

DIRECTIVE 2001/80/EC of 23 October 2001 on the limitation of emissions of certain pollutants into the air from large combustion plants

Adapted by Ministerial Council Decision 2013/05/MC-EnC of 24 October 2013 on the implementation of Directive 2001/80/EC of 23 October 2001 on the limitation of emissions of certain pollutants into the air from large combustion plants and on amending Annex II of the Energy Community Treaty, amended by Ministerial Council Decisions 2024/01/MC-EnC of 1 February 2024 and 2015/07/MC-EnC of 16 October 2015 on amending Decision 2013/05/MC-EnC.

*The adaptations made by Ministerial Council Decisions 2013/05/MC-EnC, 2015/07/MC-EnC and 2024/01/MC-EnC are highlighted in **bold and blue**.*

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 (Nm³/h);
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/Nm³, assuming an oxygen content by volume in the waste gas of 3% in the case of liquid and gaseous fuels, 6% in the case of solid fuels and 15% in the case of gas turbines;
4. "rate of desulphurisation" means the ratio of the quantity of sulphur which is not emitted into the air at the combustion plant site over a given period 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 waste covered by Council Directive 89/369/EEC of 8 June 1989 on the prevention of air pollution from new municipal waste incineration plants, Council Directive 89/429/EEC of 21 June 1989 on the reduction of air pollution from existing municipal waste incineration plants, and Council Directive 94/67/EC of 16 December 1994 concerning the incineration of hazardous waste or any subsequent Community act repealing and replacing one or more of these Directives;

7. "combustion plant" means any technical apparatus in which fuels are oxidised 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 combustion plants:

- (a) 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;
- (b) 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;
- (c) facilities for the regeneration of catalytic cracking catalysts;
- (d) facilities for the conversion of hydrogen sulphide into sulphur;
- (e) reactors used in the chemical industry;
- (f) coke battery furnaces;
- (g) cowpers;
- (h) any technical apparatus used in the propulsion of a vehicle, ship or aircraft;
- (i) gas turbines used on offshore platforms;
- (j) gas turbines licensed before 27 November 2002 or which in the view of the competent authority are the subject of a full request for a licence before 27 November 2002 provided that the plant is put into operation no later than 27 November 2003 without prejudice to Article 7(1) and Annex VIII(A) and (B);

Plants powered by diesel, petrol and gas engines 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 judgement of the competent authorities, be discharged through a common stack, the combination formed by such plants shall 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" means 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 **1 July 1992**;

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 **1 July 1992**;

11. "biomass" means products consisting of any whole or part of a vegetable matter from agriculture or forestry which can be used as a fuel for the purpose of recovering its energy content and the following waste used as a fuel:

- (a) vegetable waste from agriculture and forestry;
- (b) vegetable waste from the food processing industry, if the heat generated is recovered;
- (c) fibrous vegetable waste from virgin pulp production and from production of paper from pulp, if it is co-incinerated at the place of production and the heat generated is recovered;
- (d) cork waste;
- (e) wood waste with the exception of wood waste which may contain halogenated organic compounds or

heavy metals as a result of treatment with wood preservatives or coating, and which includes in particular such wood waste originating from construction and demolition waste;

12. "gas turbine" means any rotating machine which converts thermal energy into mechanical work, consisting mainly of a compressor, a thermal device in which fuel is oxidised in order to heat the working fluid, and a turbine.

13. "Outermost Regions" means the French Overseas Departments with regard to France, the Azores and Madeira with regard to Portugal and the Canary Islands with regard to Spain.

Article 3

1. Not later than 1 July 1990 **Contracting Parties** 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. In accordance with the programmes mentioned in paragraph 1, **Contracting Parties** shall continue to comply 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, until the implementation of the provisions of Article 4 that apply to existing plants.

3. When the programmes are being carried out, **Contracting Parties** shall also determine the total annual emissions in accordance with Annex VIII(C).

