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NONDEGRADATION AND THE CLEAN AIR ACT AMENDMENTS OF 1977: PREVENTING THE GRAYING OF AMERICA

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Beginning with the Air Quality Act of 1967,¹ Congress has reiterated a policy "to protect and enhance the quality of the Nation's air resources."² The Clean Air Amendments of 1970³ escalated the war against air pollution, authorizing the newly created Environmental Protection Agency (EPA) to set nationwide primary and secondary ambient air quality standards.⁴ Ambient air standards, in contrast to emission controls, limit the amount of pollution which can accumulate in the outside air rather than directly limit the amount of pollution discharge from a particular source. The 1970 Amendments adopted primary standards to protect the public health. Secondary standards were designed to protect against "any known or anticipated adverse effects" of the particular pollutant.⁵ However, the assumption that any level of pollution below a certain threshold will produce no adverse health effects is probably false.⁶ In addition, the national ambient air

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1. 42 U.S.C. § 1857 (1967).

2. *Id.* § 101(b)(1) (1967).

3. 42 U.S.C. §§ 1857-1858(a) (1970).

4. *Id.* § 1857c-4(a)(1) (1970). Standards have been promulgated for sulfur oxides, particulate matter, carbon monoxide, photochemical oxidants, hydrocarbons and nitrogen dioxide. 40 C.F.R. §§ 50.4-.11 (1976). EPA has been directed to formulate standards for lead. *NRDC v. Train*, 545 F.2d 320 (2d Cir. 1976).

5. 42 U.S.C. § 1857c-4(b)(1) (1970). States were to devise plans to implement and maintain these standards. *Id.* § 1857c-5 (1970).

6. H.R. REP. NO. 1175, 94th Cong., 2d Sess. 89-91 (1976); *Nondegradation Policy of the Clean Air Act: Hearing Before the Subcomm. on Air and Water Pollution of the*

standards also fail to take into account synergistic effects or chronic effects due to long term low level exposure.⁷ These problems are real, but as yet there is no proof of causal connections nor any way to quantify the effects to establish a basis for stricter national ambient air standards.⁸ One way to address the problems associated with national ambient air standards, given present knowledge and technology, is to prevent the deterioration of air which is already cleaner than that required by the national standards. The Clean Air Act Amendments of 1977⁹ adopted a statutory scheme to prevent significant deterioration through lower ambient standards in clean air areas together with emission limitations based on the best available control technology. It is the purpose of this Note to examine the concept of non-significant deterioration and the recent legislative plan to implement the concept.

I. HISTORICAL PERSPECTIVE

The concept of nondegradation of clean air involves several different policy considerations. Perhaps the most basic is the question whether dilution is really the best method to control pollution in clean air areas.¹⁰ Dilution is accomplished through uniform ambient standards which allow varying emissions depending upon the existing level of ambient air quality. In urban areas, for example, emissions must generally be low to meet the ambient standards, but in clean air areas, ambient standards leave a wide margin for additional emissions. As a result, some advocate adopting uniform emissions limitations to avoid the inequitable results of nationwide ambient standards.¹¹ Opponents view the application of uniform emission limitations in clean air areas as too costly for the results achieved. They suggest that the law of diminishing returns applies.

The latter argument involves a method of decision-making which compares the costs and benefits to the society as a whole. The costs are not only monetary but include social costs such as unemployment

Senate Comm. on Public Works, 93d Cong., 1st Sess. 7-8 (1973) [hereinafter cited as *Nondegradation Policy*] (scientists say threshold levels are merely a convenience reflecting the limits of scientific knowledge at a particular time).

7. H.R. REP. NO. 1175, 94th Cong., 2d Sess. 96-101 (1976).

8. *Id.* at 96.

9. Pub. L. No. 95-95, 91 Stat. 685 (1977) (to be codified at 42 U.S.C. § 7479(3)).

10. Hines, *A Decade of Nondegradation Policy in Congress and the Courts: The Erratic Pursuit of Clean Air and Clean Water*, 62 IOWA L. REV. 643, 643-44 (1977) [hereinafter cited as Hines].

11. *Id.*

and benefits foregone. This approach assumes that “[t]he ultimate objective of the allocative process is to devote all of society’s scarce resources (capital goods, labor, technological skill, as well as natural resources) to the combination of uses that produces the largest measure of satisfaction for all people in the society.”¹² Clean air can be viewed as a scarce resource. Social and economic factors can be important considerations in determining, as a policy matter, how much pollution should be allowed.¹³ The purpose of cost-benefit analysis is to ensure a rational decision which takes into account the effects on all societal groups.

The assumption that social or economic costs might outweigh the need for maintenance of pristine air quality is itself challenged by environmentalists. They dispute first that economic efficiency is even relevant to the environmental decision. Second, environmentalists argue that environmental costs are not calculable in economic terms.¹⁴ This attitude is related to the conservation ethic which views clean air as an irretrievable natural resource.¹⁵

A. Authority For a Nondegradation Policy

The concept of nondegradation was first applied as a national policy against “significant deterioration in air quality” in 1969¹⁶ by the agency responsible for administration of the 1967 Air Quality Act.¹⁷ The authority to implement the policy came not from any specific legislative mandate, but from the language of the statutory purpose “to protect

12. *Id.* at 650. This is a policy decision which affects the entire population and which is ordinarily made in the market. Since there is no market for clean air, the decision would be best made by representatives of the entire populace—the Congress. *See also Nondegradation Policy, supra* note 6, at 68, 74 (“This is truly a political issue of such importance that it must be resolved in the political crucible. Only then can it be examined within the entire range of our national interests.”).

13. Kramer, *Economics, Technology, and the Clean Air Amendments of 1970: The First Six Years*, 6 *ECOLOGY L.Q.* 161, 164 (1976) (Congress can make basic legislative policy choices balancing health and environment against economic, technological and social considerations) [hereinafter cited as Kramer].

14. Hines, *supra* note 10, at 651-52.

15. *Id.* at 646-49 (“The simple idea on which the policy is based is the recognition that somewhere in the frenzied pursuit of more material possessions and a higher living standard it is morally necessary to think about what kind of world will be passed along to future generations.”).

16. *Guidelines for the Development of Air Quality Standards and Implementation Plans*, Part I, § 1.51 at 7 (1969).

17. The National Air Pollution Control Administration of the Department of Health, Education and Welfare.

and enhance.”¹⁸ This language was retained in the 1970 Clean Air Amendments¹⁹ but without any clear statutory statement of nondegradation policy.²⁰

Thus, when EPA took over administration of air pollution control, it faced the problem of how to deal with the question of nondegradation. Its first position was that national standards would not “allow significant deterioration of existing air quality.”²¹ A few months later, however, EPA seemed to contradict itself in regulations providing that “. . . where measured or estimated ambient levels of pollutant[s] are below the levels specified by an applicable secondary standard, the [state implementation] plan shall set forth a control strategy which shall be adequate to prevent such ambient pollution levels from exceeding such *secondary standard*.”²² The two statements appeared inconsistent but EPA maintained that the first statement was only meant to inform the states that standards could be stricter than the national standards.²³ This position was untenable. The proposition that state standards could be more stringent is explicitly stated not only in the amendments and the legislative history,²⁴ but also in the EPA

18. “Air quality standards which, even if fully implemented, would result in significant deterioration in air quality . . . would conflict with the expressed purpose of the law.” *Guidelines for the Development of Air Quality Standards and Implementation Plans*, Part I, § 1.51 at 7 (1969) (emphasis added). The agency reiterated its policy at the 1970 hearings on the Clean Air Amendments. *Air Pollution—1970: Hearings Before the Subcomm. on Air and Water Pollution of the Senate Comm. on Public Works*, 91st Cong., 2d Sess. 132-33 (1970) (testimony of HEW Undersecretary John Veneman on behalf of Secretary Robert H. Finch).

19. 42 U.S.C. § 1857(b)(1) (1970).

20. Some Senators who voted for the Clean Air Act of 1970 did not contemplate a national policy of nondeterioration. “[T]he fact that there was so much uncertainty is clear evidence that Congress was not, in fact, adopting a policy of nondeterioration.” 123 CONG. REC. S9245 (daily ed. June 9, 1977) (remarks of Sen. Garn). The Senate Report, however, said:

In areas where current air pollution levels are already equal to, or better than, the air quality goals, the Secretary should not approve any implementation plan which does not provide, to the maximum extent practicable, for the continued maintenance of such ambient air quality.

S. REP. NO. 1196, 91st Cong., 2d Sess. 11 (1970).

21. 40 C.F.R. § 50.2(c) (1976). The regulation was promulgated on April 30, 1971. 36 Fed. Reg. 8187 (1971).

22. 40 C.F.R. § 51.12(b) (1976) (emphasis added).

23. Brief for Petitioner at 19-20, *Fri v. Sierra Club*, 412 U.S. 541 (1973) *reprinted in Nondegradation Policy*, *supra* note 6, at 281-82 (“Reading the latter two sections together, it is clear that they simply state that there is no federal preemption of a State’s right to establish stricter standards than the federal ones. . .”).

24. The statute says:

[N]othing in this chapter shall preclude or deny the right of any State or political

regulation immediately following the one in question here.²⁵ Administrator Ruckelshaus gave a more believable reason. He said the Clean Air Amendments gave EPA no authority to prevent deterioration and that such a policy would be administratively unworkable.²⁶

1. A Court Mandate

The Sierra Club refused to accept either rationale for the dichotomy in the regulations. Furthermore, the Sierra Club believed that the second regulation would allow significant deterioration of air quality and that it was the EPA Administrator's duty to prevent such deterioration. As a consequence of these contentions, Sierra Club filed suit under the citizen suit provision of the Clean Air Amendments.²⁷ In

subdivision thereof to adopt or enforce (1) any standard or limitation respecting emissions of air pollutants or (2) any requirement respecting control or abatement of air pollution

42 U.S.C. § 1857d-1 (1970). The legislative history reiterates this in numerous places. COMM. ON PUBLIC WORKS, A LEGISLATIVE HISTORY OF THE CLEAN AIR AMENDMENTS OF 1970, Ser. 93-18, 194, 410, 807 ("no one is preventing any State from having stronger standards"), 815 ("The States will be left free to establish stricter standards"), 843-44, 891, 972 (State option to design implementation plan to achieve or preserve higher standards), 990-99 (1974) [hereinafter cited as LEGISLATIVE HISTORY].

