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SECTION 111(d) OF THE CLEAN AIR ACT: A NEW APPROACH TO THE CONTROL OF AIRBORNE CARCINOGENS

*Frank B. Cross**

I. INTRODUCTION

Large quantities of potentially cancer-causing substances are emitted into the air daily.¹ While the precise degree of risk caused by these emissions is not known, the potential public health hazard clearly calls for an effective regulatory program to control such airborne carcinogens, at least in circumstances where they pose a significant risk.² Unfortunately, no such effective program exists at the present time.

The Environmental Protection Agency (EPA) has federal regulatory authority over airborne carcinogens under the Clean Air Act,³ and there is a widespread, virtually universal, recognition that the agency's current efforts have been a failure.⁴ The EPA has initiated regulations for only a handful of the many suspected carcinogens in the ambient air, and has had only limited success in controlling the emissions of the few substances that it has addressed.⁵

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¹ Emissions of substances included on EPA's list of potential carcinogens range from the tens of thousands to the billions of tons. *Hearing on the Clean Air Act (Part Two) Before the Subcomm. on Health and the Environment of the House Comm. on Energy and Commerce*, 97th Cong., 1st Sess. 717 (1981) (table of emissions attached to the statement of David Doniger of the Natural Resources Defense Council) [hereinafter cited as *CAA Hearings*].

Moreover, in the absence of regulation, chemical production and emissions of carcinogens have increased dramatically. See *Hearing on Clean Air Act Oversight Before the Senate Comm. on Environment and Public Works*, 97th Cong., 1st Sess. 568 (1981) (increases in excess of 2000% over 25 year period) [hereinafter cited as *CAA Oversight Hearings*].

² See *infra* notes 61-67.

³ 42 U.S.C. § 7401 (1978).

⁴ See *infra* notes 8-17 and accompanying text.

⁵ See *infra* notes 33-63 and accompanying text.

Many have correctly ascribed the agency's failure to its unbending reliance on the strict dictates of section 112 of the Clean Air Act,⁶ which it now uses as the sole vehicle for regulating carcinogens in the air. Section 112 requires the agency to identify hazardous air pollutants and to set national emissions standards within a "margin of safety" that is solely defined by the projected health effects emissions would have upon the public. Under a literal reading of the section, all emissions of carcinogens — which have no provable margin of safety — would be prohibited, resulting in forced shut-downs of industrial plants or even entire industries. The EPA has avoided such an absolutist reading of section 112. It has also, however, avoided regulating under section 112, in part to avert court challenges of its less-than-absolutist reading of the section. Therefore, the agency's actions initiated under section 112 have been few. While the recognized shortcomings of section 112 have prompted calls for statutory amendments from both environmentalists calling for more stringent regulation, and from industries calling for a more cost-effective and efficient system of regulation, proposed revisions to date consistently have been stalled in the legislative process. The affected parties seem unable to agree on the nature of needed changes to the Act and have succeeded only in blocking each other's amendments, leaving the current situation unchanged, no matter how unacceptable it may seem.

Both industry and the environmental groups are correct in their recognition of the need for change — but the objectives of both groups can be accomplished administratively, without relying on the difficult and unpredictable option of statutory change. Originally, the Clean Air Act provided for possible regulation of hazardous carcinogens under section 111(d),⁷ a statutory option that survives the Clean Air Act Amendments of 1977, and offers the EPA a more flexible means of regulation than section 112. Unlike section 112, section 111(d) allows the agency to consider compliance costs in setting emissions standards; section 111(d) also differs from section 112 because it is designed to treat localized health hazards, the type of health hazard most commonly associated with air toxics such as airborne carcinogens. Simply by returning to the design of the original Clean Air Act for control of carcinogens, EPA can implement a program that has much greater promise for effective control of these hazardous air pollutants. The Act, as amended, makes clear that the

⁶ 42 U.S.C. § 7412 (1978).

⁷ 42 U.S.C. § 7411(d) (1978).

agency should consider authorities other than section 112 for regulation of airborne carcinogens. Expanded reliance on these alternatives, especially section 111(d), would promote greater public health protection as well as rules that are more likely to be acceptable to regulated companies.

In accordance with Congress' intention that the EPA flexibly use available statutory tools, this article advocates that the agency should not rely exclusively upon section 112 to regulate airborne carcinogens. EPA should, in addition, use section 111(d). This article first explores the weaknesses of the EPA's current section 112-based system of regulation, detailing both the environmentalists' and the industry criticisms of that system, and the EPA's less than satisfactory section 112 regulatory efforts. It next discusses section 111(d) as an alternative to section 112. The article further argues that both the structure of the Clean Air Act and its legislative history suggest that Congress intended that EPA use section 111(d) to regulate airborne carcinogens; that section 111(d) offers the EPA more flexibility than section 112 because it allows consideration of compliance costs; and that, because it is designed to treat the type of localized health hazard most often posed by airborne carcinogens, section 111(d) is a more suitable means of regulating airborne carcinogens than section 112. This article concludes that section 111(d) is an advantageous alternative to section 112 because it allows the EPA promptly to treat the health hazard posed by airborne carcinogens. Furthermore, it is preferable to the agency's current inaction pending Congress' amendment of the Clean Air Act.

II. HISTORY OF EPA'S FAILURE TO REGULATE AIRBORNE CARCINOGENS

Since there is little doubt as to the failure of EPA to regulate airborne carcinogens, it is important to understand the approach EPA has used in past regulation efforts before calling for policy changes.

Groups devoted to environmental protection repeatedly have criticized EPA's performance in controlling emissions of hazardous air pollutants. The National Clean Air Council, a coalition of environmental groups focusing on proposed Clean Air Act revisions, described the current program as a "failure" and a "study in equivocation."⁸ The Natural Resources Defense Council complained that

⁸ CAA Hearings, *supra* note 1, at 704.

EPA had "done very little" and that its existing program was "totally inadequate."⁹ The Attorney General of the State of New York, who testified in favor of strengthening the Clean Air Act, referred to the agency's "dismal record" in controlling toxic air pollutants.¹⁰

Industry representatives have been almost as critical as environmental groups. The Chemical Manufacturers Association has described EPA's policy on regulation of hazardous air pollutants as "simplistic," "inappropriate," and "counterproductive."¹¹ The American Petroleum Institute found the current program created "needless confusion, controversy and delay."¹² Indeed, no one seems satisfied with the current state of affairs. Then EPA Administrator Ruckelshaus noted that "EPA's efforts to date have been criticized by many, including some in industry, the states, environmentalists, and most recently the General Accounting Office, as being plagued by delay."¹³

EPA itself has been quite candid in acknowledging its "slowness" and "difficulties."¹⁴ Ruckelshaus conceded that "EPA has had problems" in regulating hazardous air pollutants.¹⁵ Walter Barber, Director of EPA's Office of Air Quality Planning and Standards, noted that "only limited progress" had been made in carcinogen regulation.¹⁶ Barber himself has testified for statutory modifications to section 112.¹⁷

Despite the almost unanimous recognition of the inadequacy of EPA's current program, little or nothing has been done to change the situation. The environmental and industry groups have proposed only statutory amendments, which have been unacceptable to one another and have never come close to congressional passage. A

⁹ *CAA Oversight Hearings*, *supra* note 1, at 519 (testimony of David Doniger, Natural Resources Defense Council senior project attorney).

¹⁰ *Hearings on Health Standards for Air Pollutants Before the Subcomm. on Health and the Environment of the House Comm. on Energy and Commerce*, 97th Cong., 1st Sess. 235 (statement of Robert Abrams, Attorney General of the State of New York) [hereinafter cited as *Health Standards Hearings*].

¹¹ *CAA Oversight Hearings*, *supra* note 1, at 700.

¹² *Hearings on Clean Air Act Reauthorization (Part 3) Before the Subcomm. on Health and the Environment of the House Comm. on Energy and Commerce*, 98th Cong., 2d Sess. 601 (1984) (letter from Steven Swanson, Director, Health and Safety Regulation Department) [hereinafter cited as *CAA Reauthorization Hearings*].

¹³ *Hearing on EPA's Air Pollution Control Program Before the Subcomm. on Oversight and Investigations of the House Comm. on Energy and Commerce*, 98th Cong., 1st Sess. 31 (1983) [hereinafter cited as *Air Pollution Control Program Hearings*].