4. 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 **Contracting Party** of its programme drawn up under paragraph 1, the **Secretariat** shall, at the request of the **Contracting Party** concerned and taking into account the terms of the request, take a decision to modify, for that Contracting Party, the emission ceilings and/or the dates set out in Annexes I and II and communicate its decision to the Council and to the **Contracting Parties**. Any **Contracting Party** may within three months refer the decision of the **Secretariat** to the Council. The Council, acting by a qualified majority, may within three months take a different decision.

Article 4

1. Without prejudice to Article 17 **Contracting Parties** 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 which in the view of the competent authority are the subject of a full request for a licence before 27 November 2002, provided that the plant is put into operation no later than 27 November 2003 contain conditions relating to compliance with the emission limit values laid down in part A of Annexes III to VII in respect of sulphur dioxide, nitrogen oxides and dust.

2. **Contracting Parties** 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, other than those covered by paragraph 1, contain conditions relating to compliance with the emission limit values laid down in part B

of Annexes III to VII in respect of sulphur dioxide, nitrogen oxides and dust.

3. Without prejudice to Directive 96/61/EC and Council Directive 96/62/EC of 27 September 1996 on ambient air quality assessment and management, **Contracting Parties** shall, by **1 January 2018** at the latest, achieve significant emission reductions by:

(a) taking appropriate measures to ensure that all licences for the operation of existing plants contain conditions relating to compliance with the emission limit values established for new plants referred to in paragraph 1; or

(b) ensuring that existing plants are subject to the national emission reduction plan referred to in paragraph 6; and, where appropriate, applying Articles 5, 7 and 8.

4. With the exception of plants for which a date of closure prior to 1 January 2018 has been agreed by the authorities via bilateral agreements with the European Union or other international organisations, existing plants may be exempted from compliance with the emission limit values referred to in paragraph 3 and from their inclusion in the national emission reduction plan on the following conditions:

(a) **the operator of an existing plant undertakes, in a written declaration submitted by 31 December 2015 at the latest to the competent authority, not to operate the plant for more than 20 000 operational hours starting from 1 January 2018 and ending no later than 31 December 2023;**

(b) **the Ministerial Council, in the form of a decision and following a verification by the Secretariat that the above conditions are met, authorizes this exemption in the form of a decision approved by the majority of its members including a vote in favour by the European Union.**

The operator is required to submit each year to the competent authority a record of the used and unused time allowed for the plants' remaining operational life. Contracting Parties are required to submit each year a summary of these reports to the Secretariat.

From the point in time when the plant has been operating for 20 000 hours since 1 January 2018 and in any case from 1 January 2024 onwards, the plant shall not be operated further unless it meets the emission limit values set out in Part 2 of Annex V to Directive 2010/75/ EU.

Taking into account the above procedure, certain existing plants in Ukraine may be allowed, where proven necessary, to operate the plant for not more than 40 000 operational hours starting from 1 January 2018 and ending no later than 31 December 2033.

From the point in time when the plant has been operating for 40 000 hours since 1 January 2018 and in any case from 1 January 2034 onwards, the plant shall not be operated further unless it meets the emission limit values set out in Part 2 of Annex V to Directive 2010/75/EU.

As of 24 February 2022 and until the end of application of the martial law in Ukraine or by 31 December 2024, whichever the sooner, the operational hours of large combustion plants located in Ukraine and listed in Annex I of Decision 2016/19/MC-ENC shall not be taken into account for the purposes of applying the provisions of Article 4(4) of Directive 2001/80/EC on account of force majeure, provided that the maximum allowed 20 000 operational hours have not been exhausted by 24 February 2022.

As of 24 February 2022 and until the end of application of martial law in Ukraine or by 31 December 2025, whichever the sooner, the operational hours of large combustion plants

located in Ukraine and listed in Annexes II, III and IV of Decision 2016/19/MC-ENC shall not be taken into account for the purposes of applying the provisions of Article 4(4) of Directive 2001/80/EC on account of force majeure, provided that the maximum allowed 40 000 operational hours have not been exhausted by 24 February 2022.

5. **Contracting Parties** may require compliance with emission limit values and time limits for implementation which are more stringent than those set out in paragraphs 1, 2, 3 and 4 and in Article

10. They may include other pollutants, and they may impose additional requirements or adaptation of plant to technical progress.

