17	15	16	12	6	12	6
Slovakia	141	85	46	40	67	40	67]
United Kingdom	1 016	864	711	-15	-30	-15	-30
Austria	19	15	11	-20	-40	-20	-40
Finland	81	65	48	-20	-40	-20	-40
Sweden	31	25	19	-20	-40	-20	-40

a 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.

ANNEX III

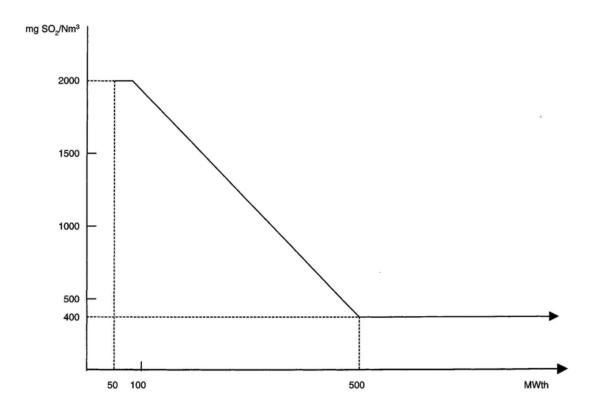
EMISSION LIMIT VALUES FOR SO₂

Solid fuel

A. SO₂ emission limit values expressed in mg/Nm³ (O₂ content 6 %) to be applied by new and existing plants pursuant to Article 4(1) and 4(3) respectively:

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NB.

Where the emission limit values above cannot be met due to the characteristics of the fuel, a rate of desulphurisation of at least 60 % shall be achieved in the case of plants with a rated thermal input of less than or equal to 100 MWth, 75 % for plants greater than 100 MWth and less than or equal to 300 MWth and 90 % for plants greater than 300 MWth. For plants greater than 500 MWth, a desulphurisation rate of at least 94 % shall apply or of at least 92 % where a contract for the fitting of flue gas desulphurisation or lime injection equipment has been entered into, and work on its installation has commenced, before 1 January 2001.

B. SO₂ emission limit values expressed in mg/Nm³ (O₂ content 6 %) to be applied by new plants pursuant to Article 4(2) with the exception of gas turbines.

Type of fuel	50 to 100 MWth	100 to 300 MWth	> 300 MWth
Biomass	200	200	200
General case	850	200ª	200

Except in the case of the 'Outermost Regions' where 850 to 200 mg/Nm3 (linear decrease) shall apply.

NB.

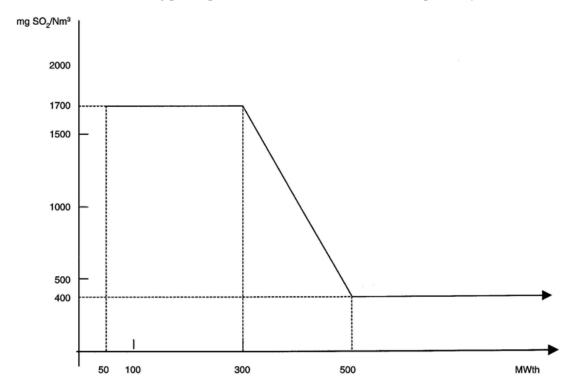
Where the emission limit values above cannot be met due to the characteristics of the fuel, installations shall achieve 300 mg/Nm³ SO₂, or a rate of desulphurisation of at least 92 % shall be achieved in the case of plants with a rated thermal input of less than or equal to 300 MWth and in the case of plants with a rated thermal input greater than 300 MWth a rate of desulphurisation of at least 95 % together with a maximum permissible emission limit value of 400 mg/Nm³ shall apply.

ANNEX IV

EMISSION LIMIT VALUES FOR SO₂

Liquid fuels

A. SO₂ emission limit values expressed in mg/Nm³ (O₂ content 3 %) to be applied by new and existing plants pursuant to Article 4(1) and 4(3), respectively:



B. SO₂ emission limit values expressed in mg/Nm³ (O₂ content 3 %) to be applied by new plants pursuant to Article 4(2) with the exception of gas turbines

50 to 100 MWth	100 to 300 MWth	> 300 MWth
850	400 to 200	200
	(linear decrease) ^a	

a Except in the case of the 'Outermost Regions' where 850 to 200 mg/Nm³ (linear decrease) shall apply.

In the case of two installations with a rated thermal input of 250 MWth on Crete and Rhodos to be licensed before 31 December 2007 the emission limit value of 1 700 mg/Nm³ shall apply.

