Manual of European Environmental Policy

The following pages are a section from the Manual of European Environmental Policy written by the Institute for European Environmental Policy.

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This section is the text of the Manual as published in 2012. It is therefore important to note the following:

- The contents have not been updated since 2012 and no guarantee is given of the accuracy of the contents given potential subsequent developments.
- The sections include links to external websites (e.g. to legal texts). These links continue to work as long as those links are not broken by those websites.
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Large combustion plants

Formal reference	
2001/80/EC (OJ L309 27.11.2001)	Directive on the limitation of emissions of certain pollutants into the air from large combustion plants
Proposed 8.7.1998 – COM(98)415	
Legal base	Article 192 TFEU (originally Art.175 TEC)
Binding dates	
Formal compliance	27 November 2002
Commission to develop guidelines for national emission reduction plans	27 November 2002
Commission informed of national emission reduction plans	27 November 2003
Progress report by Commission	31 December 2004
Emission reductions to be achieved	1 January 2008
88/609/EEC (OJ L336 07.12.1988)	Directive on the limitation of emissions of certain pollutants into the air from large combustion plants
94/66/EC (OJ L337 24.12.1994)	Amendment Directive 2001/80/EC repealed Directive 88/609/EEC on 27.11.2002.

The Industrial Emissions Directive 2010/75/EU repeals Directive 2001/80/EC from 1 January 2016.

Purpose of the Directive

An earlier Directive 88/609/EEC attempted to tackle one of the principal causes of acid rain by limiting emissions of sulphur dioxide (SO_2) and nitrogen oxides (NO_x) from fossil-fuelled power stations and other large combustion plants (LCP) such as oil refineries. It also restricted emissions of dust. Different requirements were set for new and existing plants. Existing plants were subject to total national emission limits – a new tool in EC pollution legislation at its time of introduction[1] – with phased reductions and with different limits for different Member States. For a new plant, emission limits applicable to individual authorizations were defined. Directive 88/609/EEC was repealed in November 2002 by Directive 2001/80/EC, which has its roots in the Commission's 1997 acidification strategy. Directive 2001/80/EC sets stricter emission limits in line with the technical progress that has been achieved in this sector. Because NO_x is also a precursor with VOC in the formation of ground-level ozone, the Directive forms a part of the Commission's ozone strategy as well as contributing to the long-term goals of the National Emission Ceilings Directive 2001/81/EC. The Directive is also to encourage combined generation of heat and power and the scope furthermore includes gas turbines in order to regulate NO_x emissions as their use in electricity generation is growing.

Summary of the Directive

The Directive applies to all existing and new combustion plants with a thermal input of at least 50 MW, irrespective of the fuel used. The Directive does not apply to the following combustion plants:

- Combustion used for direct heating or drying or any other treatment of objects or material.
- Post-combustion plants.
- Facilities for the regeneration of catalytic cracking catalysts.
- Facilities for the conversion of hydrogen sulphide into sulphur.
- Reactors used in the chemical industry.
- Coke battery furnaces.
- Cowpers.
- Any technical apparatus to move a ship, vehicle or aircraft.
- Gas turbines on off-shore platforms.
- Gas turbines licensed before 27 November 2002, provided that the plant is in operation by 27 November 2003.
- Plants powered by diesel, petrol and gas engines.

Existing plants are defined as in the original Directive 88/609/EEC as plants for which the original construction license, or the operating licence, was granted before 1 July 1987. The Directive provides the Member States with two alternatives for the treatment of existing plants to be achieved by 1 January 2008.

Member States must either take appropriate measures to ensure that all licenses for the existing plants contain conditions that comply with the emission limit values for SO_2, NO_x and dust set in part A of Annexes III–VII for new plants (full request for a license *before* 27 November 2002, provided that the plant is operating by 27 November 2003) or alternatively they can be subjected to a national emission reduction plan. It should be noted that the proposed values are minimum values and that Member States may adopt stricter values if they so wish.

The aim is that the plan would lead to the same emission level that would have been achieved by applying the emission limit values individually to the existing plants in operation. In other words, the plan would allow some plants to exceed the limits provided that emissions from other plants are below them. The reduction targets for emissions of SO_2 and NO_x from existing plants are set in Annexes I and II with which the plan must comply. The national emission reduction plan is to include objectives, related targets and the measures and timetables to reach them. The plan must be communicated to the Commission by 27 November 2003.

