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Economics, Technology, and the Clean Air Amendments of 1970: The First Six Years

Bruce M. Kramer*

"The Committee determined that . . . the health of people is more important than the question of whether the early achievement of ambient air quality standards protective of health is technically feasible. . . .

"Therefore, the Committee determined that existing sources of pollutants either should meet the standard of the law or be closed down . . . ."

Senate Report accompanying the 1970 Clean Air Amendments.¹

"The material portions of the Clean Air Act itself do not mention economic or social impact, and it seems plain that Congress intended the Administrator to enforce compliance with air quality standards even if the costs were great. Particularly in the case of primary standards—those set as 'requisite to public health'—Congress' position is not extreme or unprecedented. Minimum public health requirements are often, perhaps usually, set without consideration of other economic impacts. . . . Congress has already made a judgment . . . , and EPA and the courts are bound."

South Terminal Corp. v. EPA, First Circuit 1974.²

"Although the contribution of a clean environment to public health and welfare, indeed to the quality of life, is inestimable, this Court has already decided that, contrary to the EPA's contention, the

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² 504 F.2d 646, 675, 6 ERC 2025, 2042 (1st Cir. 1974).
Clean Air Act contemplates that the economic impracticability of a particular implementation plan would be grounds for its rejection."

*Duquesne Light Co. v. EPA,* Third Circuit 1975.

"In sum, we have concluded that claims of economic or technological infeasibility may not be considered by the Administrator in evaluating a state requirement that primary ambient air quality standards be met in the mandatory three years."

*Union Electric Co. v. EPA,* Supreme Court 1976.

The 1970 Clean Air Act set a three year deadline for achieving primary ambient air quality standards which Congress designed to protect public health even at great economic cost. Yet, as the introductory quotations show, it has taken more than five years simply to resolve in the courts the Environmental Protection Agency's (EPA) limited responsibility to weigh the economic, technological, and social feasibility of the measures polluters must take to meet these standards. The achievement of the primary standards is only one program in which the controversial role and character of economic, technological, and social factors has had to be specified before effective implementation could proceed. This Article studies the place of these three factors in five programs under the Clean Air Act:

1. the setting of primary (health) and secondary (welfare) ambient air quality standards;
2. the drafting, approving, and enforcing of State Implementation Plans (SIPs) for achieving these standards;
3. the setting of new source performance standards (NSPSs)—emission standards for categories of large industrial facilities;
4. the achievement of automobile emission standards and fuel additive regulations; and
5. the prevention of significant deterioration of air cleaner than primary and secondary standards.

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3. 522 F.2d 1186, 1194, 8 ERC 1065, 1070 (3d Cir. 1975), vacated and remanded, 96 S. Ct. 3185 (1976).
4. 96 S. Ct. 2518, 2529, 8 ERC 2143, 2150 (1976).
The place of economic, technological, and social factors in each program has been hotly controverted at the administrative level and often in the courts. The stakes are high and each side in the conflict between those who bear costs, difficulties, and stresses of pollution control and those who enjoy the health and environmental benefits is determined to prevail. Even if Congress changes the Act significantly in 1977, the controversy and litigation will not be finished. This Article examines a fundamental defect in the implementation of the Clean Air Act: namely, that it has taken longer to establish the meaning of its programs than the time allotted for their accomplishment.

The responsibility for this defect is shared by Congress, EPA, the states, and the federal courts. As we shall see, Congress was not always sufficiently clear, particularly in explaining why it structured the five programs differently and why it treated economic, technological, and social factors differently. In its turn, EPA has not taken a consistent view either of the place of these factors in each program across time or of their place in all five programs at any one time. The states, to whom Congress delegated many responsibilities in the SIP, NSPS, and non-degradation programs, have performed reluctantly and inconsistently. The federal courts have often created the greatest problems, by remaking congressional policy towards these factors under the guise of traditional judicial review.

The role of the federal courts is of paramount concern in this analysis primarily because the courts define and control the discretion given by the Act to federal and state agencies in setting, implementing, and enforcing certain goals and strategies. In reviewing EPA’s inter-

aff'd per curiam in an unreported opinion, 4 ERC 1815 (D.C. Cir. 1972), aff'd by an equally divided Court sub nom. Fri v. Sierra Club, 412 U.S. 541, 5 ERC 1417 (1973).

11. In 1976 Congress almost passed major amendments to the Act. After protracted hearings, committee deliberations, and floor debate, both the Senate and the House passed bills and the Conference Committee agreed on a final version. 7 Env. Reptr.—Currr. Dev. 596-97, 740-41, 763-64, 789-90 (1976). However, as the 94th Congress neared its close, certain Senators who opposed the bill’s provisions to prevent significant deterioration of clean air in rural areas and who desired longer extensions of the deadlines for meeting the automobile emission standards than the bill provided killed the 1976 amendments by threatening a filibuster that would have consumed the remaining time in the session. The Conference Committee's bill is expected to be the starting point for work on the 1977 amendments to be introduced early in the 95th Congress. Id. 835-36. This article discusses these proposed amendments at several points infra. See S. Rep. No. 94-717, 94th Cong., 2d Sess. (1976) [hereinafter cited as 1976 Senate Report]; H.R. Rep. No. 94-1175, 94th Cong., 2d Sess. (1976) [hereinafter cited as 1976 House Report]; H.R. Rep. No. 94-1742, 94th Cong., 2d Sess. (1976) [hereinafter cited as 1976 Conference Report].

pretation of and compliance with the statute and, to some extent, EPA’s compliance with constitutional guarantees, the courts have sometimes gone beyond their traditional role and made legislative choices. The results have compromised the health and environmental goals of the Clean Air Act.

Also of concern are problems of intergovernmental relations. The Act did not clearly define many aspects of the shared federal and state responsibilities. States have not always taken on duties aggressively and polluters have often sought to weaken the Act’s impact at the junction where EPA must respond to state efforts.

Above all, this Article defends the principle that Congress can legitimately strike a balance between health and environmental considerations and economic, technological, and social considerations, one weighted strongly in favor of the former. The division of roles in our governmental system does not permit EPA, the states, or the federal courts to question the legitimacy or undermine the implementation of basic legislative policy choices about the balance of these considerations.

This Article first outlines the legislative responsibility for balancing the competing interests involved in the Clean Air Act. Next it examines the overall policy balance struck by Congress. The bulk of the Article considers the controversies raging over the balancing of factors in each of the five Clean Air Act programs.

I

PROBLEMS OF BALANCING BENEFITS AND COSTS OF AIR POLLUTION CONTROL

Simply stated, according to the concepts of welfare economics, an ideal air pollution control program would require abatement to the point where the marginal costs of additional pollution reduction equalled the marginal health and environmental benefits of such reduction. At this “minimal cost” or “optimal” point, society is using its

13. Constitutional issues have figured in decisions of the Third Circuit in particular, which finds the possibility for abridgement of the due process right to a hearing in the State Implementation Plan Process. See text accompanying notes 76-240 infra.

14. This is not entirely a federal problem. There appears to be significant state law controversy over the roles of state and local governments on environmental issues, with the judiciary adding to the confusion. Compare Carlson v. Village of Worth, 62 Ill. 2d 406, 343 N.E.2d 493 (1975) with O’Connor v. City of Rockford, 52 Ill. 2d 360, 288 N.E.2d 432, 3 ERC 1762 (1972) and with City of Des Plaines v. Metropolitan Sanitary Dist., 48 Ill. 2d 11, 268 N.E.2d 428, 2 ERC 1190 (1971).

15. For more detailed accounts of the welfare economics models, see A. PIGOU, THE ECONOMICS OF WELFARE (1932); W. BAUMOL, WELFARE ECONOMICS AND THE THEORY OF THE STATE (1963) [hereinafter cited as BAUMOL]. For particular applications
resources most efficiently, *i.e.*, so that welfare—the sum of the value of goods, services, jobs, and profits, minus the value of health and environmental damages—is at its maximum.\(^\text{16}\) The free market does not supply enough pollution reduction, however, because there is no charge for using the air for waste disposal. The costs of pollution are described as "externalities" because they are outside the class of costs of production which the polluter\(^\text{17}\) must bear. Pollution costs are borne by others who have no economic means of gaining compensation for their losses and no economic control over the polluter's behavior.\(^\text{18}\) Some form of governmental intervention, through standard setting or taxation, is needed to shift the costs of pollution onto the polluter.

Benefit/cost analysis is an economic tool with which decision makers can estimate whether a governmental intervention will increase or decrease welfare. The optimal intervention adjusts individuals' marginal benefit and cost calculations in order to achieve the maximum social benefit.\(^\text{19}\) Such intervention corrects the imperfections of the free market.

There are, however, problems in welfare economics and benefit/cost analysis which make it difficult either to find that optimal point, or agree on criteria which describe it. Two such weaknesses are lack of adequate information and differences in values.

### A. Lack of Information

The toxicology and epidemiology of air pollutants is a young science. While it is indisputable that some air pollutants endanger health, there is relatively little sophisticated information on cause/effect relationships between certain levels of particular pollutants and

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17. The "polluter," of course, means not only the industrialist or consumer who actually releases pollution, but the class of persons who share the economic benefits of disposal priced below its social cost. Thus, with respect to a power generating station, for example, the "polluter" includes the utility, its customers, its investors, and its employees, who would all bear part of the cost of cleanup were disposal made more expensive.

18. The class of people "polluted" overlaps with the class of "polluters," but not perfectly; some gain and lose more than others. See note 17 *supra*, and P. BARKLEY AND D. SECKLER, *ECONOMIC GROWTH AND ENVIRONMENTAL DECAY—THE SOLUTION BECOMES THE PROBLEM*, 99-102 (1972) [hereinafter cited as BARKLEY].

amounts of public health damage. Crucial information such as dose-response data and data on the varying sensitivities of segments of the population are just now being developed. Some pollutants may be harmless in one environmental setting, but quite harmful when combined with other pollutants. Other pollutants, such as asbestos, exhibit a latency period between exposure and the appearance of illness.

The economic, technological, and social relationships relevant to air pollution standards are largely unknown. It is difficult to predict the cost and difficulty of meeting a regulation as well as its long-range impacts of capital and employment dislocations.

All of these uncertainties make conclusive, “scientific” benefit/cost calculations impossible.

B. Differences in Values

The greatest stumbling block to the utility of benefit/cost analysis is the problem of valuation. This is especially true in a field where industry has been able to quantify the cost of abating pollution better than the government and environmentalists have been able to quantify the cost of pollution’s damage. The barrage of cost data presented

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21. See, e.g., NAT’L ACADEMY OF SCIENCES, PRINCIPLES FOR EVALUATING CHEMICALS IN THE ENVIRONMENT (1975); NAT’L ACADEMY OF SCIENCES, DECISION-MAKING FOR REGULATING CHEMICALS IN THE ENVIRONMENT 43-44 (1975) [hereinafter cited as DECISION-MAKING FOR REGULATING CHEMICALS].

22. See DECISION-MAKING FOR REGULATING CHEMICALS, supra note 21, at 41-42, 55-57, 58-63.

23. The annual reports of the Council on Environmental Quality (CEQ) are representative of the government’s attempt to quantify the costs of pollution. In 1972 CEQ estimated the costs of pollution control which would be borne by the private sector. CEQ, THIRD ANNUAL REPORT 269-309 (1972). The Council used a more sophisticated economic analysis in 1973, identifying four types of costs, knowledge of which is necessary to making rational environmental decisions. Subsumed in environmental costs are damage costs (the direct costs of pollution) and avoidance costs (costs paid to avoid exposure to pollution). On the other side of the “balance sheet” are abatement costs (the costs of physical clean up) and transaction costs (the costs of making and enforcing environmental policies). CEQ, FOURTH ANNUAL REPORT 74 (1973). Abatement costs were the prime focus of both the 1972 and 1973 reports, although some mention was made of damage, avoidance, and transaction costs.

Only in 1975 did CEQ deal with the other side of the ledger, the damage and
by industry spokesmen goes largely unanswered by equally specific data on damage costs.

Our society rebels against assigning dollar values to intangibles such as human lives, health, and comfort, or to the ecological and aesthetic importance of an endangered species or a degraded atmosphere. A life is worth more than the actuarial value of a person's future earnings. Health and environmental costs are fundamentally incommensurate with costs of pollution control.

There are two other aspects of the valuation problem concerning differing conceptions of equity: equality between contemporaries, and equality between successive generations.

Economic analysis takes a supposedly "non-normative" or "positive" approach. Welfare economists can estimate the efficiency of various policy choices, but they have no criteria for determining which is more equitable. The distribution of costs and benefits among segments of society—between polluters and polluted, rich and poor, suburban and urban, eastern and western—is changed by any air pollution control program. In national programs, Congress has traditionally carried primary responsibility for balancing interests between these diverse groups.

