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RECONCILING COAL CONVERSION POLICY AND NONSIGNIFICANT DETERIORATION OF AIR QUALITY*

I. INTRODUCTION

It is generally recognized that a sound national energy policy must rely, at least in the short term, on coal, and not on oil and gas from either increasingly expensive and unstable foreign sources or from our own depleting reserves.¹ Some experts suggest that at the 1968 coal production rate, the United States' remaining proven coal reserves of 390 billion tons, 93% of our domestic energy resources,² should be adequate for about 700 more years.³ For several reasons coal has subsided from fulfilling 90% of the country's energy needs in 1900 to providing a mere 17% in 1978.⁴ In 1971, when coal provided 17.6% of the nation's total energy consumption, oil provided 44.4% and natural gas provided 33.2%.⁵ Not the least of the reasons for this subsidence were the relatively cheaper price of oil and gas (at least until the last half decade), cleaner combustion characteristics, and less environmental damage in oil and gas production than in coal mining.⁶

During the last decade, the federal government's recognition of the need for domestic energy self-sufficiency has been manifested in initially hesitant and later more grandiose plans for converting existing and planned oil and gas fired electric utility boilers to coal as the pri-

* Winner of the Fourth Annual National Energy Law and Policy Institute Essay Competition.

1. Bagge, *Coal and Clean Air Laws: A Case for Reconciliation*, 4 *ECOLOGY L.Q.* 479 (1975); Cockrell, *Coal Conversions by Electric Utilities: Reconciling Energy Independence and Environmental Protection*, 28 *HASTINGS L.J.* 1245 (1977); Tiano & Hammaker, *Coal Conversion: Procedural Improprieties in Pursuit of a National Energy Policy*, 11 *CONN. L. REV.* 48 (1979).

2. Cockrell, *supra* note 1, at 1247.

3. Nephew, *The Challenge and Promise of Coal*, in *PERSPECTIVES ON ENERGY* 135 (1975). Cockrell, *supra* note 1, at 1247, cites an FEA study suggesting that the U.S. has 1.5 trillion tons which, if exploitable, would extend Nephew's projected period of coal use by almost four times. It is unclear whether Cockrell was referring to recoverable or proven coal reserves.

4. Alexander, *Detente for Coal?*, 20 *ENVIRONMENT* 33 (1978); Cockrell, *supra* note 1, at 1246.

5. *Non-Degradation Policy of the Clean Air Act: Hearings Before the Subcomm. on Air and Water Pollution of the Senate Comm. on Public Works*, 93rd Cong., 1st Sess. 103 (1973).

6. Cockrell, *supra* note 1, at 1245; Seamans, Liverman, & Ordway, *National Energy Planning and Environmental Responsibility*, 6 *ENV'TL AFF.* 283 (1978); Schroeder, *The Impact of Air Pollution Legislation and Litigation on Energy Production*, 54 *OR. L. REV.* 515, 517 (1975).

mary boiler fuel.⁷ From the narrow perspective of national energy planning with coal as the cornerstone, it is unfortunate that the heightened energy consciousness of the 1970s so soon follows the similarly heightened environmental consciousness of the 1960s.

Most environmental legislation was adopted before our national acknowledgment of our depleted domestic fuel reserves.⁸ Of all environmental legislation the Clean Air Act and its subsequent amendments⁹ pose the most formidable barrier to an expedient shift to coal in electricity generation.¹⁰ Any legislative attempt at forcing conversion to coal in electric utility boilers must be reconciled with existing clean air legislation. The main requirement of the Clean Air Act is that each state promulgate a State Implementation Plan,¹¹ detailing the state's program to attain and maintain the national primary and secondary ambient air quality standards developed by the Environmental Protection Agency (EPA).¹² Thus, the coal conversion effort confronts both those basic Clean Air Act requirements and the early administrative¹³ and later legislative policy¹⁴ of nonsignificant deterioration (NSD) of air quality in areas with air cleaner than required by the national primary and secondary standards.

One source has asserted that the NSD policy was mandated because of the tendency of electric utilities "to locate new fossil fuel plants in areas where the air is clean and where, consequently, their incremental emissions would not violate the primary and secondary air quality standards, [since] it is often difficult or impossible to locate new power plants in heavily developed or industrial areas where air quality is already at or even in violation of the standards."¹⁵ It is ironic that

7. Cockrell, *supra* note 1, at 1252-58; Mallory, *The Phasing Out of Oil and Gas Used for Boiler Fuel: Constraints and Incentives*, 13 TULSA L.J. 702 (1978).

8. Bagge, *supra* note 1, at 479.

9. The first federal legislation in the area of air pollution was the Air Pollution Control Act, ch. 360, §§ 2, 4, 69 Stat. 322. In 1963, the Clean Air Act expanding the role of the federal government was enacted. Pub. L. No. 88-206, 77 Stat. 392 (1963), *as amended*, Clean Air Act, 42 U.S.C. §§ 1857-1858a (1970), *recodified* at 42 U.S.C. §§ 7401-7642 (Supp. II 1978). *See generally* Trumbull, *Federal Control of Stationary Source Air Pollution*, 2 ECOLOGY L.Q. 283 (1972); Note, *Clean Air Act Amendments of 1970: A Congressional Cosmetic*, 61 GEO. L.J. 153 (1972).

10. Hill, *An Assessment of the Carter Administration's Proposed Energy Program*, 10 NAT. RES. LAW. 610, 619 (1978).

11. 42 U.S.C. § 7410 (1976).

12. 42 U.S.C. § 7411 (1976).

13. 40 C.F.R. § 52.21 (1979).

14. 42 U.S.C. § 7470 (1976).

15. NATIONAL RESEARCH COUNCIL, NATIONAL ACADEMY OF SCIENCES, *IMPLICATIONS OF ENVIRONMENTAL REGULATIONS FOR ENERGY PRODUCTION AND CONSUMPTION, A REPORT TO THE EPA FROM THE COMM. ON ENERGY AND THE ENVIRONMENT* 129 (1977).

the electric utility industry's practice of locating coal-fired power plants in clean air areas, then polluting the regional air quality to the extent of the national standards,¹⁶ may be responsible for the NSD policy which some suggest may alone prevent large-scale conversion to coal in electric utility boilers.¹⁷

This essay will examine the administrative and legislative backgrounds of the nonsignificant deterioration policy and of the coal conversion policy. The extent to which the former policy accommodates the planned conversion to coal in electric utility and industrial boilers will also be analyzed.