ANNEX V

EMISSION LIMIT VALUES FOR SO₂

Gaseous fuels

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A. SO₂ emission limit values expressed in mg/Nm³ (O₂ content 3 %) to be applied by new and existing plants pursuant to Article 4(1) and 4(3), respectively:

Type of fuel	Limit values(mg/Nm³)
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	a

a 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.

B. SO₂ emission limit values expressed in mg/Nm³ (O₂ content 3 %) to be applied by new plants pursuant to Article 4(2):

Gaseous fuels in general	35
Liquefied gas	5
Low calorific gases from coke oven	400
Low caloric gases from blast furnace	200

ANNEX VI

EMISSION LIMIT VALUES FOR NO_X (MEASURED AS NO₂)

A.

 NO_x emission limit values expressed in mg/Nm³ (O_2 content 6 % for solid fuels, 3 % for liquid and gaseous fuels) to be applied by new and existing plants pursuant to Article 4(1) and 4(3), respectively:

Type of fuel:	Limit values ^a (mg/Nm ³)
Solid ^b , c:	
50 to 500 MWth:	600
>500 MWth:	500
From 1 January 2016	1
50 to 500 MWth:	600
>500 MWth:	200
Liquid:	1
50 to 500 MWth:	450
>500 MWth:	400

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Gaseous:				
50 to 500 MWth:	300			
>500 MWth:	200			

Except in the case of the 'Outermost Regions' where the following values shall apply:

Solid in general: 650

Solid with < 10 % vol comps: 1 300

Liquid: 450 Gaseous: 350

- Until 31 December 2015 plants of a rated thermal input greater than 500 MW, which from 2008 onwards do not operate more than 2 000 hours a year (rolling average over a period of five years), shall:
 - in the case of plant licensed in accordance with Article 4(3)(a), be subject to a limit value for nitrogen oxide emissions (measured as NO₂) of 600 mg/Nm³;
 - In the case of plant subject to a national plan under Article 4(6), have their contribution to the national plan assessed on the basis of a limit value of 600 mg/Nm₃.

From 1 January 2016 such plants, which do not operate more than 1 500 hours a year (rolling average over a period of five years), shall be subject to a limit value for nitrogen oxide emissions (measured as NO₂) of 450 mg/Nm³.

- Until 1 January 2018 in the case of plants that in the 12 month period ending on 1 January 2001 operated on, and continue to operate on, solid fuels whose volatile content is less than 10 %, 1 200 mg/Nm³ shall apply.
- B. NO_x emission limit values expressed in mg/Nm³ to be applied by new plants pursuant to Article 4(2) with the exception of gas turbines Solid fuels (O₂ content 6 %)

Type of fuel	50 to 100 MWth	100 to 300 MWth	> 300 MWth
Biomass	400	300	200
General case	400	200ª	200

Except in the case of the 'Outermost Regions' where 300 mg/Nm³ shall apply.

Liquid fuels (O₂ content 3 %)

50 to 100 MWth	100 to 300 MWth	> 300 MWth
400	200ª	200

Except in the case of the 'Outermost Regions' where 300 mg/Nm³ shall apply.

In the case of two installations with a rated thermal input of 250 MWth on Crete and Rhodos to be licensed before 31 December 2007 the emission limit value of 400 mg/Nm³ shall apply. Gaseous fuels (O₂ content 3 %)

	50 to 300 MWth	> 300 MWth
Natural gas (note 1)	150	100
Other gases	200	200

Gas Turbines

NO_x emission limit values expressed in mg/Nm³ (O₂ content 15 %) to be applied by a single gas turbine unit pursuant to Article 4(2) (the limit values apply only above 70 % load):

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	> 50 MWth(thermal input at ISO conditions)
Natural gas (Note 1)	50(Note 2)
Liquid fuels (Note 3)	120
Gaseous fuels (other than natural gas)	120

Gas turbines for emergency use that operate less than 500 hours per year are excluded from these limit values. The operator of such plants is required to submit each year to the competent authority a record of such used time.

Note 1:

Natural gas is naturally occurring methane with not more than 20 % (by volume) of inerts and other constituents.

Note 2:

75 mg/Nm³ in the following cases, where the efficiency of the gas turbine is determined at ISO base load conditions:

- gas turbines, used in combined heat and power systems having an overall efficiency greater than 75 %;
- gas turbines used in combined cycle plants having an annual average overall electrical efficiency greater than 55 %;
- gas turbines for mechanical drives.

For single cycle gas turbines not falling into any of the above categories, but having an efficiency greater than 35 % - determined at ISO base load conditions - the emission limit value shall be $50*\eta/35$ where η is the gas turbine efficiency expressed as a percentage (and at ISO base load conditions).