¹⁴ *CAA Reauthorization Hearings*, *supra* note 12, at 19.

¹⁵ *Id.*

¹⁶ *CAA Hearings*, *supra* note 1, at 733.

¹⁷ *Id.*

better approach would be to work within the existing Clean Air Act. The following analysis of the history of hazardous air pollutant regulation reveals the root cause of the agency's failure, and suggests administrative changes that can promote much more effective regulation of airborne carcinogens.

A. Section 112 of the Clean Air Act

Evaluating EPA's past controls on airborne carcinogens requires an understanding of section 112 of the Clean Air Act, the sole statutory authority employed in regulations adopted to date. Intuitively, this section dealing with "hazardous air pollutants" seems the most logical regulatory vehicle. While it affords authority for regulation of airborne carcinogens, its specific dictates may make its authority impractical.

Section 112 provides for control of air pollutants "which may reasonably be anticipated to result in an increase in mortality or an increase in serious irreversible, or incapacitating reversible illness."¹⁸ Once such pollutants have been identified, the section calls upon the Administrator of EPA to develop "a list which includes each hazardous air pollutant for which he intends to establish an emission standard under this section."¹⁹

The Administrator's listing decision immediately triggers a brief timetable for adoption of emission standards (called National Emission Standards for Hazardous Air Pollutants or "NESHAPS") for stationary sources of the pollutant. Within 180 days of the listing, EPA must publish "proposed regulations establishing emission standards for such pollutant" ²⁰ Then, no later than 180 days after such publication, EPA must promulgate final emission standards.²¹ These emission standards must be set "at the level which in [the EPA Administrator's] judgment provides an ample margin of safety to protect the public health from such hazardous air pollutant."²² Significantly, the section contains no mention of cost-benefit analysis or any other economic consideration in standard-setting.

While there is relatively little legislative history on section 112, what exists suggests that the section was "tightly drawn" to cover

¹⁸ 42 U.S.C. § 7412(a)(1) (1976 and Supp. V 1981).

¹⁹ 42 U.S.C. § 7412(b)(1)(A) (1976 and Supp. V 1981).

²⁰ 42 U.S.C. § 7412(b)(1)(B) (1976 and Supp. V 1981).

²¹ *Id.*

²² *Id.*

the most hazardous air pollutants.²³ The Senate Report and Conference Report stress that NESHAPs were intended to apply to “a limited number of pollutants” that present an “imminent danger” to public health and safety.²⁴ Senator Muskie, known as the father of the Clean Air Act, stated that Congress intended section 112 to grant EPA power to respond to “strong evidence” that “any level” of “certain pollutants” may cause effects of a magnitude that “could not be tolerated.”²⁵ Throughout its legislative history, the types of substances properly subject to section 112 regulation are characterized as “extremely” or “highly” hazardous.²⁶

EPA has used its section 112 authority to respond to airborne carcinogens, and, to be fair, its reliance on section 112 seems consistent with congressional intent.²⁷ Other sections of the Clean Air Act do not explicitly address carcinogens emitted from stationary sources. Thus, section 112, which specifically addresses hazardous air pollutants from stationary sources, seems appropriate for carcinogen regulation.²⁸ For two reasons, however, section 112 will often be ill-suited to carcinogen regulation. First, given the current state of scientific knowledge, there is no demonstrably safe level of human exposure to a carcinogen.²⁹ Hence, the statutory mandate of a “margin of safety” can only be achieved by a total prohibition on the production of carcinogens.³⁰ Second, such a total prohibition makes the agency avoid regulation. Many carcinogenic substances are vital

²³ See *A Legislative History of the Clean Air Act Amendments of 1970*, 93rd Cong., 2d Sess. 377 (1970) (statement of Sen. Young) [hereinafter cited as *1970 Leg. Hist.*].

²⁴ *1970 Leg. Hist.*, *supra* note 23, at 420 (Senate Report) and 197 (Conference Report).

²⁵ *Id.* at 277.

²⁶ *Id.* at 116, 195, 241, 270, 328, 384, 971, 1097, 1364, 1365, 1367, and 1369.

²⁷ See *infra* notes 64–67. Airborne carcinogens are apparently responsible for numerous deaths, thereby clearly meeting the statutory definition of hazardous as an “increase in mortality.”

²⁸ Some potentially hazardous pollutants, such as lead and particulates, are regulated under sections 108–110. 42 U.S.C. §§ 7408–10 (1976 and Supp. V 1981). See 40 C.F.R. § 50 (1985).

²⁹ See, e.g., *Air Pollution Control Program Hearings*, *supra* note 13, at 232 (former Administrator Ruckelshaus) (“EPA has generally in the past concluded that in the absence of sound scientific evidence to the contrary, prudent public health policy requires that we assume no threshold of effect for carcinogens.”) See also the United States Supreme Court’s discussion of this issue in *Indus. Union Dept., AFL-CIO v. American Petroleum Inst.*, 448 U.S. 607, 635–36 (1980) (plurality opinion).

³⁰ See *Air Pollution Control Program Hearings*, *supra* note 13, at 134 (Congressional Research Service) (“it is not physically possible, at this time, to manufacture, store or use potentially hazardous substances without some release to the environment, however small.”). If the only safe level is zero exposure, a production ban would be essential to reach that level and even then there would be no “margin of safety” between the standard and the lowest threshold of harm.

to the economy of the United States, making prohibition an unrealistic alternative.³¹ Under a strict reading of the section, EPA might be required to close down much of the nation's industrial base.³² The agency has not adopted such a strict reading, but, as the following discussion reveals, the fear that the courts may impose such an interpretation has made EPA reluctant to take any action on airborne carcinogens.

B. EPA Regulation to Date

As this section demonstrates, EPA's track record in controlling carcinogens under section 112 is one of extreme hesitance. The agency's first attempt to regulate an airborne carcinogen occurred in 1971, shortly after passage of the Clean Air Act. EPA then sought to regulate asbestos, based on that substance's undisputed link to a relatively rare form of cancer known as asbestosis.³³ The agency proceeded under section 112 of the Act by listing asbestos as a hazardous air pollutant. Almost immediately, it ran into difficulties. Although the Clean Air Act permits only 180 days for promulgation of emission control regulations, EPA needed two years to do so, a period of time that would have been longer but for a court order requiring EPA to promulgate regulations.³⁴ The delay was largely due to the agency's hesitance to regulate in the face of the potentially severe economic consequences of controls. Under the language of section 112, the agency apparently had no authority to consider such consequences.³⁵ Eventually, EPA simply skirted the economic issue. The agency considered ". . . banning production, processing, and use of asbestos," which would "result in the prohibition of many activities

³¹ See *Industrial Union Dept.*, 448 U.S. at 637 ("[b]ecause of benzene's importance to the economy, no one has ever suggested that it would be feasible to eliminate its use entirely.").

³² This problem arose even more clearly in EPA's regulation of airborne radionuclides under section 112. The agency noted that "probably every stack in the country discharges into air minute quantities of radionuclides which could be measured given enough resources. These emissions cause, in theory, some risk greater than zero." EPA, *Radionuclides: Response to Comments for Final Rules 11* (October 1984) (EPA 520/1-84-023-1). Obviously, Congress did not intend for EPA to shut down every manufacturing operation in the nation to ensure the public faced zero risk from radionuclide emissions.

³³ 36 Fed. Reg. 23,239 (1971). This same notice also included regulation of emission of beryllium and mercury, but for acute toxic, not carcinogenic, effects.

³⁴ Final standards were promulgated at 38 Fed. Reg. 8820 (1973), following the decision in *Environmental Defense Fund v. Ruckelshaus*, 3 E.L.R. 20,173 (D.D.C. 1973), requiring the agency to act within sixty days.

³⁵ See Doniger, *Federal Regulation of Vinyl Chloride: A Short Course in the Law and Policy of Toxic Substances Control*, 7 ECOL. L.Q. 500, 571-72 (1978).

which are extremely important,"³⁶ but rejected this alternative as unnecessary.³⁷ The agency thus circumvented a flat prohibition — a prohibition that a literal reading of section 112 required — by minimizing, and even underestimating, the health hazard asbestos posed.