II. DEVELOPMENT OF THE NONSIGNIFICANT DETERIORATION POLICY

A. *Early Administrative and Legislative Background*

The goal of the Air Quality Act of 1967,¹⁸ one of Congress's first attempts to control air pollution on a national basis, was "to protect and enhance the quality of the Nation's air resources . . ." ¹⁹ The "protect and enhance" language was first translated into an NSD policy by the National Air Pollution Control Administration (NAPCA) of the Department of Health, Education and Welfare (HEW) in its 1969 Guidelines for the Development of Air Quality Standards and Implementation Plans. Section 1.51 of the Guidelines stated:

[A]n explicit purpose of the Act is "to protect and enhance the quality of the Nation's air resources." Air quality standards which, even if fully implemented, would result in *significant deterioration* of air quality in any substantial portion of an air quality region clearly *would conflict with this expressed purpose of the law.*²⁰

John G. Veneman, then Undersecretary of HEW, emphasized the same interpretation of NSD policy in a statement before the Senate Public

16. *Non-Degradation Hearings*, *supra* note 6, at 126. See 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 (1977).

17. *Non-Degradation Hearings*, *supra* note 6, at 119; Hill, *An Assessment of the Carter Administration's Proposed Energy Program*, 10 NAT. RES. LAW. 618, 619 (1978); Mullan, *Clean Air Act and Coal Conversion*, 13 TULSA L.J. 695, 696 (1978).

18. The Air Quality Act of 1967, 42 U.S.C. § 7401 (Supp. II 1978).

19. 42 U.S.C. § 7404 (Supp. II 1978).

20. U.S. DEP'T OF HEALTH, EDUCATION, AND WELFARE, NAT'L AIR POLLUTION CONTROL ADMIN., Guidelines for the Development of Air Quality Standards and Implementation Plans 7 (May, 1969).

Works Committee considering clean air amendments in 1970.²¹

Neither the 1967 Act nor NAPCA's Guidelines defined precisely "significant deterioration." Nevertheless, the Clean Air Act²² retained the express purpose of protecting and enhancing air quality. Because of the lack of success under the 1967 Act, the Clean Air Act mandated a new relationship between state and federal governments to preserve clean air. The states were required to develop State Implementation Plans, meeting, at a minimum, EPA promulgated standards. The EPA Administrator was required to promulgate both national primary (health related) air quality standards, and the more stringent national secondary (welfare related) standards.²³ Although the Act added no explicit statement regarding nonsignificant deterioration, the Administrator issued regulations carrying forward the NSD policy: "The promulgation of national primary and secondary ambient air quality standards shall not be considered in any manner to allow significant deterioration of existing air quality in any portion of any State."²⁴

The nonsignificant deterioration policy advanced by the EPA, lacking guidelines for its administration, was rather crude. Yet it paralleled the Senate Report accompanying the Clean Air Act.²⁵ The report suggested that the EPA had an affirmative duty to disapprove SIPs allowing degradation of existing clean air. "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."²⁶

Despite this apparent consistency in administrative and legislative treatment of NSD policy, the new EPA Administrator in 1971 served notice, by rule, that SIPs under the 1970 Act needed only to provide for satisfaction of the national primary and secondary standards, *i.e.*, that existing cleaner areas could deteriorate to the national secondary levels.

21. *Hearings on Air Pollution Before the Subcomm. on Air and Water Pollution of the Senate Public Works Comm.*, 71st Cong., 2d Sess., 132-33 (1970).

22. 42 U.S.C. § 7401 (Supp. II 1978). See note 8, *supra*.

23. The second major program under the 1970 Clean Air Act was the "Standards of Performance for New Stationary Sources" (NSPS), 42 U.S.C. § 1857c-6 (1976). The NSPS describe a standard for emissions defined by the best system of emission reduction the Administrator believes is adequately demonstrated. See also note 46, *infra*.

24. 40 C.F.R. § 50.12(c) (1979).

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

26. *Id.*

He ruled, "In any region where measured or estimated ambient levels of a pollutant 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 standards."²⁷ Two years later, in hearings before the Senate Subcommittee on Air and Water Pollution which had grown dissatisfied with the EPA's permissive deterioration interpretation of the 1970 Clean Air Act, EPA officials attempted to explain that the earlier administrative and legislative treatment had been intended merely to inform the states that the Clean Air Act did not prevent state adoption of ambient air quality standards more stringent than the national standards promulgated by the EPA.²⁸ EPA Administrator Ruckelshaus explained that the 1970 Clear Air Act had failed to provide the EPA with authority to require states to incorporate nondeterioration provisions into their State Implementation Plans, and that even if such authority were to exist, its implementation would be administratively infeasible.²⁹

B. Sierra Club v. Ruckelshaus³⁰

In response to what they perceived as a continuing threat to clean air, the Sierra Club and other environmental groups filed suit in the Federal District Court for the District of Columbia, requesting an order restraining the EPA from approving State Implementation Plans which allowed degradation of existing clean air of higher quality than the national secondary standards.³¹ The court held that the Clean Air Act of 1970 was based, at least in part, on a policy of nondeterioration of existing clean air. Thus, the EPA's regulations permitting states to submit plans which would allow pollution levels in clean air areas to rise to the national secondary standards were rendered invalid. On that basis, the EPA was ordered to promulgate regulations reflecting the court's order.³² The Circuit Court of Appeals for the District of Co-

27. 40 C.F.R. § 51.12(b) (1979).

28. *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. 243 (1970).

29. *Id.* at 246-47, 271-72.

30. 344 F. Supp. 253, *aff'd per curiam* 4 ERC 1815 (D.C. Cir. 1972), *aff'd by an equally divided Court sub nom. Fri v. Sierra Club*, 412 U.S. 541 (Powell, J., abstaining) (1973).

31. 344 F. Supp. 253. *See Non-Degradation Hearings, supra* note 6, at 239-56.

32. The court's order required

The Administrator shall prepare and publish proposed regulations pursuant to 42 U.S.C. § 1857c-5(a) as to any plan 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

lumbia affirmed per curiam,³³ and the United States Supreme Court affirmed by an equally divided vote.³⁴

Left with the duty to define a nonsignificant deterioration policy previously detailed in neither administrative regulation nor statute, the EPA cautiously published a "Notice of Intent to Issue Regulations," explaining the complexity of defining "significant deterioration" and outlining four alternative plans to prevent significant deterioration.³⁵

C. *The Area Classification Plan*

The first three alternative plans proposed by the EPA for preventing significant deterioration of air quality were fatally flawed when compared with the congressional purpose found by the court in *Sierra Club v. Ruckelshaus*.³⁶ Because those plans were rejected on that basis,

measures necessary to prevent such significant deterioration. Such regulations shall be promulgated within six months of this order.

Brief of Petitioners at 7, *Sierra Club v. EPA*, 540 F.2d 1114 (D.C. Cir. 1976).

33. 4 ERC 1815 (D.C. Cir. 1972).

34. *Fri v. Sierra Club*, 412 U.S. 451 (1973).

