

Manual of European Environmental Policy

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Overview of EU policy: Air quality

In comparison with that on water, Community policy on air pollution was relatively slow to develop. For example, whereas a ‘framework’ Directive controlling emissions of dangerous substances to water had come into effect as early as 1976 (Directive on dangerous substances to water [76/464/EEC](#)), it was not until eight years later that a comparable measure (Directive [84/360/EEC](#) on emissions from industrial plants) was agreed regulating industrial emissions to air. Early legislation on product standards – in particular as regards the sulphur content of gas oil (Directive [75/716/EEC](#)) and lead in petrol (Directive [78/611/EEC](#)) – was motivated as much by the desire to avoid trade distortions as the need to protect public health. Indeed, proposals to establish ambient air quality standards for [sulphur dioxide and smoke](#), and for [lead](#), took four and seven years respectively before agreement could be reached by the Council (as Directives [80/779/EEC](#) and [82/884/EEC](#)).

This delay can be explained partly by the important matters of principle at issue requiring protracted negotiation, and partly by the oil crisis which de-stabilized the world's economy – and western Europe's in particular – from 1973 onwards. The scarcity and high price of light crude oil with a low sulphur content and the need to limit consumption made it difficult to secure the agreement of Member States to tougher air pollution controls. One consequence was that a 1975 Commission proposal aimed at limiting the sulphur content of heavy fuel oils used in power stations had to be formally withdrawn after six years of fruitless negotiation.

The pace of Community legislation on air pollution control quickened from the early 1980s, however, as issues of transboundary and global atmospheric pollution moved to the top of the political agenda. Damage caused to forests in northern Europe by acid rain prompted the German government to take a far more active interest in air pollution control than it had demonstrated hitherto, and to demand action at Community level. An unusual declaration on the environment issued by the European Council after its meeting in Stuttgart in June 1983 called for ‘immediate action’ to counteract the acute danger threatening Europe's forests, and demanded ‘rapid, significant progress’ from EC environment ministers in developing solutions. Following this initiative, agreement was to be reached in 1984 on the ‘Framework’ Directive regulating emissions from [industrial plant](#), and subsequently to a number of its ‘daughter’ Directives, by far the most significant of which was Directive [88/609/EEC](#) limiting emissions of SO₂, NO_x and dust from [large combustion plants](#).

Concern about acid rain was also eventually to produce more stringent Community legislation limiting vehicle exhaust emissions. Before 1985, Community policy was principally directed towards preventing barriers to trade which could arise from individual Member States setting their own minimum standards, and accordingly it was content to follow regulations adopted by the United Nations' Economic Commission for Europe (UNECE). German pressure for tougher action led the Community to develop its own policy. Moreover, the German call for the compulsory fitting to car exhausts of three-way catalytic convertors – which are damaged by lead – combined with British concern about lead pollution in inner city areas secured the compulsory and widespread availability throughout the Community of lead-free petrol, and further reductions in the lead content of leaded petrol.

Institutional changes introduced in 1987 by the Single European Act in some cases speeded up the adoption of EC environmental legislation and enhanced the role of the European Parliament in setting standards. The most notable case is the control of vehicle exhaust

emissions. After five years of argument, Directive 88/76/EEC could be agreed only by means of the majority voting provisions of the Single European Act. Subsequently, the use by the European Parliament of the cooperation procedure ensured that the fitting of catalytic converters became obligatory for small cars (Directive [89/458/EEC](#)), and by implication all cars, after 1992.

The powers of the Parliament were further strengthened by the Maastricht Treaty which introduced the co-decision and conciliation procedures. The [Directive](#) on emissions of volatile organic compounds from petrol distribution was adopted by co-decision and required use of the conciliation procedure, although the extent to which this affected the stringency of the controls is debatable.

In seeking to regulate air pollution, EC policy has adopted a very wide variety of approaches. They include:

- *Ambient air quality standards* (sulphur dioxide, suspended particulates, lead and nitrogen oxides and lead; ozone and toxic substances under the Air Quality Framework Directive [2008/50/EC](#)).
- *Product standards* (the sulphur content of gas oil, lead in petrol and vehicle exhaust emissions).
- *Emission limit values* (see section on overview of EU policy - industrial pollution) for stationary plants.
- A *'bubble' approach* setting an upper limit on total emissions, as for SO₂ and NO_x in Directive [88/609/EEC](#) on large combustion plants and the National Emission Ceilings Directive [2001/81/EC](#). In this case required reductions are differentiated by the Member State.
- A *'substance-oriented' approach* in which emissions to air are regulated in parallel with emissions to water and land for individual substances, as for asbestos in Directive [87/217/EEC](#).
- In addition, an *'exposure standard' approach* was adopted in a programme required by Directive [77/312/EEC](#) to screen the population for lead, which has now lapsed.