The plan will be evaluated by the Commission within six months of the communication. If the Commission considers that the national reduction plan does not meet the requirements of this Directive the Member State will be informed with three months to fulfil the requirements. Commission Recommendation C(2003)9 (OJ L016 22.01.2003) provides guidelines to assist a Member State in the preparation of a national emission reduction plan. Existing plants may be exempted from compliance with the emission limit values and inclusion in national emission reduction plans under the following conditions:

- The plant operator must inform the competent authority by 30 June 2004 that the plant will not be operated for more than 20,000 hours starting from 1 January 2008 and ending 31 December 2015.
- Each year the operator is required to submit to the competent authority a record of the used and unused time allowed for the plants' remaining operational life.
- Existing plants larger than 400 MW are allowed to emit up to 800 mg/N m^3 of SO_2 if they operate less than 2,000 h/year between 2008 and 2016 and 1,500 h/year thereafter.
- Existing plants larger than 500 MW are allowed to emit 600 mg/N m^3 of NO_x if they operate less than 2,000 h/year between 2008 and 2016 and 1,500 h thereafter with a lower 450 mg/N m^3 limit.
- Existing coal-fired plants using low-volatile fuels will be permitted to emit 1,200 mg/N m^3 of NO_x until 2018.

The competent authority may also allow a suspension for up to six months to comply with the emission limit values for a plant because of an interruption in the supply of low-sulphur fuel resulting from a serious shortage. Another derogation (up to ten days except where there is an overriding need to maintain energy supplies) allowed by the competent authority is when a plant that normally uses only gaseous fuel has to resort to other fuels because of the sudden interruption in the supply of gas.

New plants are defined as in the original Directive (license granted after 1 July 1987). The emission limit values for new plants are set either in part A (license by 27 November 2002 and in operation by 27 November 2003) or in part B (license granted after 27 November 2002) of Annexes III–VII. The emission limit values set in part B are stricter than those in part A. The Directive sets an emission limit value of 200 mg/N m^3 NO_x for plants (solid fuel, part B) over 500 MW by 2016. Smaller plants (solid fuel, part B) of 50–500 MW are to meet the target of 600 mg/N m^3. The Directive specifies emission limit values for SO_2 in relation to solid fuels (including biomass), liquids and gas. For example, the emission limit value for SO_2 in plants over 100 MW using solid fuels is 200 mg/N m^3 (part B). The Directive also sets emission limit values for dust.

The Member States must also ensure that for licensed new plants the technical and economic feasibility for providing combined generation of heat and power is examined.

The Commission must have had submitted a report to the European Parliament and the Council by 31 December 2004 assessing:

- The need for further measures.
- The amounts of heavy metals emitted by LCPs.
- The cost-effectiveness of further reductions compared to other sectors than the LCPs sector.
- The technical and economic feasibility of such emission reductions.
- The effect of the standards for the LCP sector and the competition situation in the energy market on the environment and the internal market.
- National reduction plans.

Further measures

To assist Member States that choose the national plan option as a means of compliance with the requirements for existing plants the Commission developed guidance for the preparation of these plans. This was issued as Commission Recommendation 2003/47/EC of 15 January 2003.

Also in January 2006 the Commission sent out a letter to all Member States addressing the interpretation of certain important aspects of the Directive, including the application of the 'common stack' approach, the exemption of plants operating for no more than 20,000 h, and the conditions for application of a 'combined approach' for implementation of the Directive.

New Member States

The Accession Treaty of 2003 set out transitional measures for the accession of the Czech Republic, Estonia, Cyprus, Latvia, Lithuania, Hungary, Malta, Poland, Slovenia and Slovakia. The Accession Treaty of 2005 set out transitional measures for the accession of Bulgaria and Romania (as did Directive 2006/105/EC of 20 November 2006). For several of the new Member States, the transitional measures included measures for individual LCP from the requirements (emission limit values) of the Directive. In some cases, these have been made subject to meeting intermediate ceilings for emissions of SO2, NO_X and or dust from some or all LCPs. An application for further derogation for Bulgaria was rejected by the Commission in May 2010 (Decision 2010/264/EU).

