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Fixin’ a Hole: Recent Attempts by the European Community to Preserve the Ozone Layer†

INTRODUCTION

On September 16, 1987, the European Community (EC or Community) signed the Montreal Protocol on Substances that Deplete the Ozone Layer (Montreal Protocol) along with twenty-six other parties.¹ Thereafter, a mounting body of scientific evidence on the increasingly rapid rate of ozone depletion in the earth’s atmosphere soon suggested that the terms of the Montreal Protocol were grossly insufficient.² Despite this unfavorable scientific evidence, the Council of the European Communities (Council) adopted the Montreal Protocol on October 14, 1988 by enacting Regulation 3322/88.³

Community Environment Ministers decided during their December 15–16, 1992 Council meeting in Brussels that the EC should take steps to phase out production and use of chlorofluorocarbons (CFCs) altogether by January 1, 1995.⁴ This decision comes upon the heels of the Copenhagen meetings of November 25–27, 1992, in which the Council agreed to phase out CFCs completely by January 1, 1996, four years earlier than originally planned. At this time the Council also decided to stabilize the use of methyl bromide at 1991 levels by 1995.⁵ These decisions represent the most recent


³ Montreal Protocol, supra note 1, at 1.


attempt to both strengthen and broaden the terms of the Montreal Protocol.

This Comment addresses these recent developments in Community regulation of ozone-depleting chemicals. Part I briefly reviews the problem of ozone depletion and the history of Community and international attempts to remedy this problem. Part II discusses recent Member State CFC legislation, the Copenhagen revision of the Montreal Protocol on substances that deplete the ozone layer agreed upon by the Council, and the proposed tightening of Community regulation of these substances decided upon by EC Environment Ministers at their December 15–16, 1992 meeting in Brussels. Part III considers potential problems with the proposed Community regulations and revisions of the Montreal Protocol, and in particular the challenges posed to industry by the accelerated timetable for phasing out ozone-depleting chemicals. This Comment concludes that EC progress in this area of vital environmental concern is predicated not only on the continued cooperation of Member States, but on the sensitive balancing of industrial, political, and economic interests.

I. BACKGROUND

A. The Problem of Ozone Depletion

CFCs are chemical substances used primarily as coolants in refrigeration systems. They also function as propellants in aerosols and foams, and have some specialized medical uses. The chlorine contained in CFCs is a powerful ozone destroyer. Halons, another family of ozone-depleting chemicals, are used primarily in fire extinguishers. Although halons contain bromine, which has ten times the ozone-depleting power of the chlorine in CFCs, they are used less often. Methyl chloroform and carbon tetrachloride also deplete the ozone layer and are used widely in manufacturing processes; methyl chloroform also is used to clean computer chips.

Hydrochlorofluorocarbons (HCFCs) are the most widely accepted

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7 Id.
8 Id.
9 Id.
10 Id.
11 Bryk, supra note 6, at 277.
substitute for CFCs, because they have only 5 to 25 percent of the ozone-depleting strength of CFCs.\textsuperscript{12} The potential for enormous use of HCFCs, however, makes these chemicals a source of major concern.\textsuperscript{13} CFCs are non-toxic, non-flammable, and chemically inert, and therefore are ideal for a wide variety of industrial applications.\textsuperscript{14}

By 1974, scientific evidence indicated that the stable nature of CFC molecules poses a great threat to the atmosphere.\textsuperscript{15} The molecules of CFC rise to the stratosphere where ultraviolet radiation breaks them down into chlorine fragments, which in turn destroy ozone molecules.\textsuperscript{16} An invisible layer of ozone molecules in the stratosphere acts as a natural filter by absorbing the sun’s ultraviolet rays and preventing them from reaching the planet. The destruction of this atmospheric shield is thought to be responsible for increased incidence of skin cancer, crop reductions, and suppression of the human immune system.\textsuperscript{17}

A recent study revealed that the threat to the protective ozone layer is far greater than had been imagined previously.\textsuperscript{18} For example, the United Nation’s World Meteorological Organization found that man-made chemicals caused unprecedented destruction of the earth’s ozone layer over large portions of the planet during the last year.\textsuperscript{19} Ozone levels over northern Europe, Russia, and Canada in the spring and winter of 1991 were 12 percent under season average, “an occurrence never before observed in more than 35 years of continuous ozone observation.”\textsuperscript{20} Mr. William Reilly, former administrator of the U.S. Environmental Protection Agency, warned that continued depletion of the ozone layer will cause a sharp increase in cancer over the next century—including five million more cases and seventy thousand deaths in the United States alone.\textsuperscript{21} A leading atmospheric scientist warned that there is now evidence that the ozone layer is being depleted over heavily populated areas of the