25. 40 C.F.R. § 50.2(d) (1976). See Brief for Respondent at 45-46, *Fri v. Sierra Club*, 412 U.S. 541 (1973) reprinted in *Nondegradation Policy*, *supra* note 6, at 353-54.

26. *Implementation of the Clean Air Act Amendments of 1970: Hearings Before the Subcomm. on Air and Water Pollution of the Senate Comm. on Public Works*, 92d Cong., 2d Sess. 246-47, 271-74, 313-14 (1972) [hereinafter cited as *Implementation of the Clean Air Act*]. The Administrator argued that § 110 of the Amendments, 42 U.S.C. § 1857c-5 (1970), required him to approve any implementation plan which would achieve the national standards and that § 110 therefore did not allow him to disapprove plans which did not include nondeterioration. *Id.*

27. 42 U.S.C. § 1857h-2(a) (1970) provides:

[A]ny person may commence a civil action on his own behalf . . . (2) against the Administrator where there is alleged a failure of the administrator to perform any Act or duty under this Act which is not discretionary with the Administrator.

One commentator argued that § 111, 42 U.S.C. § 1857c-6 (1970), is the section describing the EPA's duty to prevent nondegradation: the new source performance standards. The section requires the Administrator to publish a list of categories of stationary sources which may contribute significantly to air pollution, and then publish standards of performance for new sources within each category. 42 U.S.C. § 1857c-6(b)(1) (1970). The standards are emission limitations reflecting the best technology adequately demonstrated. *Id.* § 1857(a)(1) (1970). The commentator argued that the Administrator was correct in saying that § 110 relates only to national ambient air standards but "almost all activities which could give rise to the degradation of existing air quality would come within the scope of [§ 111]." Little, *The Aftermath of the Clean Air Amendments of 1970: The Federal Courts and Air Pollution*, 14 B.C. INDUS. & COM. L. REV. 724, 748 (1973). Since the Administrator had already promulgated new source performance standards, 36 Fed. Reg. 24,877 (1971), Sierra Club could not sue under 42 U.S.C. § 1857 h-2(a) (1970). They could, however, contest the Administrator's judgment in a suit under 42 U.S.C. §

*Sierra Club v. Ruckelshaus*²⁸ an injunction was issued which prohibited the Administrator from approving any state plan which would allow significant deterioration of existing clean air.²⁹ The district court did not, however, specify the means to achieve nondeterioration or what would constitute "significant" deterioration.

The Administrator's response was slow although he did quickly promulgate a regulation disapproving all state plans to the extent that they allowed significant deterioration of air quality.³⁰ After two years and much debate, EPA finally proposed a new plan.³¹ The plan was

1857h-5(b)(1) (1970) (review of Administrator's action in promulgating new source performance standards may be had in the United States Court of Appeals for the District of Columbia). Little, *supra* at 746-50.

28. *Sierra Club v. Ruckelshaus*, 344 F. Supp. 253 (D.D.C. 1972), *aff'd mem.*, 4 E.R.C. 1815 (D.C. Cir. 1972), *aff'd per curiam by an equally divided court sub nom. Fri v. Sierra Club*, 412 U.S. 541 (1973). The Sierra Club argued that the language "protect and enhance" evidenced a statutory policy against deterioration of air quality. Corhan, *Sierra Club v. Ruckelshaus and the Clean Air Act Amendments of 1970*, 5 COLUM. HUMAN RIGHTS L. REV. 237, 255 (1970); H.R. REP. NO. 1146, 91st Cong., 2d Sess. 1, 2, 5 (1970) *reprinted in* [1970] U.S. CODE CONG. & AD. NEWS 5256, 5357, 5360 ("Effective pollution control requires both reduction of present pollution and prevention of new significant pollution problems."). Finally, Sierra Club pointed to the inconsistency between the EPA regulations. Brief for Respondent at 32-33, *Fri v. Sierra Club*, 412 U.S. 541 (1973) *reprinted in Nondegradation Policy*, *supra* note 6, at 340-41.

The Administrator replied that § 110 of the Clean Air Amendments directs that, on certain conditions, "The Administrator shall approve such plan. . . ." (emphasis added). The conditions do not mention nondeterioration as a basis for disapproval. *See* 42 U.S.C. § 1857c-5(a)(2) (1970); Brief for Petitioner at 11-14, *Fri v. Sierra Club*, 412 U.S. 541 (1973) *reprinted in Nondegradation Policy*, *supra* note 6, at 273-76.

29. The district court's opinion paralleled *Sierra Club's* argument (outlined in note 28, *supra*) and added that "the public interest in this case strongly supports the legislative policy of clean air and the non-degradation of areas in which clean air exists." 344 F. Supp. at 257. The injunction granted was preliminary, but the parties stipulated on appeal that it would be considered final. Corhan, *Sierra Club v. Ruckelshaus and the Clean Air Act Amendments of 1970*, 5 COLUM. HUMAN RIGHTS L. REV. 237, 240 (1973); Disselhorst, *Sierra Club v. Ruckelshaus: "On A Clear Day . . ."*, 4 ECOLOGY L.Q. 739, 741-42 (1975). For an argument that the district court decision was correct but the rationale was wrong, see Hines, *supra* note 10, at 666-68.

30. 40 C.F.R. § 52.21 (1976). It was a year before the Administrator proposed four specific plans for nondeterioration. The plans would have established 1972 as a baseline year and would have regulated only for sulfur dioxide and particulate matter. States would have been required to review any new or modified source of air pollution to assure compliance with nonsignificant deterioration, but would have had great leeway in implementation strategy. New or modified sources would have had to apply the "Best Available Control Technology" to control pollution. All the plans would have allowed deterioration to secondary ambient air standards in portions of clean air areas. For a more detailed discussion of the four plans, see *Farrell, The Nondegradation Controversy: How Clean Will Our "Clean Air" Be?*, 1974 U. ILL. L.F. 314.

31. Prevention of Significant Air Quality Deterioration, Proposed Rule-making, 39 Fed. Reg. 31,000 (1974).

designed to regulate only sulfur dioxide and particulate matter, rather than all six pollutants for which national ambient air standards had been promulgated.³² The plan divided clean air areas into smaller regions which could be designated Class I, Class II, or Class III.³³ The classes allowed varying increments in air pollution above a baseline air quality with the baseline year set at 1973.³⁴ Class I increments were very small, Class II allowed for some controlled growth and Class III allowed deterioration up to the secondary standards.³⁵ Initially all clean air areas were Class II.³⁶ The states could reclassify areas as I or III after public hearings which included a required "consideration of . . . the social, environmental and economic effects of such redesignation."³⁷ The Administrator was required to approve the redesignation so long as it was not arbitrary or capricious.³⁸

32. *Id.* at 31,007. The other four pollutants were "automotive pollutants," so called because the major source of each is the automobile. EPA explained that they were omitted because the relationship between emissions of these pollutants and the resulting ambient air levels is little understood. The only model for relating these emissions to air quality is "useful only in areas where ambient pollutant levels are substantial and well monitored." *Sierra Club v. EPA*, 540 F.2d 1114, 1130 (D.C. Cir. 1976).

33. 39 Fed. Reg. 31,007 (1974).

34. *Id.*

35. *Id.* The specific increments for Class I and Class II were:

	Class I	Class II
Particulate matter:		
Annual Geometric Mean	5	10
24-hr. maximum	10	30
Sulfur dioxide:		
Annual Arithmetic Mean	2	15
24-hr. maximum	5	100
3-hr. maximum	25	700

Class III was limited to no greater than the national ambient air quality standards. *Id.*

36. *Id.* Other required considerations were growth anticipated in the area and any impacts on regional or national interests.

37. *Id.* The minimum procedural requirements were: at least one public hearing after 30 days notice by prominent advertising of the date, time and place, availability of the proposal to the public and notification of the Administrator and any affected State or local government. The Administrator was to receive a record of each hearing upon request. *Id.*; 40 C.F.R. § 51.4 (1976).

38. 39 Fed. Reg. 31,008 (1974). The regulation says:

Any redesignation . . . shall be approved unless the Administrator determines (1) that the requirements of [procedure] have not been complied with, (2) that the State has arbitrarily and capriciously disregarded relevant environmental, social or economic consideration in any redesignation, or (3) that the State has not requested delegation of responsibilities for carrying out this section.

The arbitrary and capricious standard was developed in administrative law for judicial review of agency actions. The fundamental concept is that agencies develop expertise in their respective fields and therefore their judgments should carry great weight. Yet

To prevent increased pollution in clean air areas, the plan required the EPA Administrator to review any new or modified source of air pollution which appeared on a list of nineteen major types of stationary source polluters.³⁹ The source could not commence construction or expansion until the Administrator, after public comment,⁴⁰ determined that the applicable increments would not be violated and that the new source would apply the best available control technology (BACT) for minimizing emission of sulfur dioxide and particulates.⁴¹ Thus, the plan used a combined approach: limitations on both emissions and accumulation in the ambient air. With minor changes,⁴² these regulations

agency discretion with no check would be abhorrent in our form of government. At the beginning of the 1970's three standards had been developed to balance these considerations in judicial review: the broadest judicial inquiry under the clearly erroneous test, the narrowest under the arbitrary or capricious test, and something between the two under the substantial evidence test. The Supreme Court in *Citizens to Preserve Overton Park, Inc. v. Volpe*, 401 U.S. 402 (1971), blurred the distinction between the latter two tests. Professor Davis says that now the "law is not only unclear but quite confused." K. DAVIS, *ADMINISTRATIVE LAW OF THE SEVENTIES*, 652 (1976). What is clear is that the decision-making must follow the procedure required by law and consider all relevant evidentiary factors for the decision to survive the arbitrary and capricious standard of review. See K. DAVIS, *ADMINISTRATIVE LAW OF THE SEVENTIES*, 658-63 (1976).