Carbon capture and storage

Article 33 of Directive 2009/31/EC on the use of carbon capture and storage amended Directive 2001/80/EC (a new Article 9a1). This requires that Member States shall ensure that operators of all combustion plants with a rated electrical output of 300 megawatts originally licensed after the entry into force of Directive 2009/31/EC (25 June 2009) have assessed whether the following conditions are met:

- Suitable storage sites are available for CO_2 storage.
- Transport facilities are technically and economically feasible.
- It is technically and economically feasible to retrofit for CO_2 capture.

If these conditions are met, the competent authority shall ensure that suitable space on the installation site for the equipment necessary to capture and compress CO_2 is set aside. The competent authority shall determine whether the conditions are met on the basis of these conditions as well as other available information, particularly concerning the protection of the environment and human health.

Development of the Directives

Directive 88/609/EEC

The acidification of lakes became an issue in the Nordic countries in the 1960s where the cause was first attributed to sulphur transported from abroad. In 1970 the OECD accepted a Nordic Council proposal for research work on long-range transboundary transport of air

pollution and in 1977 this confirmed that SO_2 moved long distances. In 1972 at the United Nations (UN) Conference on the Human Environment held in Stockholm, Sweden had drawn attention to itself as a 'victim' of air pollution from other countries, but it was not until 1977 that the UN Economic Commission for Europe (UNECE) was persuaded by the Nordic countries to begin work on a convention on long-range transboundary air pollution. The Nordic countries pressed for a 'standstill' clause under which countries would be bound to prevent any increases in emissions and a 'rollback' clause to reduce emissions by fixed percentages over the years to come. A Convention was eventually signed in Geneva in 1979, but as a result of resistance from the United States, the United Kingdom and the Federal Republic of Germany contained no 'roll-back' clause but merely required signatories 'to endeavour to limit and, as far as possible, gradually reduce and prevent air pollution'.

For the first ten years or so, after acid rain became an international issue, the EC effectively took no action. Given that two of the large Member States – the United Kingdom and Germany – were not convinced of the need for action, this is not surprising, and it was not until after Germany had announced an about-face in its own policy in 1982 as a result of growing concern over the death of German forests that the Commission felt able to take an initiative. This followed a German memorandum to the Council in June 1982. The Commission's first response was a proposal in April 1983 that became the 'framework' Directive 84/360/EEC on emissions from industrial plants. In June 1983 the European Council held in Stuttgart discussed the environment for the first time and its communiqué referred to 'the acute danger threatening the European forest area' and called for immediate action to avoid an irreversible situation. In November 1983 the Commission issued a communication to the Council – reviewing concerns about acid deposition – and in December it proposed a Directive which resurrected the 'roll-back' clause first mooted by the Nordic countries in 1977. It proposed equal reductions of SO_2 and NO_x for all Member States of 60 per cent and 40 per cent respectively by 1995, using 1980 as a base.

It took five years of difficult negotiations before Directive 88/609/EEC was agreed and these have been fully described elsewhere[2]. The United Kingdom was the most consistent opponent of significant reductions from existing plant – Spain did not join the EC until 1986. Table 1 is a simplified version of Annex I of the now repealed 88/609/EEC Directive. It shows total SO_2 emissions from LCP for 1980 and targets for 1993, 1998 and 2003. These targets are also expressed as percentage reductions and the British targets are 20 per cent, 40 per cent and 60 per cent respectively. For NO_x there are only two target dates: 1993 and 1998. The British targets are for 15 per cent and 30 per cent reductions, whereas most Member States targets were for 20 per cent and 40 per cent reductions. The table also shows that the United Kingdom was the largest emitter of SO_2 in 1980, largely because of high sulphur indigenous coal, but in negotiations the United Kingdom was nevertheless able to secure for itself smaller percentage reductions than the other three large Member States.

To understand the reactions of the different Member States, they can be conveniently divided into four groups. The first comprised what can be termed the enthusiastic countries: Germany, the Netherlands and Denmark. These had a well-developed public opinion and were ready to spend the sums needed to retrofit existing plant. The second group comprised France and Belgium: they had large nuclear programmes, and so were indifferent since they were likely to reach the targets without much extra effort. The third group consisted of the United Kingdom and Italy: the two largest emitters with a high dependence on coal. The final group consisted of the smaller countries and Spain.