\textsuperscript{12} Id.
\textsuperscript{13} Id.
\textsuperscript{15} Id. at 2.
\textsuperscript{16} Id. at 4.
\textsuperscript{17} Id. at 9.
\textsuperscript{18} Ozone: Protective Layer is Thinnest Yet, Study Finds, AM. POL. NETWORK, INC., Nov. 16, 1992, available in LEXIS, Europe Library, Alleur File.
\textsuperscript{19} Id.
\textsuperscript{20} Id.
northern hemisphere by about 3 percent in the summer and 5 percent in the winter.\textsuperscript{22} Even with existing controls, depletion levels could double by the year 2000.\textsuperscript{23} Scientists said that man-made chemicals could destroy a fifth of the protective ozone layer above Europe by the year 2000, dramatically increasing the risk of skin cancers.\textsuperscript{24}

**B. Initial Steps to Remedy the Problem**

1. The Montreal Protocol

In March of 1980, the Community made its first tentative attempts to regulate the production and use of CFCs in aerosols.\textsuperscript{25} This early attempt to limit the damage caused by CFCs to the earth’s ozone layer, as well as later measures,\textsuperscript{26} were futile largely because they applied to only two particular CFCs—F-11 and F-12—and only when used in aerosols.\textsuperscript{27} The international threat posed by CFCs to the global environment made it clear to the EC and many nations that action on the national level was insufficient to secure the integrity of the ozone layer, and international control measures on the production and use of CFCs were needed to protect the environment.\textsuperscript{28} The Montreal Protocol, signed by the Community on September 16, 1987, required that each signatory reduce consumption of five types of CFCs\textsuperscript{29} to 50 percent of the 1986 levels by January 1, 1999.\textsuperscript{30} The Montreal Protocol also required each signatory to freeze its consumption of halons\textsuperscript{31} at 1986 levels within thirty-seven months after ratification of the Protocol.\textsuperscript{32}

Subsequent scientific evidence showed that the control measures put in place by the Montreal Protocol were not adequate.\textsuperscript{33} The EC

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\textsuperscript{22} Id.  
\textsuperscript{23} Id.  
\textsuperscript{27} See Decision 80/372, \textit{supra} note 25, at 45.  
\textsuperscript{28} Montreal Protocol, \textit{supra} note 1, at 21.  
\textsuperscript{29} Id. at 27 (Annex A).  
\textsuperscript{30} Id. at 22 (Para. 4).  
\textsuperscript{31} Id. at 27 (Annex A).  
\textsuperscript{32} Id. at 22 (Para. 2).  
\textsuperscript{33} See \textit{supra} note 2 and accompanying text.
revised the Montreal Protocol in June 1990. By December 1991, the Council approved the amendments. The new formula both broadened the scope of ozone-depleting substances covered by legislation and quickened the pace in which the production and use of such chemicals were to be phased out. The revised Montreal Protocol also recognized that developing nations needed financial and technological assistance from the industrialized nations in order to comply with the regulations. Therefore, the Montreal Protocol created a multilateral fund to facilitate the transfer of technology from industrialized nations to developing nations.

2. Community Regulations

In 1991, the EC continued to take a leading role in the fight against the destruction of the ozone layer; the EC adopted Regulation 594/91 to accommodate the growing pressure from environmental and consumer organizations within the Community for even more stringent measures to protect the ozone layer. This Regulation replaced Decision 88/540/EEC on measures to curtail the manufacture and importation of CFCs and halons. The Regulation applied to the import, export, production, and consumption of all fully halogenated CFCs, halons, carbon tetrachloride, and methyl chloroform. In Regulation 594/91, the Council decided that the production of CFCs should be eliminated by 1997, three years before the date generally accepted at the international level.

On February 23, 1992, EC Environment Ministers, meeting in Estoril, Portugal, worked out a draft agreement which once again accelerated the ban on CFCs. Council Regulation (EEC) No.

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35 See id. The revised Protocol expanded the list of controlled substances to include all fully halogenated chlorofluorocarbons, carbon tetrachloride, and 1,1,1-trichloroethane. CFCs were to be eliminated totally by the year 2000, following a 50% reduction in 1992 and an 85% reduction in 1995.

36 Decision 91/690, supra note 34, at 37.

37 Id.

38 Council Regulation 594/91 of 4 March 1991 on Substances that Deplete the Ozone Layer, 1991 O.J. (L 71) 1 [hereinafter Regulation 594/91].