39. 39 Fed. Reg. 31,008 (1974). A new source was one which had not commenced construction six months prior to the effective date of the regulations. The 19 categories were: fossil-fuel fired steam electric plants of more than 1,000 million B.T.U. per hour heat input, coal cleaning plants (thermal dryers), Kraft pulp mill recovery furnaces, Portland cement plants, primary zinc smelters, iron and steel mill metallurgical furnaces, primary aluminum ore reduction plants, primary copper smelters, municipal incinerators capable of charging more than 250 tons of refuse per day, sulfuric acid plants, petroleum refineries, lime plants, phosphate rock processing plants, by-product coke oven batteries, sulfur recovery plants, carbon black plants (furnace process), primary lead smelters, fuel conversion plants, and sintering plants.

40. 39 Fed. Reg. 31,008, 31,009 (1974). The minimum procedural requirement was prominent advertising and availability of information submitted by the applicant together with the Administrator's analysis, and a 30 day period for submitting public comment. All comments were to be available for public inspection and the Administrator was required to consider them in making his final determination. Copies of the application and analysis were to go to every affected state, local or Indian government, every affected federal land manager, and any affected comprehensive regional land use planning agency. *Id.*

41. *Id.* at 31,008. Best available control technology meant technology capable of meeting the federal new source performance standards set out in 40 C.F.R. § 60 (1976). If there was no standard promulgated, best available control technology would be determined on a case-by-case basis, taking into account the process, fuels, and raw materials available; the engineering aspects of various control techniques adequately demonstrated; the costs of control technology; any applicable state and local emission limitations; and siting considerations.

42. Prevention of Significant Air Quality Deterioration, 39 Fed. Reg. 42,510 (1974). The baseline year was changed to 1975. *Id.* at 42,514-15.

became final on December 5, 1974, and were promulgated as amendments to disapproved state implementation plans.⁴³

Again dissatisfied, the Sierra Club filed suit in the District of Columbia Court of Appeals to challenge the final regulations. In *Sierra Club v. EPA*,⁴⁴ the Sierra Club argued that the plan promulgated by EPA was inadequate for six major reasons: 1) the plan encompassed only two of the six pollutants for which national standards had previously been established, 2) the plan permitted significant deterioration in Classes II and III, 3) the plan allowed for consideration of economic and social factors in determining permissible deterioration, 4) under the plan review of new sources was based on New Source Performance Standards rather than BACT in a case-by-case analysis, 5) under the plan review was limited only to "significant" sources, and 6) under the plan, allowable increments were unrelated to anticipated adverse effects on public health and welfare.⁴⁵ Although the intervening states agreed with many of Sierra Club's objections, they also argued that the regulations would interfere with their authority under the Clean Air Act.⁴⁶ Further objections to the regulations were raised by industrial

43. 40 C.F.R. §§ 52.01(d), (f) and 52.21 (1976). This was what the Administrator was required to do under the injunction granted in *Sierra Club v. Ruckelshaus*, 344 F. Supp. 253 (D.D.C. 1972). The order said in part:

The Administrator shall prepare and publish proposed regulations, pursuant to 42 U.S.C. 1857c-5(c) as to any state plan which he finds, on the basis of his review, either permits the significant deterioration of existing air quality in any portion of any state or fails to take the measures necessary to prevent such significant deterioration. Such regulations shall be promulgated within six months of this order.

Sierra Club v. Ruckelshaus, 344 F. Supp. 253 (D.D.C. 1972) (unpublished order of May 30, 1972) reprinted in *Implementation of the Clean Air Act—1975: Hearings Before the Subcomm. on Environmental Pollution of the Senate Comm. on Public Works*, 94th Cong., 1st Sess. 945 (1975) [hereinafter cited as *Implementation 1975*].

44. 540 F.2d 1114 (D.C. Cir. 1976). Numerous states and industrial petitioners joined in the litigation. The states included Alabama, California, Colorado, Florida, Kansas, Maine, Minnesota, New Mexico, South Dakota and Wyoming. *Id.* at 1120. There was some controversy as to which was the "appropriate circuit" under § 307, 42 U.S.C. § 1857h-5 (1970). Industrial petitioners filed in several circuits: the Alabama Power Company in the Fifth Circuit, the American Petroleum Institute and other power companies in the Sixth Circuit, the Indiana-Kentucky Electric Corp. in the Seventh Circuit, Kennecott Copper Corp. in the Ninth Circuit, and Utah International, Inc. in the Tenth Circuit. The petitions were finally consolidated in the D.C. Circuit to avoid inconsistent results and delay in implementation. 6 ENVIR. REP. (BNA) 358 (1975). The Sixth Circuit opinion transferring its petitions for review said that the D.C. court "clearly . . . is in the best position to determine whether the regulations are consistent with its order in *Sierra Club v. Ruckelshaus*, 4 E.R.C. 1815 (D.C. Cir. 1972)." *Id.*

45. *Sierra Club v. EPA*, 540 F.2d 1114 (D.C. Cir. 1976). All the contentions were the result of Sierra Club's view that the regulations were too weak.

46. The argument was based on the Clean Air Act of 1970, 42 U.S.C. §§ 1857(a)(3), 1857c-2(a) (1970). The first section says "that the prevention and control of air pollution

petitioners. They argued that the holding of *Sierra Club v. Ruckelshaus*⁴⁷ should be reversed and that the regulations were unconstitutional under the commerce clause, the fifth amendment and the tenth amendment.⁴⁸ The court was not persuaded by the objections to the regulations. Consequently, the court upheld *Sierra Club v. Ruckelshaus*,⁴⁹ and found the regulations both constitutional and reasonable.⁵⁰

at its source is the primary responsibility of States and local governments.” 42 U.S.C. § 1857(a)(3) (1970). The second section says:

Each State shall have the primary responsibility for assuring air quality within the entire geographic area comprising such State by submitting an implementation plan for such State which will specify the manner in which national primary and secondary ambient air quality standards will be achieved and maintained

42 U.S.C. § 1857c-2(a) (1970). The states claimed that the authority of federal land managers and Indian governments to propose redesignation of their lands violated the delegation of authority to the states and gave too much power over neighboring areas. *Sierra Club v. EPA*, 540 F.2d 1114, 1138 (D.C. Cir. 1976).

47. 344 F. Supp. 253 (D.D.C. 1972).

48. *Sierra Club v. EPA*, 540 F.2d 1114, 1139-40 (D.C. Cir. 1976).

49. 344 F. Supp. 253 (D.D.C. 1972). The court said that the district court decision affirmed by a panel of the D.C. Court of Appeals could not be reconsidered by a different panel without a clear showing that the prior case was incorrectly decided. The court’s belief that *Sierra Club v. Ruckelshaus* was correctly decided was “bolstered by its acceptance in other courts.” *Id.* at 254. For some cases that have followed the lower court’s decision, see *Sierra Club v. EPA*, 540 F.2d 1114, 1124-30 (D.C. Cir. 1976); *Big Rivers Elec. Corp. v. EPA*, 523 F.2d 16 (6th Cir. 1975), *cert. denied*, 425 U.S. 934 (1976); *NRDC v. EPA*, 507 F.2d 905 (9th Cir. 1974); *NRDC v. EPA*, 489 F.2d 390 (5th Cir. 1974), *rev’d on other grounds sub nom. Train v. NRDC*, 421 U.S. 60 (1975).

50. The court used the arbitrary and capricious standard of review. *Sierra Club v. EPA*, 540 F.2d 1114, 1123 (D.C. Cir. 1976). Constitutionally, the court found adequate power in Congress under the commerce clause, a proper legislative purpose plus a rational relationship between means and ends, no “taking” and no infringement on the reserve powers of the states. *Id.* at 1139-40.

The Supreme Court denied writ of certiorari in *Sierra Club v. EPA*, 430 U.S. 959 (1977), but granted the writ in *Montana Power Co. v. EPA*, 430 U.S. 953 (1977); *Am. Petroleum Inst. v. EPA*, 430 U.S. 953 (1977); *Ind.-Ky. Elec. Corp. v. EPA*, 430 U.S. 953 (1977); *Utah Power & Light Co. v. EPA*, 430 U.S. 953 (1977); and *W. Energy Supply v. EPA*, 430 U.S. 953 (1977). The writs were granted to consider the questions: 1) whether regulations promulgated by EPA were authorized by the Clean Air Act, and 2) whether the Clean Air Act permits EPA to adopt regulations which grant power to federal land managers and Indian governing bodies to reclassify lands within their jurisdiction. 430 U.S. 953 (1977). On October 3, 1977, the Court denied a motion of the Solicitor General to dismiss the writs of certiorari as improvidently granted. The Court instead vacated judgment and remanded the cases to the District of Columbia Circuit Court of Appeals for further consideration in light of the Clean Air Act Amendments of 1977, Pub. L. No. 95-95, § 127, 91 Stat. 685 (1977), 46 U.S.L.W. 3214 (Oct. 4, 1977).

II. THE LEGISLATIVE SOLUTION: A COMBINED APPROACH

While *Sierra Club v. EPA*⁵¹ was being decided, Congress was considering amending the Clean Air Act to include a nondegradation provision.⁵² The proposed amendment addressed some of the concerns of Sierra Club and the intervening states, while steadfastly rejecting the industrial viewpoint.

The controversial nondegradation amendment was filibustered in the last days of the ninety-fourth Congress,⁵³ but after more debate and revision finally became law in August, 1977.⁵⁴ The basic plan of the final amendment is similar to the EPA regulations, including both lower ambient limits and emissions control. Nonetheless there are striking differences between the two plans.

