

**DIRECTIVE 2001/81/EC OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL****of 23 October 2001****on national emission ceilings for certain atmospheric pollutants**

THE EUROPEAN PARLIAMENT AND THE COUNCIL OF THE EUROPEAN UNION,

Having regard to the Treaty establishing the European Community, and in particular Article 175(1) thereof,

Having regard to the proposal from the Commission <sup>(1)</sup>,

Having regard to the Opinion of the Economic and Social Committee <sup>(2)</sup>,

Having regard to the Opinion of the Committee of the Regions <sup>(3)</sup>,

Acting in accordance with the procedure laid down in Article 251 of the Treaty <sup>(4)</sup>, in the light of the joint text approved by the Conciliation Committee on 2 August 2001,

Whereas:

- (1) The general approach and strategy of the Fifth Environmental Action Programme was approved by the Resolution of 1 February 1993 of the Council and the Representatives of the Governments of the Member States meeting within the Council on a Community programme of policy and action in relation to the environment and sustainable development <sup>(5)</sup> and it sets as objectives that critical loads and levels for acidification in the Community are not to be exceeded. The programme requires that all people should be effectively protected against health risks from air pollution and that permitted levels of pollution should take account of the protection of the environment. The programme also requires that guideline values from the World Health Organisation (WHO) should become mandatory at Community level.
- (2) The Member States have signed the Gothenburg Protocol of 1 December 1999 to the United Nations Economic Commission for Europe (UNECE) Convention on long-range transboundary air pollution to abate acidification, eutrophication and ground-level ozone.

- (3) Decision No 2179/98/EC of the European Parliament and of the Council of 24 September 1998 on the review of the European Community programme of policy and action in relation to the environment and sustainable development 'Towards sustainability' <sup>(6)</sup> specified that particular attention should be given to developing and implementing a strategy with the goal of ensuring that critical loads, in relation to exposure to acidifying, eutrophying and photochemical air pollutants, are not exceeded.

- (4) Council Directive 92/72/EEC of 21 September 1992 on air pollution by ozone <sup>(7)</sup> requires the Commission to submit to the Council a report on the evaluation of photochemical pollution in the Community, accompanied by any proposals the Commission deems appropriate on the control of air pollution by ground-level ozone and, if necessary, on reducing emissions of ozone precursors.

- (5) Significant areas of the Community are exposed to depositions of acidifying and eutrophying substances at levels which have adverse effects on the environment. The WHO guideline values for the protection of human health and vegetation from photochemical pollution are substantially exceeded in all Member States.

- (6) The exceedance of critical loads should therefore be gradually eliminated and guideline levels respected.

- (7) At present it is not technically feasible to meet the long-term objectives of eliminating the adverse effects of acidification and reducing exposure to ground-level ozone of man and the environment to the guideline values established by the WHO. It is therefore necessary to provide for interim environmental objectives for acidification and ground-level ozone pollution, on which the necessary measures to reduce such pollution are to be based.

- (8) Interim environmental objectives and the measures to meet them should take account of technical feasibility and the associated costs and benefits. Such measures should ensure that any action taken is cost-effective for the Community as a whole and should take account of the need to avoid excessive costs for any individual Member State.

<sup>(1)</sup> OJ C 56 E, 29.2.2000, p. 34.

<sup>(2)</sup> OJ C 51, 23.2.2000, p. 11.

<sup>(3)</sup> OJ C 317, 6.11.2000, p. 35.

<sup>(4)</sup> Opinion of the European Parliament of 15 March 2000 (OJ C 377, 29.12.2000, p. 159), Council Common Position of 7 November 2000 (OJ C 375, 28.12.2000, p. 1) and Decision of the European Parliament of 14 March 2001 (not yet published in the Official Journal). Decision of the European Parliament of 20 September 2001 and Decision of the Council of 27 September 2001.

<sup>(5)</sup> OJ C 138, 17.5.1993, p. 1.

<sup>(6)</sup> OJ L 275, 10.10.1998, p. 1.

<sup>(7)</sup> OJ L 297, 13.10.1992, p. 1.