39 Coopers & Lybrand, Environment, supra note 5, at *6.8.

40 Regulation 594/91, supra note 38, at 1.

41 Id. art. 1.

42 Id. art. 10.

3952/92, adopted by the Council on December 30, 1992, advanced the target date for a total ban on the production of CFCs by two years as compared with Regulation 594/91, and four years before the date anticipated by the Montreal Protocol.

II. RECENT COMMUNITY INITIATIVES

A. Recent Member State Legislation

At the Member State level, Denmark has the most aggressive measures to eliminate the production and use of ozone-depleting chemicals. Danish emissions of CFCs have fallen to slightly more than half of the 1986 volume. Industrial use of CFCs fell to 2,225 tons in 1991 from 5,660 tons in 1986. Denmark set a January 1, 1994 deadline for a total CFC ban. In 1993, Denmark totally banned halon, a chemical even more dangerous to the ozone layer than CFCs. Denmark has tried to reduce the demand for CFCs in the marketplace by employing an “ecotax” on CFC emissions; the tax raised $2.2 million in 1991.

Germany and Great Britain also are making great strides towards achieving a total ban on CFCs by 1995. In Germany, the government is taking a lead in moving forward to a 1993 ban on ozone-destroying chemicals the Community originally had set for 1995.

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45 The ban on the production and importation of chlorofluorocarbons 11, 12, 113, 114, and 115 and other fully halogenated CFCs advanced from the 30 June 1997 date mandated by Regulation 594/91 to 31 December 1994; the ban on the production and importation of halons advanced from the 31 December 1999 date mandated by Regulation 594/91 to 31 December 1993; the ban on the production and importation of carbon tetrachloride advanced from the 31 December 1997 date mandated by Regulation 594/91 to 31 December 1994; the ban on the production and importation of 1,1,1-trichloroethane advanced from the 31 December 2004 date mandated by Regulation 594/91 to 31 December 1995. Regulation 3952/92, supra note 44, arts. 1–5.

46 See Christopher Follett, Danes Offer Good Ideas on CFCs, TORONTO STAR, Nov. 21, 1992, at D6.

47 Id.

48 Id.

49 Id.

50 Id.


52 MacLeod, supra note 43, at 6.

53 Id.
Additionally, the government is pressuring the chemical giant BASF to cease production of CFCs by the end of 1993.\textsuperscript{54} Great Britain and Luxembourg agreed to a total ban on CFCs by 1995, a deadline subsequently adopted by the rest of the EC.\textsuperscript{55}

B. \textit{Recent Community and International Legislation}

In the face of growing data on higher ozone depletion worldwide, the international community decided that the Montreal Protocol needed to be tightened considerably.\textsuperscript{56} The ninety-three countries which signed the 1987 Montreal Protocol met in Copenhagen on November 22–25, 1992, and agreed to tighter timetables for phasing out ozone-depleting chemicals.\textsuperscript{57} The signatories agreed to move forward the total ban on CFCs from the year 2000 to 1996.\textsuperscript{58} The signatories also agreed to fund up to $500 million over a three year period in order to facilitate the transfer of ozone-friendly technology to developing nations.\textsuperscript{59} Additionally, the parties to the agreement advanced the phasing out of halons from the year 2000 to 1994.\textsuperscript{60} Likewise, the parties moved the ban on methyl chloroform from 2005 to 1996.\textsuperscript{61}

Furthermore, the signatories adopted a complex formula for HCFCs, the widely used substitute for CFCs; a controlled reduction of these chemicals begins with a 35 percent reduction by 2004, 65 percent by 2010 and 90 percent by 2015—only reaching 100 percent in 2030.\textsuperscript{62} Although HCFCs damage the ozone layer far less than CFCs, they are faster acting.\textsuperscript{63} As a result, the damage they cause to the ozone layer will reach its greatest extent at approximately the same time as the damage caused by the earlier released but longer-lived CFCs.\textsuperscript{64} The parties also agreed to freeze production and use of methyl bromide in 1995. Furthermore, they pledged to conduct

\textsuperscript{54} See id.

\textsuperscript{55} Id.

\textsuperscript{56} Id.

\textsuperscript{57} Id.

\textsuperscript{58} Id.

\textsuperscript{59} Id.

\textsuperscript{60} Id.

\textsuperscript{61} Id.

\textsuperscript{62} Id.

\textsuperscript{63} Id.

\textsuperscript{64} Id.