Table 1. Sulphur dioxide emission reductions from Annex I Directive 88/609/EEC

			Sulphur dioxide				
			Emissions, Emission Ceilings Per cent Change from 1980				
	1980	***1993***	***1998***	***2003***	***1993***	***1998***	***2003***
			(Thousand Tonnes/Year)				
Belgium	530	318	212	159	−40	−60	−70
Denmark	323	213	141	106	−34	−56	−67
Germany	2,225	1,335	890	668	−40	−60	−70
Greece	303	320	320	320	+6	+6	+6
Spain	2,290	2,290	1,730	1,440	0	−24	−37
France	1,910	1,146	764	573	−40	−60	−70
Ireland	99	124	124	124	+25	+25	+25
Italy	2,450	1,800	1,500	900	−27	−39	−63
Luxembourg	3	1.8	1.5	1.5	−40	−50	−60
Netherlands	299	180	120	90	−40	−60	−70
Portugal	115	232	270	206	+102	+135	+79
UK	3,883	3,106	2,330	1,553	−20	−40	−60
EEC	14,430	11,065	8,402	6,140	−23	−42	−58

The first two groups agreed to the biggest reductions. The last group agreed the smallest reductions (in some cases even increases). The commitments of the United Kingdom and Italy lay in between.

Fairly soon it became clear that the Commission's original proposals would never be adopted, and not only because of UK objections. However, it was not until 1986 under the Dutch Presidency that a proposal for different reductions for different Member States was put forward. The Dutch proposed differentiated reductions, based on ‘objective criteria’, in two stages: 1995 and 2005. In July 1986 the UK Central Electricity Generating Board decided to retrofit 6,000 MW of power plant with desulphurization equipment and this marked a major shift in the UK position.

In 1987 the Belgian Presidency proposed a three-stage reduction (1993, 1998 and 2005). The Danish Presidency developed this proposal in 1987 and under the German Presidency in the first half of 1988 agreement was eventually achieved. The Germans were anxious to secure agreement on a Directive that they had initiated and the United Kingdom wanted clarity in order to be able to proceed with privatization of its electricity industry. The final allocation of reductions partly reflected differing circumstances in the different countries but was also a political compromise. The United Kingdom was also able to secure a derogation for new plants burning indigenous high sulphur coal.

Directive 88/609/EEC contained no SO_2 emissions limit for solid fuel-burning plants in the range 50–100 MW, due to uncertainty about the availability of low-sulphur fuel. In proposing an amendment in 1992, the Commission recommended a limit of 2,000 mg/m^3 for these plants, stating that sufficient low sulphur content coal was available at an acceptable price. The Commission did concede, however, that 50–100 MW boilers in France and the United Kingdom would be required to use imported coal rather than domestic coal.

Directive 2001/80/EC

The Commission made its initial proposal to revise the Directive on 8 July 1998, which took account of the technical progress achieved in the LCP sector during the previous 15 years. During the Council meeting in December 1999 two opposing camps led by Germany and the United Kingdom made it impossible to reach an agreement. The major sticking point during the negotiations was the role of older plants. Germany was unwilling to accept a Directive that would not include old plants whereas the United Kingdom was equally adamant not to include existing plants. The UK stance was that the National Emission Ceilings Directive 2001/8/1EC would be a better way to reduce these emissions. However, during the Council meeting in June 2000 a compromise was reached. Existing plants were included into the Directive but with a residual life of 20,000 h after the 2008 deadline. Other countries, such as Denmark wanted to limit this maximum to 10,000 h but decided to be flexible in order to include these plants into the scope of the Directive. The European Parliament adopted the compromise agreement reached with the Council at the third reading (20.9.2001).

Implementation of the Directives

Information on the measures taken by the Member States to transpose Directive 88/609/EC can be found in their national execution measures.

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Member States were largely compliant with the objectives of Directive 88/609/EEC and are also largely compliant with Directive 2001/80/EC. Compliance with the latter is also driven by the IPPC Directive 2008/1/EC which would suggest stricter controls that Directive 2001/80/EC and, in any case, many Member States have chosen the option for national plans[3], while overall emissions are also within the context of the obligations of the National Emission Ceilings Directive 2001/81/EC.