6. **Contracting Parties** may, without prejudice to this Directive and Directive 96/61/EC, and taking into consideration the costs and benefits as well as their obligations under Directive 2001/81/EC of the European Parliament and of the Council of 23 October 2001 on national emission ceilings for certain atmospheric pollutants and Directive 96/62/EC, define and implement a national emission reduction plan for existing plants, taking into account, *inter alia*, compliance with the ceilings as set out in Annexes I and II.

The national emission reduction plan shall reduce the total annual emissions of nitrogen oxides (NO_x), sulphur dioxide (SO₂) and dust from existing plants to the levels that would have been achieved by applying the emission limit values referred to in paragraph 3 to the existing plants in operation in the year **2012**, (including those existing plants undergoing a rehabilitation plan in **2012**, approved by the competent authority, to meet emission reductions required by national legislation) on the basis of each plant's actual annual operating time, fuel used and thermal input, averaged over the last five years of operation up to and including **2012**.

The closure of a plant included in the national emission reduction plan shall not result in an increase in the total annual emissions from the remaining plants covered by the plan.

The national emission reduction plan may under no circumstances exempt a plant from the provisions laid down in relevant Community legislation, including *inter alia* Directive 96/61/EC.

The following conditions shall apply to national emission reduction plans:

(a) the plan shall comprise objectives and related targets, measures and timetables for reaching these objectives and targets, and a monitoring mechanism;

(b) **Contracting Parties** shall communicate their national emission reduction plan to the **Secretariat** no later than **31 December 2015**;

(c) within **nine** months of the communication referred to in point (b) the **Secretariat** shall evaluate whether or not the plan meets the requirements of this paragraph. When the **Secretariat** considers that this is not the case, it shall inform the **Contracting Party** and within the subsequent three months the **Contracting Party** shall communicate any measures it has taken in order to ensure that the requirements of this paragraph are met;

(d) the **Secretariat** shall, no later than 27 November 2002, develop guidelines to assist **Contracting Parties** in the preparation of their plans.

National emission reduction plans shall be in use up to 31 December 2027 at the latest.

The ceilings for the year 2018 shall be calculated on the basis of the applicable emission limit values at the time of submission of the plan as set out in Part A to Annexes III to VII to Directive 2001/80/EC or, where applicable, on the basis of the rates of desulphurisation set out in Annex III to Directive 2001/80/EC. In the case of gas turbines, the emission limit values for nitrogen oxides set out for such plants in Part B of Annex VI to Directive 2001/80/EC shall be used.

The ceilings for the year 2023 shall be calculated on the basis of the applicable emission limit values in that year set out in Part A to Annexes III to VII to Directive 2001/80/EC or, where applicable, on the basis of the rates of desulphurisation set out in Annex III to Directive 2001/80/EC. In the case of gas turbines, the emission limit values for nitrogen oxides set out for such plants in Part B of Annex VI to Directive 2001/80/EC shall be used. The ceilings for the years 2019 to 2022 shall be set providing a linear trend between the ceilings of 2018 and 2023.

The ceilings for the year 2026 and 2027 shall be calculated on the basis of the relevant emission limit values set out in Part 1 of Annex V to Directive 2010/75/EU or, where applicable, the relevant rates of desulphurisation set out in Part 5 of Annex V to Directive 2010/75/EU. The ceilings for the years 2024 and 2025 shall be set providing a linear decrease of the ceilings between 2023 and 2026.¹

7. Not later than 31 December 2004 and in the light of progress towards protecting human health and attaining the Community's environmental objectives for acidification and for air quality pursuant to Directive 96/62/EC, the **Secretariat** shall submit a report to the European Parliament and the Council in which it shall assess:

- (a) the need for further measures;
- (b) the amounts of heavy metals emitted by large combustion plants;
- (c) the cost-effectiveness and costs and advantages of further emission reductions in the combustion plants sector in **Contracting Parties** compared to other sectors;
- (d) the technical and economic feasibility of such emission reductions;
- (e) the effects of both the standards set for the large combustion plants sector including the provisions for indigenous solid fuels, and the competition situation in the energy market, on the environment and the internal market;
- (f) any national emission reduction plans provided by **Contracting Parties** in accordance with paragraph 6.