\textsuperscript{65} Brown, \textit{supra} note 59.
a full review of the issue in 1995 so that an agreement to reach a 75 percent reduction in methyl bromide production could be achieved by the year 2000.\footnote{Outcome of Copenhagen Meeting on Protecting Ozone Layer, Reuters, Nov. 30, 1992, available in LEXIS, Europe Library, Alleur File.} Many of these amendments to the Montreal Protocol are identical to EC proposals.\footnote{Id.}

The EC, however, continued to exercise its leadership role in pressing for the accelerated ban on ozone-depleting chemicals.\footnote{See E.C.: Ozone Layer—E.C. Agrees to Phase Out CFCs by Jan. 1995, Reuters, Feb. 13, 1993, available in LEXIS, Europe Library, Alleur File.} The Environmental Council meeting which concluded on December 16, 1992, ended with an agreement to accelerate the elimination of these chemicals according to a stricter calendar than the one provided for by the Copenhagen Summit.\footnote{EC Phase Out, supra note 4.} The new objectives sought by the regulation voted in by the Environmental Ministers included a total phase out of all CFCs by January 1, 1995; a total elimination of halons by January 1, 1994; a 100 percent reduction in carbon tetrachloride by January 1, 1995; and a total elimination of trichloroethane by January 1, 1996.\footnote{Id.} The Council also instructed the Commission to submit proposals before February 28, 1993 on the "new substances" that were added to the Montreal Protocol in Copenhagen: HCFCs and methyl bromide.\footnote{Id.} Tighter regulations than those provided by the Montreal Protocol were to be considered for these chemicals.\footnote{Id.}

Indeed, on June 9, 1993 the EC Commission agreed on a proposed new regulation that vastly accelerated the elimination of ozone-depleting substances as compared with the timetables established by the Montreal Protocol and its 1992 amendments.\footnote{EEC Proposes Earlier Phase-out Date For HCFCs Than Montreal Protocol Set, Int'l Envt. Daily (BNA), June 14, 1993, available in LEXIS, Europe Library, Alleur File. [hereinafter EEC Proposes Earlier Phase-out Date].} According to the new regulation, HCFCs would be phased out by 2014, instead of the year 2030 as agreed by the participants in the 1992 Copenhagen meeting.\footnote{Id.} The EC also would set more stringent limits on HCFC consumption, as well as requiring an earlier phase out.\footnote{Id.} The Montreal Protocol calls for a freeze on HCFC consumption by 1996, based on a cap of 3.1 percent of 1989 chlorofluorocarbon

\footnotesize{\begin{itemize}
    \item \footnote{Outcome of Copenhagen Meeting on Protecting Ozone Layer, Reuters, Nov. 30, 1992, available in LEXIS, Europe Library, Alleur File.}
    \item \footnote{Id.}
    \item \footnote{EC Phase Out, supra note 4.}
    \item \footnote{Id.}
    \item \footnote{Id.}
    \item \footnote{Id.}
    \item \footnote{EEC Proposes Earlier Phase-out Date For HCFCs Than Montreal Protocol Set, Int'l Envt. Daily (BNA), June 14, 1993, available in LEXIS, Europe Library, Alleur File. [hereinafter EEC Proposes Earlier Phase-out Date].}
    \item \footnote{Id.}
    \item \footnote{Id.}
\end{itemize}}
consumption, plus 100 percent of 1989 HCFC consumption.\textsuperscript{75} The EC proposal, by January 1, 1995, would set this level at 2.5 percent of the 1989 EC consumption of CFCs and HCFCs.\textsuperscript{76} This translates to 7,300 tons, and each nation will be assigned a part of this.\textsuperscript{77} HCFCs will then be phased down in four-year intervals until they disappear and are replaced by alternatives, such as hydrofluorocarbons.\textsuperscript{78}

For methyl bromide, the new regulation proposes freezing production and consumption levels on January 1, 1995, using 1989 as a base year, and their reduction by 25 percent on January 1, 1996.\textsuperscript{79} By way of comparison, the Montreal Protocol uses 1991 as a base, and postpones a decision on further reductions pending scientific and technology assessments.\textsuperscript{80}

\section*{III. Member State and Industry Reaction to Acceleration of the Ban on Ozone-Depleting Chemicals}

\subsection*{A. Dissension Among Member States}

Although the EC seeks to present a united environmental front, appearances often mask deep differences among Member States regarding the creation and implementation of environmental legislation.\textsuperscript{81} Germany, Denmark, and the Netherlands often resist EC-wide rules which would lower their own strict environmental standards.\textsuperscript{82} Great Britain, however, opposes the legislation of strict environmental standards, believing such pollution controls cause industry to lose its competitive edge.\textsuperscript{83}

Most recently, France is blamed for stifling plans for a new EC-wide assault on ozone-depleting chemicals.\textsuperscript{84} France allegedly opposes a major slash in HCFC and methyl bromide production.\textsuperscript{85} French companies such as Autochem have invested heavily in these

\textsuperscript{75} Id.
\textsuperscript{76} Id.
\textsuperscript{77} \textit{ECG Proposes Earlier Phase-Out Date}, supra note 72.
\textsuperscript{78} Id.
\textsuperscript{79} Id.
\textsuperscript{80} Id.
\textsuperscript{82} Id.
\textsuperscript{85} Id.
products. The French government has a major financial stake in these companies, and allegedly is concerned with protecting its investment.