35. *Prevention of Significant Air Quality Deterioration*, Initial Proposed Rule-Making, 38 Fed. Reg. 18,986 (1973).

36. See Comment, *Non-Degradation and Pollution Control Alternatives Under the Clean Air Act of 1970*, 9 LAND & WATER L. REV. 507, 523-24 (1974). The first option proposed by the EPA was the Air Quality Increment Plan. Had it been implemented, it would have set a nationally uniform allowable increment of increase in pollutants over the pollutant concentration prevailing in 1972. The primary weakness of the plan was that it intentionally ignored widely varying local and regional topography, meteorology, industrial development, and relative clean air. The second option, the Emission Limitation Plan, would have set a regional ceiling on emissions, expressed as a percentage increase over average regional levels existing in 1972. The plan would have allowed intensive development within any portion of the region so long as some other portion cut back emissions to an extent adequate to prevent violation of the regional ceiling. *Id.* at 523. Option three, the Local Definition Plan, would have permitted each state to define significant deterioration and to determine on a case-by-case basis whether new sources would significantly deteriorate prevailing air quality. This plan would have provided the EPA with no enforceable definition of significant deterioration against which to review state definitions and determinations. Thus it would have permitted deterioration of existing air quality up to the national secondary standards. *Id.* at 524.

The *Non-Degradation and Pollution Control* article, *supra*, presents a revealing economic analysis of the EPA's alternative proposals. Although the comment provides little insight into the issue of reconciling NSD regulations and coal conversion, it is a novel and academically satisfying method of making air quality regulation decisions. The analysis uses a resources allocation model, which assumes that various levels of human welfare are created by different combinations of clean air and polluted air, and that society dictates that a unit of either clean or polluted air is worth a certain number of units of the other by the values it places on each. The comment concludes that the EPA's Local Definition Plan would have best optimized human welfare by allowing the greatest range of local choice in determining combinations of clean and polluted air, but admits that such a plan would have most radically deviated from the congressional purpose of nondegradation found by the court in *Ruckelshaus*. The comment also recognizes that the Area Classification Plan would have met the congressional purpose while giving the least range of local choice in welfare levels. The Emission Limitation Plan is represented as the best compromise in that it would have placed an effective regional limit on pollution increases, but would have pro-

this article addresses only the EPA's fourth plan which was adopted and implemented.

The Area Classification Plan, the EPA's final proposal and the option eventually adopted by the agency,³⁷ divided areas with air cleaner than the national secondary ambient air quality standards into three classes. In those classes different increments of air quality deterioration would be permitted over concentrations existing in the baseline year of 1972.³⁸ In Class I areas nearly any increase in deterioration of air qual-

vided local flexibility within the region, thereby maximizing the opportunity for maximum welfare at each community within the region.

37. *Prevention of Significant Air Quality Deterioration*, Final Rules Promulgation, 39 Fed. Reg. 42,510 (1974).

38. It is important to distinguish between prevention of significant deterioration proposals based on allowable increments of increase in *emission limitations*, and those based on allowable increments of increase in *ambient air quality* levels. Emission limitations are measured at the point they are emitted from a power plant or industrial source, *i.e.*, at the top of the stack of such source, and are measured in terms of raw tons of pollutant per unit period of time. They are thought to give a more accurate picture of what is actually released into the air. A number of alternative plans proposed by environmental groups would have focused on emission limitations. See Hines, *supra* note 16, at 664-65. The emission limitation proposals were rejected because measurement of concentrations of pollutants in the ambient air was thought to be more consistent with the national primary and secondary standards, which is the statutory policy out of which the NSD policy was found to be derived in *Ruckelshaus*.

On the other hand, the national ambient air quality standards, as promulgated by the EPA, are measured at ground level in terms of maximum concentrations per unit volume of air which may not be exceeded over periods ranging from 24 hours to one year. See 40 C.F.R. § 50 (1979). The logic of measuring air quality at ground levels is based on the assumption that the health and welfare effects of air pollutants occur at ground level where they come in contact with persons, plants, and animals, and not at a point hundreds of feet in the air where pollutants are released. The distinction between emission limitations and ambient standards is crucial because it illustrates the pollution control technology dispute between industry and the EPA. It is thought by the coal industry that intermittent control systems, such as tall stacks, provide adequate control technology in that they disperse the pollutants emitted over a much larger area, effectively reducing the ground level concentration within a given area. See Bagge, *supra* note 1, at 491. The EPA's policy, later codified by Congress, see text accompanying notes 59-63 *infra*, is that the allowable NSD increments of pollution in the ambient air must be met by installation at the plant site of the best available control technology (BACT). In the case of coal-fired power plants, BACT means the use of scrubbers, a technology which physically removes sulfur dioxide and particulates before emission. See note 45 *infra*. The rationale for sulfur dioxide reduction in the ambient air by scrubbers and against tall stack dispersion is that long-range transport of sulfur dioxide facilitated by tall stacks causes enhanced conversion of sulfur dioxide to sulfates, which have demonstrable health effects at concentrations even lower than the national secondary standards. See ENERGY POLICY PROJECT, FORD FOUNDATION, A TIME TO CHOOSE: AMERICA'S ENERGY FUTURE 191-92 (1974); IMPLICATIONS OF ENVIRONMENTAL REGULATIONS, *supra* note 15, at 106. Thus it would seem that the EPA's policy of requiring control of emissions at the plant site (BACT), rather than the mere geographical dispersion of pollutants, best ameliorates the less stringent policy of defining NSD increments in terms of ground-level concentrations rather than as emission limitations. See *National Resources Defense Council v. EPA*, 489 F.2d 390 (5th Cir. 1974), wherein the Fifth Circuit held that the EPA's approval of the Georgia State Implementation Plan, which relied on dispersion enhancement techniques such as tall stacks rather than emission limitations, to meet the national air quality standards, violated the 1970 Clean Air Act. *Id.* at 406-08. The court also indicated that the 1970 Clean Air Act's nondeterioration policy, recognized in *Ruckelshaus*, was

ity would be considered significant. That classification was suggested for areas where industrial growth was undesirable such as areas of scenic or recreational value and where the ecology was unusually fragile.³⁹ In Class II areas the increment was defined so that deterioration normally accompanying moderate, well-controlled growth would be considered nonsignificant, thus leaving room for well-spaced, large pollution sources such as coal-fired plants.⁴⁰ The EPA's final promulgation of NSD regulations was issued eighteen months after the initial Notice of Intent and five months after its Second Proposed Rules (which sought comments on the Area Classification Plan). The final regulations added a Class III area in which air quality deterioration to the extent of the national secondary standards would be considered nonsignificant. This class effectively allowed any major industrial development.⁴¹ Initially, all areas were to be classified as Class II, with reclassification to be conducted by the states as approved by the EPA.⁴²