After the difficulties in setting asbestos emission standards, the agency waited two years before proposing its second standard for carcinogens, this time for vinyl chloride.³⁸ EPA had known of the carcinogenicity of vinyl chloride for over two years, but had hesitated to act, primarily out of fear of causing serious, adverse economic impacts.³⁹ Since vinyl chloride is a carcinogen, there can be no guaranteed safe level of exposure; thus total safety would require zero emissions. Again, the agency rejected a total ban, this time on the grounds that "Congress did not intend to impose the costs associated" with such a prohibition.⁴⁰ In effect, by implying a congressional intention not to impose prohibitive economic costs upon industry, the agency regulated in response to the economic effects of regulation, thus considering the very factor that a literal reading of section 112 did not authorize. Accordingly, the standard that the agency adopted reduced emissions only to the point where additional controls would have costs "grossly disproportionate" to their emission reduction benefits.⁴¹ The Environmental Defense Fund (EDF) immediately sued EPA alleging that its standard was protective of industry.⁴² EPA and EDF settled the lawsuit in 1977; EPA agreed to revise the standard to meet EDF's goal of eliminating all emissions of vinyl chloride, without regard to cost.⁴³

Apparently in reaction to its difficulties with both asbestos and vinyl chloride, the agency took no further action on carcinogenic air pollutants for another two years. Even then, EPA did not regulate a hazardous substance pollutant, but simply proposed a generic policy for future regulation.⁴⁴ The agency reevaluated its historic posi-

³⁶ 38 Fed. Reg. at 8820 (1973).

³⁷ *Id.*

³⁸ 40 Fed. Reg. 59,532 (1975).

³⁹ See Doniger, *supra* note 35, at 566 ("Hesitant either to flout the literal meaning of section 112 or to set a standard effectively closing the VC, PVC, and related industries, EPA delayed setting any standard . . .").

⁴⁰ 40 Fed. Reg. at 59,534 (1975).

⁴¹ *Id.*

⁴² *Environmental Defense Fund v. Train*, No. 76-2045 (D.C. Cir., filed Nov. 19, 1976; settled and dismissed, June 24, 1977).

⁴³ See Doniger, *supra* note 35, at 582.

⁴⁴ 44 Fed. Reg. 58,642 (1979).

tion, in recognition of the fact that a “number of scientific, technical, and policy problems have arisen which complicate the regulation of airborne carcinogens under section 112.”⁴⁵ EPA conceded that uncertainty about factors such as the degree of control required, “compounded by the language of section 112 itself,” has led to “[s]ignificant delays in establishing standards.”⁴⁶ Thus, even at this date, EPA recognized the serious problems associated with proceeding under section 112.

EPA’s proposed Airborne Carcinogen Policy of 1979⁴⁷ represented an attempt to resolve difficulties that regulation under section 112 posed. Remarkably, although section 112 was central to the agency’s prior difficulties, the new proposed Policy continued to rely on that section as the all-but-exclusive vehicle for regulating sources of airborne carcinogens. The Policy began by providing for the listing of the substances presenting a “significant carcinogenic risk” under section 112.⁴⁸ Substances found to be “probable carcinogens” were also to be listed where there was “significant” human exposure.⁴⁹ EPA optimistically anticipated that “a substantial number of substances” would qualify for listing and be regulated under these criteria.⁵⁰

After listing, the proposed Policy called upon EPA to identify and prioritize all categories of stationary sources of the listed substance.⁵¹ Next followed the most significant section of the Policy, the section setting forth the degree of emission reduction to be required. Rejecting zero emissions as a goal, the Policy established “best available technology” (BAT) as a minimum level of control under section 112.⁵² The BAT was defined as “that technology, which in the judgment of the Administrator, is the most advanced level of control adequately demonstrated, considering economic, energy, and environmental impacts.”⁵³ Such controls are to reflect “the most advanced level of technology that at least most members of an industry could afford without plant closures,” and without “preclud[ing] new construction.”⁵⁴ BAT was not necessarily the appropriate standard level un-

⁴⁵ *Id.* at 58,644.

⁴⁶ *Id.* at 58,644–45.

⁴⁷ 44 Fed. Reg. 38,642 (1979).

⁴⁸ *Id.* at 58,648.

⁴⁹ *Id.* at 58,653–54.

⁵⁰ *Id.* at 58,650.

⁵¹ *Id.* at 58,654.

⁵² *Id.*

⁵³ *Id.* at 58,651.

⁵⁴ *Id.*

der the Policy. However, EPA bowed to the primarily health-based concern of section 112 by calling for standards more stringent than the best available technology when necessary to eliminate unreasonable residual risks that may be projected to remain after implementation of BAT controls.⁵⁵

From the outset, this Policy did little or nothing to improve regulation of airborne carcinogens. EPA itself expressed doubts about the workability of the proposed Policy.⁵⁶ The proposal has never been made into a final, formal policy, and its application on the test case level has failed. In 1980, EPA proposed emission standards for benzene, in what apparently was to be a test case of the new Policy.⁵⁷ This test failed miserably because three of the four proposed benzene source-category emission standards were eventually withdrawn and the fourth was not made final until 1984.⁵⁸ Ostensibly, their withdrawal was based on health, rather than economic reasons, as EPA concluded that these sources did not present the "significant risk" required to trigger section 112 regulation.⁵⁹

The only other carcinogens for which Clean Air Act standards have been established are radionuclides, for which final regulations were adopted in 1985.⁶⁰ In this case, too, the agency equivocated as to the appropriate degree of control, and final standards once again were not promulgated until well after the 180-day statutory deadline, and then only under court decree.⁶¹

In sum, EPA has accomplished very little in terms of controlling airborne emissions of carcinogens. Only four substances have been regulated, even though dozens, or even hundreds, of carcinogens

⁵⁵ *Id.* at 58,654.

⁵⁶ *See, e.g.*, 11 ENV'T REP. (BNA) 810-11 (Oct. 10, 1980) (summarizing interview with Walter Barber).

⁵⁷ EPA had originally listed benzene under section 112 in 1977. 42 Fed. Reg. 29,333 (1977). Emission standards were proposed for four specific source-categories in late 1980 and early 1981, as the Carter Administration was leaving office. 45 Fed. Reg. 26,660 (1980) (maleic anhydride plants); 45 Fed. Reg. 83,448 (1980) (ethylbenzene/styrene plants); 45 Fed. Reg. 83,952 (1980) (benzene storage tanks) and 46 Fed. Reg. 1165 (1980) (fugitive emissions).

⁵⁸ 49 Fed. Reg. 23,478 (1984). EPA withdrew standards for the first three source-categories because they did "not pose significant public health risks." *Id.* at 23,562. At this time, the Administrator reaffirmed the need to control fugitive emissions and proposed a new standard to regulate benzene emissions from coke by-product recovery plants. *Id.* at 23,494, 23,522.

⁵⁹ *Id.* at 23,562.

⁶⁰ As with benzene, the first final "regulation" consisted of a withdrawal of numerous proposed emission controls on source-categories and a reaffirmation of regulations as applied to only one source-category, in this case uranium mines. 49 Fed. Reg. 43,906, 43,908, 43,912 (1984).

⁶¹ *See* *Sierra Club v. Gorsuch*, 17 Env't Rep. Cases (BNA) 1748 (N.D. Cal. 1982).

pollute the nation's air.⁶² At the current rate, over two centuries will pass before EPA completes regulation on only the substances already identified as priority candidates for control,⁶³ without even considering newly discovered hazards.

Of course, this slow pace of regulation is only a problem if carcinogenic air pollutants present a significant health threat to the public. As industry has pointed out, many studies have failed to find a measurable effect of air pollution on human mortality.⁶⁴ Other studies, however, attribute thousands of human deaths to air pollutants, especially substances that currently fall under section 112.⁶⁵ While existing scientific studies are inconclusive, prudence would dictate some action, especially given the massive quantities of known cancer-causing agents that are being emitted into the air.⁶⁶ Moreover, given the limits of epidemiological studies, thousands of people could be dying from air pollution, and scientists might never be able to prove the link between certain air pollutants and the deaths of persons exposed to them.⁶⁷ It seems clear that the federal government's

⁶² See *CAA Oversight Hearings*, *supra* note 1, at 519 (testimony of David D. Doniger of the Natural Resources Defense Council). EPA has pointed out that "there are 55,000 chemicals in commerce, many of which are or are suspected of being toxic to humans and which can be emitted to the atmosphere." *Air Pollution Control Program Hearings*, *supra* note 13, at 233. There was a brief flurry of activity in September 1985, but this consisted only of notices of "intent to regulate" chloroform, ethylene oxide, ethylene dichloride and cadmium. See 50 Fed. Reg. 39,626, 40,286, 41,994, and 42,000 (1985). No specific regulations were even proposed, much less adopted.