Because industrial and environmental decisions have long-term effects on both the cost and benefit sides of the ledger, we must consider the equity of the distribution of costs and benefits between generations. Typically, a discount rate—similar to an interest rate—is used to create a common frame of reference for present and future commitments. If a program's benefits and costs occur at different times, the discount rate chosen will determine whether a benefit/cost analysis favors or opposes the program. The discount rate also determines the relative value of benefits attained and costs incurred by future generations as compared with those attained and incurred today. There is no uniform rule for selecting a discount rate. In settings other than air pollution control, the federal government has been criticized for underestimating the future value of present expenses in order to justify projects with meager future benefits.

avoidance costs of pollution. CEQ, SIXTH ANNUAL REPORT 494-519 (1975). While recognizing that benefit/cost analysis is useful in giving broad conceptions of the orders of magnitude of benefits and costs, CEQ emphasized that it is not a panacea. Id. at 494-96, 510-11, 556-57.

24. See, e.g., BARKLEY, supra note 18, at 158.
25. DECISION-MAKING FOR REGULATING CHEMICALS, supra note 21, at 50.
27. BARKLEY, supra note 18, at 88-89.
28. One prime example of the use of a low discount rate by government officials which led to a positive benefit/cost ratio where a more realistic, higher discount rate
This presentation does not exhaust the weaknesses of benefit/cost analysis, but the imprecision and subjectivity of such analysis should be obvious. The management of uncertain information and the resolution of conflicting values are ultimately political processes. That is why Congress is the legitimate federal institution for making such policy choices. A report by the National Academy of Sciences aptly concludes:

Value judgments about non-commensurate factors in a decision, such as life, health, aesthetics and equity should be explicitly dealt with by the politically responsible decision-makers and not hidden in purportedly objective data and analysis.²⁹

II

CONGRESS' BALANCE OF FACTORS

In 1970 Congress faced the problem of balancing economic, technological, and social concerns against an overwhelming public sentiment for strong action to protect health and the environment. Congress struck a balance heavily weighted in favor of health and the environment. Neither the administrative nor the judicial branches of government can legitimately question this basic policy choice. Congress appreciated the seriousness and complexity of the effort to clean the air. In the Clean Air Acts it established an overall goal and specific programs, striking a balance between public health and other factors and limiting non-legislative discretion on the balancing question.

The goal of the 1970 Act:

to protect and enhance the quality of the Nation's air resources so as to promote the public health and welfare and the productive capacity of its population. . .³⁰

derived directly from its predecessors, the 1963 Clean Air Act³¹ and the 1967 Air Quality Act.³² There is little legislative history for the 1963, 1967, and 1970 Acts to clarify this passage's meaning.³³ On a literal reading one might conclude that Congress perceived a conflict between protecting public health and welfare and preserving the pro-


²⁹. *Decision-Making for Regulating Chemicals, supra* note 21, at 50.
ductive capacity of the population. One might also conclude that health factors and economic, technological, and social factors merit equal weight and consideration in each program. This view, however, has little support in the legislative history.

The legislative history actually suggests that Congress viewed air pollution control as essential to, not in conflict with, preservation of the population's productive capacity. The early congressional discussions refer to economic criteria only to demonstrate increasing awareness that air pollution caused economic losses by damaging public health. In light of this background, the statement of congressional purpose obviously assigns a top level priority to protecting health, at high cost if necessary, which in turn secures the productive capacity of the population. Thus read, the statement of purpose supports interpretations of the five programs giving primary emphasis to health and the environment—even at the expense of economic, technological, and social costs of control.

The Environmental Protection Agency and the federal courts should respect the congressional intent in making health and environmental values primary concerns. Unfortunately, in many instances Congress has not been given the deference it is due. In each of the five programs Congress set aside economic, technological, and social factors or gave them a secondary role. While some courts have reluctantly accepted the balances set by Congress, others have totally ignored them. Industry groups have attempted to reopen the balancing issue not only through lobbying for legislative changes, which is their right, but also through constant pressure on EPA and through lengthy and costly litigation. The result of these attacks has been a "back door" softening of some of the goals of the five programs, and a compromise of the overall goal. Perhaps the most unfortunate result of these tactics has been the serious delay in defining goals and strategies for this program, which Congress intended to be rapidly implemented.

In June 1976, more than five years after passage of the Act, the Supreme Court in Union Electric Co. v. EPA endorsed the view that the basic policy choices of the Clean Air Act can be overturned only by Congress. The Justices agreed that Congress excluded economic, technological, and social considerations from EPA's decision to approve or disapprove a State Implementation Plan (SIP) for attain-
ing primary ambient air quality standards. Even though this interpretation could result in closing the electric company serving the St. Louis metropolitan area, or at least in a tremendous increase in power rates, the legislative decision cannot be disturbed by the courts. While this recent decision sets straight the errors of several courts of appeals, the irony is that the SIP in question was already supposed to be in force in 1975.

The limitations and exclusions of economic, technological, and social factors in the 1970 Clean Air Act took several forms. Congress instructed EPA to ignore these factors altogether in setting the primary standards. Congress did, however, allow limited consideration of them in the SIP process, through which EPA and the states must meet the primary standards. EPA may not consider these factors in approving or disapproving a plan, and it may give them only very limited weight in passing on a state's request for a two-year extension. The states are somewhat free to balance these factors with health, but only so long as the balancing does not interfere with meeting the primary standards by the statutory deadline.

In setting new source performance standards (NSPSs), the Act places economic, technological, and social factors on nearly equal footing with public health. But facilities subject to NSPSs must meet tighter emission restrictions under SIPs where necessary to meet the primary standards. Here again health ultimately takes precedence over cost. Finally, in prescribing a policy of non-degradation, Congress has provided virtually no guidance for balancing health and other factors.

We now turn to a discussion of how these pre-set balances have fared in the 1970 Clean Air Act's first six years.

III

PROGRAM 1: NATIONAL PRIMARY AND SECONDARY AMBIENT AIR QUALITY STANDARDS

As goals for the state implementation plans, Congress directed

39. See especially 96 S. Ct. 2531, 8 ERC 2151 (Powell, J., concurring opinion).
46. See text accompanying notes 76-240 infra.
EPA to establish two sets of national ambient air quality standards: primary standards to protect health and secondary standards to protect welfare. Economic, technological, and social considerations were excluded from the setting of these goals. This exclusion allowed EPA to set the standards, subject to judicial review, within the Clean Air Act's projected time frame.

The history of these standards' 1967 predecessors illuminates the process created in 1970. In both 1967 and 1970 Congress specifically declined to mandate national emission standards, favoring instead ambient air quality standards. The National Air Pollution Control Administration (NAPCA), EPA's predecessor and part of the Department of Health, Education, and Welfare, had a dual role. NAPCA was to determine which pollutants should be covered by a standard and was to develop a "criteria document" for each. The criteria documents were to synthesize the known and potential public health effects of exposure to various ambient concentrations of the pollutants to be controlled. In addition, Congress required NAPCA to prepare "recommendations" for abatement techniques, including cost effectiveness and technological feasibility analyses. The states had responsibility for setting the actual numerical standards for pollutants identified by NAPCA. The states were left the difficult task of reconciling the findings of the criteria documents with the abatement recommendations. Finally, NAPCA was to review the state standards for consistency with both the criteria documents and abatement recommendations.

The 1967 legislative history did little to clarify how the states and NAPCA should resolve the problem of balancing the pollutants' harm to public health and the feasibility of their control. The Senate Report on the 1967 Act typified the legislators' ambivalent attitude toward the place of economic, technological, and social factors in this goal setting process. At one point the Report stated:

50. Id.
51. Id. § 107(c).
52. S. REP. No. 90-403, 90th Cong., 1st Sess. 4-6 (1967) [hereinafter cited as 1967 SENATE REPORT].
Considerations of technology and economic feasibility, while important in helping to develop alternative plans and schedules for achieving goals of air quality, should not be used to mitigate against [sic] protection of the public health and welfare.\textsuperscript{54}

This and other passages\textsuperscript{55} seem to indicate that consideration of economic, technological, and social factors was to take place in determining how to implement the standards, not in determining the standards themselves.

Since the states failed to adopt either standards or plans between 1967 and 1970,\textsuperscript{56} the process was never tested administratively or judicially. Reacting to the states' failure, Congress excluded state participation from the process of setting the ambient standards. By giving EPA sole authority to set the standards,\textsuperscript{57} Congress also eliminated the confusing and contradictory role of abatement recommendations in the setting of the standards. The primary standards must "protect the public health" with "an adequate margin of safety."\textsuperscript{58} While EPA must still prepare criteria documents and information on recommended control techniques,\textsuperscript{59} it is implicitly forbidden to weigh economic, technological, and social factors in establishing the primary standards.\textsuperscript{60}

The 1970 legislative history reinforces the view that Congress desired to have EPA base the ambient standards solely on health factors. Early House versions of the 1970 Amendments required consideration of economic costs and technological feasibility, but in the Conference Committee these requirements were specifically deleted.\textsuperscript{61} In adhering to this policy, the EPA Administrator disallowed written comments concerning the economic or technological feasibility of

\begin{itemize}
\item \textsuperscript{54} 1967 Senate Report, supra note 52, at 2.
\item \textsuperscript{55} The committee recognizes that criteria of ambient air quality which define health and welfare effects of air pollution do not take into consideration the technological and economic feasibility of achieving such air quality. As an aid to air pollution control agencies in the formulation of plans, including time schedules to implement emission control standards, [the Secretary shall issue the above recommendations].
\item \textsuperscript{56} Id. at 27 (emphasis added). This would tend to support the conclusion that economic, social, and technological factors should be considered only in the implementation phase of the program. The House Report on the 1967 Air Quality Act is similarly confusing.
\item \textsuperscript{57} H.R. Rep. No. 90-728, 90th Cong., 1st Sess. 15-17 (1967).
\item \textsuperscript{58} H.R. Rep. No. 91-1783, 91st Cong., 2d Sess. 44 (1970) [hereinafter cited as Vol. 6:161].
\item \textsuperscript{60} Id. § 109(b)(1) contains no language requiring the consideration of balancing of economic and technological factors in setting a primary standard. 42 U.S.C. § 1857c-4(b)(1) (1970).
\item \textsuperscript{61} Id. § 109(b)(1) contains no language requiring the consideration of balancing of economic and technological factors in setting a primary standard. 42 U.S.C. § 1857c-4(b)(1) (1970).\end{itemize}
attaining the standards. Economic and technological factors may be considered, if at all, only in the implementation process. The quotation from the Senate Report introducing this Article clearly expresses Congress' intent that health concerns alone be the basis of the primary standards.

The same analysis applies to the secondary standards, which must "protect the public welfare from any known or anticipated adverse effects." "Welfare" includes, but is not limited to:

- effects on soils, water, crops, vegetation, man-made materials, animals, wildlife, weather, visibility, and climate, damage to and deterioration of property, and hazards to transportation, as well as effects on economic values and on personal comfort and well-being.

Congress presumed that adverse effects on these items could occur at lower levels of ambient pollution than could effects on human health, and that therefore the secondary standards would be more stringent than the primary standards. In the implementation process Congress gave the states more time to meet the secondary standards than to meet the primary ones—"within a reasonable time" as opposed to "in no case later than three years." But there is the same prohibition against considering economic and technological concerns in setting secondary standards as there was in setting primary standards.

Perhaps the most surprising aspect of the exclusion of economic, technological, and social factors is its apparent acceptance by all of the interested parties. As noted above, in determining primary standards, EPA refused to consider comments dealing with anything but public


63. See text accompanying notes 76-240 infra.

64. See text accompanying note 1 supra.


68. In contrast to this approach, earlier in 1970 Illinois had adopted its own Environmental Protection Act (IEPA), ILL. ANN. STAT. ch. 111 1/2, § 1001 et seq. (Supp. 1975), which specifically required the newly-established Pollution Control Board to consider "technological feasibility and economic reasonableness" in adopting any substantive regulation such as ambient air quality standards or emission standards. Id. § 1027. The Illinois Legislature refused to allow the Board to make decisions without weighing these factors. This refusal has been reinforced by a 1975 amendment requiring, in essence, a detailed benefit/cost and cost-effectiveness analysis for existing and future rules. But in certain respects Illinois is bound by the Clean Air Act; it cannot set an ambient standard less strict than the federal one.
health problems. In 1972, then Administrator William Ruckelshaus testified at a congressional hearing that economic factors were irrelevant in the setting of the primary standards. If, however, states wished to set stricter ambient standards as part of their federally approved implementation plans, they would have to consider these factors.

There has been only one judicial review of an ambient standard—the secondary standard for sulfur oxides. In Kennecott Copper Co. v. EPA, Kennecott conceded the validity of EPA's exclusion of economic, technological, and social factors, attacking only the scientific basis for the standard. Kennecott argued that EPA lacked sufficient medical evidence in support of the underlying criteria document. Kennecott succeeded on procedural grounds in having the standard remanded to EPA to issue a statement detailing the medical support for the standard. EPA did not reissue the standard, apparently concluding that it lacked sufficient evidence of the effects of long-term exposure to such levels of sulfur oxides. Neither the court's nor EPA's decision turned on questions of the role of economic, technological, and social factors.