An additional direction that emerged in EC air pollution policy may be termed a *'harm oriented'* approach. As noted above, many individual items of legislation have been driven by concerns about acid rain. However, these have been adopted in the absence of a coherent strategy with the objective of limiting acidifying emissions to acceptable levels. That situation has now changed, as a result of the Council's Decision in December 1995 to invite the Commission to propose a Community acidification strategy. This followed a suggestion to this effect from the Swedish Government, and the preparation of an unpublished Commission working paper on the subject. The strategy itself was published in March 1997 ([COM\(97\)88](#)).

One of the main arguments behind the creation of the strategy was the Fifth Action Programme's objective of not exceeding critical loads across Europe. The strategy did not aim to fully meet this goal, however, but rather was presented as an interim step to reduce exceedances through a 50 per cent 'gap closure' strategy. This would involve reducing by at least 50 per cent the area of sensitive ecosystems experiencing exceedance of critical loads in each of a number of designated grid cells (150 × 150 km). Applying the strategy was predicted in 2010 to reduce the EU territory where critical loads were to be exceeded from 8.7 to 4.5 million hectares.

The strategy proposed many measures by which acidifying emissions were to be reduced. Perhaps the most important was a Directive fixing national emission ceilings for SO₂, NO_x and ammonia. Such an approach had been used before in EC law – Directive [88/609/EEC](#) set ceilings for SO₂ and NO_x releases from pre-existing large combustion plants – but never with such extensive breadth. After much debate a National Emission Ceilings Directive [2001/81/EC](#) was adopted in 2001. The ceilings apply across all sectors of society and to both new and pre-existing activities. Such limits had already been applied for SO₂ through the second sulphur protocol and the multi-pollutant protocol to the [UNECE](#) Convention on long-range transboundary air pollution. However, the Directive demands stricter SO₂ targets than the UNECE Convention for several countries, in addition to creating ceilings for NO_x and ammonia where none previously existed.

The strategy also included a formal proposal for a Directive to limit the sulphur content of heavy fuel oils to a maximum of one per cent. Several further potential measures are additionally identified, including:

- The establishment of new emission limits under Directive 88/609/EEC.
- Designation of the Baltic and North Seas as ‘sulphur dioxide control areas’ under the IMO’s MARPOL Convention, to limit the sulphur content of shipping fuel used in these areas.
- Promotion of measures to reduce acidifying emissions, during ongoing dialogue with Central and Eastern European countries.
- Analysis of cost-effective measures to control ammonia emissions, particularly from agriculture.
- Stimulation of the use of economic instruments by Member States to meet the proposed national emission ceilings in a cost-effective way.

Another area where the Commission adopted a more coherent approach to air pollution policy is ambient air quality standards. Until the end of 1996, legislation in this area comprised several separate Directives relating to [smoke and sulphur dioxide](#), [nitrogen dioxide](#), [lead](#) and [ozone](#). A Commission report on the implementation of these Directives ([COM\(95\)372](#)) noted several difficulties in implementation arising both from different philosophies within the Member States on their transposition and from different interpretations placed on certain parts of the Directives. In order to attempt to overcome these difficulties, the Air Quality Framework Directive [96/62/EC](#) on ambient air quality management and assessment was adopted in September 1996. Specific requirements were to be established for individual pollutants through daughter Directives. The first of these replaced the earlier Directives as well as introducing standards for additional pollutants such as carbon monoxide, cadmium, benzene and polyaromatic hydrocarbons. Directive [2008/50/EC](#) consolidates the framework Directive and three of the daughter Directives.

A further significant new approach to Community air pollution policy was the so-called European Auto-Oil Programme. Central to this was a tripartite initiative of the Commission, the motor industry and the oil industry to address road vehicle emissions and air quality. In this process the participants sought to pool their information and to set a rational framework for assessing the most cost-effective contributions from a range of measures to meeting future air quality standards. The areas covered included vehicle emissions standards; fuel quality standards; evaporative emissions controls; and inspection and maintenance programmes. Non-technical measures such as pricing policies and provision of public transport were also considered.

The programme resulted in proposals for vehicle emissions limits (amending Directive [70/220/EEC](#)) and new [fuel standards](#) for the years 2000 and 2005. While this programme was not the first piece of legislation addressing emissions from vehicles, it was innovative in that it established a model that is likely to have a profound influence on the future development of vehicle emissions and fuel quality legislation at EC level, and possibly on other areas of emissions control policy as well. [Emission limit values](#) have been set for a range of road vehicles, including cars, light commercial vehicles, motorcycles and heavy duty vehicles, as well as off-road vehicles, such as tractors, and other off-road mobile machinery. EU legislation on emissions from transport is now further expanding its focus of attention by addressing water craft and railway engines. The first [Directive](#) on emission (and noise) limits for water craft was adopted in 2003.

Clean Air for Europe (CAFE) and the Air Thematic Strategy

In October 1998, the Commission's Environment Directorate launched a new initiative to incorporate the various aspects of EU air quality policy, including those on emissions, into a unified framework. The initiative had the working title of *Clean Air for Europe* or CAFE. The areas which were proposed to be incorporated into the ambitious new framework were:

- Air quality standards including the air quality daughter Directives.
- Emissions from stationary sources including integrated pollution prevention and control, large combustion plants, municipal waste incinerators, VOC emissions from petrol installations, and proposals on solvents.
- Fuel standards including the Auto Oil Directive on petrol and diesel quality, and the sulphur content of liquid fuels.
- Vehicle emissions standards including those developed under Auto Oil, plus those on two-wheeled vehicles, tractors and off-road mobile machinery, and roadworthiness testing.
- The acidification and ozone strategies.