- (9) Transboundary pollution contributes to acidification, soil eutrophication and ground-level ozone formation, the abatement of which requires coordinated Community action.
- (10) Reducing emissions of the pollutants causing acidification and exposure to ground-level ozone will also reduce soil eutrophication.
- (11) A set of national ceilings for each Member State for emissions of sulphur dioxide, nitrogen oxides, volatile organic compounds and ammonia is a cost-effective way of meeting interim environmental objectives. Such emission ceilings will allow the Community and the Member States flexibility in determining how to comply with them.
- (12) Member States should be responsible for implementing measures to comply with national emission ceilings. It will be necessary to evaluate progress towards compliance with the emission ceilings. National programmes for the reduction of emissions should therefore be drawn up and reported on to the Commission and should include information on the measures adopted or envisaged to comply with the emission ceilings.
- (13) In accordance with the principle of subsidiarity as set out in Article 5 of the Treaty and taking account, in particular, of the precautionary principle, the objective of this Directive, namely limitation of emissions of acidifying and eutrophying pollutants and ozone precursors, cannot be sufficiently achieved by the Member States because of the transboundary nature of the pollution and can therefore be better achieved by the Community; in accordance with the principle of proportionality this Directive does not go beyond what is necessary to achieve that purpose.
- (14) There should be a timely review of the progress made by Member States towards the emission ceilings, as well as a review of the extent to which implementing the ceilings is likely to meet interim environmental objectives, for the Community as a whole. Such review should consider also scientific and technical progress, developments in Community legislation and emission reductions outside the Community with special regard to progress made *inter alia* by the accession candidate countries. In that review, the Commission should undertake a further examination of the costs and benefits of the emission ceilings, including their cost-effectiveness, marginal costs and benefits and socio-economic impact and any impact on competitiveness. The review should also consider the limitations on the scope of this Directive.
- (15) The Commission should for this purpose prepare a report to the European Parliament and the Council and, if it considers it necessary, propose appropriate amendments to this Directive taking account of the effects of any relevant Community legislation *inter alia* setting emission limits and product standards for relevant sources of emissions and international regulations concerning ship and aircraft emissions.
- (16) Sea transport is a significant contributor to emissions of sulphur dioxide and nitrogen oxides and also to concentrations and depositions of air pollutants in the Community. Such emissions should therefore be reduced. Article 7(3) of Council Directive 1999/32/EC of 26 April 1999 relating to a reduction in the sulphur content of certain liquid fuels and amending Directive 93/12/EEC <sup>(1)</sup> requires the Commission to consider which measures could be taken to reduce the contribution to acidification of the combustion of marine fuels other than those specified in Article 2(3) of that Directive.
- (17) Member States should seek to ratify Annex VI to the International Convention for the Prevention of Pollution from Ships (MARPOL) as soon as possible.
- (18) Owing to the transboundary nature of acidification and ozone pollution, the Commission should continue to examine further the need to develop harmonised Community measures, without prejudice to Article 18 of Council Directive 96/61/EC of 24 September 1996 concerning integrated pollution prevention and control <sup>(2)</sup>, with the aim of avoiding distortion of competition, and taking into account the balance between benefits and cost of action.
- (19) The provisions of this Directive should apply without prejudice to the Community legislation regulating emissions of those pollutants from specific sources and to the provisions of Council Directive 96/61/EC in relation to emission limit values and use of best available techniques.
- (20) Emission inventories are necessary to monitor progress towards compliance with the emission ceilings and must be calculated in accordance with internationally agreed methodology and reported on regularly to the Commission and the European Environment Agency (EEA).
- (21) Member States should lay down rules on penalties applicable to infringements of the provisions of this Directive and ensure that they are implemented. The penalties should be effective, proportionate and dissuasive.

<sup>(1)</sup> OJ L 121, 11.5.1999, p. 13.

<sup>(2)</sup> OJ L 257, 10.10.1996, p. 26.