Although Kennecott was successful in challenging one standard, the litigation did not delay the promulgation of other primary and secondary standards, nor did it result in the injection of considerations Congress desired to exclude. To some extent, the relative lack of industry pressure on EPA to include economic and technological factors in the process of setting the primary and secondary standards is due to the existence of opportunities to exert such pressure further down the line in implementing and enforcing the standards. The 1976

69. See text accompanying note 62 supra.
70. 1972 Oversight Hearings, supra note 61, at 276. If a state wished to set an ambient standard more stringent than the federal one, the Administrator still would not have to consider economic and technological feasibility. Union Electric Co. v. EPA, 96 S. Ct. 2518, 2528, 8 ERC 2143, 2149 (1976). A state, however, would be able to require its agency to consider these factors in setting a standard more stringent than the federal minimum. Id.; see, e.g., IEPA, ILL. ANN. STAT. ch. 111 1/2, § 1027 (Supp. 1975).
71. 462 F.2d 846, 3 ERC 1682 (D.C. Cir. 1972).
72. Id. at 847, 3 ERC at 1683.
74. See text accompanying notes 76-240 infra. In 1974 the American Iron and Steel Institute attempted to obtain changes in the way the standards are set. In the 1974 Oversight Hearings, the Institute recommended that Congress remove the standard setting power from EPA and place it with the National Academy of Sciences, which the Institute alleged to be more politically neutral and technically expert than EPA. At that time the Academy was reviewing the standards at EPA's request. But two months after submitting its recommendation, the Institute revised its position, recommending that any Academy study be subject to review by an Environmental Review Board which would consider the proposed standards' "overall impact, social, economic
proposed amendments to the Clean Air Act showed no congressional disposition to change the way these standards are set.  

IV

PROGRAM 2: STATE IMPLEMENTATION PLANS

To implement and enforce the ambient standards, Congress created the State Implementation Plan (SIP) process. In this program, Congress intended to limit consideration of economic and technological factors in order to expedite the attainment of health protection goals. After describing the statutory scheme, this portion of the Article examines three specific controversies over the role of economic and technological considerations. These controversies illustrate the inconsistent judicial treatment given to congressional desires.

The three major controversies are over: (1) federal approval of state plan revisions, (2) federal promulgation of substitute SIPs, and (3) federal approval and enforcement of state submitted SIPs. While the first two are more or less resolved, the last controversy still poses major statutory and constitutional questions which can be resolved only by a future round of litigation. The tragedy surrounding


75. See S. REP. No. 94-717, 94th Cong., 2d Sess. 14-15 (1976), which would have required the air quality control technique documents issued under Clean Air Act § 108 (b), 42 U.S.C. § 1857c-3(b) (1970), to be accompanied by information on costs of installation and operation, energy requirements, air quality benefits, and adverse environmental impacts. This provision would not, however, have changed the factors going into the standard setting decision under Id. § 109, 42 U.S.C. § 1857c-4. The House also would not have added economic and technological factors to the decision. H.R. REP. No. 94-1175, 94th Cong., 2d Sess. 152-56 (1976). The 1976 amendments ultimately did not pass, but they will be reintroduced in early 1977. See note 11 supra.
this controversy in particular is that careless statutory construction by
the courts of appeals, partly corrected by the Supreme Court in Union
Electric Co. v. EPA,76 has unnecessarily postponed the resolution of
the legitimate statutory and constitutional questions, and has unneces-
sarily delayed the attainment of the health protective primary standards.

Section 11077 establishes the SIP program. Section 30778 estab-
ishes and regulates judicial review of SIP promulgations. Section
11379 provides for federal enforcement of SIP provisions when the
states fail to enforce them. Sections 307 and 113 also provide for judi-
cial review and federal enforcement of requirements of sections of the
Act other than § 110,80 but since the role of economic, technological,
and social factors in judicial review and federal enforcement has come
into substantial question only respecting SIP requirements, we consider
review and enforcement with the SIPs.

Under § 110, each state must submit a SIP that provides for the
"implementation, maintenance and enforcement" of a national am-
(bient air quality standard within nine months of its promulgation.81
The EPA Administrator must review the SIP within four months.82 He
"shall" approve the plan if public hearings have been held and if the
eight substantive conditions of § 110(a)(2) are met.83 The most
important of the eight conditions requires the SIP to contain emission
limitations and other measures calculated to attain the primary stand-
ards "as expeditiously as practicable but . . . in no case later than
three years" from EPA's approval of the SIP.84 The eight conditions
do not mention economic, technological, or social factors.

Under § 110(a)(3)(A), a state may revise an approved SIP after
giving notice and holding a public hearing. The Administrator must

76. 96 S. Ct. 2518, 8 ERC 2143 (1976). For an excellent discussion of this
controversy prior to the Supreme Court's decision in Union Electric, see Bleicher, Eco-


78. Id. § 1857h-5.
79. Id. § 1857e-8.
80. For example, other sections enforced and reviewed are New Source Perform-
ance Standards, id. § 111, 42 U.S.C. § 1857c-6 (1970), as amended, (Supp. V, 1975); Hazar-
daous Air Pollutant Standards, id. § 112, 42 U.S.C. § 1857c-7 (1970); and Vehicle
1975).
82. Id. § 110(a)(2), 42 U.S.C. § 1857c-5(a)(2) (1970). These strict time lim-
its were deemed important by supporters of the 1970 Amendments. See, e.g., H.R. REP.
No. 91-1146, 91st Cong., 2d Sess., at 1, 5 (1970) [hereinafter cited as 1970 HOUSE
approve the revision as long as the eight substantive conditions of § 110(a)(2) are met.\textsuperscript{88}

The state plans must provide for meeting the three year deadline unless the states obtain more time under § 110(e) or § 110(f). These sections provide limited extensions for regions in which Congress conceded that attaining the primary standards by 1975 would be impossible.

Section 110(e) permits a state governor to request EPA to grant a two-year extension of the deadline for meeting a primary standard.\textsuperscript{88} The request must be made when the SIP is submitted. In order to grant the extension, the Administrator must make two specific findings. He must first conclude that the technology "necessary" for a source to meet the emission limitations in the SIP will not be available in time to achieve the primary standards by 1975.\textsuperscript{87} Then he must conclude that the state has applied all "reasonably available" alternative means of compliance, and has "justifiably" concluded that the 1975 deadline cannot be met.\textsuperscript{88}

Subsequent to submitting a plan, under § 110(f) a governor may request that EPA grant a one-year extension for the applicability of any particular provision of the plan. To grant this extension the Administrator must find that the source subject to the provision has made "good faith efforts" to comply, that the "necessary" technology is unavailable, that all "available" alternatives have been taken to minimize the health impact of its continued operation, and finally that "national security" or "public health or welfare" themselves require the source's continued operation.\textsuperscript{88} The Administrator can grant the extension only after considering these questions in an adjudicatory hearing.\textsuperscript{88}

Thus §§ 110(e) and 110(f) provide a setting in which EPA must consider carefully limited claims of technological and economic infeasibility and in which the governor can be made publicly accountable for deferring the clean air goals on these grounds.

Section 110(c)(1) requires the Administrator to promulgate substitute SIP regulations if the state fails to submit a plan or if the submitted SIP, qualified by any § 110(e) extension, will not attain the


\textsuperscript{86} Id. § 110(e), 42 U.S.C. § 1857c-5(e) (1970).

\textsuperscript{87} Id. § 110(e)(1)(A), 42 U.S.C. § 1857c-5(e)(1)(A).

\textsuperscript{88} Id. § 110(e)(1)(B), 42 U.S.C. § 1857c-5(e)(1)(B).

\textsuperscript{89} Id. § 110(f)(1), 42 U.S.C. § 1857c-5(f)(1).

primary standards in the mandated time. If the state has not held public hearings, the Administrator must do so prior to promulgating a substitute plan. Under § 116, the states may set ambient air quality standards and emission limitations more stringent than EPA’s. This section permits a state to require greater emission reduction than necessary to meet the federal ambient standards, if it so desires.

Section 307 provides an expedited form of judicial review. Under § 307(b)(1) all petitions for review of “the Administrator’s actions”—such as his approval of a state submitted SIP or his promulgation of a federal substitute plan—must be filed with the “appropriate” court of appeals. A petition must be filed within 30 days of the action. By virtue of § 307(b)(2) any “action of the Administrator” which could have been reviewed in a § 307(b)(1) proceeding cannot be reviewed in a later action to enforce the SIP.

Under § 113 the Administrator must notify the operator and its host state when he learns that a source is not complying with an applicable SIP provision. If the violation continues longer than 30 days, the Administrator may issue a compliance order, initiate a civil action for a court order restraining the violation, or bring a criminal action for fines and imprisonment. After notice to the state, the Administrator may assume responsibility for enforcing the entire SIP when he finds that SIP violations “are so widespread that such violations appear to result from a failure of the State . . . to enforce the plan effectively.” A compliance order must specify a deadline which he determines is “reasonable, taking into account the seriousness of the violation and any good faith efforts to comply. . . .” Presumably, in fashioning injunctive relief, a federal district court would also have equitable authority to take into account reasonableness, seriousness, and good faith efforts. Thus while the Administrator is obliged to seek enforcement when the provisions of an SIP are violated, either he or the court must take into account economic, technological, and social factors in fashioning relief.

92. Id.
100. Id. § 113(b), 42 U.S.C. § 1857c-8(b).
The detailed requirements of an acceptable plan, the carefully limited provisions for exceptions, the provisions for federal substitute plans, and the provisions for federal enforcement were reactions to the states' failure to act under the permissive 1967 Act. Congress wished to preserve the states' principal and initial role in cleaning the air, but it also felt the need to goad laggard state action and provide safeguards against state failure.

The following analysis of litigation over controversies in the implementation and enforcement of the primary standards explores the role of economic, technological, and social factors in the SIP process. It indicates where the courts of appeals have erred, what the Supreme Court has corrected, and what the Court may yet have to set straight.

A. Sections 110(a)(3)(A) and 110(f): Federal Approval of State Plan Revisions

Shortly after passage of the 1970 Act, EPA proposed regulations to assist the states in preparing acceptable SIPs. The proposal omitted any reference to state consideration of economic, technological, and social factors. The Administrator stipulated in the final version, however, that nothing in the regulations precluded states from considering those factors. The statute itself was silent on this question, but the legislative history would favor such an interpretation of § 110. EPA's policy was to leave the states the greatest leeway to choose whatever mix of alternative controls would achieve the standards within the mandated times. This policy expressed EPA's hope that the states would choose the most economically sound, technologically feasible, and socially acceptable means of compliance. In response, 48 states submitted SIPs with language requiring the state air pollution control agency to consider economic factors in one stage or another of the implementation process. Several states, such as Illinois, specifically require the agency to consider economic and technological factors


102. 38 Fed. Reg. 15486, 15487 (1971). These sections were later recodified at 40 C.F.R. § 51.2(b) (1975). See also Union Electric v. EPA, 96 S. Ct. 2518, 2530, 8 ERC 2143, 2150 (1976).


in setting all emission standards or limitations; many states include economic and technological factors as grounds for granting variances.

The Natural Resources Defense Council (NRDC) challenged the Administrator's approval of SIP sections permitting state officials to grant variances from SIP emission limitations and time tables to individual pollution sources on economic or technological grounds in a series of cases brought in the First, Second, Fifth, Eighth, and Ninth Circuits. NRDC argued that such variances threatened the attainment and maintenance of the ambient standards by allowing state enforcement officials to reset the balance between health interests and economic and technological factors after the SIP had been promulgated by the states and approved by EPA. The petitioner asserted that postponement under § 110(f), requiring a request by the governor and the satisfaction of rigorous conditions by the source operator,\(^\text{107}\) was the only means of obtaining relief from the requirements of the originally adopted SIP. EPA had already taken the position by regulation\(^\text{108}\) that under § 110(a)(3)(A) it could consider such variances as plan revisions. That section obliges EPA to approve plan revisions so long as they would not interfere with the attainment or maintenance of the primary standards or with compliance with other requirements of § 110(a)(2).\(^\text{109}\)

The circuits split on the issue of whether individual source variances were § 110(f) postponements or § 110(a)(3)(A) revisions. The First Circuit held that states could grant variances pursuant to § 110(a)(3)(A) in the "pre-attainment" period, i.e., until the mid-1975 deadline for meeting the primary standards.\(^\text{110}\) But the court ruled that in the "post-attainment" or maintenance period, § 110(f) was the only means of postponement available. The court observed that liberal exercise of the state's power to grant variances in the post-attainment period would cause violations of the primary standards. It concluded that, on the other hand, Congress intended states to have a "three-year grace period" in which variances to mitigate economic and technological burdens were permissible.\(^\text{111}\) The First Circuit's resolution was followed by the Second and Eighth Circuits.\(^\text{112}\)

\(^{107}\) See text accompanying notes 89-90 supra.


\(^{110}\) NRDC v. EPA, 478 F.2d 875, 887-88, 5 ERC 1879, 1886 (1st Cir. 1973).

\(^{111}\) Id. at 884-88, 5 ERC at 1883-87.

\(^{112}\) NRDC v. EPA, 494 F.2d 519, 523, 6 ERC 1475, 1476 (2d Cir. 1974); NRDC
In contrast, the Ninth Circuit held that states could issue "minor" variances, i.e., ones which would not threaten compliance with the primary standards, either before or after the attainment date. Only variances which threatened the attainment or maintenance of the primary standards were "postponements" and need meet the rigorous requirements of § 110(f). EPA retained the authority to make the threshold judgment of whether a variance imperilled a standard. Thus, an environmental petitioner could force the use of § 110(f) only by demonstrating that EPA's conclusion that a variance did not threaten a standard was arbitrary and capricious.