⁶³ EPA developed a list of 43 priority air pollutants for section 112 regulation in 1976, a list that has subsequently been refined to 37 and then 34. See GENERAL ACCOUNTING OFFICE, DELAYS IN EPA'S REGULATION OF HAZARDOUS AIR POLLUTANTS 8-13 (1983).

⁶⁴ See, e.g., *CAA Hearings*, *supra* note 1, at 674-94. There, the Chemical Manufacturers Association submitted a summary of numerous scientific studies suggesting that there was no significant link between air pollution exposure and cancer.

⁶⁵ For example, a study by Clement Associates, Inc., prepared for the Natural Resources Defense Council estimated that over ten percent of all lung cancers in the United States are attributable to air pollution. See *CAA Hearings*, *supra* note 1, at 533. This would represent 10,000 to 20,000 cases per year. *Id.* at 695 (testimony of David Doniger of the Natural Resources Defense Council). A more recent EPA estimate puts the number of deaths attributable to airborne carcinogens at 2,010, with about half of these from major stationary sources regulable under Title I of the Clean Air Act. See 15 ENV'T REP. (BNA) 435 (July 20, 1984).

⁶⁶ The Court has stressed the cautionary role of public health legislation and the need to err on the side of safety, when the truth cannot be determined clearly. See 448 U.S. at 665.

⁶⁷ The report on cancer of the Office of Science and Technology Policy stresses that such epidemiological studies cannot prove the absence of a hazard but can at most provide "upper bounds" to the magnitude of risk. 49 Fed. Reg. 21,594, 21,643 (1984). That report also notes that the "epidemiological method is often hampered by the long latent period that exists between exposure to a carcinogenic agent and the development of cancer, by the inability to control for the confounding influences of unknown risk factors, by problems in assessing specific agents when the human exposures are to mixtures, by the frequent absence of appropriate

current policy cannot be defended by claims that regulation is unnecessary, and even industry has not attempted to do so.

C. Section 112 As A Source of Past Problems

While the EPA's inability to regulate most hazardous air pollutants no doubt has many explanations, a root cause has been the agency's exclusive reliance on section 112 of the Clean Air Act as its main source of regulatory authority. Superficially at least, that section appears to call for absolute safety without any consideration of economic effects.⁶⁸ In practice, such an objective would compel the shut-down of important industrial sectors.⁶⁹ While EPA has rejected this absolutist interpretation of section 112, the agency is concerned that a court challenge to its regulations might force them to take such an extreme approach.

Indeed, ample testimony indicates that the fear of extreme, economically catastrophic regulatory requirements is the basic reason for EPA's hesitance to regulate airborne carcinogens. EPA concluded that the absolute safety approach is a defensible reading of the Act, and thus the General Accounting Office has adopted it as the preferred reading.⁷⁰ The risk that such an interpretation might be judicially forced on the agency has prompted EPA to avoid full implementation of the section, thereby avoiding judicial review.

One member of EPA's Pollutant Assessment Branch in the Office of Air Quality Planning and Standards, explained that "the Agency has also been reluctant to list pollutants as hazardous without some reasonable assurance that subsequent regulations would convey health benefits that are not grossly disproportionate to the costs of control."⁷¹ EPA's Draft Toxic Air Pollutant Strategy⁷² sought mod-

groups for study, and by a variety of difficulties associated with accurate and unbiased historical exposure assessment and disease ascertainment." *Id.* at 21,643-44.

⁶⁸ See *supra* note 30.

⁶⁹ See *supra* notes 31-32.

⁷⁰ GENERAL ACCOUNTING OFFICE, DELAYS IN EPA'S REGULATION OF HAZARDOUS AIR POLLUTANTS, App. I (1983). While recognizing the difficulties presented by a zero risk approach to carcinogen regulation, the GAO nonetheless concludes that proper statutory interpretation requires such a result. *Id.* at 52-53.

⁷¹ See Haigh, Harrison & Nichols, *Benefit-Cost Analysis of Environmental Regulation: Case Studies of Hazardous Air Pollutants*, 8 HARV. ENVTL. L. REV. 395, 403 (1984) (quoting from a speech made by Mr. Patrick to the Air Pollution Control Association).

⁷² See EPA Air Program's Draft Toxic Air Pollutant Strategy: Comments by Agency's Office of Policy and Resource Management, reprinted in 13 ENV'T REP. 1184 (BNA) (November 26, 1982). These comments stress that section 112 "lacks an explicit economic test, making it difficult and potentially impossible to identify 'reasonable' control requirements when dealing with no-threshold pollutants such as carcinogens." *Id.*

ifications in the program after noting that they were "reluctant to implement actions under the relatively restrictive section 112 without a clear indication that the cost of control is not grossly disproportionate to the health benefits."⁷³ A later EPA analysis stressed that the zero-risk interpretation "deterred the listing and promulgation of many regulations" ⁷⁴ Former EPA Administrator William Ruckelshaus testified before Congress that "[m]ost parties agree that the current statutory test is unworkable, if interpreted literally, and . . . this test can lead to a certain paralysis in decision-making."⁷⁵

The Director of EPA's Office of Air Quality Planning and Standards, explained the agency's failure to deal with airborne carcinogens:

EPA, industry and the environmental community have all looked on section 112 as requiring stringent regulations on sources of listed pollutants. All have perceived that there is a potential for open-ended control requirements and the possibility of ultimately requiring near zero emissions regardless of costs. Given this potential and the apparent lack of flexibility regarding removal of substances from the list or exclusion of source categories from control requirements the Agency has been reluctant to list chemicals⁷⁶

Of course, EPA's current interpretation of section 112 avoids this eventuality, but the agency has limited confidence in the strength of its reading if challenged during litigation. The Director candidly noted that the "logic" of its interpretation is "substantially strained, given the language of the statute."⁷⁷ He conceded that he was "not really sure that it would pass muster if it ever got to court."⁷⁸

⁷³ *Id.*

⁷⁴ See *Fourth Draft of EPA's Hazardous Air Pollutant Strategy*, reprinted in 14 ENV'T REP. (BNA) 1633 (January 21, 1983).

⁷⁵ *Air Pollution Control Program Hearings*, *supra* note 13, at 19. Ruckelshaus emphasized the need for "more flexibility" than permitted by section 112, including the authority to weigh "such factors as the costs of a particular control strategy." *Id.* EPA's experience with section 112 exemplifies the general principle that when an agency "is compelled to regulate more strictly than it would prefer, it will probably become even more reluctant to undertake new standards." Mendeloff, *Does Overregulation Cause Underregulation?*, REGULATION, Sept./Oct. 1981 at 49.

⁷⁶ *CAA Hearings*, *supra* note 1, at 737.

⁷⁷ *Hearings on Health and the Environment Miscellaneous — Part 5 Before the Subcomm. on Health and the Environment of the House Comm. on Energy and Commerce*, 97th Cong., 1st Sess. 143 (1981).

⁷⁸ *Id.* Others outside the agency have also recognized this difficulty. Khristine Hall of the Environmental Defense Fund explained the failure of the Carter Administration to act: "because they were struggling with this concept of having to set a standard that meant an

In sum, the potentially extreme language of section 112 has frightened EPA away from making any significant use of that authority. Yet the agency has determined independently that airborne carcinogens are to be regulated exclusively under section 112. The obvious result is that such hazardous air pollutants will be largely uncontrolled. Although Congress is dissatisfied with this state of affairs, attempts to amend the section have been fruitless. Meanwhile, the use of other Clean Air Act sections has largely been overlooked. As discussed below, the use of section 111(d) to regulate airborne carcinogens holds great promise, at least pending successful amendments to section 112.