- (22) The measures necessary for the implementation of this Directive should be adopted in accordance with Council Decision 1999/468/EC of 28 June 1999 laying down the procedures for the exercise of implementing powers conferred on the Commission <sup>(1)</sup>.
- (23) The Commission and Member States should cooperate internationally with a view to achieving the objectives of this Directive,

HAVE ADOPTED THIS DIRECTIVE:

#### Article 1

##### Objective

The aim of this Directive is to limit emissions of acidifying and eutrophying pollutants and ozone precursors in order to improve the protection in the Community of the environment and human health against risks of adverse effects from acidification, soil eutrophication and ground-level ozone and to move towards the long-term objectives of not exceeding critical levels and loads and of effective protection of all people against recognised health risks from air pollution by establishing national emission ceilings, taking the years 2010 and 2020 as benchmarks, and by means of successive reviews as set out in Articles 4 and 10.

#### Article 2

##### Scope

This Directive covers emissions in the territory of the Member States and their exclusive economic zones from all sources of the pollutants referred to in Article 4 which arise as a result of human activities.

It does not cover:

- (a) emissions from international maritime traffic;
  - (b) aircraft emissions beyond the landing and take-off cycle;
  - (c) for Spain, emissions in the Canary Islands;
  - (d) for France, emissions in the overseas departments;
  - (e) for Portugal, emissions in Madeira and the Azores.
- (c) 'critical load' means a quantitative estimate of an exposure to one or more pollutants below which significant adverse effects on specified sensitive elements of the environment do not occur, according to present knowledge;
  - (d) 'critical level' means the concentration of pollutants in the atmosphere above which direct adverse effects on receptors, such as human beings, plants, ecosystems or materials, may occur, according to present knowledge;
  - (e) 'emission' means the release of a substance from a point or diffuse source into the atmosphere;
  - (f) 'grid cell' means a square 150 km x 150 km, which is the resolution used when mapping critical loads on a European scale, and also when monitoring emissions and depositions of air pollutants under the Cooperative Programme for Monitoring and Evaluation of the long-range Transmission of Air Pollutants in Europe (EMEP);
  - (g) 'landing and take-off cycle' means a cycle represented by the following time in each operating mode: approach 4,0 minutes; taxi/ground idle 26,0 minutes, take-off 0,7 minutes; climb 2,2 minutes;
  - (h) 'national emission ceiling' means the maximum amount of a substance expressed in kilotonnes, which may be emitted from a Member State in a calendar year;
  - (i) 'nitrogen oxides' and 'NO<sub>x</sub>' mean nitric oxide and nitrogen dioxide, expressed as nitrogen dioxide;
  - (j) 'ground-level ozone' means ozone in the lowermost part of the troposphere;
  - (k) 'volatile organic compounds' and 'VOC' mean all organic compounds arising from human activities, other than methane, which are capable of producing photochemical oxidants by reactions with nitrogen oxides in the presence of sunlight.

#### Article 3

##### Definitions

For the purposes of this Directive:

- (a) 'AOT 40' means the sum of the difference between hourly concentrations of ground-level ozone greater than 80 µg/m<sup>3</sup> (= 40 ppb) and 80 µg/m<sup>3</sup> during daylight hours accumulated from May to July each year;
- (b) 'AOT 60' means the sum of the difference between hourly concentrations of ground-level ozone greater than 120

#### Article 4

##### National emission ceilings

1. By the year 2010 at the latest, Member States shall limit their annual national emissions of the pollutants sulphur dioxide (SO<sub>2</sub>), nitrogen oxides (NO<sub>x</sub>), volatile organic compounds (VOC) and ammonia (NH<sub>3</sub>) to amounts not greater than the emission ceilings laid down in Annex I, taking into account any modifications made by Community measures adopted following the reports referred to in Article 9.

<sup>(1)</sup> OJ L 184, 17.7.1999, p. 23.

2. Member States shall ensure that the emission ceilings laid down in Annex I are not exceeded in any year after 2010.

#### Article 5

### Interim environmental objectives

The national emission ceilings in Annex I shall have as their purpose to meet broadly the following interim environmental objectives, for the Community as a whole, by 2010:

#### (a) Acidification

The areas where critical loads are exceeded shall be reduced by at least 50 % (in each grid cell) compared with the 1990 situation.