The **Secretariat** shall include in its report an appropriate proposal of possible end dates or of lower limit values for the derogation contained in footnote 2 to Annex VI(A).

8. The report referred to in paragraph 7 shall, as appropriate, be accompanied by related proposals, having regard to Directive 96/61/EC.

Article 5

By way of derogation from Annex III:

1. Plants, of a rated thermal input equal to or greater than 400 MW, which do not operate more than the

¹ According to Article 2 of Decision 2015/07/MC-EnC, "As regards Ukraine, <...> [a] national emission reduction plan shall be in use up to 31 December 2028 at the latest for SO₂ and dust and up to 31 December 2033 for NO_x. The ceilings for the 2018 shall not be higher than the emissions for the year 2012 from the plants concerned, while taking into account all emission reduction measures that are foreseen to be realised by 2018. The ceilings for the year 2028 for SO₂ and dust and the ceiling for the year 2033 for NO_x shall be calculated on the basis of the relevant emission limit values set out in Part 1 of Annex V to Directive 2010/75/EU or, where applicable, the relevant rates of desulphurisation set out in Part 5 of Annex V to Directive 2010/75/EU. The ceilings for the intermediate years shall be set providing a linear decrease of the ceilings between 2018 on the one hand, and 2028 (for SO₂ and dust) or 2033 (for NO_x) on the other."

following numbers of hours a year (rolling average over a period of five years),

- until 31 December 2015, 2000 hours;

- from 1 January 2016, 1500 hours;

shall be subject to a limit value for sulphur dioxide emissions of 800 mg/Nm³.

This provision shall not apply to new plants for which the licence is granted pursuant to Article 4(2).

2. Until 31 December 1999, the Kingdom of Spain may authorise 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:

(a) in the case of imported solid fuels, a sulphur dioxide emission limit value of 800 mg/Nm³;

(b) in the case of indigenous solid fuels, at least a 60% rate of desulphurisation,

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

- 2000 MWe in the case of plants burning indigenous solid fuels;

- in the case of plants burning imported solid fuels either 7500 or 50% of all the new capacity of all plants burning solid fuels authorised up to 31 December 1999, whichever is the lower.

Article 6

In the case of new plants for which the licence is granted pursuant to Article 4(2) or plants covered by Article 10, Contracting Parties shall ensure that the technical and economic feasibility of providing for the combined generation of heat and power is examined. Where this feasibility is confirmed, bearing in mind the market and the distribution situation, installations shall be developed accordingly.

Article 7

1. Contracting Parties shall ensure that provision is made in the licences or permits referred to in Article 4 for procedures relating to malfunction or breakdown of the abatement equipment. In case of a breakdown the competent authority shall in particular require the operator to reduce or close down operations if a return to normal operation is not achieved within 24 hours, or to operate the plant using low polluting fuels. In any case the competent authority shall be notified within 48 hours. In no circumstances shall the cumulative duration of unabated operation in any twelve-month period exceed 120 hours. The competent authority may allow exceptions to the limits of 24 hours and 120 hours above in cases where, in their judgement:

(a) there is an overriding need to maintain energy supplies, or

(b) the plant with the breakdown would be replaced for a limited period by another plant which would cause an overall increase in emissions.

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. The **Secretariat** shall immediately be informed of such cases.

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 period not exceeding 10 days except where there is an overriding need to maintain energy supplies, to the use of other fuels because of a sudden interruption in the supply of gas. The competent authority shall immediately be informed of each specific case as it arises. **Contracting Parties** shall inform the **Secretariat** immediately of the cases referred to in this paragraph.

Article 8

1. In the case of plants with a multi-firing unit involving the simultaneous use of two or more fuels, when granting the licence referred to in Articles 4(1) or 4(2), and in the case of such plants covered by Articles 4(3) or 10, the competent authority shall set the emission limit values as follows:

- (a) 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,
- (b) 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,
- (c) 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 (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:

- (a) 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,
- (b) 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 subtracting from this product the emission limit value of the fuel with the lowest emission limit value,
- (c) 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,
- (d) fourthly by aggregating the fuel-weighted emission limit values.