III. THE NEW APPROACH OFFERED BY SECTION 111(d)

Section 111 of the Clean Air Act⁷⁹ is known primarily for its provision for New Source Performance Standards (NSPSs) to control emissions from newly constructed facilities. An important additional authority, which has been largely unused, exists in section 111(d)⁸⁰ for setting performance standards for emission controls on existing sources. Use of this subsection to control stationary sources of airborne carcinogens offers a promising alternative to section 112.⁸¹

A. *The Operation of Section 111*

Section 111(d)⁸² is based roughly on the new source provisions of section 111. Under section 111, the procedure for setting NSPSs begins with a decision to list a "category of stationary sources" which "causes, or contributes significantly to, air pollution which may rea-

'ample margin of safety' which they were legally interpreting as measuring zero discharge emission." *CAA Hearings, supra* note 1, at 729. Congressman Broyhill concluded that the possibility of an extreme, zero emission interpretation of Section 112 "has been the root cause and the resulting cause of the delay in regulation." *Air Pollution Control Program Hearings, supra* note 10, at 6. Chairman Dingell, the chairman of the committee that conducts oversight on EPA, vividly observed that "[t]he EPA and the SAB [Science Advisory Board] look upon section 112 as a red hot potato that neither wants to touch for fear that they will get burned." *Id.* at 121.

⁷⁹ See 42 U.S.C. § 7411(f) (1976).

⁸⁰ See 42 U.S.C. § 7411(d) (1976).

⁸¹ The benefits of expanded reliance on section 111(d) are discussed generally throughout the remainder of this article. It is worthwhile at this point, to note that Walter Barber of EPA testified that more effective carcinogen regulation "could be accomplished either through modifications to section 112 or through the expanded use of section 111 . . ." *CAA Hearings, supra* note 1, at 742.

⁸² 42 U.S.C. § 7411(d) (1976).

sonably be anticipated to endanger public health or welfare."⁸³ In contrast to section 112, this test imposes a lower threshold of health effects, and focuses on sources of pollution, rather than the pollutants themselves. In addition, this section applies only to "significant" contributors to air pollution, while section 112 may be interpreted to apply to every source, no matter how insignificant.⁸⁴

Once a source category has been listed under section 111, EPA has 120 days to publish proposed regulations, for a NSPS.⁸⁵ After an informal proceeding, and within 90 days of the proposal, EPA must adopt a final NSPS, which "reflects the degree of emission reduction achievable through the application of the best system of continuous emission reduction which (taking into consideration the cost of such emission reduction, and any non-air quality health and environmental impact and energy requirements) the Administrator determines has been adequately demonstrated."⁸⁶ In sharp contrast to section 112, this authority requires that the standard be achievable and that "costs" and other adverse impacts be considered.⁸⁷

The vast majority of NSPSs adopted by EPA involve criteria pollutants, or the precursors of such pollutants, whose ambient levels are controlled under sections 108-110 of the Act.⁸⁸ Since ambient levels from existing plants are already controlled by the states under section 110, the authority in section 111 for criteria pollutants is limited to new sources.⁸⁹ Congress also contemplated, however, that NSPSs might need to be established for non-criteria pollutants as well. Accordingly, the legislature provided a mechanism in section 111(d) to ensure that existing sources of these pollutants could be controlled.

Section 111(d) extends to designated pollutants, that is, pollutants ". . . for which air quality standards have not been issued or which are not included on a list under section 108(a) or 112(b)(1)(A),"⁹⁰ but

⁸³ 42 U.S.C. § 7411(b)(1)(A) (1976).

⁸⁴ Mr. Barber has expressed concern that the Clean Air Act might be interpreted to require EPA to regulate every source of a pollutant listed as hazardous. *See CAA Hearings, supra* note 1, at 745. While EPA has not historically controlled every source of such pollutants, nothing in the Act expressly authorizes such exceptions.

⁸⁵ 42 U.S.C. § 7411(b)(1)(B) (1976).

⁸⁶ 42 U.S.C. § 7411(b)(1)(C) (1976).

⁸⁷ *Id.*

⁸⁸ Criteria pollutants are those which Congress mandated that EPA regulate under sections 108-110. *See generally* 40 C.F.R. Part 60 (1984).

⁸⁹ By its terms, section 111(d) excludes all pollutants listed under sections 108 or 112. 42 U.S.C. § 7411(d)(1)(A)(i) (1976).

⁹⁰ 42 U.S.C. § 7411(d)(1)(A) (1976).

to which an NSPS would apply if the existing source in question "were a new source."⁹¹ Section 111(d) requires EPA to "prescribe regulations" establishing a procedure "under which each state shall submit to the Administrator a plan which . . . provides for the implementation and enforcement" of emission standards applicable to existing sources of designated pollutants subject to NSPSs.⁹²

Unlike section 112, therefore, the states must play an integral role in order effectively to implement section 111(d).⁹³ EPA has considerable authority over state implementation, and has existing, but largely unused, regulations setting forth a detailed procedure for carrying out section 111(d).⁹⁴ Once an NSPS is promulgated for a category of sources of a "designated pollutant," EPA publishes a notice in the Federal Register of the availability of a "draft guideline document"⁹⁵ containing, *inter alia*, (i) "[a]n emission guideline that reflects the application of the best system of emission reduction (considering the cost of such reduction) that has been adequately demonstrated,"⁹⁶ and (ii) "the time within which compliance with emission standards of equivalent stringency can be achieved."⁹⁷ The "emission guidelines" and "compliance times" formally "will be proposed for comment" in the same Federal Register notice, and "will be promulgated" as final regulations at the same time that a final guideline document is made available.⁹⁸

Within nine months of the date on which the emission guidelines and compliance deadlines are promulgated, the states are required to "adopt and submit to [EPA] . . . a plan for the control of the designated pollutant."⁹⁹ These section 111(d) plans must include emission standards and compliance schedules "no less stringent" than those promulgated by EPA,¹⁰⁰ except that a state may adopt less

⁹¹ *Id.*

⁹² 42 U.S.C. § 7411(d)(1)(A) (1976).

⁹³ Section 112 is unique among the provisions in Title I of the Clean Air Act because it establishes a system of strictly federal emission standards. Section 111(d), however, is more consistent with the overall program of state involvement. Congress clearly intended to grant the states a central role in determining how standards are to be achieved. Section 101 of the Act declares unequivocally that "the prevention and control of air pollution at its source is the primary responsibility of States and local governments." 42 U.S.C. § 7401(a)(3) (1976 and Supp. V 1981). EPA is now seeking to expand the state role under section 112 to regulate problems presented by a relatively small number of sources. 16 ENV'T REP. (BNA) 235 (June 7, 1985).

⁹⁴ See 40 C.F.R. § 60.20-34 (1985).

⁹⁵ 40 C.F.R. § 60.22(a) (1985).

⁹⁶ 40 C.F.R. § 60.22(b)(5) (1985).

⁹⁷ *Id.*

⁹⁸ 40 C.F.R. § 60.22(c) (1985).

⁹⁹ 40 C.F.R. § 60.23(a)(1) (1985).

¹⁰⁰ 40 C.F.R. § 60.24(c) (1985).

stringent requirements “[o]n a case-by-case basis for particular designated facilities or classes of facilities,” if the state shows:

- (1) [u]nreasonable cost of control resulting from plant age, location, or basic process design;
- (2) [p]hysical impossibility of installing necessary control equipment; or
- (3) [o]ther factors specific to the facility (or class of facilities) that make application of a less stringent standard or final compliance time significantly more reasonable.¹⁰¹

These state plans under section 111(d) must meet other requirements as well, designed to ensure that standards have full legal effect, are enforceable, and will be monitored effectively.¹⁰² EPA has four months after receipt of a state plan to “propose the plan . . . for approval or disapproval,” and to reach a final decision.¹⁰³

Section 111 obviously differs from section 112 in several important respects, particularly in that it authorizes the agency and the states to consider costs in promulgating regulations and compliance plans. These differences make section 111 more effective for regulation of airborne carcinogens, and, as shown below, EPA’s use of this section offers several important advantages over the current policy.