#### (b) Health-related ground-level ozone exposure

The ground-level ozone load above the critical level for human health (AOT60=0) shall be reduced by two-thirds in all grid cells compared with the 1990 situation. In addition, the ground-level ozone load shall not exceed an absolute limit of 2,9 ppm.h in any grid cell.

#### (c) Vegetation-related ground-level ozone exposure

The ground-level ozone load above the critical level for crops and semi-natural vegetation (AOT40=3 ppm.h) shall be reduced by one-third in all grid cells compared with the 1990 situation. In addition, the ground-level ozone load shall not exceed an absolute limit of 10 ppm.h, expressed as an exceedance of the critical level of 3 ppm.h in any grid cell.

#### Article 6

### National programmes

1. Member States shall, by 1 October 2002 at the latest, draw up programmes for the progressive reduction of national emissions of the pollutants referred to in Article 4 with the aim of complying at least with the national emission ceilings laid down in Annex I by 2010 at the latest.

2. The national programmes shall include information on adopted and envisaged policies and measures and quantified estimates of the effect of these policies and measures on emissions of the pollutants in 2010. Anticipated significant changes in the geographical distribution of national emissions shall be indicated.

3. Member States shall update and revise the national programmes as necessary by 1 October 2006.

4. Member States shall make available to the public and to appropriate organisations such as environmental organisations the programmes drawn up in accordance with paragraphs 1, 2 and 3. Information made available to the public and to organisations under this paragraph shall be clear, comprehensible and easily accessible.

#### Article 7

### Emission inventories and projections

1. Member States shall prepare and annually update national emission inventories and emission projections for 2010 for the pollutants referred to in Article 4.

2. Member States shall establish their emission inventories and projections using the methodologies specified in Annex III.

3. The Commission, assisted by the European Environment Agency, shall, in cooperation with the Member States and on the basis of the information provided by them, establish inventories and projections of the pollutants referred to in Article 4. The inventories and projections shall be made publicly available.

4. Any updating of the methodologies to be used in accordance with Annex III, shall be made in accordance with the procedure set out in Article 13(2).

#### Article 8

### Reports by the Member States

1. Member States shall each year, by 31 December at the latest, report their national emission inventories and their emission projections for 2010 established in accordance with Article 7 to the Commission and the European Environment Agency. They shall report their final emission inventories for the previous year but one and their provisional emission inventories for the previous year. Emission projections shall include information to enable a quantitative understanding of the key socioeconomic assumptions used in their preparation.

2. Member States shall, by 31 December 2002 at the latest, inform the Commission of the programmes drawn up in accordance with Article 6(1) and (2).

Member States shall, by 31 December 2006 at the latest, inform the Commission of the updated programmes drawn up in accordance with Article 6(3).

3. The Commission shall forward the national programmes received to the other Member States within one month of their reception.

4. The Commission shall, in accordance with the procedure set out in Article 13(2), establish provisions to ensure consistent and transparent reporting of national programmes.

#### Article 9

#### Reports by the Commission

1. In 2004 and 2008 the Commission shall report to the European Parliament and the Council on progress on the implementation of the national emission ceilings laid down in Annex I and on the extent to which the interim environmental objectives set out in Article 5 are likely to be met by 2010 and on the extent to which the long-term objectives set out in Article 1 could be met by 2020. The reports shall include an economic assessment, including cost-effectiveness, benefits, an assessment of marginal costs and benefits and the socioeconomic impact of the implementation of the national emission ceilings on particular Member States and sectors. They shall also include a review of the limitations of the scope of this Directive as defined in Article 2 and an evaluation of the extent to which further emission reductions might be necessary in order to meet the interim environmental objectives set out in Article 5. They shall take into account the reports made by Member States pursuant to Article 8(1) and (2), as well as, *inter alia*:

- (a) any new Community legislation which may have been adopted setting emission limits and product standards for relevant sources of emissions;
- (b) developments of best available techniques in the framework of the exchange of information under Article 16 of Directive 96/61/EC;
- (c) emission reduction objectives for 2008 for emissions of sulphur dioxide and nitrogen oxides from existing large combustion plants, reported by Member States pursuant to 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 <sup>(1)</sup>;
- (d) emission reductions and reduction commitments by third countries, with particular focus on measures to be taken in the accession candidate countries, and the possibility for further emission reductions in regions in the vicinity of the Community;
- (e) any new Community legislation and any international regulations concerning ship and aircraft emissions;
- (f) the development of transport and any further action to control transport emissions;