3. As an alternative to paragraph 2, the following average emission limit values for sulphur dioxide may be applied (irrespective of the fuel combination used):

(a) for plants referred to in Article 4(1) and (3): 1000 mg/Nm³, averaged over all such plants within the refinery;

(b) for new plants referred to in Article 4(2): 600 mg/Nm³, averaged over all such plants within the refinery, with the exception of gas turbines.

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

4. In the case of plants with a multi-firing unit involving the alternative use of two or more fuels, when granting the licence referred to in Article 4(1) and (2), and in the case of such plants covered by Articles 4(3) or 10, the emission limit values set out in Annexes III to VII corresponding to each fuel used shall be applied.

Article 9

Waste gases from combustion plants shall be discharged in controlled fashion by means of a stack. The licence referred to in Article 4 and licences for combustion plants covered by Article 10 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 10

Where a combustion plant is extended by at least 50 MW, the emission limit values as set in part B of Annexes III to VII shall apply to the new part of the plant and 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 8(2) and (3).

Where the operator of a combustion plant is envisaging a change according to Articles 2(10)(b) and 12(2) of Directive 96/61/EC, the emission limit values as set out in part B of Annexes III to VII in respect of sulphur dioxide, nitrogen oxides and dust shall apply.

Article 11

In the case of construction of combustion plants which are likely to have significant effects on the environment in another **Contracting Party**, the **Contracting Parties** 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.

Article 12

Contracting Parties shall take the necessary measures to ensure the monitoring, in accordance with Annex VIII(A), of emissions from the combustion plants covered by this Directive and of all other values required for the implementation of this Directive. **Contracting Parties** may require that such monitoring shall be carried out at the operator's expense.

Article 13

Contracting Parties 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, the individual measurements and all other measurements carried out in order to assess compliance with this Directive.

Article 14

1. In the event of continuous measurements, the emission limit values set out in part A of 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:

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

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

The periods referred to in Article 7 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 desulphurisation shall be regarded as having been complied with if the evaluation of measurements carried out pursuant to Annex VIII, point A.3, indicates that all of the calendar monthly mean values or all of the rolling monthly mean values achieve the required desulphurisation rates.

The periods referred to in Article 7 as well as start-up and shut-down periods shall be disregarded.

4. For new plants for which the licence is granted pursuant to Article 4(2), the emission limit values shall be regarded, for operating hours within a calendar year, as complied with if:

(a) no validated daily average value exceeds the relevant figures set out in part B of Annexes III to VII, and

(b) 95% of all the validated hourly average values over the year do not exceed 200% of the relevant figures set out in part B of Annexes III to VII.

The "validated average values" are determined as set out in point A.6 of Annex VIII.

The periods referred to in Article 7 as well as start up and shut down periods shall be disregarded.

Article 15

1. **Contracting Parties** shall, not later than 31 December 1990, inform the **Secretariat** 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 **Contracting Parties** shall forward to the **Secretariat** 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:

- (a) all the combustion plants covered by this Directive,
- (b) emissions of sulphur dioxide, and oxides of nitrogen expressed in tonnes per annum and as concentrations of these substances in the waste gases,
- (c) measures already taken or envisaged with a view to reducing emissions, and of changes in the choice of fuel used,
- (d) changes in the method of operation already made or envisaged,
- (e) definitive closures of combustion plants already effected or envisaged, and
- (f) where appropriate, 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, **Contracting Parties** shall take account of Articles 12, 13 and 14.

3. **Contracting Parties** applying Article 5 or the provisions of the Nota Bene in Annex III or the footnotes in Annex VI(A) shall report thereon annually to the **Secretariat**.

Article 16

The Contracting Parties shall determine the penalties applicable to breaches of the national provisions adopted pursuant to this Directive. The penalties thus provided for shall be effective, proportionate and dissuasive.