Note 3:

This emission limit value only applies to gas turbines firing light and middle distillates.

ANNEX VII

EMISSION LIMIT VALUES FOR DUST

A.

Dust emission limit values expressed in mg/Nm³ (O₂ content 6 % for solid fuels, 3 % for liquid and gaseous fuels) to be applied by new and existing plants pursuant to Article 4(1) and 4(3), respectively:

Type of fuel	Rated thermal input(MW)	Emission limit values(mg/Nm³)
Solid	≥ 500	50 ^b

A limit value of 100 mg/Nm³ may be applied to plants with a rated thermal input of less than 500 MWth burning liquid fuel with an ash content of more than 0,06 %.

A limit value of 100 mg/Nm³ may be applied to plants licensed pursuant to Article 4(3) with a rated thermal input greater than or equal to 500 MWth burning solid fuel with a heat content of less than 5 800 kJ/kg (net calorific value), a moisture content greater than 45 % by weight, a combined moisture and ash content greater than 60 % by weight and a calcium oxide content greater than 10 %.

	< 500	100
Liquid ^a	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

^a A limit value of 100 mg/Nm³ may be applied to plants with a rated thermal input of less than 500 MWth burning liquid fuel with an ash content of more than 0,06 %.

B. Dust emission limit values expressed in mg/Nm³ to be applied by new plants, pursuant to Article 4(2) with the exception of gas turbines: Solid fuels (O₂ content 6 %)

50 to 100 MWth	> 100 MWth
50	30

Liquid fuels (O₂ content 3 %)

50 to 100 MWth	> 100 MWth
50	30

In the case of two installations with a rated thermal input of 250 MWth on Crete and Rhodos to be licensed before 31 December 2007 the emission limit value of 50 mg/Nm 3 shall apply. Gaseous fuels (O₂ content 3 %)

As a rule	5
For blast furnace gas	10
For gases produced by the steel industry which can be used elsewhere	30

ANNEX VIII

METHODS OF MEASUREMENT OF EMISSIONS

A.Procedures for measuring and evaluating emissions from combustion plants.

1. Until 27 November 2004

Concentrations of SO₂, dust, NO_x shall be measured continuously in the case of new plants for which a licence is granted pursuant to Article 4(1) with a rated thermal input of more than 300 MW. However, monitoring of SO₂ and dust may be confined to discontinuous measurements or other appropriate determination procedures in cases where such measurements or procedures,

b A limit value of 100 mg/Nm³ may be applied to plants licensed pursuant to Article 4(3) with a rated thermal input greater than or equal to 500 MWth burning solid fuel with a heat content of less than 5 800 kJ/kg (net calorific value), a moisture content greater than 45 % by weight, a combined moisture and ash content greater than 60 % by weight and a calcium oxide content greater than 10 %.

which must be verified and approved by the competent authorities, may be used to obtain concentration.

In the case of new plants for which a licence is granted pursuant to Article 4(1) not covered by the first subparagraph, the competent authorities may require continuous measurements of those three pollutants 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 above-mentioned substances present in the emissions.

2. From 27 November 2002 and without prejudice to Article 18(2)

Competent authorities shall require continuous measurements of concentrations of SO_2 , NO_x , and dust from waste gases from each combustion plant with a rated thermal input of 100 MW or more.

By way of derogation from the first subparagraph, continuous measurements may not be required in the following cases:

- for combustion plants with a life span of less than 10 000 operational hours;
- for SO₂ and dust from natural gas burning boilers or from gas turbines firing natural gas;
- for SO₂ from gas turbines or boilers firing oil with known sulphur content in cases where there is no desulphurisation equipment;
- for SO₂ from biomass firing boilers if the operator can prove that the SO₂ emissions can under no circumstances be higher than the prescribed emission limit values.

Where continuous measurements are not required, discontinuous measurements shall be required at least every six months. As an alternative, appropriate determination procedures, which must be verified and approved by the competent authorities, may be used to evaluate the quantity of the above mentioned pollutants present in the emissions. Such procedures shall use relevant CEN standards as soon as they are available. If CEN standards are not available ISO standards, national or international standards which will ensure the provision of data of an equivalent scientific quality shall apply.

- 3. In the case of plants which must comply with the desulphurisation rates fixed by Article 5(2) and Annex III, the requirements concerning SO₂ emission measurements established under paragraph 2 of this point shall apply. Moreover, the sulphur content of the fuel which is introduced into the combustion plant facilities must be regularly monitored.
- 4. 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 2 are still adequate or require adaptation.
- 5. The continuous measurements carried out in compliance with paragraph 2 shall include the relevant process operation parameters of oxygen content, temperature, pressure and water vapour content. The continuous measurement of the water vapour content of the exhaust gases shall not be necessary, provided that the sampled exhaust gas is dried before the emissions are analysed.