The final Area Classification Plan established a procedure for pre-construction, source-by-source review of eighteen categories of pollution sources discharging a threshold amount of sulfur dioxide or particulate matter,⁴³ the two pollutants whose discharge characterizes coal-fired power plants. Thus, initially, maximum allowable increases in pollution increments were defined only for sulfur dioxide and particulates. Source-by-source pre-construction review was mandated only of those sources which might emit enough of those two pollutants to violate the NSD increments. Naturally, the category "fossil fuel-fired steam electric plants" of a minimum size (a synonym for coal or oil and gas fired power plants) appeared at the top of the list of sources requiring such review.⁴⁴ Further, all categories of new and modified sources built in clean air areas were required to use the best available control technology.⁴⁵ In the case of coal-fired power plants this meant flue gas desulfurization technology using scrubbers.⁴⁶

contrary to a state plan relying primarily on the use of dispersion enhancement techniques. *Id.* at 408-09. Note also the discussion at note 45 *infra*, comparing the requirements of the NSD policy and the requirements of the New Source Performance Standards policy.

39. *Prevention of Significant Air Quality Deterioration*, Second Proposed Rule-Making, 39 Fed. Reg. 31,000, 31,004 (1974).

40. 38 Fed. Reg. 18,986, 18,993 (1973).

41. 39 Fed. Reg. 31,000, 31,004 (1974).

42. *Id.*

43. 40 C.F.R. § 52.21(c) (1979).

44. 40 C.F.R. § 52.21(b)(1)(i) (1979).

45. 40 C.F.R. §§ 52.21(b)(10), (j)(2) (1979).

46. W. RODGERS, HANDBOOK ON ENVIRONMENTAL LAW 281-82, 284 (1977); Mullan, *supra* note 17, at 697. The scrubber requirement in all new or modified fossil-fuel-fired electric plants

Dissatisfaction with the NSD regulations was widespread, spanning the special interest spectrum from environmental groups to the coal industry. The primary coal industry criticism of the NSD regulations was that the best available control technology requirement for all new sources was unduly restrictive: it forced installation of scrubbers, which had not been demonstrated to be reliable or economically efficient for sulfur dioxide removal;⁴⁷ installation was to be done at the utilities' expense without federal research and development aid;⁴⁸ the

derives both from the definition of BACT promulgated by the EPA in the NSD definitions and from the EPA's administration of the NSD program:

"Best available control technology" means an emission limitation (including a visible emission standard) based on the maximum degree of reduction for each pollutant subject to regulation under the act which would be emitted from any proposed major stationary source or major modification which the Administrator, on a case-by-case basis, taking into account energy, environmental, and economic impacts and other costs, determines is achievable for such source or modification through application of production processes or available methods, systems, and techniques, including fuel cleaning or treatment or innovative fuel combustion techniques for control of such pollutant. In no event shall application of best technology result in emissions of any pollutant which would exceed the emissions allowed by any applicable standard under 40 C.F.R. Part 60 and 61.

40 C.F.R. § 52.21(b)(10) (1979). See also 42 U.S.C. § 7479(3) (Supp. II 1978). Both the BACT requirement and the requirement of pre-construction review necessary to assure compliance with the NSD increments are borrowed from the New Source Performance Standards (NSPS). Section 111 of the Clean Air Act, 42 U.S.C. § 7411 (Supp. II 1978). The BACT requirement for NSPS at one time differed from the BACT requirement for NSD in that a new or modified coal-fired power plant emitting sulfur dioxide could meet the former by use of either low sulfur coal without the use of scrubbers, or of high sulfur coal with scrubbers. RODGERS, *supra* at 281-82. In light of this discrepancy, the EPA vacillated on whether to change the NSPS regulations to remove the option of burning low sulfur coal without additional sulfur dioxide removal by scrubbers. Behr, *Controlling Sulfur Dioxide Emissions*, ENVIRONMENT, Oct., 1978, at 2-3. See *Essex Chemical Corp. v. Ruckelshaus*, 486 F.2d 427 (D.C. Cir. 1973), wherein the District of Columbia Circuit Court of Appeals upheld the New Source Performance Standard promulgated for new coal-fired electric plants against an industry challenge that the standard was too strict. See also *Oljato Chapter of the Navajo Tribe v. Train*, 515 F.2d 654 (D.C. Cir. 1975), wherein the court dismissed a petition challenging the EPA's refusal to revise the NSPS promulgated for new coal-fired power plants. The court specified that the standard could be met either by burning high sulfur coal with scrubbers or by burning low sulfur coal without any control technology. *Id.* at 656.

On June 11, 1979, the EPA issued New Source Performance Standards applicable to electric utility steam-generating units eliminating the option of burning low sulfur coal without the installation of scrubbers. 44 Fed. Reg. 33,580, 33,582 (1979). The new standards are styled "a variable control approach," requiring a different percentage reduction in sulfur dioxide emissions based on the sulfur content of the coal being burned. High sulfur coals require a 90% reduction in sulfur dioxide emissions over the potential emissions which would result if untreated fuel were burned. 40 C.F.R. § 60.43(a)(1) (1979). Low sulfur coals require a 70% reduction in sulfur dioxide emissions over the potential emissions which would result if untreated fuel were burned. 40 C.F.R. § 60.43(a)(2) (1979). The new standards absolutely preclude a source meeting the standard solely by burning low sulfur coal. 44 Fed. Reg. 33,582 (1979). The EPA presumes that among available sulfur dioxide control technology only properly designed, installed, operated, and maintained scrubber systems will suffice to meet these sulfur dioxide standards. 44 Fed. Reg. 33,592 (1979).

47. Bagge, *supra* note 1, at 490.

48. *Id.*

forced use of scrubbers did not survive cost-benefit analysis, yet this requirement effectively precluded the use of less costly control systems such as tall stacks and low sulfur coal which, under varying local meteorological and topographical conditions, could combine to meet the maximum allowable increments,⁴⁹ and the policy was seen as having no-growth consequences in areas with air cleaner than the national standards since no electric utility would gamble by investing in such areas without assurance that the NSD increments could be met.⁵⁰ Further, industry spokesmen suggested that a policy which forces additional pollution where people live, while preserving pure air in unpopulated and undeveloped areas, is irrational.⁵¹

On the other hand, environmentalists thought the NSD regulations forfeited the battle they thought *Ruckelshaus* had won. They suggested that allowing controlled deterioration in Class II areas, and allowing uncontrolled deterioration up to the national secondary standards in Class III areas, violated the *Ruckelshaus* mandate to prevent significant deterioration.⁵² It was also asserted that failure to define maximum allowable increment limitations for the other four of the six pollutants for which national ambient standards existed would allow significant deterioration of the air by those pollutants up to the secondary standards.⁵³

D. Sierra Club v. EPA

The widespread dissatisfaction with the EPA's NSD regulations resulted in fourteen separate petitions for judicial review. These petitions were brought by environmental groups, the electric utility industry, and several states. The District of Columbia Circuit Court of Appeals consolidated these petitions in *Sierra Club v. EPA*⁵⁴ and upheld the regulations against all attacks.