Only the Fifth Circuit adopted NRDC's position. It found that the plan of the statute was to secure ambitious commitments at the planning stage, and then, by making it difficult to depart from those commitments, to assure that departures could be made only in cases of real need. The court concluded that Congress intended the three-year deadline to be strict; in order to insure attainment and maintenance of the primary standards there was to be no easy method of changing the plan's provisions for individual sources.

In Train v. NRDC, the Supreme Court reversed the Fifth Circuit's holding on variances. It held that EPA's original interpretation of its power to approve revisions under § 110(a)(3)(A) was "sufficiently reasonable" that the courts of appeals should have deferred to it. This decision affirms the result of the Ninth Circuit. The Court observed that the Administrator must approve a properly adopted SIP or SIP revision so long as the SIP will achieve the ambient standards within the Act's timetable. It concluded that Congress intended to give the states freedom to choose "the most practicable and desirable methods of restricting total emissions to a level which is consistent with the national ambient air standards." The Court noted that it is harder to obtain a § 110(f) compliance date postponement for the emission limitations applicable to an individual source than to obtain a § 110(e) compliance date extension for the ambient standards themselves. Thus, NRDC's assertion that any variance, whether or not it threatened the ambient standards, must be obtained through § 110(f):


113. NRDC v. EPA, 507 F.2d 905, 911-17, 7 ERC 1181, 1184-88 (9th Cir. 1974).

115. Id.
117. Id. at 87, 7 ERC at 1744.
118. Id. at 80, 7 ERC at 1741.
requires the anomalous conclusion that Congress . . . made it significantly more difficult for a State to modify an emission limitations mix which met the [ambient] standards before and after modification than for a State to obtain a two-year deferral in the attainment of the standards themselves.119

The upshot of the NRDC cases, then, is that in first designing the SIP and in later revising it, the states can adopt any substantive policy regarding the mix of emissions limitations so long as it meets the Act's minimum requirements. Subject to meeting the primary standards on time, the states can make any disposition they wish of economic, technological, and social considerations. But if a state plan revision would cause the primary standards to be violated, the change can become part of the federally approved SIP only if the rigorous economic and technological conditions for a § 100(f) postponement are met.

B. Section 110(c)(1): Federal Promulgation of Substitute SIPS

The state-submitted plans have often contained provisions insufficient to meet the minimum requirements of § 110(a)(2). Some plans have put forward measures that are not stringent enough; others have failed to address certain significant requirements at all. The most important failure has been the inadequacy of many SIPs to attain and maintain the primary standards for carbon monoxide, hydrocarbons, oxides of nitrogen, and photochemical oxidants—which result primarily from vehicle emissions—in urban areas. These standards often can be attained in such areas only through the curtailment of vehicular use. In recognition of this fact, the Act requires the states to impose "land-use and transportation controls" when they are necessary to attain the primary standards within the statutory timetable.120 Since restrictions on transportation seem "inevitably . . . bound to come between the citizen and his automobile,"121 the states have been reluctant to impose such controls in their SIPs. The Administrator has been forced to promulgate substitute transportation control plans for metropolitan areas in many states. Although he has provided numerous substitute SIP provisions to rectify various implementation deficiencies, only his transportation control plans have been challenged in the courts of appeals.

Section 110(c)(1) directs the Administrator to propose substitute

119. Id. at 86, 7 ERC at 1743.
121. South Terminal Corp. v. EPA, 504 F.2d 646, 654, 6 ERC 2025, 2026 (1st Cir. 1974).
provisions “promptly” after his decision to disapprove a state submission or, in the case where the state submits no plan at all, after the deadline for submission has passed.\textsuperscript{122} He must consider evidence from any state hearing record, and if the state has held no hearing on the subject matter of the substitute, he must provide an opportunity for one.\textsuperscript{123} EPA apparently has the policy of holding public hearings whenever it promulgates a substitute provision, whether or not the state held a hearing initially.\textsuperscript{124}

Section 110(c)(1) does not itself state the factors that the Administrator must consider in designing a substitute SIP, except by reference to the requirements of § 110(a)(2).\textsuperscript{125} In assessing the need for emission reductions and in choosing between alternative reduction strategies, the Administrator does not simply review the state’s analysis, as in the SIP approval decision. He designs a program for the states. Consequently in two cases petitioners have argued that in the promulgation of substitute SIPs the Administrator must consider the economic and social impact of the measures he might impose.

In \textit{South Terminal Corp. v. EPA}, the First Circuit responded to this argument by distinguishing between necessary and alternative requirements.\textsuperscript{126} Neither § 110(a)(2), which establishes the substantive requirements of an SIP, nor § 110(c)(1), which establishes the requirements of a substitute provision, contains any requirement that the Administrator consider economic and social impacts in his decisions to approve a plan or to promulgate a substitute. The court concluded that under § 110(c)(1) neither EPA nor the court could reject a control measure with adverse social and economic impacts which was nonetheless necessary to meet the primary standards.\textsuperscript{127} In determining the

\textsuperscript{123.} \textit{Id}.
\textsuperscript{124.} There does not seem to be any regulation to this effect. However, most of the cases note that EPA held a hearing before promulgating substitute plans. \textit{See}, e.g., \textit{South Terminal Corp. v. EPA}, 504 F.2d 646, 654, 6 ERC 2025, 2027 (1st Cir. 1974); \textit{State of Texas v. EPA}, 499 F.2d 289, 293, 6 ERC 1897, 1899 (5th Cir. 1974), \textit{cert. denied}, 96 S. Ct. 3191 (1976); \textit{Anaconda Co. v. Ruckelshaus}, 482 F.2d 1301, 1303-04, 5 ERC 1673, 1674 (10th Cir. 1973). The cases do not make clear whether the state hearing had been held, or whether the subject matter of EPA’s proposed substitute regulations had been considered in that hearing. In the case where the state hearing had not considered that subject matter, it is conceivable that a court reviewing the substitute regulations would find the state hearing inadequate. EPA’s holding its own hearing insures against this possibility.
\textsuperscript{126.} 504 F.2d 646, 655-56, 6 ERC 2025, 2027 (1st Cir. 1974).
\textsuperscript{127.} \textit{Id.} at 646, 675, 6 ERC 2025, 2042. \textit{See also id.} at 646, 656, 6 ERC 2025, 2028.

Of course neither EPA nor this court has any right to decide that it is better
necessary amount of reduction and the measures for which there are no alternatives, the Administrator makes the same judgments that go into his decision to approve or disapprove a state submitted plan. The Administrator need only show that his conclusions as to the necessary degree of reduction and as to the control measures for which there are no alternatives were not arbitrary or capricious. In choosing between measures for which there are alternatives, the Administrator performs the task that the states have refused to do. Here he cannot ignore costs; the court noted that it would disallow the Administrator’s implementation plans if there existed alternatives which were less costly and equally effective. But because the statute does not mention costs and because it specifies a short time period for proposing and promulgating substitute SIPs, the court concluded that Congress did not intend EPA to perform benefit/cost analyses on alternative strategies. Finally, the court found that Congress intended to give the Administrator wide discretion to make policy choices among different ways of distributing the burden of reduction on a community. The court would overturn these choices only if petitioners clearly demonstrated that they were arbitrary. The First Circuit thus affirmed the Administrator’s authority to promulgate substitute SIPs considering costs in only this limited way.

In City of Santa Rosa v. EPA, the petitioners objected to a substitute plan’s requirement banning gasoline sales in the Los Angeles area and reducing sales by one to two-thirds in other California regions.

See also District of Columbia v. Train, 521 F.2d 971, 998, 8 ERC 1289, 1307 (D.C. Cir. 1975).

128. 504 F.2d at 655-56, 6 ERC at 2027-28.

129. A necessary control measure is one without which the primary standards cannot be attained. For example, if all carbon monoxide (CO) emissions from stationary sources are eliminated, and if ambient concentrations of CO still exceed the primary standard, then control of CO emissions from mobile sources (vehicles) is a necessary control measure. An alternative control measure is one which is not the only means of achieving the standards. For example, in controlling CO emissions from mobile sources, one may be able to achieve the necessary reductions by choosing between controlling trucks, taxis, or private autos.

130. 504 F.2d at 656, 6 ERC at 2027. See also District of Columbia v. Train, 521 F.2d 971, 996-98, 8 ERC 1289, 1305-06 (D.C. Cir. 1975).

131. 504 F.2d at 676 n.32, 6 ERC at 2042 n.32.

132. Id. at 655-56, 6 ERC at 2027-28, citing Amoco Oil Co. v. EPA, 501 F.2d 722, 735, 6 ERC 1481, 1488 (D.C. Cir. 1974). See text accompanying note 342 infra.

133. Id. See also 504 F.2d at 673, 6 ERC at 2040, quoting NRDC v. EPA, 494 F.2d 519, 525, 6 ERC 1475, 1478 (2d Cir. 1974).

134. Id. at 682, 6 ERC at 2047-48. The court remanded the action for the collection of more data supporting certain technical points.

135. See generally, Cher-
All parties agreed that reductions of such magnitude were necessary to achieve the primary standards by mid-1977, that there were no other available alternatives, and that such reductions "would have serious disruptive effects." The Ninth Circuit agreed with *South Terminal* that § 110(c)(1) and § 110(a)(2) did not permit the Administrator to consider the costs of necessary reduction measures. Since the reduction was necessary and since there were no "equally effective and less burdensome" alternatives, the court reluctantly concluded that it could not find the substitute plan arbitrary and capricious. Against the backdrop of catastrophic economic and social dislocations, the court could conclude only that petitioners' relief must come from Congress, not the courts.

In a third case, *State of Texas v. EPA*, the dispute centered only on the necessity of the substitute plan's emission reductions. The petitioners appear to have conceded that the Administrator cannot take costs into account in determining the minimum necessary overall reductions.

While the issue of what factors must be considered in promulgation of a substitute SIP has had the potential to split the circuits, the three courts which have dealt with the transportation controls have all taken the same stance. They recognized that the statute does not permit economic and technological considerations to compromise measures that are necessary to meet the primary standards. They noted, however, that the statute imposes on EPA a limited responsibility to consider costs and disruptions in choosing the least burdensome combination of measures capable of meeting the standards. Congress has shown its...
ability to respond to the economic and social plight of the California cities and other places. The 1976 proposed amendments would have permitted controlled extensions of the deadlines for areas with serious vehicular pollution problems.  

C. Sections 110(a)(2), 307, and 113: Federal Approval and Enforcement of SIPs

A series of suits by polluters has raised questions of EPA's responsibility to balance health with economic and technological factors before approving or enforcing an SIP. The circuits have split again. The results of the cases are even more inconsistent than the results of the NRDC cases. The litigation has interfered severely with attainment and maintenance of the primary standards within the prescribed timetable.

The following analysis considers the allegations that the Administrator must hear and weigh claims of economic and technological hardship before approving or, at the least before enforcing, an SIP. Important decisions in this area have emerged from the Third, Fourth, Sixth, Seventh, and Eighth Circuits. The Supreme Court has recently resolved some of these issues in Union Electric, but many remain and will undoubtedly result in more statutory and constitutional litigation and further interference with attainment of the primary standards.

1. The Circuit Opinions

In Appalachian Power Co. v. EPA, an electric utility and a steel manufacturer opposed the Administrator's approval of an SIP. They alleged that in deciding whether to approve an SIP, the Administrator must hear and consider claims of economic and technological infeasibility.  

The Fourth Circuit Court of Appeals denied the motion for remand without prejudice, because it did not yet have the full record of the state hearing.  

The court nonetheless outlined the criteria by which it would evaluate the adequacy of the state hearing and the need for EPA to hold another one. The discussion took place on statutory and constitutional planes. The Administrative Procedure Act (APA) requires agencies to hold a hearing before making a rule.  

143. 477 F.2d 495, 5 ERC 1222 (4th Cir. 1973).
144. Id. at 507-08, 5 ERC at 1231.
"unnecessary." Thus, if the petitioners were given an adequate hearing at the state level, a subsequent federal level hearing would be unnecessary. Petitioners had to have been given "the reality of an opportunity to submit an effective presentation" on economic, technological, and social objections to portions of the SIP applicable to them. The court suggested, but did not yet decide, that constitutional due process as well as the APA would require more than an opportunity to comment; that it would require the right to cross-examine witnesses on "crucial issues." To comply with these requirements, the state hearing might have to be a hybrid, legislative for most issues and adjudicative for crucial ones. The court left "crucial issues" undefined, but since the gravamen of the petition was economic unreasonableness and technological infeasibility, one suspects that these are the issues that would be considered crucial.

At least insofar as it rests its holding on statutory grounds, the Fourth Circuit assumes (1) that § 110(a)(2) does not preclude the Administrator from considering economic and technological factors, and (2) that under § 307(b)(1) the court can review the adequacy of his consideration. As we shall see, Union Electric rejects the statutory basis for both of these assumptions, but it does not decide whether there is a constitutional requirement for a federal hearing on or federal judicial review of economic and technological objections to SIPs.