B. Benefits of Increased Reliance on Section 111(d)

Since the existing regulatory approach to airborne carcinogens has failed, a change in policy is imperative. As discussed above, the EPA’s exclusive reliance upon section 112 has made it an inadequate regulator of airborne carcinogens, indicating that the EPA’s first change should be to utilize other statutory means available under the Clean Air Act. As the following subsections discuss, the use of section 111(d) as a regulatory alternative will better conform to congressional intent under the Clean Air Act, will promote more cost-effective regulation, and will enable EPA to focus its resources on the localized problems that present the greatest hazard from carcinogenic air pollutants.

1. Conformity to Congressional Intent

The EPA’s expanded reliance on section 111(d) for controlling airborne carcinogens would better reflect the intent of Congress in passing and amending the Clean Air Act. The legislative history

¹⁰¹ 40 C.F.R. § 60.24(f) (1985).

¹⁰² See 40 C.F.R. § 60.24.26 (1985).

¹⁰³ 40 C.F.R. § 60.27(b) (1985).

indicates that Congress did not intend EPA to rely entirely on any one section of the Act, but rather contemplated that the agency would consider all its alternatives before acting.

Examination of the structure of the Clean Air Act reveals that Congress was particularly farsighted in its understanding of some air pollution problems. Title I of the Act¹⁰⁴ as passed in 1970, addressed stationary sources, and provided EPA several regulatory alternatives by establishing a tripartite framework for emissions regulation. Congress created three provisions: (i) National Ambient Air Quality Standards under sections 108–110;¹⁰⁵ (ii) performance standards for new and existing facilities under section 111;¹⁰⁶ and (iii) NESHAPs under section 112.¹⁰⁷

Each of these three types of authority was intended to play a role under the 1970 Act. Drawing on “[k]nowledge and experience gained under the Air Quality Act of 1967,”¹⁰⁸ Congress observed that for regulatory purposes “pollution agents and combination of such agents fall into three general categories.”¹⁰⁹ The first of these categories was described as “those pollution agents which are emitted from diverse stationary and moving sources into the ambient air and which are generally detectable through monitoring devices.”¹¹⁰ Sections 108–110 were enacted to control such ubiquitous pollutants. As guidance, Congress listed a number of pollutants that it regarded as candidates for control under these sections, including those substances addressed under the 1967 Air Quality Act, as well as lead and other pollutants commonly found in the ambient air throughout the country.¹¹¹ The second category was defined as especially hazardous substances, to be controlled through section 112.¹¹² The final category was to cover all remaining pollutants, including those that are not “widely present . . . in the ambient air,” or that for other reasons fail to meet the narrow criteria of the first two categories.¹¹³ Congress enacted section 111, in part, to control this third category of pollutants.

¹⁰⁴ 42 U.S.C. §§ 7401–7508 (1978).

¹⁰⁵ 42 U.S.C. §§ 7408–7410 (1978).

¹⁰⁶ 42 U.S.C. § 7411 (1978).

¹⁰⁷ 42 U.S.C. § 7412 (1978).

¹⁰⁸ 1970 *Leg. Hist.*, *supra* note 23, at 418.

¹⁰⁹ *Id.*

¹¹⁰ *Id.*

¹¹¹ For a discussion of the strength of congressional intent that these substances be regulated under section 108, see *Natural Resources Defense Council, Inc. v. Train*, 545 F.2d 320, 326–27 (2d Cir. 1976) (compelling EPA to regulate lead under section 108).

¹¹² 1970 *Leg. Hist.*, *supra* note 23, at 418.

¹¹³ *Id.*

Section 111(d) specifically was intended as a "gap-filling"¹¹⁴ measure for "pollutants which cannot be controlled through the ambient air quality standards and which are not hazardous substances."¹¹⁵ For example, Congress contemplated that section 111(d) would be used for those pollutants that "are not emitted in such quantities or are not of such a character as to be widely present . . . in the ambient air."¹¹⁶ Similarly, Congress intended section 111(d) to be used for emissions of pollutants that are "generally confined . . . to the area of the emission source,"¹¹⁷ that is, "less diverse and widespread pollutants,"¹¹⁸ whose danger to public health was relatively localized in nature.

This legislative history indicates that the choice between EPA's three sources of authority under the Act should not turn on the *potential* hazard of a substance, but should be based on the *actual* nature of the risk to the public presented. While carcinogens are obviously "hazardous" in one sense of the word, the degree of hazard will depend on the potency of the individual substance and, especially, the pattern of public exposure to it.¹¹⁹ Thus, the Senate Report recognized that some known carcinogens, including radioactive substances and pesticides, could appropriately be regulated under section 111(d), and not necessarily under section 112.¹²⁰ EPA's own review of the legislative history concludes that Congress decided to regulate some such pollutants under section 111(d) because, "given the relative lack of information on their health and welfare effects, . . . [a] technology-based approach (making allowances for the cost of controlling existing sources) was a reasonable means of attacking the problem until more definitive information became known."¹²¹

¹¹⁴ *Id.* at 227 (statement of Sen. Muskie). Sen. Muskie's comment related to section 114 of the Senate bill under consideration, which was the precursor of section 111(d). Compare 1970 *Leg. Hist.* at 656-61 (language of then-section 114) with 42 U.S.C. § 7411(d) (1976).

¹¹⁵ *Id.*

¹¹⁶ 1970 *Leg. Hist.*, *supra* note 23, at 418.

¹¹⁷ *Id.*

¹¹⁸ *Id.* at 260 (statement of Sen. Cooper). Congress did not intend that use of section 111(d) be limited to such localized hazards, however. Section 111 was presented as an option for any pollutants "which cannot be considered hazardous (as defined in section [112])." *Id.* at 420 (Senate Report).

¹¹⁹ EPA's most recent proposed guidelines for carcinogen risk assessment call for an analysis of these two factors. 49 Fed. Reg. 46,294, 46,299 (1984). The relative potency of carcinogens may vary by a factor of millions among substances, and the extent of exposure may vary by as much as one billion times. See Gori, *The Regulation of Carcinogenic Hazards*, in RISK IN THE TECHNOLOGICAL SOCIETY 171 (C. Hohenemser & J.X. Kaspersen eds. 1982) [hereinafter cited as RISK IN THE TECHNOLOGICAL SOCIETY]; *Council Report*, 246 J. AM. MED. ASSOC. 253, 254 (July 17, 1981).

¹²⁰ See 1970 *Leg. Hist.*, *supra* note 23, at 418 (Senate Report).

¹²¹ 40 Fed. Reg. at 53,342 (1975).

The Clean Air Act Amendments of 1977¹²² carried forward the system established in 1970 and reaffirmed Congress' intent that section 111 be utilized as an alternative for controlling potential airborne carcinogens. At that time, testimony that certain carcinogenic air pollutants (including cadmium, arsenic, polycyclic organic matter and radioactive pollutants) posed a threat to public health¹²³ prompted Congress to direct EPA to "review all available relevant information,"¹²⁴ and determine whether and to what degree their emissions should be regulated. Recognizing that it lacked the scientific information necessary to make definitive judgments about the degree and type of hazard presented by each of these substances, Congress chose not to "specify the degree of emission reduction that should be required."¹²⁵ Rather, Congress provided that if the Administrator made the "affirmative judgment" that any of these potential pollutants required control under the Clean Air Act, then "the Administrator should apply the appropriate means and extent of regulation under the existing statutory criteria — that is, ambient standards (sections 109 and 110), new and existing source performance standards (section 111), and hazardous emission standards (section 112)."¹²⁶

In sum, Congress intended EPA to evaluate its possible control authorities and select the section best suited to regulation of a given substance. EPA's unwavering reliance on section 112 for airborne carcinogens has strayed from this plan and incidentally undermined the effectiveness of the Act.

Before advocating a grant to EPA of limitless discretion in evaluating control alternatives, however, it is important to address the decision in *Natural Resources Defense Council, Inc. v. Train*,¹²⁷ which overturned an EPA decision not to list lead for control under section 108. Lead had not been listed because the agency preferred to rely on section 211 of the Act which addressed mobile sources of lead. In this decision, the Second Circuit held that "the Administrator *must* list those pollutants which he has determined meet the two requisites set forth in section 108."¹²⁸

¹²² Pub. L. No. 95-95, 91 Stat. 685 (codified as amended at 42 U.S.C. § 7401 (1978)).

