EC Regulation of Sulphur Dioxide Levels: Directive 89/427

Robert A. Ermanski
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INTRODUCTION

The Council of the European Communities (Council) adopted Directive 89/427 on June 21, 1989.1 This measure amended Directive 80/779, which defined limit values2 and guide values3 for sulphur dioxide and suspended particulates in the atmosphere4 and required member states to enact legislation to lower the levels of these pollutants.5 Directive 80/779 mandated that member states of the European Community (EC or Community) conduct regular testing of the atmosphere to determine compliance with these standards.6 Directive 80/779 provided for different methods of testing and different sets of limit values for these pollutants.7 Directive 89/427 harmonizes these testing methods and sets of limit values.8

Part I of this Note discusses the requirements of Directive 80/779 and outlines problems encountered in implementing the directive. Part II examines Directive 89/427 and its adjustments to the limit value and testing scheme of the original directive. Part III analyzes the effectiveness of these changes in producing a harmonious and consistent scheme of regulation. Part III also examines the implications of transboundary air pollution on the implementation of the directives. This Note concludes that al-

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2 See infra note 10 and accompanying text.
4 Directive 80/779, supra note 3, at art. 1.
5 Id. at art. 15(1).
6 Id. at art. 6.
7 Id. at Annex I, Annex IV. See also Report on the parallel measurements performed under the terms of Article 10(3) of Directive 80/779/EEC on air quality limit values and guide values for sulphur dioxide and suspended particulates, COM(88) 400 final, at 2 [hereinafter Report on Parallel Measurements].
8 Directive 89/427, supra note 1, at Preamble.
though Directive 89/427 eliminates many of the problems associated with Directive 80/779, further amendments are needed to produce a harmonized scheme of limit values and testing methods.

I. Directive 80/779

A. Provisions

The Council approved Directive 80/779, regulating atmospheric levels of sulphur dioxide and suspended particulates, on July 15, 1980 in an effort to protect the environment and human health.9 The directive fixed limit values and guide values for these pollutants. Limit values are the maximum acceptable levels of sulphur dioxide and suspended particulates in the atmosphere.10 Guide values are suggested long-term targets for the level of these pollutants.11

The directive required member states to enact legislation to lower the levels of these pollutants.12 To ensure compliance, Directive 80/779 required member states to conduct testing in areas where the limit values were likely to be approached or exceeded.13 The directive required member states to report the test results to the Commission of the European Communities (Commission) within six months of the end of each annual reference period.14 Member states reporting results that exceeded the limit values were required to submit a plan for improvement to the Commission.15

Directive 80/779 did not create a uniform system of testing for sulphur dioxide and suspended particulates.16 Rather, it created

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9 Directive 80/779, supra note 3, at art. 1.
10 Id. at art. 2(1), Annex I, Annex IV. Limit values are defined in Annex I and Annex IV of the directive.
11 See id. at art. 2(2). Article 2(2) states that the guide values are intended to serve as "long term precautions for health and the environment" and as "reference points for the establishment of specific schemes within zones determined by the Member States." Id. This provision allows the member states to use the stricter guide values as limit values in those zones they wish to subject to special protection. Id. at art. 4(1). It is the goal of the Community to move toward the standards defined in the guide values. Id. at art. 5. Guide values are defined in Annex II of the Directive.
12 Id. at art. 15(1).
13 Id. at art. 6.
14 Id. at art. 7(1).
15 Id. at art. 7(2).
16 Report on Parallel Measurements, supra note 7, at 3. The differences in the sampling and analysis methods under the two annexes can be summarized as follows:
two different sets of limit values, defined in Annex I and Annex IV. These differences were designed to accommodate different testing methods already in place in the member states.

Because of the differences in the two annexes, Directive 80/779 required member states using Annex IV to conduct parallel testing with both annexes. These member states were required to conduct simultaneous testing using both annexes at fixed locations. The directive mandated this additional procedure to verify that the two sets of limit values were equally stringent and that the testing methods produced comparable results.