In Buckeye Power Co. v. EPA (Buckeye Power I), an electric utility made a similar petition for a federal hearing to the Sixth Circuit. The court totally misinterpreted the meaning of § 110(a)(2) and the 1970 Act's legislative history. It concluded that Congress intended both the Administrator and the appellate courts to consider economic and technological objections to SIPs. The court relied on passages to that effect in the House Report, noting that the final bill carried the House bill's number. This reading completely ignored the fact that the Conference Committee deleted the language of the House version of § 110(a)(2) which would have directed the agency to consider economic and technological factors. Having misread the congressional mandate to exclude consideration of these factors from SIP approval

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146. Id. § 4, 5 U.S.C. § 553b(B).
147. 477 F.2d at 500-03, 5 ERC at 1227-28.
148. Id. at 503, 5 ERC at 1228, quoting Walter Holm & Co. v. Hardin, 449 F.2d 1009, 1016 (D.C. Cir. 1971).
149. Id. at 503-04, 5 ERC at 1228.
150. Id. at 500-01, 5 ERC at 1225-26.
151. See text accompanying notes 196-240 infra.
152. 481 F.2d 162, 5 ERC 1611 (6th Cir. 1973).
153. Id. at 168-69, 5 ERC at 1614-15.
and from judicial review of that approval, the court ruled that the Administrator would have to follow APA procedures regarding these issues. It concluded that the state hearing was inadequate because the petitioners were subject to federal enforcement as well.\textsuperscript{155} It ordered the Administrator to hold a legislative hearing on these factors before approving the SIP but disagreed with the Fourth Circuit's conclusion that an adjudicatory hearing was necessary.\textsuperscript{158} But the court more than compensated for this generous conclusion by holding that the petitioners could raise the same economic and technological objections as defenses in a subsequent federal action to enforce the SIP. This conclusion directly contradicts a literal reading of § 307. Since the court held that it may consider economic and technological factors in a § 307 (b) (1) review, it should have recognized that § 307(b)(2) excludes those factors from consideration in a subsequent enforcement proceeding.\textsuperscript{157}

The Sixth Circuit's statutory reading grants two opportunities for consideration of economic and technological factors after the state sets the balance. The Supreme Court, in \textit{Union Electric}, ruled out at least the former opportunity by holding that § 110(a)(2) does not permit the Administrator to consider these factors in determining whether to approve an SIP.\textsuperscript{158} The Sixth Circuit did not rest its determination to give the industries multiple opportunities for consideration of these factors on constitutional concerns, although these concerns may have been in the background. As it stands, however, the decision interprets the Clean Air Act and the APA in a manner that does maximum violence to the congressional purpose of rapidly protecting public health.

Responding to the same claims in \textit{Indiana & Michigan v. EPA},\textsuperscript{159} the Seventh Circuit stuck to the statutory language and the correct legislative history. It saw as controlling the Conference Committee's intentional deletion from § 110(a)(2) of any requirement that the Administrator consider economic and technological factors in his review of an SIP. Since the Administrator "shall" approve an SIP which meets the requirements of § 110(a)(2), there is no room for inferring any additional requirements.\textsuperscript{160} The court noted that in § 113 enforcement proceedings, EPA and the district courts may consider the petitioner's "good faith efforts" to comply with the SIP and must fashion "reason-

\textsuperscript{155} 481 F.2d at 169-70, 5 ERC at 1615-16, \textit{citing} Getty Oil Co. v. Ruckelshaus, 467 F.2d 349, 4 ERC 1567 (3rd Cir. 1972).

\textsuperscript{156} \textit{Id.} at 173 n.5, 5 ERC at 1618 n.5.

\textsuperscript{157} See text accompanying notes 210-40 \textit{infra}.

\textsuperscript{158} See text accompanying notes 196-209 \textit{infra}.

\textsuperscript{159} 509 F.2d 839, 7 ERC 1433 (7th Cir. 1975).

\textsuperscript{160} \textit{Id.} at 842-44, 7 ERC at 1434-36.
able" compliance schedules.\textsuperscript{161} It then turned to a consideration of § 307(b)(2). This subsection concerns only "actions of the Administrator."\textsuperscript{162} Since § 110(a)(2) authorizes no "actions of the Administrator" with respect to economic and technological factors, the court reasoned that § 307(b)(2) does not exclude those factors from consideration in judicial enforcement proceedings. As there were opportunities for federal consideration of economic and technological factors in determining compliance schedules, and for state consideration of them in the SIP hearings, the petitioners were not deprived of due process by the exclusion of these factors from the SIP approval decision.\textsuperscript{163}

The court did not examine, however, the crucial question of the purpose of § 307(b)(2). As we show in detail below,\textsuperscript{164} the Senate and Conference Committees implied that this provision was intended to exclude reconsideration at the enforcement stage of the economic and technological objections that the polluter had had the opportunity to present at the state SIP hearing. If this was the congressional intent, the Seventh Circuit's reading of the Act does not accomplish it.

The Third Circuit has been deeply concerned about the possibility that the 1970 Act can violate polluters' due process rights by subjecting them to federal enforcement without a hearing on economic and technological objections to the SIP. In a series of cases brought by electric utilities and other heavy industries, the Third Circuit has tried to develop procedural requirements which satisfy its view of the constitutional minimum but which least compromise either the "bi-level" structure of the Clean Air Act or Congress' desire for rapid health protection.\textsuperscript{165} These cases, however, rest on a faulty interpretation of the Administrator's responsibilities to consider economic and technological factors in SIP approval. The court backed into this interpretation with even less analysis of, although more concern for, § 110(a)(2) and § 307(b)(1) than exhibited by the Sixth Circuit. While a due process problem may remain under the Supreme Court's correct reading of these sections in Union Electric, the particular solution of the Third Circuit must be rejected.

The development of the Third Circuit's incorrect interpretation of § 110(a)(2) and § 307(b)(1) began with the Delaware District Court's

\textsuperscript{161} Id. at 845, 7 ERC at 1437.
\textsuperscript{163} 509 F.2d at 847, 7 ERC at 1438. \textit{See also} Reichhold Chemicals, Inc. v. EPA, 8 ERC 1207 (7th Cir. 1975).
\textsuperscript{164} See text at notes 210-40 infra.
\textsuperscript{165} The quoted phrase is from Duquesne Light Co. v. EPA, 481 F.2d 1, 7, 5 ERC 1473, 1477 (3rd Cir. 1973), \textit{vacated and remanded}, 96 S. Ct. 3185 (1976).
opinion in *Getty Oil Co. v. Ruckelshaus.* Getty objected to applicable portions of the SIP as economically unreasonable and technologically infeasible. Getty had participated in the state SIP hearing. The company did not challenge Delaware's promulgation of the SIP in state court, nor did it challenge the Administrator's approval of the SIP in the Federal Court of Appeals within the 30 day limit set by § 307(b)(1). Instead, Getty sought and was denied a state variance. It appealed the denial to a state court, and obtained a stay of the state's enforcement until the court's review of the denial was completed. Before the state court completed review, the EPA Administrator notified Getty that it was violating applicable emission limitations of the federally approved SIP and that he would enforce the provisions under § 113. Getty then asked the District Court to enjoin federal enforcement until the state court ruled on the propriety of the state's denial of the variance.

The District Court correctly observed that because Getty had failed to challenge the Administrator's approval of the SIP within 30 days under § 307(b)(1), it was permanently precluded from doing so. The court read § 307(b)(2) literally as excluding from consideration in federal judicial enforcement proceedings any issues which could have been heard in § 307(b)(1) proceeding challenging the SIP approval. But it then held, without citation or analysis, that Getty's claims of economic unreasonableness and technological infeasibility could have been heard by the Court of Appeals in a § 307(b)(1) review of the Administrator's approval of the SIP. This assumption leads to a simple solution of the *Getty Oil* case. If the economic and technological objections could have been heard in a § 307(b)(1) review, § 307(b)(2) prevents them from being heard in an enforcement action. Since Getty had waived the opportunity to raise these objections in a review of the SIP, due process rights were not abridged by foreclosing any further consideration of them. The District Court denied the injunction.
On appeal, the Third Circuit explicitly affirmed the District Court’s assumption that in a § 307(b)(1) review Getty would have had the opportunity to raise its economic and technological objections.\textsuperscript{174} Like the District Court, the Court of Appeals adopted this assumption without citation or analysis. The Court of Appeals also agreed that § 307(b)(2) foreclosed consideration of these objections in enforcement proceedings. It held that Getty’s due process rights were satisfied not only by the waived opportunity, but also by the opportunity to raise these objections in federal judicial proceedings and in state SIP hearings, to challenge the state’s adoption of the SIP in state court, and to seek a state variance and to get state judicial review of its denial.\textsuperscript{175} The court affirmed the lower court’s denial of the injunction.\textsuperscript{176}

The petitioners in \textit{Duquesne Light Co. v. EPA (Duquesne Light I)}, were also caught in the “Getty Oil Dilemma”; they were subject to federal enforcement of the SIP before they had exhausted their state administrative and judicial efforts to obtain variances.\textsuperscript{177} In contrast to Getty, however, these petitioners presented their objections to the Court of Appeals in a timely § 307(b)(1) challenge to the SIP. Again the court assumed that the economic and technological objections were properly raised in a § 307(b)(1) review and that § 307(b)(2) precluded their being raised in judicial proceedings on federal enforcement. It undertook to decide what kind of consideration must be paid to these objections before petitioners are subject to federal enforcement. The court held that the Administrator must either (1) grant a legislative hearing on the petitioners’ economic and technological objections or (2) refrain from enforcing the SIP against the petitioners while they diligently continued their state administrative and judicial pursuit of variances.\textsuperscript{178} The court concluded that due process requires no federal hearing at all if EPA imposes no penalties on the petitioners while they pursue state remedies.\textsuperscript{179} The court’s order also necessarily implies that the state’s denial of a variance after full consideration of the economic and technological objections would be


\textsuperscript{175} \textit{See id.} at 356-57, 4 ERC at 1570-71.

\textsuperscript{176} \textit{Id.} at 359, 4 ERC at 1572.

\textsuperscript{177} 481 F.2d 1, 7-9, 5 ERC 1473, 1477-78 (3rd Cir. 1973), \textit{vacated and remanded}, 96 S. Ct. 3185 (1976).

\textsuperscript{178} \textit{Id.} at 10, 5 ERC at 1479. The court held that since this was a rule of general applicability, rather than a rule specifically aimed at one party, due process does not require an adjudicative hearing, citing \textit{United States v. Florida East Coast Ry. Co.}, 410 U.S. 224 (1973).

\textsuperscript{179} \textit{Id.} at 10, 5 ERC at 1479.
constitutionally and statutorily sufficient to support federal enforce-
ment without further hearings.

The court realized that any delay in determining the Administra-
tor's duties would also delay the attainment of the clean air standards. Consequently the court gave the Administrator the option to hold a hearing right away, rather than to gamble on the court's eventually finding that the completed state proceedings were sufficient.\(^{180}\)

The Administrator chose to hold a hearing. After considering the objections to the SIP by St. Joe Minerals, one of the petitioners in *Duquesne Light I*, the Administrator concluded and reported to the court that the provision applicable to St. Joe were technologically infeasible. However, he refused to disapprove them, contending that he lacked the power under § 110(a)(2) to turn the approval decision on economic and technological considerations.\(^{181}\)

In *St. Joe Minerals Corp. v. EPA*,\(^{182}\) the Third Circuit carried its holding in *Duquesne Light I* a step farther. In *Duquesne Light I* it had held that the Administrator must hold a hearing on economic and technological issues before enforcing the federal plan only if the state consideration was incomplete or if, once completed, it granted variances from the federally approved plan. It was conceivable that the Administrator would still be held to lack the power to disapprove the plan on the basis of the economic and technological issues aired at the hearing; the hearing could serve merely to generate political pressure on the state or Congress. In *St. Joe*, however, the court held that § 110(a)(2) did not bar disapproval for economic and technological reasons. Rather than base this conclusion on a fresh analysis of § 110, the court merely extended the faulty statutory analysis of its previous decision in *Duquesne Light I*. The court stated:

There appears to be no opinion which squarely addresses the precise issue raised on this appeal. However, an interpretation of the Clean Air Act Amendments empowering the Administrator to disapprove the Pennsylvania plan if he finds it technologically unworkable is implicit in our decision in *Duquesne Light [I]*. If the Administrator has no authority to disapprove such plan or provision, there would have been no cause to remand the case to the EPA so as to conduct a hearing on precisely this subject. Indeed, the agency argued in *Duquesne Light [I]*, in urging a denial of the remand, that the statute had not intended the Administrator to consider economic and technological factors. Yet we ordered the remand.\(^{183}\)

\(^{180}\) Id.

\(^{181}\) St. Joe Minerals Corp. v. EPA, 508 F.2d 743, 744-45, 7 ERC 1465, 1465-66 (3rd Cir. 1975), vacated as moot, 96 S. Ct. 2196, 8 ERC 2164 (1976).

\(^{182}\) Id.