Article 17

1. Directive 88/609/EEC shall be repealed with effect from 27 November 2002, without prejudice to paragraph 2 or to the obligations of **Contracting Parties** concerning the time limits for transposition and application of that Directive listed in Annex IX hereto.

2. In the case of new plants licensed before 27 November 2002 Article 4(1) of this Directive, Article 4(1), Article 5(2), Article 6, Article 15(3), Annexes III, VI, VIII and point A.2 of Annex IX to Directive 88/609/EEC as amended by Directive 94/66/EC shall remain in effect until 1 January 2008 after which they shall be repealed.

3. References to Directive 88/609/EEC shall be construed as references to this Directive and shall be read in accordance with the correlation table in Annex X hereto.

Article 18

1. **Contracting Parties** shall bring into force the laws, regulations and administrative provisions necessary to comply with this Directive before 31 December 2017. They shall forthwith inform the **Secretariat** thereof.

When **Contracting Parties** adopt these provisions, they shall contain a reference to this Directive or shall be accompanied by such reference on the occasion of their official publication. The methods of making such reference shall be laid down by **Contracting Parties**.

2. For existing plant, and for new plant for which a licence is granted pursuant to Article 4(1), the provisions of point A.2 of Annex VIII shall be applied from 27 November 2004.

3. **Contracting Parties** shall communicate to the Secretariat the texts of the provisions of national law which they adopt in the field covered by this Directive.

Article 19

This Decision shall enter into force upon its adoption by the Ministerial Council.

Article 20

This Directive is addressed to the **Contracting Parties**.

ANNEX I
CEILINGS AND REDUCTION TARGETS FOR EMISSIONS OF SO₂ FROM EXISTING PLANTS^{2,3}

Member State	SO ₂ emissions by large combustion plants 1980 ktonnes	Emission ceiling (ktonnes/year)			% reduction over 1980 emissions			% reduction over adjusted 1980 emissions		
		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
Germany	2225	1335	890	668	- 40	- 60	- 70	- 40	- 60	- 70
Greece	303	320	320	320	+ 6	+ 6	+ 6	- 45	- 45	- 45
Spain	2290	2290	1730	1440	0	- 24	- 37	- 21	- 40	- 50
France	1910	1146	764	573	- 40	- 60	- 70	- 40	- 60	- 70
Ireland	99	124	124	124	+ 25	+ 25	+ 25	- 29	- 29	- 29
Italy	2450	1800	1500	900	- 27	- 39	- 63	- 40	- 50	- 70
Luxembourg	30	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	3883	3106	2330	1553	- 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

² Additional emissions may arise from capacity authorised on or after 1 July 1987.

³ 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.

ANNEX II
CEILINGS AND REDUCTION TARGETS FOR EMISSIONS OF NO_x
FROM EXISTING PLANTS^{4,5}

	0	1	2	4	5	7	8
Member State	NO _x emissions (as NO ₂) by large combustion plants 1980 ktonnes	NO _x emission ceilings (ktonnes/year)		% reduction over 1980 emissions		% reduction over adjusted 1980 emissions	
		Phase 1	Phase 2	Phase 1	Phase 2	Phase 1	Phase 2
		1993(*)	1998	1993(*)	1998	1993(*)	1998
Belgium	110	88	66	- 20	- 40	- 20	- 40
Denmark	124	121	81	- 3	- 35	- 10	- 40
Germany	870	696	522	- 20	- 40	- 20	- 40
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	1016	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

(*) Member States may for technical reasons delay for up to two years the phase 1 date for reduction in NO emissions by notifying the Commission within one month of the notification of the Directive.