Thus, to fully understand the 1977 amendments, the legislation will be analyzed in light of the objections to the EPA regulations made by petitioners in *Sierra Club v. EPA*.

A. Technology Forcing

In 1970, with the passage of the Clean Air Act,⁵⁵ Congress made a policy decision that public health is more important than the costs to clean up the air.⁵⁶ Congress adopted ambient air standards as the primary vehicle to curb pollution because the standards tend to be technology forcing, at least to the extent that technology is not already available to meet them.⁵⁷ However, ambient standards alone would

51. 540 F.2d 1114 (D.C. Cir. 1976).

52. See H.R. REP. NO. 1175, 94th Cong., 2d Sess. (1976); S. REP. NO. 717, 94th Cong., 2d Sess. (1976).

53. A filibuster by Senators Jake Garn (R-Utah) and Frank Moss (D-Utah) blocked passage of the conference bill on the day before adjournment. 7 ENVIR. REP. (BNA) 835 (1976).

54. 123 CONG. REC. H8672, S13711 (daily ed. Aug. 4, 1977).

55. 42 U.S.C. §§ 1857-1858(a) (1970).

56. See Kramer, *supra* note 13, at 169 ("the statement of congressional purpose obviously assigns a top level priority to protecting health, at high cost if necessary . . .").

57. See La Pierre, *Technology-Forcing and Federal Environmental Protection Statutes*, 62 IOWA L. REV. 771, 772-74 (1977) [hereinafter cited as La Pierre]; H.R. CONF. REP. NO. 1783, 91st Cong., 2d Sess. (1970); Kramer, *supra* note 13 at 172-73; Note, *Considerations of Technological and Economic Factors in Air Pollution Control*, 44 U. CINN. L. REV. 573, 588, 597 (1975) (deletion of language leads to the conclusion those factors were not to be considered). Technology-forcing was also an explicit policy of the Clean Air Act Amendments of 1977. See also S. REP. NO. 127, 95th Cong., 1st Sess. 17-18 (1977) ("Throughout this bill there is a philosophy of encouragement of technology

force technology only if, nationwide, the air were uniformly dirtier than the standards allow. In most of the country where the air is cleaner than required ambient air standards are ineffective at prompting technological improvement.

In this situation, ambient standards provide incentive for industry to move from dirty areas to clean areas and for new industry to settle in clean areas.⁵⁸ As a result, industry in dirty areas must pay the cost of emission controls, while industry in clean areas can pollute with impunity up to the level of the ambient standards. This creates a serious inequity because industry that isn't paying for the social harm it causes gains an unfair competitive advantage. All other factors considered equal, a company which uses a common resource without any cost to it, can keep its prices relatively lower than competitors forced to pay for the cost of their pollution.⁵⁹

The problem of inequity can be solved by establishing emission limitations rather than ambient standards. Everyone then must use the same or similar control techniques and all stand on an equal competitive footing with regard to pollution control. Nonetheless, there are two problems with this approach. First, emission limitations are based on current technology and thus, fail to provide incentives to industry to spend time and money developing more efficient controls.⁶⁰ Second, assuming new technology is somehow developed, emission limitations promulgated either legislatively or administratively will lag far behind technology improvements because of the inevitably long process in-

development.”); 123 CONG. REC. S9170 (daily ed. June 8, 1977) (“One of the cornerstones of a policy to keep clean air areas clean is to require that new sources use the best technology available to clean up pollution. It is important to assure that new, improved technology is applied as it is developed. And it is important to provide incentives to improve pollution control systems.”).

58. *Implementation 1975*, *supra* note 43, at 874 (“[W]eak standards would give a disproportionate incentive for new industries and new energy development . . . to move into clean air regions.”).

59. “Those sources which have chosen to delay, avoid or litigate have, in fact, achieved economic advantage. Thus, the competitive health, as well as the public health, has been placed in danger.” 123 CONG. REC. S9172 (daily ed. June 8, 1977). The uncontrolled polluter’s advantage over competitors isn’t the only inequity. Such a system “places the cost of pollution on those who receive the damage: the asthmatic who has more attacks, the child who has bronchitis . . . and the farmer whose crops yield less. These people are now bearing the costs of air pollution.” *Id.* at S9171.

60. La Pierre, *supra* note 57, at 774. *See also* 123 CONG. REC. H8669 (daily ed. Aug. 4, 1977) (remarks of Rep. Waxman) (auto industry’s capacity for generating arguments against even weak standards is seemingly endless); *Implementation 1975*, *supra* note 43, at 859 (“Industry given the choice between controlling to a very high level or something less will always choose the latter.”).

volved in changing established standards. At worst, there might be no attempt at all to change them.⁶¹

In this context it is easy to see the simple logic of Sierra Club's argument that review of new sources planning to locate in clean air areas must be on the basis of the best available control technology determined case-by-case,⁶² rather than on the basis of section 111 New Source Performance Standards. A case-by-case application of the best available control technology solves the second problem of failure to alter established emission limitations but still does not provide incentive for the development of new technology. It only makes technology obligatory if and when developed. In the 1977 Amendments, Congress attempted to solve the problem of a need for incentive for development of new technology.

The Amendments first significantly decreased the ambient level of pollution allowed in clean air areas by establishing a permissible percentage increase over the baseline level in the particular area. The increment is small for Class I areas, greater for Class II, and greatest for Class III. The baseline level plus the increase allowed determine the total ambient pollution allowed in the area, and supercede the higher nationwide ambient standard.⁶³ Congress did not stop with lower ambient standards, however. In addition, it added emission limitations for all new major polluters. The emission limitation for each polluter is determined by what can be achieved under BACT.⁶⁴ Thus,

61. *E.g.*, S. REP. NO. 127, 95th Cong., 1st Sess. 16 (1977) ("Considerable information was received that the primary and secondary ambient air quality standards, as presently promulgated, failed to provide the protection required by law."); *Implementation 1975*, *supra* note 43, at 23-24.

62. While the EPA regulations defined BACT as meeting the new source performance standards, 40 C.F.R. § 52.01(f) (1976), the new statute defines BACT as "an emission limitation based on the maximum degree of reduction . . . which the permitting authority, on a case-by-case basis, . . . determine is achievable. . . ." Clean Air Act Amendments of 1977, Pub. L. No. 95-95, § 127, 91 Stat. 685 (1977) (to be codified at 42 U.S.C. § 7479(3)).

Senator Muskie said: "Such an approach should provide greater emission reductions and allow more rapid application of improved technology than would otherwise occur through the uniform application of the new source performance standards periodically promulgated—and seldom changed—by the Environmental Protection Agency." 123 CONG. REC. S9265 (daily ed. June 9, 1977).

63. Clean Air Act Amendments of 1977, Pub. L. No. 95-95, § 127, 91 Stat. 685 (1977) (to be codified at 42 U.S.C. § 7473).

64. Clean Air Act Amendments of 1977, Pub. L. No. 95-95, § 127, 91 Stat. 685 (1977) (to be codified at 42 U.S.C. §§ 7475(a)(4), 7479). *See* S. REP. NO. 127, 95th Cong., 1st Sess. 18 (1975) ("Thus, each State is free to—and encouraged to—examine and impose requirements for the use of the latest technological developments as a requirement in granting the permit. This approach should lead to rapid adoption of improvements in

one new major polluter cannot come into a clean air area and consume the entire increment by refusing to use the best available emission controls.

The question arises whether the ambient increments established in the Amendments will be at the right level to force new technological development. Clearly, the increments must be low enough to provide a need and an incentive for better technology, yet not so low as to discourage any new industry whatsoever. The statutory increments for Class I and Class II are very similar to those provided under the earlier EPA regulations.⁶⁵ As to Class III, there is a basic difference in approach between the EPA regulations and the statute. The regulations provided no increment, only an absolute ceiling of the applicable secondary standard.⁶⁶ The statute retains the ceiling, but adds an increment limitation of half the amount allowed in each secondary standard.⁶⁷ If the increment plus the baseline level of pollution

technology as new sources are built. . . ."); S. REP. NO. 717, 94th Cong., 2d Sess. 22 (1976) ("The decision regarding the actual implementation of best available technology is a key one, and the Committee places this responsibility with the State, to be determined in a case-by-case judgment."). The approach was advocated by Robert Baum, Deputy Assistant Administrator of General Enforcement, EPA, in a 1974 speech. Baum, *Air Quality Control in the 70's: Federal Viewpoint*, 7 NAT. RESOURCES LAW. 189, 191 (1974) (must combine technology approach with ambient approach).

65. Class I increments are:

Particulate Matter	micrograms per cu. meter
Annual geometric mean	5
24-hr. maximum	10
Sulfur Dioxide	
Annual arithmetic mean	2
24-hr. maximum	25
3-hr. maximum	25

The Class II increments are:

Particulate Matter	micrograms per cu. meter
Annual geometric mean	19
24-hr. maximum	37
Sulfur Dioxide	
Annual arithmetic mean	20
24-hr. maximum	91
3-hr. maximum	512

Clean Air Act Amendments of 1977, Pub. L. No. 95-95, § 127, 91 Stat. 685 (to be codified at 42 U.S.C. § 7473(b)(1), (2)).

66. 40 C.F.R. § 52.21(c)(2)(ii) (1976).

67. The Class III increments are:

Particulate Matter	micrograms per cu. meter
Annual geometric mean	37
24-hr. maximum	75
Sulfur Dioxide	
Annual arithmetic mean	40
24-hr. maximum	182
3-hr. maximum	700

achieves the lower total ambient level, the 50% increment applies. If, however, this amount would exceed the statutory ceiling, then as much of the increment as would exceed the ceiling level is disallowed.⁶⁸ Thus, the allowable increase for Class III under the statute may be the same or less than under the regulations, but it will never be greater. The result depends on the level of existing pollutants in the particular area.