¹²³ Congress found that "each of the four pollutants has been found to be cancer-causing or cancer-promoting in laboratory animal experiments and in human beings in occupational settings." *A Legislative History of the Clean Air Act Amendments of 1977*, 95th Cong., 2d Sess. 6572 (1979) (House Report) [hereinafter cited as *1977 Leg. Hist.*].

¹²⁴ 42 U.S.C. § 7422(a) (1978).

¹²⁵ *1977 Leg. Hist.*, *supra* note 123, at 6576 (House Report).

¹²⁶ *Id.*

¹²⁷ 545 F.2d 320 (2d Cir. 1976).

¹²⁸ *Id.* at 325.

For a variety of reasons, this decision should not significantly restrict EPA's discretion to choose among Title I's authorities for stationary source regulation of emissions of airborne carcinogens. First, the court relied heavily on numerous statements in the Clean Air Act's legislative history that expressed congressional intent that EPA regulate lead under section 108.¹²⁹ As we have seen for carcinogens, the legislative history indicates that Congress intended the various alternatives to be considered.¹³⁰

Second, *Natural Resources Defense Council* involved an EPA choice not to regulate stationary sources under Title I because it planned to control mobile sources under Title II of the Clean Air Act. The court rejected this choice, finding that the provisions of section 211 were intended to serve "as a supplement to [sections] 108-110 . . . rather than as an alternative to promulgation of standards."¹³¹ By contrast, the provisions of sections 108, 111(d), and 112 are by their terms mutually exclusive alternatives for regulating stationary sources.¹³² Indeed, the lead decision itself implies that EPA has ample discretion to choose among different "emission control" provisions of the Act, for example, to choose between sections 111 and 112.¹³³

A final key distinction between the EPA's lead decision and the situation under consideration in *Natural Resources Defense Council* was explained by the lower court's decision. That opinion stressed that "the Administrator has considerable, and sufficient, discretion" to "exercise his judgment over the initial determination of whether a pollutant" meets the listing criteria of a specific section.¹³⁴ In the lead case, the Administrator conceded that lead met the criteria for section 108 listing.¹³⁵ By contrast, the proposed policy for airborne carcinogens employs just this discretion to make the initial decision of under which section to list a substance.¹³⁶ If anything, *Natural*

¹²⁹ *Id.* at 326-27.

¹³⁰ See *supra* notes 123-26 and accompanying text.

¹³¹ 545 F.2d at 325.

¹³² While the provisions of section 111(b) dealing with new source performance standards are clearly intended to supplement section 108 ambient standards, the provisions of section 111(d) expressly present an alternative to that section and section 112. 42 U.S.C. § 7411(d)(1) (1976).

¹³³ 545 F.2d at 327.

¹³⁴ *Natural Resources Defense Council, Inc. v. Train*, 411 F.Supp. 864, 870 (S.D.N.Y. 1976).

¹³⁵ *Id.*

¹³⁶ The language of the Clean Air Act itself also supports a broad discretion for the Administrator in listing decisions. Section 112 listing is limited to those substances "for which [the Administrator] intends to establish an emission standard." 42 U.S.C. § 7412(b)(1)(A) (1976). Section 122 of the Act as amended in 1977 also illustrates this authority, by calling upon the

Resources Defense Council supports this exercise of discretion.¹³⁷

In short, consideration of section 111(d) as an alternative to section 112 is supported by the legislative history of the Clean Air Act. As discussed below, such a return to congressional intent would also further the effectiveness of airborne carcinogen regulation by targeting regulation to sources that most need it, while minimizing possible adverse economic effects.

2. Focus on Localized Hazards

For many airborne carcinogens, human exposure is limited to a small area surrounding the emitting sources. Thus, EPA officials have noted that “[a]mbient exposures to non-criteria pollutants are localized,” and that concentrations “drop off rapidly within a few miles.”¹³⁸ Naturally, the hazard to the public will correspond to these exposure levels.¹³⁹

As noted above, the health evidence on airborne carcinogens is controversial and inconclusive. There is a widespread belief, however, that such risks are predominantly local. The former EPA Assistant Administrator for Air and Radiation has observed that there is little ambient average risk but that there are “relatively higher risks to a small number of individuals in the immediate vicinity of large sources.”¹⁴⁰ EPA Administrator Ruckelshaus testified before Congress that “if there are serious air toxics problems in this country, they are localized problems.”¹⁴¹

These conclusions are confirmed by expert scientific evidence. Doctors Doll and Peto of Oxford University, who are among the world’s foremost epidemiologists, reviewed the available epidemiological studies and concluded that the current and future risk from

Administrator to study certain substances and regulate them if necessary “under section 108 . . . or section 112 . . . or . . . under section 111.” 42 U.S.C. § 7422(a) (1976).

The legislative history of the Act lends further support to this reading. Congress intended that listing a substance under the predecessor of 111(d), section 114 of the Senate bill, “be left to the discretion” of the Administrator. 1977 *Leg. Hist.*, *supra* note 123, at 418 (Senate Report). Similar language reflects this intent regarding section 112’s predecessor in the Senate bill. *Id.* at 420.

¹³⁷ Further support may be found in the First Circuit’s decision in *South Terminal Corp. v. EPA*, 504 F.2d 646 (1st Cir. 1974). In the context of section 110 state implementation plan approval authority, the First Circuit emphasized that “Congress lodged with the EPA, not the courts, the discretion to choose among alternative strategies.” *Id.* at 655.

¹³⁸ *CAA Hearings*, *supra* note 1, at 735 (statement of Walter Barber).

¹³⁹ *See id.* at 740 (Mr. Barber notes that the “health and exposure assessments completed to date . . . suggest little or no risk of acute effects at ambient levels” of airborne carcinogens. “They do indicate relatively higher risks to a small number of individuals.”).

¹⁴⁰ *Id.*

¹⁴¹ *Air Pollution Control Program Hearings*, *supra* note 13, at 19.

average exposures to airborne carcinogens "should be minute," but they stressed that "there may be exceptions where the atmosphere around a particular factory is abnormally contaminated."¹⁴²

The localized nature of the threat from airborne carcinogens is aptly illustrated by EPA's experience, specifically, the failed attempt to set NESHAPs for benzene emissions from maleic anhydride plants.¹⁴³ While EPA sought to set a national standard, the agency's data showed that most of the projected risk resulted from one single plant near St. Louis.¹⁴⁴ This is a classic example of a localized public health problem.

In these instances, Congress clearly intended EPA to use section 111(d) to control emissions of air pollutants.¹⁴⁵ Such an approach should lead to a more effective system of control. EPA's regulatory resources are limited, as are society's resources for compliance.¹⁴⁶ If a problem is purely local, it is a waste of these finite resources to regulate nationally. Such inefficient use of resources can only lead to a lower level of overall control on airborne carcinogens.¹⁴⁷ In contrast, setting standards appropriate to a specific situation enables EPA to focus its resources and to establish the controls most appropriate to the hazard in question.

Former Administrator Ruckelshaus summed up the problem with EPA's exclusive reliance on section 112 for localized risks. He expressed his concern with "the possibility that in some localities with

¹⁴² Doll and Peto, *The Causes of Cancer: Quantitative Estimates of Avoidable Risks of Cancer in the United States Today*, 66 J. NAT. CANCER INST. 1191, 1246 (June 1981). See also Hammond and Garfinkel, *General Air Pollution and Cancer in the United States*, 9 PREV. MED. 206 (1980).

¹⁴³ This emission standard, proposed in late 1980, was withdrawn in July 1984. 49 Fed. Reg. 23,478 (1984).

¹⁴⁴ At the time of withdrawal, there were only seven maleic anhydride plants in existence, and only one had uncontrolled emissions that would have been controlled by the proposed standard. 49 Fed. Reg. 23,492 (1984). See also 49 Fed. Reg. 8386, 8389 (1984) (proposed withdrawal notice discussing the risk from specific maleic anhydride operations).

¹⁴⁵ See *supra* notes 114-18 and accompanying text.