\(^{183}\) Id. at 746-47, 7 ERC at 1467.
The court also cited its holding inGetty Oil:

If a court of appeals is empowered to review, and presumably reverse, the Administrator's approval on technological and economic grounds, then surely the Administrator has the authority to review the plan on those same grounds and disapprove the plan, or a portion of it, if he finds it unreasonable.\(^{184}\)

The Third Circuit has put the cart before the horse; § 110(a)(2), the procedure for reviewing SIP approval, is supposed to define the actions of the Administrator subject to review under § 307, not the other way around.

The Administrator had committed himself to staying his enforcement until the completion of the state decision-making process. This breathing space would have allowed Pennsylvania time to revise the plan if it concurred that the provisions applicable to St. Joe were infeasible. But the court held that his voluntary stay was insufficient, because the Administrator could not bind his successor and because he could not protect St. Joe from citizen enforcement under § 304.\(^{185}\)

The Administrator also held hearings for the other petitioners inDuquesne Light I, and he concluded that, as to them, the SIP provisions were both economically and technologically feasible.\(^{186}\) InDuquesne Light II these petitioners gained another remand.\(^{187}\) The court re-affirmed the holding ofSt. Joe that § 110(a)(2) required the Administrator to disapprove a plan that was economically and technologically infeasible. The court concluded that EPA had acted arbitrarily and capriciously by finding that the plan was feasible without having considered and answered the petitioners' "cogent" and "critical" economic and technological objections. In remanding the matter to EPA, the court indicated clearly that the plan could not be approved until these objections were adequately answered.\(^{188}\) This case completed the Third Circuit's recasting of § 110(a)(2) and 307.\(^{189}\)

Finally, inUnion Electric Co. v. EPA, the Eighth Circuit held that it had no jurisdiction to hear the petitioner's economic and technological objections to the Missouri SIP.\(^{190}\) Unlike the Third, Fourth, and Sixth

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\(^{184}\) Id. at 747, 7 ERC at 1468.

\(^{185}\) Id. at 749, 7 ERC at 1469. See Clean Air Act § 304, 42 U.S.C. § 1857h-2 (1970).

\(^{186}\) Duquesne Light Co. v. EPA, 522 F.2d 1186, 1191, 8 ERC 1065, 1067-68 (3rd Cir. 1975), vacated and remanded, 96 S. Ct. 3185 (1976).

\(^{187}\) Id.

\(^{188}\) Id. at 1194-1201, 8 ERC 1070-76.

\(^{189}\) In May 1976 the Supreme Court vacatedSt. Joe Minerals as moot. 96 S. Ct. 2196, 8 ERC 2164 (1976). After the Supreme Court decidedUnion Electric, 96 S. Ct. 2518, 8 ERC 2143 (1976), it vacated and remanded the judgments inDuquesne Light I andDuquesne Light II, 96 S. Ct. 3185 (1976).

\(^{190}\) 515 F.2d 206, 209, 7 ERC 1697, 1698 (8th Cir. 1975). A special problem in this case, which neither the Court of Appeals nor the Supreme Court had to decide,
Circuits, the Eighth Circuit properly focused its attention on § 110(a)(2). Like the Seventh Circuit, the court noted that that section makes SIP approval mandatory if the listed conditions are satisfied, and that the list does not include economic and technological factors. The court cited the strong language of the 1970 Senate Report and observed that the Conference Committee deleted provisions for economic and technological considerations from the House bill. It also noted the availability of limited consideration of these factors in the § 110(f) postponement. The court quoted Senator Muskie for the proposition that the requirements were meant to force technological developments and that Congress could provide relief if the requirements proved impossible. The court concluded that in approving or disapproving an SIP the Administrator could not act on the basis of such considerations. Since § 307 empowered the court to review only actions of the Administrator, the court held that it had no jurisdiction to hear the petition. Thus the Eighth Circuit did not offer an opinion on whether either the statute or the Constitution requires consideration of technological and economic objections upon judicial enforcement of the SIP. As we see in the next two sections, this issue remains unresolved even after the Supreme Court's decision in Union Electric Co. v. EPA.

2. The Supreme Court: Union Electric Co. v. EPA

The Supreme Court granted certiorari in Union Electric in order to resolve the differences between the circuits. Upon review, the Court unanimously affirmed the Eighth Circuit's holding. The Court expanded the Eighth Circuit's statutory analysis, citing additional support for the exclusion of economic and technological considerations from the SIP approval decision and judicial review of it. The Court observed that under § 307 the courts of appeals could review only the type of claims which the Administrator had authority to consider in the approval decision. Citing its decision in Train v. NRDC, the Court noted that the eight requirements of § 110(a)(2) were expressly...
intended to exceed current technological capabilities and to force innovation. Since § 110(a)(2) states that the Administrator “shall” approve a plan if the statutory requirements are met, any authority to consider economic and technological factors must arise from them. The petitioner had pointed to three phrases: (1) that the primary standards must be met “as expeditiously as practicable, but . . . in no case later than three years,”\(^{198}\) (2) that the secondary standards must be met within “a reasonable time,”\(^{199}\) and (3) that a plan must include measures “as may be necessary” to attain and maintain the primary and secondary standards.\(^{200}\) The petitioner claimed that these phrases required the Administrator to reject plans which called for meeting the primary standards in a shorter time than three years, for meeting the secondary standards in an unreasonably short time, and for using more stringent control measures than necessary to meet those standards.\(^{201}\) The Court held that the petitioner’s interpretation would be correct only if the Act forbade the states from imposing limitations stricter than the federal minimums. The Court found that the contrary was true; the Conference Report expressly affirmed that the states could set more stringent rules. Moreover, § 116 provides explicit authority for such state actions.\(^{202}\)

Thus the Court found that each of the three phrases indicates only the minimum acceptable plan. The first phrase empowers the Administrator to disapprove a plan which does not require achievement of the primary standards in less than three years, if the Administrator determines that earlier achievement is practicable.\(^{203}\) Thus any consideration of economic and technological feasibility under this phrase would work against the petitioner. On the other hand, the requirement that the secondary standards be achieved in only a “reasonable” time means that technology forcing is not federally required for those standards. Nevertheless, since states may adopt rules more stringent than the federal requirements, the Administrator cannot disapprove a plan which he judges to require the achievement of the secondary standards in an unreasonably short time.\(^{204}\) Finally, the Court found the requirement

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199. Id.
201. 96 S. Ct. 2525-28, 8 ERC 2147-49.
202. Id. at 2528, 8 ERC at 2149. The Court put forward the policy rationale that requiring the Administrator to reject a plan that called for more than the federal minimum would lead to the existence of parallel, differing SIPs, the state plan stricter than the federal one. The Court characterized this situation as a “wasteful [burden]” on the states and EPA. Id. at 2529, 8 ERC at 2149. Unfortunately, there is an analogous wasteful situation already in existence to prove the Court’s point—the Getty Oil Dilemma. The state and EPA maintain parallel, differing plans, the state plan weaker than the federal one.
203. Id. at 2527-28, 8 ERC at 2148-49.
204. Id.
that the plan detail measures necessary to achieve the standards was only a minimum requirement which could be exceeded whenever a state desired. In sum, Union Electric holds that, in approving a plan, the Administrator may not consider claims of economic and technological infeasibility and, in reviewing an approval, neither may a court of appeals.

Like the Eighth Circuit, the Court took note of the "ample opportunity" for consideration of economic and technological factors in other forums: the state hearings on the SIP, state provisions for variances, state judicial review of the plan or of actions on variances, the § 110(e) extension and § 110(f) postponement at the governor's request, and the Administrator's fashioning of compliance orders. The Court concluded with an affirmation of the principle of technology forcing, stating that it could have a chance to work only if the consideration of economic and technological factors was limited and conditioned in a manner such as § 110 provides.

Justice Powell, joined by Chief Justice Burger, concurred, stressing the potentially catastrophic health and welfare consequences that would follow if the source of a major metropolitan area's electricity were shut down because of noncompliance. The concurring Justices affirmed their belief that Congress would not permit this "draconian" result and implied that Congress would amend the law if necessary to prevent the closing.

3. The Unresolved Question—Consideration of Economic and Technological Feasibility in Federal Judicial Enforcement Proceedings

The major issue remaining unresolved after Union Electric is the effectiveness of § 307(b)(2) to exclude economic and technological objections to the SIP consideration in federal judicial enforcement proceedings. In footnote 18 the Court declined to decide whether a violator of an SIP provision could raise the defense of economic or technological infeasibility in a civil or criminal enforcement proceeding. In footnote 19 the Court declined to decide whether due process demanded that the court of appeals hear economic and technological objections in a § 307(b)(1) review because the petitioners had not shown that such review was the only judicial opportunity to hear such objections.

205. Id. at 2529, 8 ERC at 2149.
206. Id. at 2529, 8 ERC at 2150.
207. Id. at 2530, 8 ERC at 2150-51.
208. Id. at 2531, 8 ERC at 2151.
209. Id. at 2531-32, 8 ERC at 2151-52.
210. Id. at 2530 n. 18, 8 ERC at 2151 n.18.
211. Id. at 2531 n.19, 8 ERC at 2151 n.19.
The effectiveness of § 307(b)(2) to exclude economic and technological factors from enforcement is crucial in the SIP program. The effectiveness of this provision determines whether an enforcement court must consider only the reasonableness of compliance dates for meeting the SIP provisions or must reconsider the SIP provisions themselves. The latter is a far broader undertaking. A decision that the industry deserves more time leaves the SIP intact; a decision that the provision itself must be relaxed throws open the entire SIP, because presumably regulations for other sources would have to be tightened up to compensate. The latter situation would produce the greatest possible delay; perhaps years after the state and federal governments adopted the plan, and after other polluters and the public had relied on its provisions, the entire allocation of the burdens of reducing emissions would have to be renegotiated.212

Depending upon their statutory constructions of §§ 110(a)(2) and 307(b)(1), the courts of appeals which considered future enforcement gave different meanings to the § 307(b)(2) exclusion.213 The Third Circuit held that since, in its view, economic and technological objections could be raised in a § 307(b)(1) review, § 307(b)(2) excluded them from further consideration in civil or criminal enforcement proceedings. In its view, both the statute and constitutional due process thus required a meaningful opportunity for a hearing at the stage of SIP approval, at least in the Getty Oil Dilemma, when state variances or other action could render the federally approved SIP more stringent than the state promulgated plan.214

The Seventh Circuit, on the other hand, held that since § 110(a)(2) authorizes no actions of the Administrator regarding economic and technological objections, neither portion of § 307 applies to such objections. Thus § 307(b)(2) is ineffective to exclude those factors from consideration in enforcement. This opportunity for later consideration satisfies any due process problems.215

The Sixth Circuit, paying no close attention to the statute either way, concluded that the APA and due process required consideration of economic and technological objections in both review and enforcement.216

At this point it would be useful to see what light the legislative history throws on the meaning of § 307(b)(2). The House bill con-

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212. See Bleicher, supra note 76, at 352-53.
214. See text accompanying notes 165-89 supra.
215. See text accompanying notes 159-64 supra.
216. See text accompanying notes 152-59 supra.
tained no explicit provisions for judicial review, and the House Report and floor debate do not mention the subject. The precursor to § 307 was § 308 of the Senate bill. This provision contained no analog to § 307(b)(2). It did, however, seek to limit the time for review of an "approved or promulgated implementation plan" in the courts of appeals to 30 days. The Senate Report states that the purpose of the 30 day limit was "to maintain the integrity of the time sequences provided throughout the Act." The Committee wished to retain judicial review of "matters committed by statute to administrative discretion." The only statement regarding judicial review in enforcement follows directly:

Of course, the person regulated would not be precluded from seeking such review at the time of enforcement insofar as the subject matter applies to him alone.

If "such review" is limited to "matters committed by statute to administrative discretion," and if the statute gives no discretion regarding economic and technological factors, then this statement does not express an intent to allow the consideration of economic and technological factors in judicial enforcement proceedings. In its section-by-section analysis, the Report states that after the 30 day limit, review of an "approved or promulgated implementation plan . . . is only possible whenever significant new information is available." The Senate floor debate contains no pertinent references to § 308. Thus the Senate history is consistent with an intent to provide judicial review of only certain issues, not including economic and technological feasibility, to dispose of the reviewable issues in a limited period, and to preclude the consideration of feasibility in enforcement proceedings.

The Conference Committee renumbered and changed the wording of § 308. The final § 307(b)(1) retains the 30 day limit for review of any "action of the Administrator." The Committee added § 307(b)(2) which forecloses from review any action of the Administrator which could have been reviewed in § 307(b)(1). The Conference Report does not comment on the addition of § 307(b)(2).

219. 1970 SENATE REPORT, supra note 1, at 41.
220. Id.
221. Id.
222. Id. at 65-66 (emphasis added).
223. The Senate floor debate is reproduced in 1 LEG. HIST., supra note 217, at 223-395; see especially id. at 386, as well as 116 CONG. REC. 19200-44 (1970).
224. 1970 CONFERENCE REPORT, supra note 61, at 57.
There were no pertinent references to § 307 in post-conference debate in the House and Senate. These Conference Committee changes also are consistent with an intent to preclude consideration of economic and technological feasibility in enforcement proceedings.