- (g) developments in the field of agriculture, new livestock projections and improvements in emission reduction methods in the agricultural sector;
- (h) any major changes in the energy supply market within a Member State and new forecasts reflecting the actions taken by Member States to comply with their international obligations in relation to climate change;
- (i) assessment of the current and projected exceedances of critical loads and the WHO's guideline values for ground-level ozone;
- (j) the possibility of identification of a proposed interim objective for reducing soil eutrophication;
- (k) new technical and scientific data including an assessment of the uncertainties in:
  - (i) national emission inventories;
  - (ii) input reference data;
  - (iii) knowledge of the transboundary transport and deposition of pollutants;
  - (iv) critical loads and levels;
  - (v) the model used;

and an assessment of the resulting uncertainty in the national emission ceilings required to meet the interim environmental objectives mentioned in Article 5.

- (l) whether there is a need to avoid excessive costs for any individual Member State;
- (m) a comparison of model calculations with observations of acidification, eutrophication and ground-level ozone with a view to improving models;
- (n) the possible use, where appropriate, of relevant economic instruments.

2. In 2012 the Commission shall report to the European Parliament and the Council on compliance with the ceilings in Annex I and on progress in relation to the interim environmental objectives in Article 5 and the long-term objectives set out in Article 1. Its report shall take account of the reports made by Member States pursuant to Article 8(1) and (2) as well as the matters listed in points (a) to (n) of paragraph 1.

#### Article 10

#### Review

1. The reports referred to in Article 9 shall take into account the factors listed in Article 9(1). In the light of these factors, of progress towards attaining the emission ceilings by the year 2010, of scientific and technical progress, and of the situation regarding progress towards attaining the interim objectives of this Directive and the long-term objectives of no

<sup>(1)</sup> See p. 1 of this edition of the Official Journal.

exceedance of critical loads and levels and of WHO air quality guidelines for ozone, the Commission shall carry out a review of this Directive in preparation for each report.

2. In the review to be completed in 2004 an evaluation will be carried out of the indicative emission ceilings for the Community as a whole set out in Annex II. The evaluation of these indicative ceilings shall be a factor for consideration during analysis of further cost-effective actions that might be taken in order to reduce emissions of all relevant pollutants, with the aim of attaining the interim environmental objectives set out in Article 5, for the Community as a whole by 2010.

3. All reviews shall include a further investigation of the estimated costs and benefits of national emission ceilings, computed with state-of-the-art models and making use of the best available data to achieve the least possible uncertainty and taking also into account progress in the enlargement of the European Union, and of the merits of alternative methodologies, in the light of the factors listed in Article 9.

4. Without prejudice to Article 18 of Directive 96/61/EC, with the aim of avoiding distortion of competition, and taking into account the balance between benefits and costs of action, the Commission shall examine further the need to develop harmonised Community measures, for the most relevant economic sectors and products contributing to acidification, eutrophication and formation of ground-level ozone.

5. The reports referred to in Article 9 will, if appropriate, be accompanied by proposals for:

- (a) modifications of the national ceilings in Annex I with the aim of meeting the interim environmental objectives of Article 5 and/or for modifications to those interim environmental objectives;
- (b) possible further emission reductions with the aim of meeting, preferably by 2020, the long-term objectives of this Directive;
- (c) measures to ensure compliance with the ceilings.

#### Article 11

#### Cooperation with third countries

To promote the achievement of the objective set out in Article 1, the Commission and Member States, as appropriate, shall, without prejudice to Article 300 of the Treaty, pursue bilateral and multilateral cooperation with third countries and relevant international organisations such as the United Nations Economic Commission for Europe (UNECE), the International Maritime Organization (IMO) and the International Civil Aviation Organization (ICAO), including through the exchange

of information, concerning technical and scientific research and development and with the aim of improving the basis for the facilitation of emission reductions.