In considering the implementation of the Directives, it has to be noted that there are a range of pressures on LCP arising from legislative and non-legislative contexts at international, EU and national level so that changes in emissions from LCPs may or may not be due to the effect of the Directive. For example, Eames (2000)[4] examined the environmental outcomes in four Member States in relation to implementation of Directive 88/609/EEC alongside the political, industrial and other developments taking place. He concluded that the environmental outcomes obtained in each country were the product of ‘quite distinct national policy processes’. He concluded that the Directive itself had had no impact in three of the four countries (France, Germany and the Netherlands) and only limited impact in the United Kingdom. There was generally a case of over-compliance and this was found to be due to:

- Public and political awareness.
- Interactions between the market structure and type of policy instrument.
- Interactions with national energy policy.
- The use of compliance plus negotiated agreements.
- The cost structure of flue gas desulphurization.
- Technological learning effects.
- Anticipation of further Regulation.

Enforcement and court cases

One case (C-214/03 08.07.2004) was concluded concerning Directive 88/609/EEC with a judgement against Austria due to a failure of transposition (ensuring key terms were transposed into national legislation).

Three cases, decided by the European Court of Justice concern the failure by Member States to ensure adequate implementation Directive 2001/80/EC:

- C-99/04 12.05.2005: The Court found in 2005 that Italy failed to adopt the laws, Regulations and administrative provisions necessary to comply with Directive 2001/80/EC and has failed to fulfil its obligations under that Directive.
- C-171/04 14.04.2005: In this 2005 case the United Kingdom was found to be in breach of its obligations under the Directive, in failing to adopt the measures necessary for its implementation.
- C-346/08 22.04.10. The court ruled that the United Kingdom was in breach of the requirements of the Directive due to the failure of a power plant in Lynemouth, Northumberland to achieve the necessary reductions in emissions prescribed in Article 4(3).

Further developments

The EU's Thematic Strategy on Air Pollution (COM(2005)446) of 21 September 2005 identified a revision of Directive 2001/80/EC as one route towards improving Europe's air quality (see section on the Sixth Environmental Action Programme and the Thematic Strategies). A study was carried on behalf of the Commission to support the review of the Directive. A final report was delivered in July 2005, presenting the findings of the information collection and analysis on a range of aspects related to LCP emissions[5]. The report analysed the following:

- The key policies affecting LCPs emissions.
- The data on current and future emissions from LCPs across the EU.
- The priority pollutants and process types for the achievement of potential further emission reductions.
- The possible end dates of lower limit values for derogations.
- The effects of different standards for LCP sectors across Member States.
- The analysis of the feasibility of some market-based instrument for emission reductions.

A further 2006 study[6] examined the difference between ex-ante assessments of the costs of implementing Directive 88/609/EEC and the actual costs after implementation. It examined estimates and costs in Germany, the Netherlands and the United Kingdom and concluded that in all cases ex-ante assessments of implementation costs were significantly greater than the costs when implementation proceeded.

In December 2007 the Commission published a proposal to revise the Integrated Pollution Prevention and Control Directive 2008/1/EC and six sectoral industrial emission Directives (COM(2007)844), including Directive 2001/80/EC. The proposal was adopted as the Industrial Emissions Directive 2010/75/EU. This Directive alters significantly the conditions

for large combustion plants. As a result Directive 2001/80/EC is repealed from 7 January 2014.

The Commission is also examining the possibility of introducing an EU-wide emission trading scheme for nitrogen and sulphur oxides. A report[7] for the Commission concluded that "most trading scenarios" would be less costly than the forthcoming Industrial Emissions Directive. Further work is continuing, but stakeholder discussions have highlighted significant opposition to such a scheme, including from some Member States, industry and NGOs (see results of stakeholder meetings at this link).

Related legislation

The emissions from LCP result in problems for ambient air quality and deposited air pollutants. The Directive, therefore, interacts strongly with the Air Quality Framework Directive 2008/50/EC in helping to achieve the air quality objectives and the National Emission Ceilings Directive 2001/81/EC, as LCPs are major contributors to some of the pollutants for which ceilings are established.

Directive 2001/80/EC is also linked with other industrial pollution control legislation. This is most clearly evident with the Integrated Pollution Prevention and Control Directive 2008/1/EC as all LCPs are regulated under IPPC and, therefore, the emission limits in Directive 2001/80/EC are minimum requirements for these installations, as BAT under IPPC still needs to be applied.

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