One of the court's crucial holdings was that the Energy Supply and Environmental Coordination Act of 1974,⁵⁵ an early piece of comprehensive coal conversion legislation, had not eliminated the requirement of nondeterioration of air quality, even though it had provided a lim-

49. *Id.* at 491.

50. Schroeder, *supra* note 6, at 520.

51. Bagge, *supra* note 1, at 492-93.

52. Hines, *supra* note 16, at 672.

53. *Id.*

54. 540 F.2d 1114 (D.C. Cir. 1976).

55. 15 U.S.C. §§ 791-798 (1976).

ited exemption from the national standards for converted facilities.⁵⁶ Second, the EPA's discrimination in pre-construction review against sources emitting more than a minimum amount of sulfur dioxide and particulates was held to be lawful.⁵⁷ And finally, the court deferred to the EPA's decision to define permissible increments in Class II and III areas to allow controlled industrial development.⁵⁸ The court reasoned that while some evidence indicated that pollution levels below the national secondary standards had detrimental health effects, it was permissible for the EPA Administrator to define "significant deterioration" without a quantitative relationship to specific adverse health and welfare effects.

Although the circuit court fully embraced the EPA's regulations by applying a deferential "arbitrary and capricious" standard which required only a rational basis for agency action,⁵⁹ a firm statutory basis was still necessary to prevent the inevitable chiseling away by litigation which could be expected from the diversity of parties dissatisfied with the NSD regulations. Accordingly, in 1977 Congress amended the Clean Air Act and extensively adopted the EPA's area classification scheme for preventing significant deterioration of areas with air cleaner than the national standards.

E. *The Clean Air Act Amendments of 1977*

In addition to modifying the area classification scheme,⁶⁰ the 1977 amendments to the Clean Air Act made more explicit the pre-construction review requirements. Construction permits were to be issued only after review and a public hearing. The best available control technology was to be required at all new sources, and operators of sources were to be required to demonstrate before construction that the national standards, the NSD increments, and the New Source Performance Standards would be met.⁶¹ The best available control technology provision adopted by the EPA was enacted, affirming the absolute EPA mandate of installation of scrubber technology regardless of the sulfur content of coal consumed.⁶² In response to industry criticism that the

56. *Sierra Club v. EPA*, 540 F.2d at 1129-30.

57. *Id.* at 1135.

58. *Id.*

59. *Id.* at 1123.

60. 42 U.S.C. §§ 7472(a) & (b), 7474(a) (Supp. II 1978).

61. *Id.* § 7475(a).

62. *Id.* § 7479(3). See H.R. REP. NO. 294, 95th Cong., 1st Sess. 166 (1977).

EPA's requirements created a substantial buffer strip around Class I and Class II areas by prohibiting new sources from violating NSD increments in both the area of construction and in any other area,⁶³ Congress expressly required that the EPA's guidelines prohibit the use of automatic or uniform buffer zones.⁶⁴

The policy of preventing significant deterioration has proved to be resilient. It has survived a lack of early statutory definition and mid-stream rejection by an EPA Administrator who asserted both its meager statutory support and the administrative infeasibility of its implementation. It has survived both halting implementation and subsequent legal attacks from all sides, each time proving stronger than before the attack. The long-awaited statutory recognition of the policy merely formalized the patchwork of the earlier administrative treatment, and did little to avoid the collision between a national energy policy with coal conversion as its cornerstone and relatively inflexible NSD standards.

III. BACKGROUND OF COAL CONVERSION POLICIES

A. Introduction

Nature's gift of abundant domestic coal reserves is a mixed blessing.⁶⁵ The presence of sulfur in that coal⁶⁶ has prevented the formulation of an energy policy embracing coal as the nation's predominant energy source. Other factors are also responsible for coal's currently limited portion of domestic energy consumption.⁶⁷ First, much of our coal is not conveniently located for mining and transportation to the proper markets.⁶⁸ Second, without regard to the environmental effects of coal combustion, mining coal has identifiable health and environmental consequences.⁶⁹ Further, it is possible that in the future, speculation that widespread coal combustion may release enough carbon dioxide into the atmosphere to cause a catastrophic global warming

63. Hines, *supra* note 16, at 671; 39 Fed. Reg. 42,512 (1974).

64. 42 U.S.C. § 7475(e)(3)(A) (Supp. II 1978). Note also Congress's conclusion, based on a joint FEA-EPA report, that since new coal-fired power plants can be constructed in both Class II and III areas with installation of scrubber technology, only 5% of the surface area of the United States is made unavailable for such construction. H.R. REP. No. 294, 95th Cong., 1st Sess. 157 (1977).

65. See notes 1-3 *supra* and accompanying text.

66. Behr, *supra* note 46, at 2; Cockrell, *supra* note 1, at 1245.

67. See notes 2-4 *supra* and accompanying text.

68. Seamans, *supra* note 6, at 290.

69. *Id.* at 291.

trend will also limit coal use.⁷⁰ Nevertheless, the Carter Administration has proposed, and Congress has adopted, coal conversion legislation⁷¹ which seeks to facilitate a two-thirds growth in coal production by 1985.⁷² Most of that increased production would be consumed by approximately 200 coal-fired power plants, part of which have yet to be constructed and part of which will be converted from existing oil and gas fired power plants.⁷³

It may be, however, that the Carter Administration's coal estimates are unrealistic. The NSD amendments of 1977, combined with recent surface mining legislation, may prevent attainment of such goals.⁷⁴ One coal industry spokesman recognized the irony of the President's coal conversion policy when he stated, "My real problem with the conversion issue, at least as the present administration is handling it, is that while Mr. Carter favors coal his recent legislative efforts seem directed at not letting us mine it or burn it."⁷⁵

B. *Early Executive Attempts at Coal Conversion*

In the last decade, the federal government has attempted four distinct coal conversion programs: two by executive agencies and two by Congress. The first rash of coal conversions occurred during the 1973-1974 Arab oil embargo by the voluntary cooperation of electric utilities at the request of William Simon, President Nixon's Federal Energy Office Administrator.⁷⁶ Prior to March 1, 1974, twenty-two boilers at eleven electric generating plants had converted from oil and gas to coal, resulting in a substitution of 13,000 tons of coal per day for 53,000 barrels of oil per day.⁷⁷ The voluntary nature of the program, however, spelled its doom; seven of the eleven plants reverted back to oil within four months of the end of the embargo in March, 1974.⁷⁸ Indeed, one source suggests that after the embargo only one plant continued to burn coal, the rest having reverted at the bidding of the EPA.⁷⁹

A second program, mandatory in nature, was initiated by the En-

70. *Id.*

71. Powerplant and Industrial Fuel Use Act of 1978, 42 U.S.C. §§ 8301-8483 (Supp. II 1978).

72. Seamans, *supra* note 6, at 291 n.25. Note that President Carter's goal for coal production is one billion tons annually by 1985, and 1.8 billion tons per year by 2000.