The effect of allowable increments in each Class on technological development is reasonably clear. Class I increments are so low as to allow no growth as a practical matter, and therefore no incentive for technological development.⁶⁹ Class II increments are at an appropriate level for limited growth. The increments are not too low because experience under EPA regulations reveals controlled growth is possible.⁷⁰ They are not too high since industry desirous of taking advantage of economies of scale by building increasingly larger plants will be forced to find better technology.⁷¹

Clean Air Amendments of 1977, Pub. L. No. 95-95, § 127, 91 Stat. 685 (1977) (to be codified at 42 U.S.C. § 7473(b)(3)). The ambient air standards are:

	Primary	Secondary
Particulate Matter		
Annual geometric mean	75	60
24-hr. maximum	260	150
Sulfur Dioxide		
Annual arithmetic mean	80	
24-hr. maximum	365	
3-hr. maximum		1300

40 C.F.R. §§ 50.4-.7 (1976).

68. Clean Air Act Amendments of 1977, Pub. L. No. 95-95, § 127, 91 Stat. 685 (1977) (to be codified at 42 U.S.C. §§ 7473(b)(3) and (4)).

69. The purpose of Class I must be kept in mind. It is intended to preserve the pristine air quality of parks, forests, wildernesses and similar areas. No growth is desirable in these areas for reasons other than technology-forcing. During debate on the House bill, Congressman Rogers said:

Do the members know how many areas in the Nation are covered by class I which we have asked to be kept clear and pure for the people of this country?

Only 125. The figure is only 125. . . .

The class II areas and the class III areas are where the plants are to be built . . . and we ought to keep the 125 areas to which I referred clean and pure.

123 CONG. REC. H5050 (daily ed. May 25, 1977).

70. "A nondegradation policy has been governing the country for the past two and one-half years. . . . Growth did not stop. Industry did not come to a standstill. The nation did not come to its knees. In fact, business has gone forward, and new facilities were constructed." 123 CONG. REC. S9266 (daily ed. June 9, 1977) (remarks of Sen. Muskie). The Senator went on to give examples, which were "merely a sampling of the hundreds of facilities that have been approved throughout the country." *Id.*

71. *Implementation 1975, supra* note 43, at 856 (Class II increments "will encourage industry to make the big jump into the uncharted waters of utilizing best possible control

Class III, however, is ineffective at forcing technological advancement. The Senate version of the Act contained no Class III.⁷² Its inclusion was a compromise in conference because of problems peculiar to high terrain areas.⁷³ Even if it is conceded, however, that there must be more flexibility for mountainous regions, Class III seems an inappropriate means to achieve this flexibility.⁷⁴ For this leaves non-mountainous areas without the special problems peculiar to high terrain areas free to adopt a classification necessary in only a few places. It does not provide technological incentive nor does it prevent significant deterioration in that a relatively high level of pollution is allowed in Class III areas.

technology.”), 858 (Class II may preclude large industries who have not developed adequate control technology).

72. See S. REP. NO. 127, 95th Cong., 1st Sess. 27-28 (1977); H.R. CONF. REP. NO. 11, 95th Cong., 1st Sess. 6-7 (1977); 123 CONG. REC. H8549 (daily ed. Aug. 3, 1977).

73. An example is Utah, where the land is almost entirely mountains and valleys. When a power plant is built in a valley, the plume hits the mountains rather than dissipating in the air. In addition, this type of terrain causes temperature inversions where cold air sits on top and, like a blanket, holds down the warm air and all the pollutants. 123 CONG. REC. S9246, S9248 (daily ed. June 9, 1977) (remarks of Sen. Garn). A large part of the controversy over high terrain was caused by the plans for an Intermountain Power Project to be situated in Utah close to the California border. It would have a capacity of 3,000 megawatts and would serve 23 cities in Utah and Los Angeles, Anaheim, Riverside, Burbank, Pasadena and Glendale, California: a total of 3.7 million people. It would increase tax revenues by \$30 to \$40 million. 123 CONG. REC. H5050-51 (daily ed. May 25, 1977). The project is planned for a site very near Capital Reef National Park, a mandatory Class I area. During approximately 13 days of the year, air inversions might cause winds to blow from the plant to the national park. *Id.* In the House, an amendment passed which would have allowed variances in Class I and Class II areas on 18 days of the year. The variances would have to be approved by the Governor of the State and would allow an increase to Class II and Class III levels, respectively. 123 CONG. REC. H5047, H5051 (daily ed. May 25, 1977). A similar amendment was defeated in the Senate. 123 CONG. REC. S9245, S9279 (daily ed. June 9, 1977). The conference committee agreed on a Class I variance, with the limitation that a variance can be disapproved by the federal land manager. In that case, only the President can reinstate the variance if he finds it in the national interest. The variance is limited to 18 days. Clean Air Act Amendments of 1977, Pub. L. No. 95-95, § 127, 91 Stat. 685 (1977) (to be codified at 42 U.S.C. § 7475(d)(D)).

74. It was repeatedly stated that the Intermountain Power Project group testified before the Subcommittee on Health and Environment of the House Committee on Interstate and Foreign Commerce that it could build its plant on a site east of the park, very near the original site, without the need for a variance. See, e.g., 123 CONG. REC. H5038, H5050 (daily ed. May 25, 1977), S9247 (daily ed. June 9, 1977). It is important that in the Class I variance finally adopted (see note 73 *supra*) both the federal land manager and the President have the power to veto a variance. The President, EPA, and the Secretary of the Interior (the federal land manager) all came out against the variance and in favor of protection of national parks. 123 CONG. REC. S9271-74 (daily ed. June 9, 1977).

B. *Regulation of All Pollutants*

In *Sierra Club v. EPA*, the Sierra Club challenged EPA's failure to regulate all pollutants for which national ambient air standards had been promulgated.⁷⁵ The Sierra Club argued for BACT for all pollutants while the EPA regulations required BACT only for sulfur dioxide and particulates.⁷⁶

The rationale for not including carbon monoxide, photo-chemical oxidants, hydrocarbons and nitrogen dioxide in significant deterioration control was that the relationship between emissions and ambient air levels of these pollutants was not understood. Accurate measurements of these pollutants in the ambient air are not possible at levels substantially below the national standards.⁷⁷ This may be a logical reason not to establish allowable ambient air increments for these pollutants, but it is not a good reason not to regulate them at all.

Congress recognized this in the Clean Air Amendments and required "the best available control technology for each pollutant subject to regulation under this Act."⁷⁸ But BACT is only the first step. The Administrator is required to develop, within two years, regulations to prevent significant deterioration resulting from these pollutants. If other national ambient standards are promulgated, nondegradation regulations must issue within two years. Finally, the states may develop their own plan to prevent nondegradation caused by pollutants other than sulfur dioxide and particulates. The only limitation is that the plan be at least as effective as the statutory area classification plan.⁷⁹

This provision is desirable for states that want to move quickly against significant deterioration. Additionally, it provides the same flexibility and freedom to experiment explicitly granted in section 107 for plans to achieve the national standards.⁸⁰ States are required by

75. *Sierra Club v. EPA*, 540 F.2d 1114, 1130 (D.C. Cir. 1976).

76. 40 C.F.R. § 52.21(d)(2)(ii) (1976).

77. *Sierra Club v. EPA*, 540 F.2d 1114, 1130-31 (D.C. Cir. 1976). The Sierra Club replied that as much as one-half of these pollutants come from sources *other* than automobiles, sources which could be subjected to BACT. BACT could be applied even though ambient levels of these pollutants can't be easily measured. *Implementation 1975*, *supra* note 43, at 966-71. EPA admitted that emissions could be minimized. *Sierra Club v. EPA*, 540 F.2d 1114, 1131 (D.C. Cir. 1976).

78. Clean Air Act Amendments of 1977, Pub. L. No. 95-95, § 127, 91 Stat. 685 (1977) (to be codified at 42 U.S.C. § 7479(3)) (emphasis added).

79. Clean Air Act Amendments of 1977, Pub. L. No. 95-95, § 127, 91 Stat. 685 (1977) (to be codified at 42 U.S.C. § 7476).

80. 42 U.S.C. § 1857c-2 (1970).

that section to promulgate plans to achieve a certain level of pollution control but the method is for the most part up to them.⁸¹ Flexibility is an inherent and often recognized benefit of a federal system. The states should know what means of pollution control will work best, taking into account any unique local conditions.

C. *Regulation of All Major Sources*

Sierra Club also raised a related problem of what sources must undergo new source review.⁸² The EPA regulations established a list of major sources subject to review if located in a Class I or Class II area.⁸³ The regulations omitted major sources of unregulated pollutants and also sources of sulfur dioxide and particulates.⁸⁴ EPA's rationale for requiring review of only the nineteen listed sources was to avoid review for new homes and similar small polluters. The Sierra Club, however, argued for review for any new source expected to emit more than 1000 tons per year of any of the regulated pollutants.⁸⁵

The congressional solution addresses both concerns. It required review (1) of any new source appearing on a list of twenty-nine sources with the potential to emit 100 tons per year of any pollutant, and (2) review of *any* new source with the potential to emit 250 tons or more per year.⁸⁶ The broader statutory coverage provides a method to eliminate the minor polluter without letting major sources escape regulation.⁸⁷ In addition, the statutory plan has the advantage of automatic and immediate regulation of any new industrial processes which might be developed in the future.⁸⁸ The plan also preserves equity by subjecting all polluters of the same magnitude to new source review and BACT. A limited exemption for nonprofit health and educational institutions⁸⁹ does not disturb this equitable balance since health and

81. *Id.* The section is quoted in relevant part at note 46 *supra*.

82. *Sierra Club v. EPA*, 540 F.2d 1114, 1134 (D.C. Cir. 1976).

83. 40 C.F.R. § 52.21(d)(1) (1976).

84. *Implementation 1975*, *supra* note 43, at 972.

85. *Id.*

86. Clean Air Act Amendments of 1977, Pub. L. No. 95-95, § 127, 91 Stat. 685 (1977) (to be codified at 42 U.S.C. § 7479(1)).