Under Directive 80/779, the Commission was responsible for monitoring implementation of the directive’s provisions. The directive required the Commission to conduct its own sampling and testing to facilitate eventual harmonization of the different methods. The directive also required the Commission to issue annual reports to the Council on the results of this review. In addition, the directive required the Commission to report within five years on the results of the parallel testing conducted under Annex IV.

B. Problems with Implementation

Pursuant to the reporting requirements of Directive 80/779, the Commission filed two annual reports, in 1985 and 1986.
These reports noted that member states had not taken adequate steps to implement the directive. They had merely relied on existing legislation. Other member states had not enacted legislation to lower the levels of sulphur dioxide and suspended particulates in the atmosphere.

The two annual reports also suggested that, based on the preliminary results of parallel testing in those member states using Annex IV, the two annexes might not be equivalent. The reports indicated that the limit values defined in Annexes I and IV were not equally stringent. They also noted that the sampling and analysis methods used under the two annexes were not comparable.

The Commission analyzed these differences in greater detail when it issued the Report on Parallel Measurements in 1988 (Report). The Report noted that the limit values for sulphur dioxide in Annex I were more stringent than those in Annex IV. It also stated that the results of testing for sulphur dioxide under the two annexes were difficult to compare because Annex I required testing in fixed locations, but Annex IV provided for a random sampling network.

The Report also indicated that the two annexes did not set equivalent standards to test for suspended particulates. The Report found that the limit values for suspended particulates were more stringent in Annex IV than in Annex I. It also noted that it was difficult to compare the test results because the two annexes


25 See Second Annual Report, supra note 24, at 1–2. The Second Annual Report indicated that court proceedings for noncompliance had been brought against Ireland at the time of the report and that similar proceedings were being contemplated against Luxembourg and Greece. In addition, Germany, France, Italy, the United Kingdom, Spain, Portugal, and Belgium were subject to Commission investigations. Only Denmark and the Netherlands were determined to be in satisfactory compliance.


27 Second Annual Report, supra note 24, at 47. Denmark, the Federal Republic of Germany, and Italy were using Annex IV. Italy was using the sulphur dioxide limit values defined in Annex I and the limit values for suspended particulates in Annex IV.

28 First Annual Report, supra note 24, at 50–51; Second Annual Report, supra note 24, at 50.

29 First Annual Report, supra note 24, at 50.


31 Id. at 5; First Annual Report, supra note 24, at 49; Second Annual Report, supra note 24, at 47.

32 See Report on Parallel Measurements, supra note 7, at 5.
used different testing methods measuring distinct "fractions of particles."33

The Report concluded that the parallel application of Annex I and Annex IV could not continue because they were not equivalent.34 The Report suggested that the current testing scheme provided discriminatory advantages for member states choosing the less stringent standard. A complete revision of the directive was necessary.

II. Directive 89/427


Directive 89/427 significantly amends Annex IV of Directive 80/779. Under Directive 89/427, the limit values for sulphur dioxide in Annex IV37 are now identical to those in Annex I.38 This change decreases the advantages to member states that used the less stringent limit values for sulphur dioxide in Annex IV of the prior directive.39

Directive 89/427 also harmonizes the testing methods under the two annexes. The three-consecutive-day rule,40 which in Annex I defined the maximum acceptable short-term sulphur dio
ide levels, has been extended to Annex IV.41 The revision of Annex IV also requires that the limit values for sulphur dioxide be "associated" with the level of suspended particulates.42 As amended, Annex IV also requires testing sites to be in fixed locations, abandoning the random, discontinuous sampling method used in Annex IV under the prior directive.43

Directive 89/427 imposes new reporting requirements on those member states using Annex IV. Prior to implementation, member states intending to use Annex IV must report to the Commission the zones in which the limit values in the Annex are likely to be exceeded.44 The member states are also required to provide the Commission with a plan to improve air quality in those zones.