73. Behr, *Controlling Sulfur Dioxide Emissions*, ENVIRONMENT, Oct., 1978, at 2-3 (1978).

74. Hill, *supra* note 17, at 619.

75. Mullan, *supra* note 17, at 695.

76. Cockrell, *supra* note 1, at 1252.

77. *Id.*

78. *Id.*

79. Mullan, *supra* note 17, at 695.

ergy Policy Office (EPO) of the Executive Office of the President in late 1973. The EPO issued a regulation, under the asserted authority of the Economic Stabilization Act of 1970,⁸⁰ prohibiting power plants from converting from high sulfur fuels, such as Eastern coal, to low sulfur fuels, such as oil and gas or Western coal.⁸¹ The apparent intent of this rule was to stem the reversion from coal to oil and gas at those east coast power plants that had voluntarily shifted to coal during the embargo. The Federal Energy Administration, however, upon the expiration of the Economic Stabilization Act in 1974, promulgated a countervailing regulation which allowed relief from the EPO's reversion limiting rule upon a showing that use of petroleum products was essential to meet applicable national air quality standards.⁸² Under this latter regulation, eight more electric utilities burning coal in 1973 reverted to oil and gas.⁸³

C. *Comprehensive Coal Conversion Legislation*

1. The Energy Supply and Environmental Coordination Act of 1974

The first comprehensive legislative effort to facilitate coal conversion was the Energy Supply and Environmental Coordination Act of 1974 (ESECA).⁸⁴ As the title suggests, ESECA was an attempt at balancing energy exigencies and environmental regulations. The coal conversion thrust of the Act was to be accomplished by Federal Energy Agency prohibition orders, forbidding existing power plants and major fuel-burning installations from using oil and gas for their primary fuel.⁸⁵ During the planning stage, construction orders requiring power-plants to be designed and constructed with the capability to use coal as the primary source were to be issued.⁸⁶

Environmental balancing was to occur in at least three ways. The Administrator of the EPA was permitted to suspend for a limited period any emission limitation or schedule of compliance for a given source upon his determination that compliance was impossible. Such

80. Economic Stabilization Act of 1970, 12 U.S.C. § 1904 (1976 & Supp. II 1978).

81. Cockrell, *supra* note 1, at 1252-53.

82. *Id.*

83. *Id.*

84. Energy Supply and Environmental Coordination Act of 1974, 15 U.S.C. §§ 791-798 (1976).

85. 15 U.S.C. § 792(a) (1976).

86. *Id.*

determination could occur either when alternate fuels were unavailable, or when a source had previously converted to coal but was unable to meet the limitation.⁸⁷ The limitation clearly favored previously converted plants and plants unable to procure low sulfur coal and oil and gas. The EPA was also empowered to issue extensions of the date for compliance with applicable air pollution requirements for any source forbidden to use petroleum or natural gas under a prohibition order or any source having converted to coal before March, 1974.⁸⁸ Finally, prohibition orders were not to become effective until the EPA had certified that the plant would be able to burn coal while complying with all applicable air pollution requirements without a compliance date extension.⁸⁹

The primary fault of the ESECA format was that the discretion permitted the FEA was too broad to bring about large-scale coal conversion. Both President Nixon and the chief of the regulatory branch of the FEA's coal conversion program recognized that only limited, short-term coal substitution would be achieved.⁹⁰ Indeed, the FEA Administrator's authority to issue orders terminated a little more than a year after the Act was passed.⁹¹ The ESECA process had less than limited success. At the most recent count, the FEA had issued seventy-four pending prohibition orders to twenty-five utilities. Of these, the EPA has completed its required certification for sixty-six. Yet, the EPA has not taken the final step of issuing Notices of Effectiveness for any of these orders.⁹² And although the FEA has issued Notices of Effectiveness for thirty of its construction orders to twenty-one utilities, none of these plants is in operation.⁹³ Accordingly, one is left with the frustrating impression that the coal conversion legislation, intended to be a step in the right direction, has accomplished no conversion among existing plants, although it may eventually force the use of coal as the primary boiler fuel in a limited number of planned power plants under ESECA construction orders.

One observation needs to be made about the ESECA scheme. The Act clearly contemplated sacrificing the coal substitution goal and con-

87. 42 U.S.C. § 1857c-10(b)(1)(A)(i)-(ii) (1976) (repealed 1977).

88. *Id.* § 1857c-10(c)(1)(A)-(B) (1976) (repealed 1977).

89. 15 U.S.C. § 792(b)(3)(B) (1976).

90. Cockrell, *supra* note 1, at 1262.

91. 15 U.S.C. § 792(f)(1) (1976).

92. Cockrell, *supra* note 1, at 1264.

93. *Id.*

tinued burning of oil and gas⁹⁴ whenever such substitution would prevent compliance with applicable air pollution requirements. By definition,⁹⁵ applicable "air pollution requirements" included the 1977 NSD amendments to the Clean Air Act. It seems a tenuous commitment to massive production and consumption of coal to discard the coal substitution objective when existing clean air requirements cannot be met. Logically, a firm commitment to coal conversion would have mandated temporary suspension of the clean air requirements, not a suspension of the prohibition against continued oil and gas burning (as ESECA did), when coal burning would violate such clean air requirements.⁹⁶

2. The Powerplant and Industrial Fuel Use Act of 1978

The successor legislation to ESECA, the Power Plant and Industrial Fuel Use Act of 1978 (Fuel Use Act),⁹⁷ continued the weak commitment to coal conversion dictated by the preference for Clean Air Act requirements. The Act states, "Except as provided in § 8374 of this title, nothing in this chapter shall be construed as permitting any ex-

94. See 15 U.S.C. § 792(b)(3)(B) (1976), delaying effectiveness of FEA prohibition orders until such time as the EPA certifies that the plant subject to the order is able to comply with such order without a compliance date extension.

95. 42 U.S.C. § 1857c-10(a)(2) (1976) (repealed 1977).