87. 123 CONG. REC. S9169 (daily ed. June 8, 1977) (remarks of Sen. Muskie) (major emitting facilities don't include houses, dairies, farms, highways, hospitals, schools, grocery stores or similar sources).

88. Sierra Club mentioned this advantage when it proposed the definition of major sources in its comments on EPA's proposed final regulations. *Implementation 1975*, *supra* note 43, at 973.

89. Clean Air Act Amendments of 1977, Pub. L. No. 95-95, § 127, 91 Stat. 685 (1977) (to be codified at 42 U.S.C. § 7479(1)). The last sentence of the section said: "This term

educational sources are unlikely to pollute to the same degree as an industrial source.

D. *Cost-Benefit Analysis*

Sierra Club challenged the EPA regulations because prior to any redesignation of an area a cost-benefit analysis was required to be performed by the state. The analysis was to include growth anticipated in the area, as well as the social, environmental and economic effects of the redesignation.⁹⁰ The Sierra Club argued that such a cost-benefit analysis would allow significant deterioration of air quality. According to their argument, economic and social factors should not enter into the decision of how much deterioration is significant. Sierra Club also pointed out that the Administrator's authority to disapprove a redesignation if social and economic factors were not considered might thwart a Class I designation which was based solely on air quality concerns.⁹¹

The legislative solution was not responsive to this argument. The statute provides that:

Prior to redesignation of any area . . . a satisfactory description and analysis of health, environmental, economic, social and energy effects of the proposed redesignation shall be prepared⁹²

The Administrator can disapprove a redesignation only if the procedural requirements are not met, but cost-benefit analysis is one of these procedural requirements.⁹³

The effect of this statutory provision is to shift the basic policy decision of whether there is sufficient justification to allow deteriora-

[major emitting facility] shall not include new or modified facilities which are nonprofit health or education institutions which have been exempted by the State." *Id.*

90. 40 C.F.R. § 52.21(c)(3)(ii)(D) (1976).

91. *Implementation 1975, supra* note 43, at 960 n.5.

92. Clean Air Act Amendments of 1977, Pub. L. No. 95-95, § 127, 91 Stat. 685 (1977) (to be codified at 42 U.S.C. § 7474(b)(1)(A)).

93. Clean Air Act Amendments of 1977, Pub. L. No. 95-95, § 127, 91 Stat. 685 (1977) (to be codified at 42 U.S.C. § 7474(b)). The redesignation must be specifically approved by the Governor after consultation with the legislature and appropriate local government. There must be notice and public hearings in any area affected, preceded by analysis of the health, environmental, economic, social and energy effects of the proposed redesignation. The public must have access to any specific plans for new or modified sources which may receive permits only if the area is redesignated Class III. The appropriate federal agency must have opportunity to make comments and recommendations if federal lands are involved. *Id.*

tion to the states. Of course, all decisions to permit deterioration are subject to both incremental and absolute limits, even for Class III.⁹⁴ This approach is consistent with the dominant theme of the Clean Air Act Amendments of 1977, which is to provide a wide latitude for state control over decision-making.⁹⁵ Yet one must wonder whether the wide discretion granted to the states is advantageous where the prospects exist for limiting the policy against nondegradation. The question of control over the program is considered in the following section.

E. *Federalism: Who Controls?*

The division of power between state and national governments is a persistent problem in our federal democracy, and it became important again in the context of nondegradation. In *Sierra Club v. EPA*, both the state and industrial intervening petitioners challenged the EPA regulations on the grounds that too little rather than too much control was delegated to the states.⁹⁶ Industry argued that nondeterioration imposed a land use policy based on air quality criteria. Relying on the tenth amendment,⁹⁷ industry argued that the authority to control land use is not given to the federal government, and therefore it must be reserved to the states.⁹⁸

The reserve power argument has been tried in many contexts. The problem with the argument is that power expressly granted to Congress is not reserved at all⁹⁹ and Congress clearly has the power under the commerce clause to legislate against air pollution.¹⁰⁰ Furthermore, air

94. Clean Air Act Amendments of 1977, Pub. L. No. 95-95, § 127, 91 Stat. 685 (1977) (to be codified at 42 U.S.C. § 7473(b)(3) and (4)). The ceiling is the lowest applicable national standard. *Id.* The Class III increments are listed in note 67 *supra*.

95. *See, e.g.*, S. REP. NO. 127, 95th Cong., 1st Sess. 15-16 (1977) ("the committee expects that State and Local governments will take advantage of the renewed opportunity proposed by these amendments to adopt the necessary review mechanisms so as to eliminate even the suggestion of a Federal presence in this area."); 123 CONG. REC. S13697 (daily ed. Aug. 4, 1977) (remarks of Sen. Muskie) ("These amendments tell the American people that Congress got the message; that the National Government realizes that change without an adequate underpinning cannot be forced; that local decisions locally arrived at with proper incentives, can achieve the goals we share.")

96. *Sierra Club v. EPA*, 540 F.2d 1114, 1138-40 (D.C. Cir. 1976).

97. *Id.* at 1140. "The powers not delegated to the United States by the Constitution, nor prohibited by it to the States, are reserved to the States respectively, or to the people." U.S. CONST. amend. X.

98. *Sierra Club v. EPA*, 540 F.2d 1114, 1140 (D.C. Cir. 1976).

99. The tenth amendments says: "The powers *not* delegated . . . are reserved." U.S. CONST. amend. X (emphasis added).

100. *Sierra Club v. EPA*, 540 F.2d 1114, 1139 (D.C. Cir. 1976). The court cited *District of Columbia v. Train*, 521 F.2d 971, 988 (D.C. Cir. 1975) ("None of the

pollution is a nationwide problem which does not respect artificial state boundaries. Pollutants discharged into the air have been shown to travel as much as 2000 miles.¹⁰¹ In the context of nondegradation legislation, even small amounts of pollution carried to highly polluted eastern cities would be detrimental to the effort to achieve the national standards.¹⁰² Most important, air pollution adversely affects commerce in the damage it causes to health, agriculture and property.¹⁰³

Commerce is also adversely affected by the potential "Balkanization" of states.¹⁰⁴ If a state adopts a strict nondeterioration policy and its neighbor does not, it could potentially lose both in an economic sense and in the quality of its air.¹⁰⁵ Industry will move out or fail to enter the state causing a loss in tax dollars and jobs. As industry settles in the neighboring state, the pollution will not remain where it origi-

petitioners challenge the congressional determination that air pollution has a substantial effect on interstate commerce and therefore may be regulated by the federal government under the commerce clause."); *South Terminal Corp. v. EPA*, 504 F.2d 646, 677 (1st Cir. 1974) (The commerce clause says "The Congress shall have Power . . . To regulate Commerce with foreign Nations, and among the several States, and with the Indian Tribes"); *Pennsylvania v. EPA*, 500 F.2d 246, 259 (3d Cir. 1974) ("The Commonwealth does not dispute that air pollution has an effect on commerce and hence can be validly regulated by Congress."); U.S. CONST. art. 1, § 8.

101. Mr. Richard Lahn, Washington Representative of Sierra Club, testifying before the Subcommittee on Public Works in 1975, said:

One well-documented episode in May, 1972 traced the transport of pollutants from the industrialized Ohio Valley to the Miami, Florida area where it caused a 50-percent rise in sulfates, lowered visibility to 6 miles, caused smoke and haze for 5 days and produced a 20-percent increase in respiratory disorders. This was directly attributed to the pollutants originating over 2,000 miles away.

Implementation 1975, supra note 43, at 851; 123 CONG. REC. S9170 (daily ed. June 8, 1977) (remarks Sen. Muskie).

102. *Implementation 1975, supra* note 43, at 851.

103. One study suggests that a doubling of 1973 pollution levels on the east coast would cause a 25-100% loss of certain crops. *Id.* Acid rain damages crops and soil and pollutes streams. For a critical analysis of the basis of sulfur oxide standards and their health effects at low doses, see the Tabershaw/Cooper Report. *Id.* at 391-402.

104. The term "Balkanizing" was first used in *Duckworth v. Arkansas*, 314 U.S. 390, 400 (1941) (Jackson, J., concurring), in reference to petty, local restrictions on interstate commerce. "Balkanization" has appeared in *Douglas v. Seacoast Products, Inc.*, 97 S. Ct. 1740, 1752 (1977) ("proliferation of residency requirements for commercial fishermen would create precisely the sort of Balkanization of interstate commercial activity which the Constitution was intended to prevent."); *New York v. O'Neill*, 359 U.S. 1, 8 (1959) (privilege of ingress and egress among the states was to prevent the walling off of states, "what has been called the Balkanization of the Nation."); and *H.P. Hood & Sons, Inc. v. Du Mond*, 336 U.S. 525, 554 (1949) (Black, J., dissenting) (Balkanization of trade is "trade barriers so high between the states that the stream of interstate commerce cannot flow over them.").

105. *Nondegradation Policy, supra* note 6, at 6, 50.

nates. “[S]ince air pollution does not respect State boundaries, the air quality of the State with the prohibition against significant deterioration may still decline because of the pollution coming from its more lenient neighbor.”¹⁰⁶

The federal government also has a duty to preserve federal lands. Most of these are primitive areas of unusual natural splendor where aesthetic values are dominant.¹⁰⁷ As one representative said, “[S]mogging of the pristine areas in the West means that the American people are being robbed of being able to enjoy one of our most cherished pursuits: simple communion with the land which is the source of so much of our Nation’s bounty.”¹⁰⁸ The states would like to retain control over these lands,¹⁰⁹ but it must be recognized that national parks and wildernesses are for all the people of the United States and not just the citizens of one state. Thus, responsibility to protect federal lands surely rests on the federal government.