While subsequent legislative statements on past intent are not generally considered reliable, the House Report on the 1976 amendments comments significantly on the reviewability of feasibility factors in enforcement. The Report explicitly endorses the view that in 1970 Congress "close[d] the door unequivocally on judicial consideration of economic and technological factors on a case-by-case basis in enforcement proceedings." Yet the Committee did not feel compelled to suggest any change in the wording of § 307(b)(2).

This history, while not definitive, tends to confirm the view that in § 307(b)(2) Congress intended to preclude consideration of economic and technological factors in subsequent judicial enforcement proceedings. This result, candidly, is not explicit in the bare terms of the subsection. Since the meaning of § 307(b)(2) was not essential to the disposition of Union Electric, and since the literal meaning and the legislative history of the subsection are unclear, the Supreme Court declined to resolve the question. The choices that the Court is likely to face in a future case are discussed below.

First, it should be noted that the Eighth Circuit's holding in Union Electric was simply that it lacked jurisdiction to hear economic and technological challenges to the SIP in a § 307(b)(1) review, because the Administrator lacked the authority to base an action on such factors. The court could have reached the conclusion that on the merits the economic and technological challenges fail, using exactly the same reasoning. It was pointed out before the Supreme Court decided the case that in this situation the Eighth Circuit should have dismissed the case on the merits. Justice Marshall's opinion and Justice Powell's concurrence both discuss the issues and state the holding as though they were ruling on the merits. Yet technically the Court merely affirmed the lower court holding. Thus it is unclear whether Union Electric stands for the proposition that the court lacks jurisdiction to hear feasibility claims or whether on the merits such claims must fail.

The distinction may be important for the resolution of the meaning of § 307(b)(2). If the holding is jurisdictional, then the fact that

225. The debates are reproduced in 1 Leg. Hist., supra note 217, at 111-50, and in 116 Cong. Rec. 42519-24 (House), 42381-95 (Senate).
226. 1976 HOUSE REPORT, supra note 11, at 51, quoting Bleicher, supra note 74, at 325.
227. 1976 HOUSE REPORT, supra note 11, at 397. See note 11 supra.
228. Bleicher, supra note 76, at 346-47.
there can be no review because there has been no action applies also to § 307(b)(2): the subsection must fail to exclude feasibility issues from enforcement because there has been no previously reviewable action to exclude.\footnote{230} If, however, the holding is on the merits, another result is possible. In this case § 307(b)(1) review has determined that consideration of feasibility can be no part of the Administrator’s decision, and § 307(b)(2) operates to exclude reconsideration of that determination. This interpretation is facilitated by viewing an “action of the Administrator” not as any component decision or procedure going into the ultimate conclusion to approve an SIP, but as the approval itself. Holding that “action” is the approval itself and not any of the intermediate steps is more consistent with the language of the original Senate § 308 referring to an “approved or promulgated implementation plan.”\footnote{231}

If the Court concludes that § 307(b)(2) does not exclude the consideration of these factors in judicial enforcement proceedings, it will have to outline how the court involved in an enforcement action shall approach the claims that the SIP rules are invalid. The polluter, of course, would bear the burden of showing that the rules were invalid. The Court will have to indicate, however, what proof will suffice. It will have to decide what weight to give the state hearings and any state variance or judicial review. In resolving these questions, the Court probably should not make it any easier to show the unreasonableness or infeasibility of the rules in this proceeding than would be required for a § 110(e) request for an extension or a § 110(f) request for a postponement; otherwise the Court will discourage polluters from asking the governor to initiate such a proceeding and it will render those provisions vestigial. Finally, the Court will have to decide what

\footnote{230. \textit{See} Bleicher, \textit{supra} note 76, at 346-47.} \footnote{231. \textit{See} text accompanying note 218 \textit{supra}. Actually, the holding that the Court of Appeals lacked jurisdiction in this case is consistent with the conclusion on the merits that the Administrator may not consider economic and technological feasibility. The utility’s petition challenging the SIP was filed after the 30 day limit set by § 307(b)(1), 42 U.S.C. § 1857h-5(b)(1) (1970). That section permits challenges to SIPs after the 30 day limit only on the basis of “grounds arising after such 30th day.” \textit{Id.} Thus, when the grounds arose is a jurisdictional question. Both the Court of Appeals and the Supreme Court noted that it would be unnecessary to decide this question if the grounds asserted—whenever they arose—were not of the kind that the Administrator may consider. As discussed in the text immediately above, both courts concluded that the Administrator could not consider economic and technological objections, regardless of when they arose. Therefore, a precondition to jurisdiction was lacking. Union Electric Co. v. EPA, 515 F.2d 206, 219, 7 ERC 1697, 1706 (8th Cir. 1975); 96 S. Ct. 2518, 2524-25, 8 ERC 2143, 2146 (1976). Thus the Court of Appeals and the Supreme Court made the essential substantive question of the controversy into a precondition with the effect of a statute of limitations. However unusual, this reasoning is logical and it can explain the fact that the holding is jurisdictional rather than substantive.}
remedy the lower courts can grant. If a district court can invalidate the whole SIP, years of reliance and expectations will be upset. If the court can invalidate only the portion of the SIP applicable to the polluter, and if the compliance with those rules was necessary to the meeting of the standards, the entire plan will have to be revised and the same reliances and expectations will be upset. Only if the rules applicable to the polluter can be relaxed without causing the standards to be violated can the court grant relief that does not undo the congressional intent to provide a mechanism for attaining clean air goals in a relatively short time.  

If the Court concludes that § 307(b)(2) does exclude economic and technological objections to the SIP from enforcement proceedings, it will have to decide whether due process nonetheless requires a federal administrative or judicial hearing on such objections. In Union Electric the Court pointed out the availability of other opportunities for consideration of these objections: the state SIP hearings, state variance and judicial review procedures, the § 110(e) extension and the § 110(f) postponement, and provisions for a reasonable time for compliance in § 113 compliance orders. In addition, an enforcement court has equitable authority to fashion a remedy which allows reasonable time for compliance. The Court noted, however, that the states do not have to provide opportunities for variances or for judicial review. In the Getty Oil Dilemma, moreover, the state opportunities do not bind the Administrator. In addition, the polluter does not have a right to ask the Administrator for the § 110(e) or § 110(f) proceedings; only a governor may initiate such proceedings. The 1970 Act does not require the governor to initiate such a proceeding at the polluter's request, nor, in all likelihood, could Congress set standards by which a state governor must respond to such a request. Finally, the consideration of a "reasonable time" for compliance, whether by the Administrator or by a court, would concern only the shaping of a remedy for a violation, not the constitutionality of the underlying rule.

These questions are almost certain to come before the Court in another round of litigation. Since Union Electric was decided, the District Court for the District of Columbia has held that an electric utility may not raise claims regarding the economic and technological infeasibility of an SIP provision as a defense to a citizen suit for enforce-

232. See text accompanying notes 211-12 supra; Bleicher, supra note 76, at 352-53.
233. See text accompanying note 207 supra.
234. See text accompanying note 100 supra.
235. 96 S. Ct. at 2530 n.16, 8 ERC at 2150 n.16.
236. See text accompanying notes 166-76 supra.
ment.238 Also since *Union Electric*, the Third Circuit has expressly reserved the question of its jurisdiction to hear these claims in a review under the APA of the Administrator's issuance of a compliance order.239

The Court may well decide, if it reaches the constitutional issue, that no one has a constitutional right to be in a given business which creates air pollution that severely harms the public health. It has been suggested that in matters traditionally perceived as deeply affecting the public health, such as food and drug safety, this notion is already accepted, and that the interests in safe, breathable air demand no less than the interests in safe food and drugs.240 If a polluter has no substantive right to remain in business, then it serves no purpose to hold a hearing on claims of infeasibility. Nevertheless, on the principle of avoiding constitutional issues where they need not be decided, the Court has declined to make either this or the contrary judgment as yet.

V

PROGRAM 3: NEW SOURCE PERFORMANCE STANDARDS

In the setting of the ambient standards and, to a lesser extent, in the SIP process, Congress itself set the balance between health and other factors; in the new source performance standards program, Congress delegated the balancing responsibility to EPA.

Section 111 of the 1970 Clean Air Act authorizes EPA to set new source performance standards (NSPSs) for categories of sources of pollution.241 Through mid-1976 EPA had promulgated NSPSs for 25 categories of sources, including portland cement factories, sulfuric acid plants, coal fired steam generators, and incinerators.242 NSPSs apply to new and modified sources243 and can apply, through state implementation plans similar to those of § 110, to existing sources as

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239. West Penn Power Co. v. Train, No. 75-1259 at 4-5 (3d Cir., filed Jul. 30, 1976) (slip opinion). The court also reserved the more basic question whether a § 113 compliance order is a "final" administrative action reviewable under the APA. Id. See also Fry Roofing Co. v. EPA, — F. Supp. —, 9 ERC 1265, 1270-71 (W.D. Mo. 1976).
240. See Bleicher, supra note 76, at 349.
well. The EPA Administrator may promulgate NSPSs for any category of sources which he determines:

may cause or contribute significantly to air pollution which causes or contributes to the endangerment of public health or welfare.

Standards must:

[reflect] the degree of emission limitation achievable through the application of the best system of emission reduction which (taking into account the cost of achieving such reduction) the Administrator determines has been adequately demonstrated.

The Act established a speedy timetable for setting NSPSs. Within 90 days of the statute's enactment, the Administrator must publish an initial list of source categories, and he must revise it periodically thereafter. Within 120 days of listing a category he must propose NSPSs for it. He must promulgate standards within 90 days of their proposal, during which time written comments from those to be regulated must be considered.

EPA has the primary duty to enforce compliance with the standards, but the agency may delegate this responsibility to a state which submits an adequate enforcement procedure.

Through the NSPSs, Congress created a mechanism for limiting the emissions of pollutants not covered by ambient air quality standards. Section 111 permits control of pollutants about which too little is known to set a primary standard or about whose diffusion too little is known to set emission standards that will guarantee a given ambient level. As noted above, when both ambient standards and NSPSs applicable to the same pollutant exist, the NSPSs are only minimum requirements. In order to meet the primary standards in some areas, greater emission reductions are needed than are specified by the NSPSs. In these areas, state or federal-substitute emission standards more stringent than the NSPSs must be met.

The legislative history of § 111 gives some insight into the congressional intent for the consideration of economic reasonableness and technological feasibility in the setting of NSPSs. The earliest Administration proposal would have required the EPA to consider technological feasibility in setting emission standards. The bill that emerged from

244. Id. § 111(d), 42 U.S.C. § 1857c-6(d) (1970).
248. Id. § 111(c); 42 U.S.C. § 1857c-6(c) (1970).
249. See text accompanying notes 44-45 supra.
250. See § 111(b)(2) of the Administration's Senate bill, S. 3466, in Hearings on S. 3229, S. 3466 and S. 3546 before the Subcomm. on Air and Water Pollution of
the House added economic considerations, ordering the agency to control such emissions "to the fullest extent compatible with the available technology and economic feasibility."251

The same balancing decision was agreed on in the Senate. Although the bill which passed the Senate lacked explicit language directing the agency to consider economic factors,252 the Senate Report directs the agency to prescribe only standards which can be achieved by "available" technology, and the Report defines "available" to include consideration of economic factors.253 The Conference Committee made minor changes in the language of the section, but there is no indication that it intended a change in its meaning.254 In the House, a subsequent amendment to delete the reference to economic factors was defeated by voice vote.255 The final version of § 111 directs the EPA Administrator to develop performance standards based on his own balancing test, after accepting written comments from interested parties.

Review of NSPSs is available only in the District of Columbia Court of Appeals.256 This court has had two major NSPSs cases, Portland Cement Association v. Ruckelshaus (Portland Cement I)257 and Essex Chemical Corp. v. Ruckelshaus,258 both decided in 1973. In Portland Cement I industry petitioners challenged the § 111 standards, promulgated by EPA in late 1971, for particulate emissions from cement plants.259

The petitioners raised three arguments: (1) that EPA must prepare a NEPA environmental impact statement, (2) that EPA must prepare a detailed benefit/cost study for each § 111 promulgation, and (3) that EPA had failed to show that the technology it prescribed was "adequately demonstrated."

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252. See § 113 of S. 4358, in 1970 SEnATE REPORT, supra note 1. At 91 the Report states:

Such standards shall reflect the greatest degree of emission control which the Secretary [of HEW] determines to be achievable through application of the latest available control technology, processes, operating methods, or other alternatives.

253. Id. at 15-16.

254. See discussions of § 111 in CONFERENCE REPORT, supra note 61, at 9, 45.


The court refused to decide whether all of EPA's environmental actions were exempt from the requirements of NEPA, as the agency asserted, but held only that there exists a "narrow exception" for § 111 rules because the rulemaking process "properly construed, requires the functional equivalent of a NEPA impact statement." The court emphasized that the major reason for making this exception is that Congress directed EPA to promulgate § 111 rules quickly, within 90 days of their proposal, and that the longer time contemplated by NEPA for preparing impact statements would delay the rapid action Congress desired. The court noted that the essentials of a NEPA statement are covered by § 111's requirements that EPA approve the "best" emission reduction system taking "into account the cost of achieving such reduction."