96. Although ESECA contemplated a limited suspension of Clean Air Act requirements by its compliance date extensions, that extension applied only to plants under an in-force prohibition order (the text accompanying note 92 *supra*, suggests that none of the prohibition orders were ever finished) which had voluntarily converted to coal before March 14, 1974. (The text accompanying notes 75-78 *supra*, suggests almost all of such sources reverted back to oil and gas after the OPEC embargo.) In the situation where compliance date extensions were granted, such converted plants could burn coal without prohibition due to violation of an air pollution requirement until April 1, 1979. It should also be noted that the 1977 Clean Air Act Amendments contemplated an additional limited compromise in favor of noncomplying converted plants over environmental requirements. In the event a plant was under a construction order, such plant could be exempt from compliance with the mandatory attainment date for national ambient air quality standards until December 1, 1980, if the state were to issue such order. See 42 U.S.C. § 7413(d)(5)(A) (Supp. II 1978). An additional postponement of compliance until December 31, 1985, is also available. Postponement of compliance deadlines for the national ambient standards does not ameliorate the harshness of the separate NSD requirements.

97. The Powerplant and Industrial Fuel Use Act of 1978, 42 U.S.C. §§ 8301-8483 (Supp. II 1978). The Fuel Use Act may soon be replaced or at least altered. On March 3, 1980, President Carter proposed new coal conversion legislation. See Salt Lake City Tribune, March 4, 1980, at A, col. 1. The primary intent of the proposed Act seems to be to supply \$10 billion in federal funds to aid in both voluntary and forced conversion to coal in existing power plants. The Environmental Protection Agency, the Department of Energy, and the Carter Administration disagreed at the bill's introduction over the types of environmental safeguards which should accompany the program. The major concern is over the potential environmental damage caused by acid rain, a pollutant formed from combinations of chemicals released by coal-fired power plants. One would hope that the new Act will improve the reconciliation drawn by the Fuel Use Act between the competing NSD and coal conversion policies.

isting or new electric power plant or major fuel-burning installation to delay or avoid compliance with applicable environmental requirements."⁹⁸

At first glance, the Fuel Use Act seems well suited for accomplishing its coal substitution goal. It prohibits the use of natural gas or petroleum in new electric power plants and prohibits construction of new power plants without the capability to use coal as an alternate fuel,⁹⁹ thus discarding the burdensome construction order process of ESECA.¹⁰⁰ Similarly, existing power plants are forbidden to use natural gas as a primary energy source after January 1, 1990,¹⁰¹ and before that date unless natural gas was the primary fuel during 1977.¹⁰² In existing plants the Secretary of Energy is empowered to prohibit¹⁰³ both natural gas and petroleum as a primary energy source on the basis of findings not involving clean air considerations. Only those ESECA construction and prohibition orders which were finished at the passage of the Fuel Use Act retain their validity.¹⁰⁴

In analyzing whether the coal substitution purpose of the Fuel Use Act is to be effective, the focus should be on the statutory compromise made in the crucial situation where burning coal would violate applicable air quality requirements including the NSD standards. As with ESECA, the Fuel Use Act resolves the controversy, both in existing and new plants, by granting exemptions from the coal-burning requirements, not from the air quality requirements. The Act exempts both new¹⁰⁵ and existing¹⁰⁶ plants from prohibitions against the use of natu-

98. 42 U.S.C. § 8471 (Supp. II 1978). Note that the § 8374 exception is extremely limited and basically irrelevant to day-to-day coal conversion. It applies only in the event that a severe energy supply interruption (in oil and gas) occurs, in which case the President may forbid burning both natural gas and petroleum, and during which the suspensions of the Clean Air Act requirements occur only in accordance with the existing procedure under 42 U.S.C. § 7410 (Supp. II 1978).

99. 42 U.S.C. § 8311(b) (Supp. II 1978). Subsection 2 requires new plants to be constructed with either coal capacity or the capability of burning alternate fuels. The latter are defined in § 8302(a)(6) to be a number of fuels other than oil or natural gas. Since the listed alternate fuels are all exotic or experimental, and thus are not commercially available in quantities sufficient for large-scale consumption in power plants, the text of this article focuses on the alternative of coal-burning capacity.

100. Note that only power plants under ESECA pending non-final construction orders are subject to the Fuel Use Act. See 42 U.S.C. § 8472(a) (Supp. II 1978). Power plants under pending prohibition orders may elect to be covered under the Fuel Use Act rather than ESECA. *Id.* § 8472(b).

101. 42 U.S.C. § 8341(a)(1) (Supp. II 1978).

102. 42 U.S.C. § 8341(a)(2) (Supp. II 1978).

103. *Id.* § 8341(b).

104. This must be done by order. *Id.* §§ 8472(a),(b).

105. See 42 U.S.C. § 8321 (Supp. II 1978) for temporary exemptions, and *id.* § 8322 for permanent exemptions. Temporary exemptions may not exceed ten years.

106. See *id.*, § 8351 for temporary exemptions, and *id.* § 8352 for permanent exemptions.

ral gas and petroleum when such prohibitions would cause violation of the applicable environmental requirements.¹⁰⁷

Further, and perhaps more significantly, the Fuel Use Act fails to ameliorate the requirement of installation of scrubber technology in new or converted coal-fired power plants. Congress, however, did make a commitment to aid the electric utility industry in installation of the costly technology. Section 8402(h) of the Act¹⁰⁸ authorizes appropriation of \$400,000,000 for each of fiscal years 1979 and 1980. This money is intended for loans to assist power plant operators in acquiring such pollution control equipment. As will be more fully detailed below, however, providing loans to purchase pollution control technology does not solve the three primary complaints about scrubbers: the requirement of their use in all coal-fired plants, the expense of their installation and operation, and the lack of technological refinement.

IV. THE RECONCILIATION OF COAL CONVERSION AND NON-DETERIORATION POLICIES

As noted above, the Fuel Use Act waives the coal substitution requirement in new power plants and in existing oil and gas fired plants which are unable to burn coal without violating the NSD requirements (and any other applicable air quality requirement of the Clean Air Act). It is, however, likely that any power plants that choose to install scrubbers will be considered to be in compliance with the NSD requirements.¹⁰⁹ For this reason, the coal conversion and NSD policies are reconciled, if they are at all, by the required installation of scrubbers in new and existing plants forced to burn coal. The issue that remains is the skillfulness of that reconciliation.

For operators of coal-fired power plants required to use coal in

107. The likelihood of this compromise occurring is limited by the requirement, imposed on a petitioner for an exemption, of showing that burning coal would violate environmental requirements "despite diligent good faith efforts." This applies to petitions for permanent and temporary exemptions in both new and existing plants. *Id.* §§ 8321-8322, 8351-8352. Given the repeated insistence by Congress and the EPA, see text accompanying notes 113-116 *infra*, that scrubber technology is adequately demonstrated and technologically available, it is reasonable to assume that a diligent good faith effort will require a showing that even with scrubbers a power plant would violate air quality requirements. As both the Non-Significant Deterioration Standards and the New Source Performance Standards (the two air quality programs which affect coal-burning plants most seriously) are synonymous with required scrubber installation, see note 46 *supra*, such a showing would be unlikely.