Though Congress has the power to retain primary control over nondegradation, the 1977 legislation gives maximum control to the states consistent with the federal responsibility to protect both national and local interests.¹¹⁰ Except for Indian lands,¹¹¹ and large national and

106. *Id.* Sixteen states participated in an *amici curiae* brief for respondents Sierra Club before the Supreme Court in *Sierra Club v. Ruckelshaus*, 344 F. Supp. 253 (D.D.C. 1972), *aff’d per curiam by an equally divided court sub nom. Fri v. Sierra Club*, 412 U.S. 541 (1973). Their brief is reprinted in *Implementation 1975*, *supra* note 43, at 993, 997 (“The requirement of no significant deterioration removes the possibility of economic coercion between competing regions based on the stringency of emission control requirements.”).

107. *See, e.g.*, 123 CONG. REC. S9266 (daily ed. June 9, 1977) (remarks of Sen. Muskie) (“The Federal Land Manager has a mandate to protect the air quality values of these areas.”); *Id.* at S9268 (letter from Cecil Andrus, Secretary of the Interior) (“I am charged to protect the natural, scenic and primitive values of national parks and wilderness areas.”); S. REP. NO. 127, 95th Cong., 1st Sess. 36 (1977) (“[T]he Federal land manager should assume an aggressive role in protecting the air quality values of land areas under his jurisdiction.”).

108. 123 CONG. REC. H8669 (daily ed. Aug. 4, 1977) (remarks of Rep. Waxman).

109. *Sierra Club v. EPA*, 540 F.2d 1114, 1138 (D.C. Cir. 1976).

110. 123 CONG. REC. S9169 (daily ed. June 8, 1977) (Senate bill placed primary responsibility and authority with the states); *Id.* at S9172 (“The States are assigned the lead role in implementing nondegradation policy.”); *Id.* at S9172 (statement of Sen. Muskie) (“The States are assigned the lead role in implementing nondegradation policy.”); *see also id.* at S9245 (daily ed. June 9, 1977) (remarks of Sen. Garn) (“Congress has never been bashful about usurping State responsibilities, and can do so in a clear and unequivocal manner, when it wants to.”).

111. Clean Air Act Amendments of 1977, Pub. L. No. 95-95, § 127, 91 Stat. 685 (1977) (to be codified at 42 U.S.C. § 7474). Subsection (c) says “Lands within the exterior boundaries of reservations of federally recognized Indian tribes may be redesignated only by the appropriate Indian governing body.” *Id.*

international parks and wilderness areas which are mandatory Class I,¹¹² the states' power to redesignate is almost total.¹¹³ The federal land manager can make recommendations about redesignation of other federal land,¹¹⁴ but the recommendations are not binding on the states.¹¹⁵ Similarly, the statute does not enforce a federal land use plan. Nondegradation is not the only factor, nor in many cases even the major factor in land use decision-making. Such diverse considerations as water quality, sewer hook-ups and mass transportation might be determinative factors in an industry's decision on where to locate.¹¹⁶ Moreover, since Class II allows reasonable growth, "air quality controls do not dictate most land use decisions but simply require the use of proper pollution control equipment."¹¹⁷ Land use decisions should be made at the state and local level to provide flexibility to consider peculiar local problems within a comprehensive plan. This seems exactly what the Clean Air Amendments of 1977 achieve.

The legislative scheme strikes a fair balance of power between the states and the federal government. The federal government retains some control over federal lands to ensure their preservation for all the people.¹¹⁸ To allow state control over Indian lands, for example, might raise difficult questions of sovereignty that are better left alone. The uniform requirement of BACT is an advantage to the states. Uniformity tends to deter economic competition on the basis of air quality.¹¹⁹ Industry that must apply the same control anywhere it locates has little air quality basis to choose one state over another. However the desire to eliminate economic competition on the basis of air quality is seriously weakened by the inclusion of Class III along with the requirement that states consider economic and social factors in redesignation.

112. Clean Air Act Amendments of 1977, Pub. L. No. 95-95, § 127, 91 Stat. 685 (1977) (to be codified at 42 U.S.C. § 7472(a)).

113. Clean Air Act Amendments of 1977, Pub. L. No. 95-95, § 127, 91 Stat. 685 (1977) (to be codified at 42 U.S.C. § 7474).

114. *Id.*

115. *Id.* The section says:

In redesignating any area under this section with respect to which any Federal land manager has submitted written comments and recommendations, the State shall publish a list of any inconsistency between such redesignation and such recommendation and an explanation of such inconsistency (together with the reasons for making such redesignation against the recommendation of the Federal land manager).

116. See *Implementation 1975*, *supra* note 43, at 963-65.

117. *Id.* at 965.

118. See note 107 *supra*.

119. See notes 104-07 *supra*.

Allowing a state to redesignate an area Class III has the potential of undermining the whole plan for nondegradation. It allows deterioration to the national standards in some cases.¹²⁰ It also may effectively eliminate technology forcing.¹²¹ An industry anxious to build a large plant will be more likely to choose a Class III location than to develop new controls efficient enough to meet Class II limits.¹²² The mere threat of loss of this industry might deter states from remaining entirely Class I and Class II.

Required consideration of economic and social factors further aggravates the problem. Economic and social factors include jobs, tax revenue, new energy sources and exploitation of natural resources. If the choice was between Class I and Class II only, there would be no problem. The choice between almost no growth and normal controlled growth must necessarily include these factors. But the possibility of Class III adds a third choice: greater and faster expansion. The allowance for greater industrial expansion, in one sense, is contrary to the recognized need to maintain our environment and conserve energy. With this necessity to alter our lifestyles, the inclusion of Class III is an invitation to delay difficult changes.¹²³ It is unlikely that Congress will amend the statute again soon. Therefore the only realistic hope is that states and their citizens will use their decision-making power wisely.¹²⁴

III. INTO THE FUTURE:

The future prospects for successful implementation of nondegradation policy rest with the states. Congress has provided a tool, but without citizen support even the best possible legislation against pollution cannot be effective.

The crucial component of both health-based and technology-based standards is the implicit or explicit delineation of the accept-

120. See note 67 *supra*.

121. See notes 67-70 and accompanying text *supra*.

122. See note 71 *supra*.

123. Cubia Clayton, Chief of the Air Quality Division of the New Mexico EPA said:

In New Mexico, there are abundant coal resources as there are generally throughout the Rocky Mountain West. These resources . . . are surely going to be developed. The temptation is, however, to develop quickly, first come first served and damn the environmental consequences. NSD, properly administered, should act to insure that states adequately consider the desirability of each industry on an individual basis, weighing all the factors involved.

Implementation 1975, supra note 43, at 859. Proper administration of no significant deterioration, to Mr. Clayton, does not include the possibility of Class III. *Id.*

124. Senator Muskie said "It is my hope that States will use the Class III approach with great care." 123 CONG. REC. S13701 (daily ed. Aug. 4, 1977).

able costs of pollution reduction In the absence of any firm political resolve that the benefits of pollution abatement outweigh social and economic disruption, the capacity of both types of standards to force technological changes will be sharply limited.¹²⁵

There is often wide disagreement about what costs and benefits are, let alone what balance should be struck between them.¹²⁶ For example, one of the major costs of nondegradation is the cost to industry to decrease pollution. Such costs may result from development of new equipment and/or processes, production, installation, maintenance and operation of equipment. The difficulty in measuring costs and benefits plus striking a balance between them is illustrated through an examination of the impact the new legislation will have on utilities.

The major impact of the nondeterioration legislation will probably be on electric utilities because of the relatively high sulfur content of the coal used in most generating plants.¹²⁷ As expected, the industry's own cost estimate is higher than the EPA's. A report commissioned by the Electric Utility Industry Clean Air Coordinating Committee estimated an additional capital cost of 18-30% to comply with the Clean Air Act.¹²⁸ The technology is available in the form of flue-gas desulfurization systems, more commonly known as "scrubbers."¹²⁹ But the industry report claims scrubbers will use between 160,597 and 373,763 megawatts of power by 1990.¹³⁰ EPA disagreed with these industry projections and claimed that industry capital expenditures will be increased by only 3%.¹³¹

It is unlikely that industry will absorb these costs. Rather they will probably be passed on to the consumers. Thus, a more accurate cost increase is the one reflected in household utility bills: 2% by 1990

125. La Pierre, *supra* note 57, at 838.

126. For an analysis of problems in cost/benefit determinations for air pollution control, see Kramer, *supra* note 13, at 164-68. See *Implementation 1975*, *supra* note 43, at 31 ("While many witnesses call for benefit-cost analysis, little information was offered for improving these types of studies.").

127. 6 ENVIR. REP. (BNA) 2172 (1976).

128. 6 ENVIR. REP. (BNA) 1382 (1975). The variation depends on the interpretation of best available control technology: new source performance standards or scrubbers plus low-sulfur coal. *Id.*

129. See *Nondegradation Policy*, *supra* note 6, at 88-90. But see S. REP. NO. 717, 94th Cong., 2d Sess. 118, 119 (1976) (Sen. McClure suggests scrubbers may pose an environmental hazard and that there is a controversy as to their value).

130. 6 ENVIR. REP. (BNA) 1383 (1975).

131. 6 ENVIR. REP. (BNA) 2172 (1976). The Federal Energy Administration predicts additional capital cost of 2.5 to 2.7% and additional operating cost of 1.1% by 1990. 6 ENVIR. REP. (BNA) 1583 (1976).

according to EPA,¹³² and 11-15% according to industry studies.¹³³ To put those figures in perspective, the Chairman of New Mexico Citizens for Clean Air and Water, Inc. estimated that a 7% increase in the cost of delivered power would mean an increase of about \$1.00 a month on the average utility bill.¹³⁴ Adding the indirect increased cost of manufactured goods, the increased cost would result in about a \$4.00 a month increase.¹³⁵ Other estimates are even lower.¹³⁶ This revenue, however, does not buy only pollution abatement. "[I]t creates new jobs in research, design, construction and plant operation in the new pollution control industry. It also begins in a small way to encourage the wise use of energy, which all sectors publicly agree is a national goal."¹³⁷

Another cost associated with nondegradation policies is the adverse impact on energy development.¹³⁸ Coal is the major concern, particularly in relation to the Energy Supply and Environmental Coordination Act of 1974.¹³⁹ That Act was designed to increase the use of coal by utilities and industry.¹⁴⁰ Since coal is more abundant than oil and natural gas, its increased use will decrease dependence on foreign energy and conserve domestic oil and natural gas.¹⁴¹ But coal is also a higher polluting fuel when compared with oil and gas. Consequently,

132. 6 ENVIR. REP. (BNA) 2172 (1976). *See also* H.R. REP. NO. 1175, 94th Cong., 2d Sess. 134-49 (1976).