4 Additional emissions may arise from capacity authorised on or after 1 July 1987.

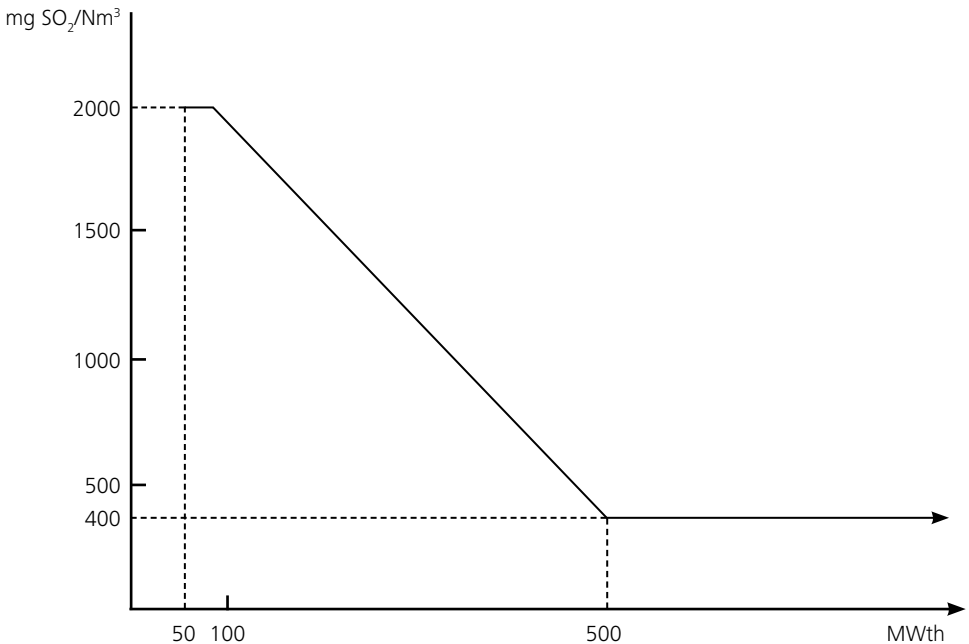
5 Emissions coming from combustion plants authorised before 1 July 1987 but not yet in operation before that date and which have not been taken into account in establishing the emission ceilings fixed by this Annex shall either comply with the requirements established by this Directive for new plants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

ANNEX III

EMISSION LIMIT VALUES FOR SO₂

Solid fuel

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



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 MW_{th}, 75% for plants greater than 100 MW_{th} and less than or equal to 300 MW_{th} and 90% for plants greater than 300 MW_{th}. For plants greater than 500 MW_{th}, 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 (O 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	50 to 100 MWth	> 300 MWth
Biomass	200	200	200
General case	850	200 ⁽¹⁾	200

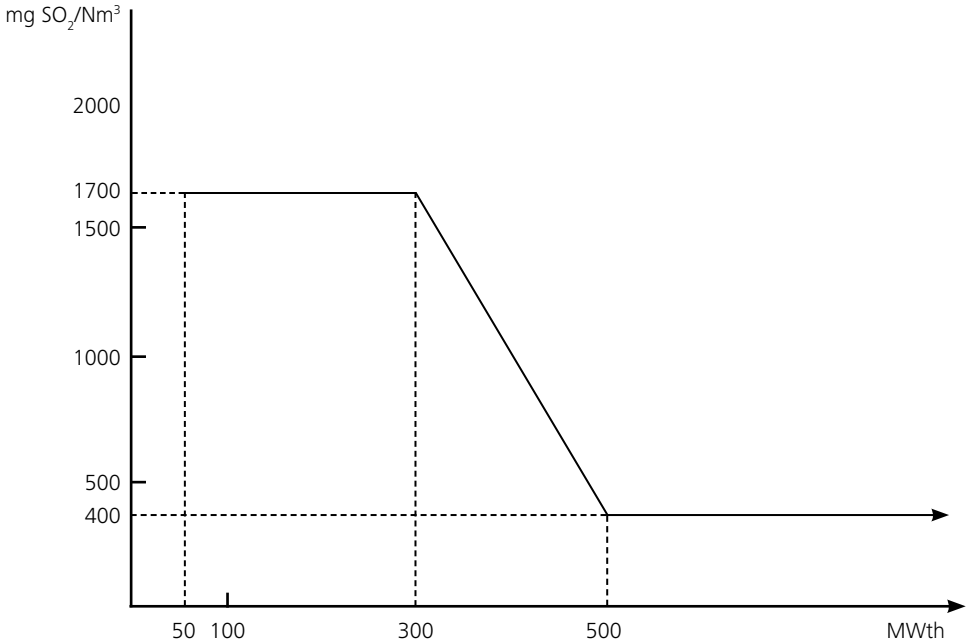
⁽¹⁾ Except in the case of the 'Outermost Regions' where 850 to 200 mg/Nm³ (linear decrease) shall apply.