#### Article 12

#### Reports concerning ship and aircraft emission

1. By the end of 2002 the Commission shall report to the European Parliament and Council on the extent to which emissions from international maritime traffic contribute to acidification, eutrophication and the formation of ground-level ozone within the Community.

2. By the end of 2004 the Commission shall report to the European Parliament and Council on the extent to which emissions from aircraft beyond the landing and take-off cycle contribute to acidification, eutrophication and the formation of ground-level ozone within the Community.

3. Each report shall specify a programme of actions which could be taken at international and Community level as appropriate to reduce emissions from the sector concerned, as a basis for further consideration by the European Parliament and Council.

#### Article 13

#### Committee

1. The Commission shall be assisted by the Committee set up by Article 12 of Directive 96/62/EC, hereinafter referred to as 'the Committee'.

2. Where reference is made to this paragraph, Articles 4 and 7 of Decision 1999/468/EC shall apply, having regard to the provisions of Article 8 thereof.

The period referred to in Article 4(3) of Decision 1999/468/EC shall be set at three months.

3. The Committee shall adopt its rules of procedure.

#### Article 14

#### Penalties

Member States shall determine the penalties applicable to breaches of the national provisions adopted pursuant to this Directive. The penalties shall be effective, proportionate and dissuasive.

#### Article 15

#### Transposition

1. Member States shall bring into force the laws, regulations and administrative provisions necessary to comply with this Directive before 27 November 2002. They shall forthwith inform the Commission thereof.

When Member States adopt those provisions, they shall contain a reference to this Directive or be accompanied by such reference on the occasion of their official publication. Member States shall determine how such reference is to be made.

2. Member States shall communicate to the Commission the text of the main provisions of national law, which they adopt in the field covered by this Directive.

*Article 16*

**Entry into force**

This Directive shall enter into force on the day of its publication in the *Official Journal of the European Communities*.

*Article 17*

**Addressees**

This Directive is addressed to the Member States.

Done at Luxembourg, 23 October 2001.

*For the European Parliament*

*The President*

N. FONTAINE

*For the Council*

*The President*

A. NEYTS-UYTTEBROECK

## ANNEX I

National emission ceilings for SO<sub>2</sub>, NO<sub>x</sub>, VOC and NH<sub>3</sub>, to be attained by 2010 <sup>(1)</sup>

Country	SO <sub>2</sub> Kilotonnes	NO <sub>x</sub> Kilotonnes	VOC Kilotonnes	NH <sub>3</sub> Kilotonnes
Austria	39	103	159	66
Belgium	99	176	139	74
Denmark	55	127	85	69
Finland	110	170	130	31
France	375	810	1 050	780
Germany	520	1 051	995	550
Greece	523	344	261	73
Ireland	42	65	55	116
Italy	475	990	1 159	419
Luxembourg	4	11	9	7
Netherlands	50	260	185	128
Portugal	160	250	180	90
Spain	746	847	662	353
Sweden	67	148	241	57
UK	585	1 167	1 200	297
<b>EC 15</b>	<b>3 850</b>	<b>6 519</b>	<b>6 510</b>	<b>3 110</b>

<sup>(1)</sup> These national emission ceilings are designed with the aim of broadly meeting the interim environmental objectives set out in Article 5. Meeting those objectives is expected to result in a reduction of soil eutrophication to such an extent that the Community area with depositions of nutrient nitrogen in excess of the critical loads will be reduced by about 30% compared with the situation in 1990.



## ANNEX II

**Emission ceilings for SO<sub>2</sub>, NO<sub>x</sub> and VOC (thousand tonnes)**

	SO <sub>2</sub> Kilotonnes	NO <sub>x</sub> Kilotonnes	VOC Kilotonnes
EC 15	3 634	5 923	5 581

These emission ceilings are designed with the aim of attaining the interim environmental objectives set out in Article 5 for the Community as a whole by 2010.

## ANNEX III

**Methodologies for emission inventories and projections**

Member States shall establish emission inventories and projections using the methodologies agreed upon by the Convention on Long-range Transboundary Air Pollution and are requested to use the joint EMEP/CORINAIR(\*) guidebook in preparing these inventories and projections.

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(\*) Air emissions inventory of the European Environment Agency.