The long-term objective was to harmonize both the analytical frameworks and the timeframes used in developing legislation in all these fields. The idea was that this would facilitate selection of the most cost-effective measures and avoid conflicts between measures proposed in different areas or at different times. In many ways this could be seen as a logical extension of the methodology developed under the Auto Oil Programmes. Following consultation, technical feasibility studies and evaluations were initiated in 1999.

The European Commission subsequently published the CAFE programme in May 2001 ([COM\(2001\)245](#)). The Communication was not a strategy, but a programme that could lead to the production of a strategy in 2004. This would then form one of the Thematic Strategies under the Sixth Environmental Action Programme.

The CAFE programme highlighted a number of issues that need to be addressed. It considered that the most pressing of these were the problems of particulates and tropospheric ozone. The programme also stated that a range of other issues still remained to be addressed, including nitrogen oxides, acid deposition and eutrophication. However, it was unclear what problems would remain. A strong indication was, however, given by a statement that the commitment by Member States under the UNECE multi-pollutant protocol 'did not

correspond to the level of ambition on which the technical work was based'. The programme indicated that action on transport emissions would already go significantly further than stationary sources and, therefore, by implication, that the latter would be the likely targets of future legislative proposals.

The Commission published its proposal for a Thematic Strategy on air quality in 2005 as a major output of CAFE ([COM\(2005\)446](#)). The Thematic Strategy described in detail the problems faced in the EU with ambient air quality and deposited pollutants and was accompanied by an impact assessment examining the costs of tackling these. It was accompanied by a proposed revision of the Air Quality Framework Directive, but not by any proposals to tackle emissions of pollutants, as this would be addressed following completion of the review of the National Emission Ceilings Directive. The Strategy set out actions that it claimed would reduce the number of premature deaths in 2020 by 140,000 compared to 2000. The cost of implementing the Strategy was estimated at €7.1 billion per year, although the health benefits amounted to nearly six times as much at €42 billion per year, while environmental benefits were not quantified. Estimates suggested that of the €7.1 billion annual costs, €2.5 billion would fall on agriculture (of which €1 billion related to existing measures), €2 billion on transport, €1 billion each on households and combustion plants, and €600 million on households.

To achieve its objectives, emissions of sulphur dioxide would have to decrease by 82 per cent, the oxides of nitrogen (NO_x) by 60 per cent, volatile organic compounds (VOCs) by 27 per cent and primary fine particulates (now defined as PM_{2.5}) by 59 per cent relative to 2000. The strategy noted that some of these reductions would be achieved by measures that had already been implemented by Member States, although other measures would be needed. The proposals included were:

- A proposal for stricter emission standards for cars (Euro V), which was published in December 2005, with stricter standards for heavier vehicles to follow.
- The expansion of the coverage of the Integrated Pollution Prevention and Control Directive [2008/1/EC](#) to cover smaller industrial installations.
- Harmonized technical standards for domestic combustion appliances and their fuels will be developed, while smaller residential and commercial buildings could be included in an extended energy efficiency Directive.
- Further measures to reduce VOC emissions at petrol stations.
- Tighter NO_x emission standards for ships, which will be set at the EU level if international action is not forthcoming.
- Reduction of the nitrogen content of animal feedstuffs and controls on the excessive use of nitrogen fertilizer.

The Thematic Strategy received mixed views. The European Parliament ([2006/2060\(INI\)](#)) called for more ambitious reduction targets for VOC, PM_{2.5}, NO_x and for a PM₁₀ yearly limit value of 33 µg/m³ in 2010, arguing that this would lead to greater health and employment benefits while maintaining a balanced approach between costs and benefits. The Council¹ noted the problems faced by Member States in implementing air protection legislation and recognized the need for 'flexibility'. It also supported the Commission's approach to setting interim objectives to 2020 and considered the level of ambition of the Thematic Strategy to be 'an appropriate basis for further consideration'.

In January 2011, the Commission published ([SEC\(2011\)342](#)) a discussion of the future of air quality regulation and decided that some measures were needed to be taken. For 2011, it was announced that the Commission would look at the following:

- The revision of Directive 1999/32/EC introducing new sulphur content of certain fuel oils.
- Review and further reduction of emissions from vehicles and machinery, focusing on pollution ‘hot spots’.
- The implementation of energy efficiency and renewable energy measures outlined in the climate and energy package (see Overview of EU policy: climate change).
- Active participation in international negotiations, especially the UNECE Gothenburg Protocol.

Overall, only limited progress has been made in some of the areas set out in the Thematic Strategy, most notably with the revision of the Air Quality Framework Directive.

Reference

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