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 (linear decrease) ⁽¹⁾	200

⁽¹⁾ 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 1700 mg/Nm³ shall apply.

ANNEX V

EMISSION LIMIT VALUES FOR SO₂

Gaseous 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:

Type of fuel	Limit values (mg/Nm ³)
Gaseous fuels in general	35
Liquefied gas	5
Low caloric 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.

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 calorific 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 (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	Limit values ⁽¹⁾ (mg/Nm ³)
Solid ^{(2), (3)} : 50 to 500 MWth: >500 MWth	600 500
Solid ^{(2), (3)} : 50 to 500 MWth: >500 MWth	600 200
Liquid: 50 to 500 MWth: >500 MWth:	400 450
Gaseous: 50 to 500 MWth: >500 MWth:	300 200

⁽¹⁾ Except in the case of the 'Outermost Regions' where the following values shall apply:

Solid in general: 650

Solid with < 10% vol comps: 1300 Liquid: 450

Gaseous: 350

⁽²⁾ Until 31 December 2015 plants of a rated thermal input greater than 500 MW, which from 2008 onwards do not operate more than 2000 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 1500 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.

⁽³⁾ 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%, 1200 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	200 ⁽¹⁾	200

⁽¹⁾ Except in the case of the 'Outermost Regions' where 300 mg/Nm³ (linear decrease) shall apply.

Liquid fuels (O₂ content 3%)

50 to 100 MWth	100 to 300 MWth	> 300 MWth
400	200 (1)	200

⁽¹⁾ Except in the case of the 'Outermost Regions' where 300 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 400 mg/Nm³ shall apply.

Gaseous fuels (O₂ content 3%)

	50 to 300 MWth	> 300 MWth
50 to 300 MWth	> 300 MWth	200
Other gases	200	200

Gas Turbines

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

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

⁽¹⁾ Natural gas is naturally occurring methane with not more than 20% (by volume) of inerts and other constituents.

⁽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*η/35 where η is the gas turbine efficiency expressed as a percentage (and at ISO base load conditions).

⁽³⁾ This emission limit value only applies to gas turbines firing light and middle distillates.

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.

ANNEX VII

EMISSION LIMIT VALUES FOR DUST

A. Dust emission limit values expressed in mg/Nm³ (O 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/Nm ³)
Solid	≥ 500	50 ⁽²⁾
	< 500	100
Liquid (1)	all plants	50
Gaseous	all plants	5 as a rule 10 for blast furnace 50 for gases produced by the steel industry which can be used elsewhere

⁽¹⁾ A limit value of 100 mg/Nm³ may be applied to plants with a rated thermal input less than 500 MWth burning liquid fuel with an ash content of more than 0.06%.

⁽²⁾ 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 5800 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%.

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/Nm³ shall apply.

Gaseous fuels (O₂ content 3%)

As a rule	5
For blast furnace	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, 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 SO₂, 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 measures results 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

Contracting Parties shall establish, starting in 2018 and for each subsequent year, an inventory of SO₂, 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 SO₂, 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 Secretariat 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 Secretariat upon request. The Secretariat shall make available to the Contracting Parties a summary of the comparison and evaluation of the national inventories within twelve months of receipt of the national inventories.

Contracting Parties implementing a national emission reduction plan in accordance with Article 4(6) shall report annually to the Secretariat the plant-by-plant fuel use and emission data for

all plants covered by the plan. With the aim of demonstrating progress in implementation, this report shall also include emission projections for scenarios taking into account ongoing investments for which financing is secured and a well-defined implementation timeline is drawn up.

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

1. **Contracting Parties** 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 **Secretariat** 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 **Secretariat** at its request.

4. The **Secretariat** 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.