133. 6 ENVIR. REP. (BNA) 2178 (1976).

134. *Implementation 1975, supra* note 43, at 922-23.

135. *Id.*

136. 123 CONG. REC. S9171 (daily ed. June 8, 1977) (EPA study showed 2.3% increase per month).

137. *Implementation 1975, supra* note 43, at 923.

138. *See, e.g.*, 123 CONG. REC. S8074 (daily ed. May 19, 1977) (remarks of Sen. Garn) (" . . . [I]t is impossible to reconcile the stated goal of coal conversion with the stated position of the administration on clean air."); 123 CONG. REC. S9248 (daily ed. June 9, 1977) (remarks of Sen. Hatch) (development of coal gasification and oil shale would be frustrated); 123 CONG. REC. S9260 (daily ed. June 9, 1977) (remarks of Sen. Johnston); 123 CONG. REC. S9300 (daily ed. June 9, 1977) (remarks of Sen. Randolph) ("There are those who say increased coal use is incompatible with Clean Air Act requirements, and push for relaxation.").

139. 15 U.S.C. §§ 791-798 (Supp. V 1975).

140. *Id.* One provision in the Clean Air Act Amendments exempts from the total allowable ambient air increase concentrations due to coal conversions under the Energy Supply and Environmental Coordination Act of 1974. Clean Air Act Amendments of 1977, Pub. L. No. 95-95, § 127, 91 Stat. 685 (1977) (to be codified at 42 U.S.C. § 7473(c)(1)(A)).

141. 123 CONG. REC. S9300 (daily ed. June 9, 1977) (remarks of Sen. Randolph).

some argue that we cannot have both greater coal use and a nondegradation policy.¹⁴² This argument is incorrect for two reasons. First, conservation measures, according to EPA, will decrease emissions from oil and gas,¹⁴³ thus offsetting increased coal emissions. Additionally, the BACT requirement insures that coal will be burned as cleanly as possible.¹⁴⁴ EPA has estimated that 6000 megawatt power plants, two times as large as the largest existing plant, can be built in Class II areas if BACT is used.¹⁴⁵ Thus, the nondegradation plan actually allows for more use of coal with less pollution.¹⁴⁶

Somewhat different kinds of costs concerned the Department of Health, Education and Welfare (HEW) in a comment on EPA's original four nondeterioration proposals.¹⁴⁷ HEW found probable "negative impacts on economic growth, urban development capabilities, energy resource development, consumer prices, the status of low-income persons, and the public health."¹⁴⁸ Basically HEW's argument is that nondeterioration will prevent growth, not only in clean areas, but also in polluted urban areas. The industries which lack the incentive to move to clean areas will remain in the cities, thus reducing the improvement in city air and the chance for new growth in industry.¹⁴⁹

Additionally, HEW was concerned with the adverse health effects on large urban populations. On the assumption that improvement in air quality in highly populated areas will be slowed because industry lacks incentive to leave, HEW says nondeterioration will have more of an adverse health effect on a greater number of people than it will have a beneficial effect.¹⁵⁰ The possible benefits of nondegradation will be unavailable to the urban poor, who have no means to travel to clean air areas far from their homes in the cities.¹⁵¹

There are a number of responses to these arguments. First, the application of BACT should eliminate, or at least strictly limit the

142. See note 138 *supra*.

143. 123 CONG. REC. S9300 (daily ed. June 9, 1977) (remarks of Sen. Randolph).

144. *Id.*

145. 123 CONG. REC. H8667 (daily ed. Aug. 4, 1977) (remarks by Sen. Broyhill).

146. *Id.*

147. Reprinted in *Clean Air Act Oversight: Hearings Before the Subcomm. on Environmental Pollution of the Senate Comm. on Public Works*, 93d Cong., 2d Sess. 872-95 (1974).

148. *Id.* at 874.

149. *Id.* at 875, 879-81.

150. *Id.* at 874, 889-90.

151. *Id.* at 874-75, 878.

effect of pollution control on industry location decisions.¹⁵² If the technology forcing aspects of nondegradation work, new control developments can be applied in urban areas as well.¹⁵³ Reduced pollution would allow industry expansion under another section in the Clean Air Amendments of 1977.¹⁵⁴ That section provides emission offsets when pollution is reduced in an area where national standards have not been attained.¹⁵⁵ Finally, HEW's position is inconsistent. If industry stays in the cities, the health of people will be affected. Yet if industry leaves, there will be a decrease in jobs. It's arguable that the urban poor would prefer to have jobs in that the effects of poverty are more immediate than the effects of air pollution.

The thrust of HEW's argument is to advocate a large-scale dispersion technique whereby pollution is spread. The country's skies would be uniformly gray.¹⁵⁶ The problem with this approach is that nondegradation policy is thwarted in that pollution is merely spread, not controlled.

The health benefits acquired through nondegradation are also subject to controversy. Some argue that the national ambient standards are sufficient to protect against any adverse health effects of air pollution.¹⁵⁷ But there is an assumption basic to the whole concept of national standards which is probably not true: that there is some precise threshold below which there are no adverse health effects.¹⁵⁸ The supposed threshold is merely a reflection of current scientific knowledge.¹⁵⁹ In some cases, the scientific basis is no longer even current. For example, the standards for sulfur dioxide were established more than three years ago.¹⁶⁰ Since then, the National Academy

152. See notes 104-107 *supra*.

153. *Implementation 1975*, *supra* note 43, at 875.

154. Clean Air Act Amendments of 1977, Pub. L. No. 95-95, § 127, 91 Stat. 685 (1977) (to be codified at 42 U.S.C. § 7479).

155. *Id.*

156. "The EPA frankly told the Supreme Court [in *Fri v. Sierra Club*, 412 U.S. 541 (1973)] that its policy was to move major pollution sources from cities to rural areas with clean air. This is a policy of spreading evenly air pollution across the country rather than controlling it at its source." *Nondegradation Policy*, *supra* note 6, at 6.

157. See, e.g., H.R. REP. NO. 1175, 94th Cong., 2d Sess. 503-04 (1976).

158. H.R. REP. NO. 1175, 94th Cong., 2d Sess. 89-91 (1976); *Nondegradation Policy*, *supra* note 6, at 8-9, 53-58.

159. H.R. REP. NO. 1175, 94th Cong., 2d Sess. 86 (1976) ("... the threshold concept is not a very helpful one because it is a level that changes with time, i.e., as measurement methods for either the pollutants or the biological indicator improve, the threshold will shift."); *Nondegradation Policy*, *supra* note 6, at 8.

160. 40 C.F.R. § 50.4 (1976).

of Science has said that there is a "possibility that ambient sulfur dioxides are a factor in the production of human lung cancer."¹⁶¹ Respiratory cancer has been increasing by 4.5% annually at the same time discovery and treatment methods have been improving.¹⁶² Yet there is no evidence of a threshold level and little likelihood that adequate dose-response data can soon be established.¹⁶³ Similar problems exist for other pollutants.¹⁶⁴ The chronic effects of long term low-level exposure to pollution is particularly insidious because it is difficult for both the scientists and the public to understand the cause/effect relationship.¹⁶⁵ The synergistic effect of low level pollutants in combination may present even further hazards.¹⁶⁶

Nondeterioration also provides agricultural benefits. Sulfur dioxide levels below the national standards cause leaf damage, growth inhibition and increased plant mortality.¹⁶⁷ Plant damage from sulfur dioxide in synergistic combination with ozone occurs at a level thirty times lower than the national primary standard.¹⁶⁸ Sulfur and nitrogen oxides, even at low levels, cause "acid rain" which leaches out necessary plant nutrients in the soil.¹⁶⁹

The aesthetic benefits of increased visibility are undisputed. Increased air pollution means decreased visibility even below the secondary standards.¹⁷⁰ At the secondary level it would be impossible to see across the Grand Canyon. As the President of the Sierra Club said:

It is easy to dismiss visibility as unimportant, as merely a luxury which can be readily sacrificed. However, the difference between crystal clear air and the haze of our cities makes a dramatic impact on the quality of life. Already the haze over the Rocky Mountains and the Southwest can be readily seen. Soon, when we want to escape the perpetual haze of our cities, there will be no place to go.¹⁷¹

161. H.R. REP. NO. 1175, 94th Cong., 2d Sess. 95 (1976).

162. *Id.* at 92.

163. *Id.* at 95-96.

164. *Id.* at 90-93.

165. *Id.* at 95-97.

166. *Id.* at 98-101.

167. *Id.*

168. *Id.* at 108.

169. *Id.* at 108-111; *Nondegradation Policy*, *supra* note 6, at 8-9, 56-57.

170. *Nondegradation Policy*, *supra* note 6, at 9.

171. *Id.*

IV. CONCLUSION

How then, should the balance between costs and benefits be struck? It must be remembered that what is at stake is an irreplaceable resource about which all the effects of changes are not known. It is therefore "wise to err on the side of preservation."¹⁷² With this in mind, nonsignificant deterioration becomes a necessary policy. The 1977 Clean Air Act Amendments' "preventive" approach to pollution abatement¹⁷³ is a good beginning. What is now needed is education to foster an awareness in people that change is absolutely necessary if we are to survive. How much better it will be if we realize the consequences before we allow our skies to become uniformly gray.

172. Hines, *supra* note 10, at 652.

173. 123 CONG. REC. H8663 (daily ed. Aug. 4, 1977).

COMMENTS