108. 42 U.S.C. § 8402(h) (Supp. II 1978).

109. See note 107 *supra*.

new plants or to convert to coal in existing plants by 1990,¹¹⁰ the primary hurdle of the 1977 NSD amendments is the required installation of scrubber technology.¹¹¹ Advocates of amending absolute clean air requirements suggest that scrubbers are characterized by reduced reliability; high installation, operation, and maintenance costs; and waste disposal problems.¹¹² In hearings on the 1977 Clean Air Act amendments, Congress suggested that reality is contrary to such criticisms. On the basis of EPA and National Academy of Sciences analyses, Congress concluded, "Most of the controversy as to the reliability and effectiveness of these systems has largely been eliminated as experience with these systems has increased."¹¹³

Congress was also convinced, again on the basis of an EPA analysis, that the solid waste disposal problems are so inconsequential that the scrubber requirement will demand, nationally, only 2,000 acres per year (3.1 square miles) to dispose of any additional waste thereby generated.¹¹⁴ Congress countered the increased costs argument with a joint EPA-FEA study which indicated that the NSD scrubber installation requirement would increase the utility industry's total capital requirements through 1990 by only 2.3-2.7%.¹¹⁵ To support its argument for the economic feasibility and reliability of scrubber technology Congress noted that such systems having thousands of megawatts in capability have been ordered or installed by the electric utility industry.¹¹⁶ But it is absurd to suggest that the required industry response to increasingly stringent regulations documents the reliability and economic feasibility of technology which would not have been installed or ordered without such regulations.

The electric utility industry has contended that continued speculation about what levels of sulfur dioxide endanger human health should weigh in favor of intermittent control systems rather than continuous scrubber control systems.¹¹⁷ The primary intermittent control system would involve some combination of tall stacks, curtailment of genera-

110. See notes 99-103 *supra* and accompanying text.

111. See note 46 *supra* and accompanying text.

112. Bagge, *supra* note 1, at 490-91; Cockrell, *supra* note 1, at 1267-68; Mallory, *supra* note 7, at 709-10.

113. See H.R. REP. NO. 294, 95th Cong., 1st Sess. 89 (1977).

114. *Id.* at 168.

115. *Id.* at 164. Note also the suggestion by a representative of the utility industry that although scrubbers are the best ultimate answer to pollution control, their installation adds 20% to the cost of a new power plant. Behr, *supra* note 46, at 2.

116. See H.R. REP. NO. 294, 95th Cong., 1st Sess. 168 (1977).

117. See note 46 *supra* and accompanying text.

tion, and combustion of low sulfur coal¹¹⁸ to disperse emissions and reduce concentrations at ground levels to meet the NSD increments. The contrary position advanced by the EPA is that tall stack dispersion fails to limit emissions. Rather, it merely disperses them, even though ground-level concentrations near the plant would be reduced.¹¹⁹ This is considered an unacceptable result because the increased suspension time resulting from enhanced dispersion increases the rate of sulfur dioxide conversion to sulfates, a chemical with demonstrable adverse health effects.¹²⁰

The final industry criticism is that coal production in the West where low sulfur coal is concentrated will be delayed because every coal-fired plant, regardless of the sulfur content of the coal it consumes, must now use scrubbers.¹²¹ This may be the most significant consequence of the NSD amendments. It is possible that Congress, which has so steadfastly expressed its support for the scrubber policy, is merely using that policy as a subterfuge to hide a political choice for increased use of high sulfur Eastern coal.¹²² Congress has admitted that the NSD amendments will strengthen heretofore sagging demand for higher sulfur content coal found in the East and Midwest, concluding such to be a desirable result.¹²³

Finally capitulating to the NSD requirements, the coal producers and electric utilities have pleaded that the requirement of using scrubbers be accompanied by an increased federal commitment to appropriations for research and development of pollution control technology.¹²⁴ This plea will likely fall on deaf ears since it must confront the Supreme Court's holding¹²⁵ that the EPA has no discretion to consider economic and technological infeasibility in considering a State Implementation Plan. This standard of administrative review satisfied the Court as being consistent with Congress's unstated "technology forcing" intent in Clean Air Act requirements, a burden to be borne by private industry. Additionally, Congress's provision of funds, on a loan basis, to electric utilities converting to coal under the Fuel Use Act for

118. Bagge, *supra* note 1, at 491; Cockrell, *supra* note 1, at 1267.

119. IMPLICATIONS OF ENVIRONMENTAL REGULATIONS, *supra* note 15, at 105-06.

120. *Id.* at 106; A TIME TO CHOOSE, *supra* note 38, at 191-92.

121. Ikard, *The National Energy Act: Will It Work?*, 10 NAT. RES. LAW. 625, 629 (1978).

122. One commentator has decried this by cautioning that high sulfur coal should not be held as a pawn. Bagge, *supra* note 1, at 491.

123. H.R. REP. NO. 294, 95th Cong., 1st Sess. 166 (1977).

124. Bagge, *supra* note 1, at 491. See generally Cockrell, *supra* note 1, at 1271-72.

125. *Union Elec. Co. v. EPA*, 427 U.S. 246 (1976).

the purpose of acquiring pollution control equipment, would weigh against separate federal financing of control technology research and development.

V. CONCLUSION

The objectives of the 1977 NSD amendments to the Clean Air Act and of the Power Plant and Industrial Fuel Use Act of 1978 are laudable. The compromise between clean air and coal-fired power plants, however, has not been artfully drawn. The inflexibility of the NSD amendments and the distinct unwillingness of Congress to either discard or relax the scrubber requirement in the Fuel Use Act is a clear declaration that Congress currently favors clean air over expedited coal production.

Scrubber technology should not be mandated to the exclusion of the alternative of burning low-sulfur coal without such controls. Temporary suspensions of the NSD increments, even for as much as five years, should be allowed as an inducement to rapid coal conversion. Such suspensions would also induce investment in expanded coal mining and transportation facilities, both of which are absolutely necessary to meet optimistic coal production goals. Since the scrubber requirement is more likely to inhibit coal-fired power plant construction than to encourage utility industry research refining that technology, the government should fund a large-scale research and development program. The added costs which mandatory scrubber technology forces the utility industry to bear must be passed through to electricity consumers, particularly if such costs are as small as Congress asserts. Finally, the requirement of both coal conversion and scrubber installation in older, financially marginal plants nearing the end of their economic lives, is indefensible in terms of cost-benefit analysis. In view of the unlikelihood of construction of new oil and gas fired power plants, existing oil and gas fired plants which will soon be anomalies should be allowed to die in peace without imposition of either mandatory scrubber installation or mandatory coal conversion.

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