Although it significantly changes the limit values and testing methods for sulphur dioxide, the new directive does not fully harmonize the two annexes. It leaves intact the different testing methods for suspended particulates.45 Consequently, the problems regarding suspended particulates that were noted in the Report on Parallel Testing remain uncorrected.46

III. Issues That Remain Unaddressed

A. The Dual Testing System

Although Directive 89/427 makes some progress in harmonizing Annexes I and IV, it fails to harmonize the testing methods and the limit values for suspended particulates.47 Specifically, Directive 89/427 permits the continued use of the black smoke and gravimetric methods to measure suspended particulates in the atmosphere.48 The Commission and the Council postponed changes pending the results of needed research.49

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44 Directive 89/427, supra note 1, at art. 1(1).
46 See supra notes 33 and accompanying text.
Further harmonization in the area of suspended particulates is necessary.\textsuperscript{50} Parallel testing of the two annexes indicated that the limit values used with the gravimetric method under Annex IV were stricter than those used with the black smoke method under Annex I.\textsuperscript{51} Parallel testing also demonstrated that the two annexes did not produce comparable results because they measure physically and chemically different fractions of particles. Because the level of suspended particulates triggers the choice of limit values for sulphur dioxide,\textsuperscript{52} differences in these testing methods will not only distort testing for suspended particulates but could also distort testing for sulphur dioxide.\textsuperscript{53}

B. Transboundary Pollution

A significant percentage of sulphur dioxide deposits in many member states originates outside their borders.\textsuperscript{54} Studies indicate

\textsuperscript{50} See Directive 89/427, supra note 1, at Preamble; Commission Proposal, \textit{supra} note 39, Explanatory Memorandum at 4. Although Directive 89/427 does not eliminate the entire dual testing and limit value system embodied in Annexes I and IV of Directive 80/779, it recognizes that further amendments will be needed to harmonize their provisions. The Explanatory Memorandum states: "At this stage the Commission simply proposes revising Annex IV and amending Article 10(3) and 10(4) accordingly. However, it is aware that a fuller review of the Directive in general and of the limit values in particular will be needed in the light of the ongoing research on suspended particulates." The directive provides for a review of this system along with the entire dual testing scheme. \textit{See} Directive 89/427, \textit{supra} note 1, at art. 1(1). The directive requires the Commission to submit a proposal based on this review to the Council for further changes in the testing scheme by December 31, 1992.

\textsuperscript{51} Report on Parallel Measurements, \textit{supra} note 7, at 5.

\textsuperscript{52} \textit{Id. at} 3.

\textsuperscript{53} \textit{But see} Commission Proposal, \textit{supra} note 39, Explanatory Memorandum at 7. The Commission states that although the two methods do not produce comparable results, it has chosen associated values for suspended particulates that will not cause discrimination among member states.

\textsuperscript{54} Dovland, \textit{Monitoring European Transboundary Air Pollution}, 29 Env't 10, 15 (Dec. 1987). As illustrated in Chart A, all member states are subject to deposits of sulphur dioxide from foreign sources.

\begin{center}
\begin{tabular}{|l|c|c|c|}
\hline
\textbf{Percentage of Sulphur Deposition Derived from} & \textbf{Foreign Sources} & \textbf{Unknown Sources} & \textbf{Indigenous Sources} \\
\hline
Belgium & 45 & 6 & 49 \\
Denmark & 47 & 11 & 42 \\
France & 32 & 13 & 55 \\
West Germany & 46 & 7 & 47 \\
Greece & 33 & 17 & 50 \\
\hline
\end{tabular}
\end{center}
that there are differences between sulphur dioxide "emissions" and "depositions" in all of the European countries.\textsuperscript{55} In 1980, 10 percent of sulphur dioxide deposits in Great Britain originated from foreign sources.\textsuperscript{56} Likewise, 46 percent of the sulphur dioxide deposits in West Germany originated from foreign sources.