¹⁴⁶ See, e.g., Merrill, *Federal Regulation of Cancer-Causing Chemicals*, Draft Report to the Administrative Conference of the United States (April 1, 1982), Part II, at 27 ("Resource constraints also limit the selection of chemicals for regulation. No agency has been able to regulate more than two or three controversial chemicals in any year.")

¹⁴⁷ See, e.g., Okrent, in RISK IN THE TECHNOLOGICAL SOCIETY, *supra* note 119, at 212 ("if we are spending the available resources in a way that is not cost-effective, we are, in effect, killing people whose premature deaths could be prevented."); U.S. NUCLEAR REGULATORY COMM'N., AN APPROACH TO QUANTITATIVE SAFETY GOALS FOR NUCLEAR POWER PLANTS 35 (1980) ("[e]xtreme reductions in a particular risk may lead to increases in other, less well-studied risks."); CAA *Reauthorization Hearings*, *supra* note 12, at 20 (testimony of William Ruckelshaus) ("it appears that the limited resources used to set NESHAPs may be employed elsewhere to achieve greater public health protection.")

unusually high concentrations of airborne toxics there live numbers of people exposed to unacceptably high risks."¹⁴⁸ Ruckelshaus was even more concerned that "if our hazardous air pollutant control program consists of nothing but setting national emissions standards for industrial sources of such pollutants, we may not be obtaining a great deal of public health protection."¹⁴⁹ His statement recognizes that national emission standards may not take account of unusually high, local concentrations of particular pollutants.

As discussed above, EPA has an alternative authority in section 111(d) that was specifically designed to address localized threats. Expanded use of this authority should promote more comprehensive and effective emissions controls, and thus fill a gap in public health protection that section 112 does not adequately address.

3. Cost-Effective Regulation

Perhaps the most significant benefit EPA might gain by relying on section 111(d) is an ability to consider costs when framing regulatory requirements. Of course, environmental groups and other concerned parties object to any such cost considerations when the public health is at issue.¹⁵⁰ Experience under section 112, however, demonstrates that agency decision makers become paralyzed when they are unable to take into consideration compliance costs.¹⁵¹ Consideration of costs may be imperfect, but it is certainly an improvement over the current system that encourages inaction.

It should be emphasized that the cost considerations in section 111(d) are *not* of the cost-benefit analysis type. The section does not call for any elaborate equation that balances intangible benefits with tangible costs.¹⁵² Such analysis has been the subject of trenchant criticism and appears inappropriate to Clean Air Act regulation.¹⁵³

¹⁴⁸ *Air Pollution Control Program Hearings*, *supra* note 13, at 16.

¹⁴⁹ *Id.*

¹⁵⁰ For example, the Natural Resources Defense Council has opposed a proposed amendment offered by Rep. John Dingell, in part because his proposal "would require EPA to justify a control measure's cost by showing that health benefits are worth the expense . . ." 15 ENV'T REP. (BNA) 36 (May 11, 1984).

¹⁵¹ *See supra* notes 8-17 and 33-78 and accompanying text.

¹⁵² *See infra* notes 154-57.

¹⁵³ *See, e.g.*, Baram, *Cost-Benefit Analysis: An Inadequate Basis for Health, Safety and Environmental Decisionmaking*, 8 ECOL. L.Q. 473 (1980) and sources cited therein. Mr. Baram ultimately affirms the importance of some cost considerations, however, due to government's "responsibility to manage the federal enterprise rationally in order to achieve optimal use of our limited resources and optimal protection of our diverse interests." *Id.* at 531.

Instead, section 111 incorporates a "technology-based" approach that requires EPA to promulgate "achievable" requirements based on "consideration" of "costs."¹⁵⁴ As interpreted, the section simply requires the costs be "reasonable."¹⁵⁵ The D.C. Circuit Court of Appeals has directed EPA to adopt the standard under section 111 "which can reasonably be expected to serve the interests of pollution control without becoming exorbitantly costly."¹⁵⁶ Thus, rather than an elaborate cost-benefit analysis that may be subject to endless challenges, section 111 imposes a "common sense" approach to gauging the cost-effectiveness of emissions standards.¹⁵⁷

Cost-effective regulation will be more protective of public health than purely health-based standards. The latter will divert scarce resources to hazards that may be insignificant.¹⁵⁸ As we have seen, the mere prospect of totally health-based controls is sufficiently frightening to forestall much needed regulation.¹⁵⁹ The use of a cost-effectiveness consideration removes the basic cause of this fear.

Not surprisingly, there is a growing recognition of the benefits of a cost-effectiveness requirement, and even environmental organizations have recognized the value of setting technology-based standards for airborne carcinogens.¹⁶⁰ EPA is more likely to act under such authority, as experience with NSPSs under section 111 amply demonstrates. While controversies have arisen under section 111, as under any other environmental regulatory program, the agency has been much more effective in developing NSPSs than in promulgating NESHAPs under section 112.¹⁶¹

¹⁵⁴ 42 U.S.C. § 7411(a)(1)(C) (1976).

¹⁵⁵ *Portland Cement Ass'n v. Ruckelshaus*, 486 F.2d 375, 379 (D.C. Cir. 1973), *cert. denied*, 417 U.S. 921 (1974). This decision specifically rejected a cost-benefit analysis requirement sought by petitioner. *Id.*

¹⁵⁶ *Essex Chem. Corp. v. Ruckelshaus*, 486 F.2d 427, 433 (D.C. Cir. 1973), *cert. denied*, 416 U.S. 969 (1974).

¹⁵⁷ Even proponents of cost-benefit analysis often defend this sort of loose evaluation of costs without rigid mechanistic monetization of all factors. *See, e.g., Hearings on Executive Branch Review of Environmental Regulations Before the Subcomm. on Environmental Pollution of the Senate Comm. on Environment and Public Works*, 96th Cong., 1st Sess. 332 (1979) (statement of Charles Schultze, former Chairman of the Council of Economic Advisers). *See also Hurter, Tolley & Fabian, Benefit-Cost Analysis and the Common Sense of Environmental Policy*, in *COST-BENEFIT ANALYSIS AND ENVIRONMENTAL REGULATIONS* 87-106 (Swartzman, Liroff & Croke eds. 1982).

¹⁵⁸ *See supra* note 157.

¹⁵⁹ *See supra* notes 70-78 and accompanying text.

¹⁶⁰ *See, e.g., CAA Hearings, supra* note 1, at 715 (statement of Khristine Hall of Environmental Defense Fund) (offering to accept technology-based standards for carcinogens provided that additional regulation is the result); 15 ENV'T REP. (BNA) 376 (June 29, 1984) (Sierra Club supports technology-based standards for hazardous air pollutants).

¹⁶¹ A glance at the Code of Federal Regulations proves this point. In contrast to the dearth

IV. CONCLUSION

Tragically, thousands of Americans are exposed to a substantial risk of death from cancer, while EPA wrangles with industry and environmental groups over both the proper interpretation of section 112 of the Clean Air Act, and the question of whether that section should be amended.¹⁶² Although EPA acknowledges the unacceptability of this situation, the agency has done nothing to resolve it. While Congress intermittently holds hearings to criticize the agency for its failures, it too has failed to remedy the situation.

EPA possesses the authority in section 111 of the Act to initiate prompt steps to reduce the emissions of carcinogens into the ambient air. Use of this power offers promise to break the current stalemate in carcinogen regulation. The unique characteristics of carcinogens may merit their own specific control authority under an amended Clean Air Act. Pending the adoption of such amendments, however, EPA should employ the tools it has, even if they are imperfect ones, to limit risks as much as reasonably possible. Public health demands action now, rather than continued debate.

of regulation under section 112, EPA has regulated over forty major source-categories under section 111. *See, e.g.*, 40 C.F.R. Part 60 (1984). Walter Barber of EPA favorably contrasted the authority of section 111 to that of section 112, noting that the "new source performance standard program in general has been workable We can usually come to a reasoned agreement about the kinds of technology that are effective for industrial categories, and what are reasonable costs to impose on a new industry." *Hearings on Health and the Environment Miscellaneous*, *supra* note 77, at 142.

¹⁶² A Congressional Research Service Report summarized this situation: "EPA's continued debate of these and related issues is widely seen as creating further delay and contention about whether the health-protective goals of section 112 are being achieved." *Air Pollution Control Program Hearings*, *supra* note 13, at 135.