B. Opposition of Industry to Tighter Bans on Ozone-Depleting Chemicals

The chemical industry, and other industries which have a stake in either the production or use of chemicals and which have proven dangerous to the ozone layer, often are accused by environmental advocates of seeking to undermine international efforts to save the ozone layer. Businesses, however, claim that the development and marketing of replacements for CFCs is a costly exercise that cannot be achieved immediately. Environmentalists counter that industry is unwilling to make such changes unless confronted by a combination of regulation, robust monitoring, and meaningful enforcement.

A United Kingdom government report on the effect on small dry cleaning businesses of a ban on the use of CFCs as solvents found that smaller establishments could not afford the new equipment or chemical substitutes that larger firms could afford. A second study on the use of CFCs in refrigeration and air conditioning predicted that refrigeration demand for CFCs will outstrip supply between 1994 and 2000 unless leakage and recycling rates improve. Indeed, economic uncertainty and fears that current substitutes represent only temporary and expensive "solutions" to their problems actually has encouraged the EC refrigeration sector to increase its use of CFCs by 4 percent from 1986 to 1991.

C. The Community Continues to Face Challenges

The EC has demonstrated its leadership in the struggle against the destruction of the earth's vital ozone layer. The Community has reacted swiftly to a mounting tide of evidence that the hole in the

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86 Id.
87 Id.
88 See UK Ecology, supra note 83.
90 UK Ecology, supra note 84.
92 Id.
93 Id.
ozone layer is growing much more rapidly than anticipated. The major challenges to the Community’s continued success in this area lie in maintaining an internal consensus that these chemicals must be banned as swiftly as possible, despite the harm that specific national industries might face. Simultaneously, the Community needs to reassure the marketplace that economically viable and ecologically sound alternatives to the banned chemicals can be relied upon.

Perhaps the EC could encourage greater industry support for progressive environmental legislation by viewing environmental goals in conjunction with business aims. Rather than simply mandate that a particular substance be banned, the EC could require that industry and government adopt a management approach to the environment. Policy statements and mission goals could be set by the EC, and within those parameters Member States would be free to implement the appropriate plans, measure performance, and report to the Commission concerning progress and obstacles. The EC must recognize that businesses are reluctant to invest huge sums of money in technologies that in the long run may not prove to be viable either economically or environmentally. Companies, for example, expect that legislation which requires that they replace CFCs with costlier alternatives be accompanied by legislation which encourages consumers to switch over quickly to the new products so that the chemical industry is not forced to bear an unfair share of the environmental burden.94 The EC must, therefore, increase business confidence in environmental measures by adopting an environmental program that takes into account the operation of the marketplace.

Certain tensions among Member States regarding environmental legislation, and in particular the adoption of regulations effecting large chemical industries, is to be expected. State governments face internal political pressures to protect vital domestic industries. Such conflicts among Member States most likely will decrease in the years to come, however. The experience of the EC with the strict German package legislation indicates that the demands of a transnational economy encourage industry to meet the strictest standards, in order to preserve market access.95 Companies which are capable of meeting strict environmental regulations can sell their products in

94 See UK Ecology, supra note 83.
95 Id. The German package legislation requires retailers to remove and recycle secondary packaging or provide bins for customers to do so. Id.
any market. Eventually, stricter environmental standards spread to other countries, which fear that "dirty" industries could lose a competitive advantage. It is likely, therefore, that initial Member State opposition to environmental regulations will be replaced by support for uniform standards.

CONCLUSION

The destruction of the ozone layer poses a grave threat to life on this planet. The persistence of ozone-depleting chemicals in the atmosphere demands that governments and industry take immediate and drastic measures to prevent further erosion of this life-sustaining blanket. The EC recognizes the imminence of this danger, and has reacted timely by taking the lead in banning the production and use of substances which deplete the ozone layer. By doing so, the EC provides a model of international environmental cooperation. The Community now must turn its attention to the problems that accelerated environmental legislation can pose for both Member States and affected industries.

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96 Id.
97 Id.