The effects of such transboundary pollution can undermine the attempts of member states to remain within the limit values defined in Directives 80/779 and 89/427. Such transboundary air pollution can originate both within and outside the Community.

\begin{center}
\textbf{Chart B}
\end{center}

<table>
<thead>
<tr>
<th>Country</th>
<th>Percentage of Total European Emissions Depositions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Socialist Countries</td>
<td>67.2%</td>
</tr>
<tr>
<td>Western Countries</td>
<td>32.8%</td>
</tr>
<tr>
<td>Total</td>
<td>100.0%</td>
</tr>
</tbody>
</table>

EEC Members:

<table>
<thead>
<tr>
<th>Country</th>
<th>Percentage of Total European Emissions Depositions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Great Britain</td>
<td>6.7%</td>
</tr>
<tr>
<td>Italy</td>
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<tr>
<td>FRG</td>
<td>5.5%</td>
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<tr>
<td>Belgium</td>
<td>1.3%</td>
</tr>
<tr>
<td>Spain</td>
<td>3.3%</td>
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<tr>
<td>Denmark</td>
<td>.7%</td>
</tr>
<tr>
<td>France</td>
<td>4.6%</td>
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<tr>
<td>Ireland</td>
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<tr>
<td>Luxembourg</td>
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</tr>
<tr>
<td>Portugal</td>
<td>.2%</td>
</tr>
<tr>
<td>Greece</td>
<td>.5%</td>
</tr>
</tbody>
</table>

\textit{Id.}

\textsuperscript{55} Sláma, \textit{An International Comparison of Sulphur Dioxide Emissions}, 10 J. Comp. Econ. 277, 280–82 (1986). Emissions are an indicator of the level of production sulphur dioxide by individual countries, regardless of where the emissions may be deposited. Depositions reflect the level of sulphur dioxide pollution in the environment of individual countries, regardless of where the emissions may have originated. As illustrated in Chart B, levels of "emissions" and "depositions" vary among the member states.

\textsuperscript{56} See supra note 54 and accompanying text.
Each source of transboundary air pollution creates its own difficulties.

Directive 80/779 provided a mechanism for handling the effects of transboundary pollution emanating from within the Community, requiring the member states involved to mediate their conflicts by developing a joint plan to reduce the effects of transboundary pollution.57 Because sulphur dioxide and suspended particulate pollution crosses national borders, the reduction of such pollution in any one country depends upon an equal commitment from its neighbors.58 Nevertheless, if member states are not all using equally stringent standards of measurement, the testing system will not adequately prevent such conflicts.

The effect of transboundary air pollution originating outside the Community on the ability of member states to satisfy Community requirements is a more distressing problem. The Economic and Social Committee of the European Communities recognized the need to address this issue in its opinion on the Commission proposal for Directive 89/427.59 Perhaps, the limit values for sulphur dioxide and suspended particulates could be relaxed in those border regions affected by pollution originating from outside the Community. Such a limited relaxation of Community standards might appear inconsistent with the Community's goal of protecting the environment and human health. Nevertheless, a limited relaxation of Community standards would prevent distortions in the internal market that could result from the imposition of uniform regulations on member states that are not similarly situated. In any event, the Community cannot regulate the sources of these emissions. It is limited to diplomatic means to address them.

**Conclusion**

Directives 80/779 and 89/427 represent important advances in the regulation of sulphur dioxide and suspended particulate levels in the atmosphere. Directive 80/779 provided for two different sets of limit values and testing methods in Annex I and Annex IV, undermining the effectiveness of the regulation. Directive 89/

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427 is a first step in harmonizing these two annexes. Directive 89/427 does not, however, completely harmonize the annexes, especially with respect to suspended particulates. To prevent harm to the environment and human health, the Commission must further harmonize the testing schemes. In addition, the Community must consider the implications of transboundary air pollution for the current regulatory scheme.

Robert A. Ermanski