Representative measurements, i.e. sampling and analysis, of relevant pollutants and process parameters as well as reference measurement methods to calibrate automated measurement systems shall be carried out in accordance with CEN standards as soon as they are available. If CEN standards are not available ISO standards, national or international standards which will ensure the provision of data of an equivalent scientific quality shall apply.

Continuous measuring systems shall be subject to control by means of parallel measurements with the reference methods at least every year.

6. The values of the 95 % confidence intervals of a single measured result shall not exceed the following percentages of the emission limit values:

Sulphur dioxide	20 %
Nitrogen oxides	20 %
Dust	30 %

The validated hourly and daily average values shall be determined from the measured valid hourly average values after having subtracted the value of the confidence interval specified above.

Any day in which more than three hourly average values are invalid due to malfunction or maintenance of the continuous measurement system shall be invalidated. If more than ten days over a year are invalidated for such situations the competent authority shall require the operator to take adequate measures to improve the reliability of the continuous monitoring system.

B. Determination of total annual emissions of combustion plants

Until and including 2003 the competent authorities shall obtain determination of the total annual emissions of SO_2 and NO_x from new combustion plants. 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 SO₂ 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.

Member States shall establish, starting in 2004 and for each subsequent year, an inventory of SO_2 , NO_x and dust emissions from all combustion plants with a rated thermal input of 50 MW or more. The competent authority shall obtain for each plant operated under the control of one operator at a given location the following data:

- the total annual emissions of SO_2 , NO_x and dust (as total suspended particles).
- the total annual amount of energy input, related to the net calorific value, broken down in terms of the five categories of fuel: biomass, other solid fuels, liquid fuels, natural gas, other gases.

A summary of the results of this inventory that shows the emissions from refineries separately shall be communicated to the Commission every three years within twelve months from the end of the three-year period considered . The yearly plant-by-plant data shall be made available to the Commission upon request. The Commission shall make available to the Member States a summary of the comparison and evaluation of the national inventories within twelve months of receipt of the national inventories.

Commencing on 1 January 2008 Member States shall report annually to the Commission on those existing plants declared for eligibility under Article 4(4) along with the record of the used and unused time allowed for the plants' remaining operational life.

C. Determination of the total annual emissions of existing plants until and including 2003.

- 1. Member States shall establish, starting in 1990 and for each subsequent year until and including 2003, a complete emission inventory for existing plants covering SO₂ 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 SO₂ and NO_x emissions from combustion plants in 1980.
- 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.
- 4. The Commission shall organise a systematic comparison of such national inventories and, if appropriate, shall submit proposals to the Council aiming at harmonising emission inventory methodologies, for the needs of an effective implementation of this Directive.

ANNEX IX

TIME-LIMITS FOR TRANSPOSITION AND IMPLEMENTATION OF THE REPEALED DIRECTIVE

(referred to in Article 17(1))

Directive	Time-limits for transposition	Time-limits for application
88/609/EEC (OJ L 336, 7.12.1988, p. 1)	30 June 1990	1 July 1990 31 December 1990 31 December 1993 31 December 1998 31 December 2003
94/66/EC (OJ L 337, 24.12.1994, p. 83)	24 June 1995	

ANNEX X

CORRELATION TABLE

(Referred to in Article 17(3))

This Directive	Directive 88/609/EEC
Article 1	Article 1
Article 2	Article 2
Article 3	Article 3

Article 4(1)	Article 4(1)
Article 4(2), (3) and (4)	
Article 4(5)	Article 4(3)
Article 4(6), (7) and (8)	
Article 5	Article 5
	Article 6
Article 6	
Article 7	Article 8
Article 8	Article 9
Article 9	Article 10
Article 10	Article 11
Article 11	Article 12
Article 12	Article 13(1)
Article 13	Article 14
Article 14	Article 15
Article 15(1), (2) and (3)	Article 16(1), (2) and (4)
Article 16	
Article 17	
Article 18(1), first subparagraph, and (3)	Article 17(1) and (2)
Article 18(1), second subparagraph, and (2) and Article 19	
Article 20	Article 18
Annexes I to VIII	Annexes I to IX
Annex IX and X	_

- (1) Additional emissions may arise from capacity authorised on or after 1 July 1987.
- (2) Emissions coming from combustion plants authorised 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) Additional emissions may arise from capacity authorised on or after 1 July 1987.
- (4) Emissions coming from combustion plants authorised 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.