In response to petitioners' last two arguments, the court developed minimum standards for EPA's rulemaking process and explanation of its rules. The court concluded that EPA had made several severely deficient procedural errors. It required a remand for better explanation of the basis for the standards and perhaps more evidentiary support for them. The court emphasized that these errors prevented commentators on the proposed standards from participating effectively and prevented the court from determining if there was the quality of support for the NSPSs which § 111 contemplates.

In the first judicial interpretation of how EPA is to analyze costs in setting its NSPSs, the court rejected the petitioners' argument that EPA must prepare an analysis of the health and environmental benefits and the economic costs of the standards for cement plants. The court noted the weaknesses of benefit/cost analysis which we have stressed above. It observed that performing such a complicated and lengthy analysis would conflict with the requirement of promulgating rules within 90 days of their proposal. The court also noted that EPA had estimated the increase in cement production costs due to the NSPSs and had found that it would have little impact on cement's market position among competing building materials. The court concluded, however, that while § 111 did not require a full-scale benefit/cost analysis, it did implicitly direct the agency to give more attention to eco-

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261. Id. at 386, 5 ERC at 1599.
262. Id. at 385, 5 ERC at 1599.
263. Id. at 401-02, 5 ERC at 1611.
264. Id. at 387, 5 ERC at 1600-01; see text accompanying notes 15-29 supra.
266. Id. at 387-88, 5 ERC at 1601.
nomic impacts by examining the proposed standards' effects on product and regional subdivisions of the cement market. The court's rejection of a full-scale benefit/cost analysis avoids making EPA's task unmanageable. The court's insistence on submarket analyses, however, will someday involve EPA in all the difficulties of market definition which have plagued the Federal Trade Commission and the courts in antitrust law.

The petitioners also argued that under the directive to consider costs EPA must assure that NSPSs for different categories of sources are fair. The court rejected this claim, holding that § 111 does not require the Administrator "to present affirmative justifications" for differences between industries, and observed:

Inter-industry comparisons of this kind are not generally required, or even productive; and they were not contemplated by Congress in this Act.

The place for such comparisons is in the consideration of the relative positions of the makers of competing and substitute products, not of the positions of users of similar control technologies.

Finally, the court agreed with the petitioners that the availability of the technology prescribed to achieve the cement NSPSs had not been "adequately demonstrated." The court affirmed EPA's contention that the agency was not restricted to mandating pollution control equipment already in use; it could base its standards on predictions of what technology would be available when the standards were to become effective.

However, the court found a "critical defect" in EPA's failure, when it proposed the NSPSs, to make available to petitioners the methodology by which the agency predicted the availability of the prescribed technology. This failure prevented the industry commentators from knowing and disputing the agency's basis for concluding that the control techniques were adequately demonstrated. Petitioners obtained the methodology only after they had sought judicial review of the standards.

In an earlier, unreported remand, the court had ordered EPA to take and consider comments criticizing its methodology. Responding to the remand, EPA had repromulgated the standards and rejected

267. Id.
269. 486 F.2d at 389, 5 ERC at 1602.
270. Id. at 389-90, 5 ERC at 1602.
271. Id. at 391-92, 5 ERC at 1603-04.
272. Id. at 392, 5 ERC at 1604.
273. Id. at 393, 5 ERC at 1605.
these criticisms without explanation. Reviewing the repromulgation, the court stated:

It may be that EPA considers [the commentator's] analysis invalid—but we have no way of knowing this. As the record stands, all we have is [his] repudiation of the [EPA] test data, without response. The purpose of our prior remand cannot be realized unless we hear EPA's response to his comments. . . .^{274}

The court remanded the rule again, requiring EPA to respond to the industry's criticisms of the methodology which were "material", i.e., whose resolution would affect the adequacy of the demonstration of the technology's availability.^{275} The court listed a number of specific industry criticisms which EPA had to answer adequately.^{276} These criticisms went to the heart of the agency's predictions. However, the court did not supply a functional definition of "material" that is capable of guiding EPA's future conduct. The specific examples do not inform the agency either of the number and kind of criticisms it must anticipate and refute, or of the level of detail its refutations must reach. The decision encourages EPA to anticipate and refute every criticism which the court could conceivably find material in order to ensure that its NSPSs will survive judicial review. The incentive to prepare such documentation and explanation conflicts with the statute's instruction to promulgate NSPSs within 90 days of their proposal. It also forces EPA to use up resources that would otherwise be available for other important agency responsibilities.

In Essex Chemical Corp. v. Ruckelshaus,^{277} decided shortly after Portland Cement, another panel of the District of Columbia Circuit upheld most aspects of EPA's NSPSs for sulfuric acid plants and for coal fired steam generators. As in Portland Cement I, the petitioners charged that the basis for the standards was not adequately demonstrated.^{278} The court found, however, that with several exceptions, EPA had supported its rules with sufficient evidence. First, it agreed with Portland Cement I that EPA was authorized to require technology not available when the agency proposed the standards, but which it judged would be available when the standards became effective.^{279} The court noted that in this case the agency withheld no important test-

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^{274} Id.

^{275} Id. at 393-94, 5 ERC at 1605.

^{276} Id. at 396-401, 5 ERC at 1606-11.


^{278} The Essex Chemical court summarily dismissed petitioners' objection to the lack of a NEPA impact report and cost-benefit analysis, saying the issue had been "conclusively dealt with" in Portland Cement. Id. at 430-31, 5 ERC at 1823.

^{279} Id. at 433-34, 5 ERC at 1824-25.
ing or methodological information so as to destroy the petitioners' right to comment effectively, nor had the petitioners objected to the accuracy of the test data. Then the court found that each of the standards was adequately supported by the results of tests under realistic production conditions. These tests showed either that the standards could be met presently or that foreseeable improvements in control technology would enable them to be met by the time the standards became effective. In contrast to the tests on which EPA relied in *Portland Cement I*, these tests were more numerous and their accuracy was unchallenged.

The court remanded the NSPSs to the agency for consideration of relatively minor points. For example, the court instructed EPA to consider whether water pollution and solid waste problems from the disposal of the products of air pollution control would be more serious than the current air pollution problem. These instructions were consonant with the court's holding in *Portland Cement I* that control techniques cannot be "best" if they create greater environmental problems than they solve.

In late 1974 EPA responded to the remand in *Portland Cement* and repromulgated the original set of cement standards. They were upheld in *Portland Cement Association v. Train (Portland Cement II)*, decided by the District of Columbia Circuit in 1975. By this time EPA had tested the prescribed technology at numerous plants, and the petitioners conceded that the standards were technologically feasible. Thus the case did not directly pose the issue of the adequacy of EPA's response to industry criticisms of its predictive methodology. In the repromulgation the Administrator stated that no technology would be required that did not permit the subject industry to survive or that imposed costs that were grossly disproportionate to the emission reductions achieved. The court found these considerations of costs sufficient, even though the agency apparently did not undertake detailed submarket analyses of the capacity of portions of the industry to survive.

Obviously the NSPSs for portland cement plants were not made effective within the limit of 300 days designated by Congress. The

280. Id. at 437 n.30, 5 ERC at 1828 n.30.
281. Id. at 437-38, 440, 5 ERC at 1827-30.
282. Id. at 438-41, 5 ERC at 1828-30.
283. Id. at 438-39, 5 ERC at 1828-29, quoting Portland Cement Ass'n v. Ruckelshaus, 486 F.2d 375, 386 n.42, 5 ERC 1593, 1599 n.42 (D.C. Cir. 1973).
286. Id. at 508-09, 7 ERC at 1943-44.
287. Id. at 508, 7 ERC at 1943.
court's efforts to guarantee adequate consideration of economic and technological factors undoubtedly delayed this particular rulemaking. No requirement of *Portland Cement I* necessitates that EPA take more than 300 days to promulgate future NSPSs. *Essex Chemical* shows the scale of tests which the court will conclude are at least minimally sufficient to adequately demonstrate the availability of a control technology, and to overcome contentions that the NSPSs are arbitrary and capricious. Nevertheless, *Portland Cement I*’s vague definition of “material criticisms” probably inspired EPA to be excessively cautious. The fact that in *Portland Cement II* the manufacturers conceded the technological feasibility of the standards argues that EPA made a stronger case for availability than it need have. The cost of this overkill was delay in setting the cement standards and diversion of the agency's resources from other duties.

VI

PROGRAM 4: MOTOR VEHICLE EMISSION STANDARDS AND FUEL ADDITIVE REGULATIONS

This section considers the judicial review of two decisions by the EPA Administrator that were critical to the success or failure of the program to limit motor vehicle emissions. In *International Harvester Co. v. Ruckelshaus*,\(^\text{288}\) decided in 1973, the District of Columbia Circuit Court of Appeals required the Administrator to reconsider his refusal to grant a one-year suspension of the deadline for meeting 90 percent reductions in motor vehicle emissions Congress mandated for 1975.\(^\text{289}\) In *Amoco Oil Co. v. EPA*,\(^\text{290}\) decided in 1974, the same court upheld the Administrator’s decision to require the marketing of lead-free gasoline.\(^\text{291}\) Both cases concern the Administrator’s decision-making process in considering economic and technological factors and how he must explain his decisions.

We begin with the suspension decision. In § 202(b) of the Act Congress mandated, by the 1975 model year, a 90 percent reduction from 1970 levels of carbon monoxide and hydrocarbon emissions and, by the 1976 model year, a like reduction in oxides of nitrogen.

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\(^{290}\) 501 F.2d 722, 6 ERC 1481 (D.C. Cir. 1974).

Congress permitted the vehicle manufacturers to apply to the Administrator after the beginning of 1972 for a one-year suspension of the deadline for carbon monoxide and hydrocarbons if he determined that:

(i) such suspension is essential to the public interest or the public health and welfare of the United States;

(ii) all good faith efforts have been made to meet the [90 percent reduction] standards...

(iii) the applicant has established that effective control technology, processes, operating methods, or other alternatives are not available or have not been available for a sufficient period of time to achieve compliance prior to the effective date of such standards; and

(iv) the study and investigation of the National Academy of Sciences [commissioned by EPA to evaluate the standards' technological feasibility] and other information available to him has not indicated that technology, processes, or other alternatives are available to meet such standards.

The Administrator must decide upon the suspension within 60 days of an application, after holding a public hearing. Thus the Administrator must make complex judgments about the availability of technology, the public interest, and the good faith of the automobile manufacturers in an expedited rulemaking proceeding.

A look at the legislative history illuminates the role Congress intended for economic and technological factors in this program. Under the 1965 Motor Vehicle Air Pollution Control Act, these two factors were the main ones which the Secretary of Health, Education and Welfare (HEW) had to consider in setting emission standards. In 1965 Congress delegated the setting of vehicle emission standards to a federal administrative agency. As with the NSPSs, but in contrast to its treatment of the ambient standards, Congress directed that the agency balance health protection with economic and technological factors. The resulting HEW-promulgated standards called for a gradual reduction in emissions, to be completed by 1980.

In the Senate hearings on the 1970 Act, the proposed toughening of vehicle emission standards was the subject of intensive lobbying by
the auto industry and by health and environmental groups. The key to Congress' decision to withdraw the standard setting from HEW and itself establish emission standards was a NAPCA report which predicted that achieving the projected ambient air quality standards was impossible with the then-existing motor vehicle emission standards. The Senate Report confirmed that, in mandating 90 percent reductions, the Committee considered economic costs and technological feasibility to be secondary to protecting public health. The Committee recognized that with 1970 technology these reductions could not be achieved, but it expected that the federal requirements would force the development of new technology capable of meeting the standards by 1975 and 1976. Thus the concept of "technology forcing" was utilized, as it was in § 110.

Economic considerations were almost totally ignored in the floor debates. Only Senator Griffin of Michigan, a state whose economy is heavily dependent on automobile production, opposed the 90 percent congressional mandate because of its potential for economic disruption. He urged that the present delegation to an administrative agency be retained, so those with economic and technological expertise could develop appropriate standards. Senator Muskie, however, responded that potential job losses were preferable to the continued, certain loss of life in urban areas polluted by motor vehicles. Congress rejected the continuation of the delegation, and itself decreed the 1975 and 1976 standards.

While Congress excluded economic and technological considerations from the choice of standards, it did create a means of obtaining a one-year suspension of the 1975 deadlines for carbon monoxide and hydrocarbons which incorporated questions of technological feasibility and economic reasonableness. Thus Congress created a process, which one Senator called a "realistic escape hatch," through which the

298. See, e.g., 1970 Senate Hearings, supra note 250, pt. 3 at 1056-86 (statement of Paul F. Chenea, General Motors); 1086-1104 (statement of Robert Gunnes, Standard Oil Co., Ind.); 1104-11 (statement of Peter N. Gammelgard, Am. Petroleum Institute); pt. 4 at 1187-93 (statements of Senator Muskie and Dr. James Steiner, Nat'l Tuberculosis and Respiratory Disease Ass'n); 1375-1462 (statement of E.D. Kane, Chevron Research Co.).


300. 1970 Senate Report, supra note 1, at 25; but see Ditlow, supra note 288, at 500-01.


Administrator could give limited relief for valid claims of hardship. We turn now to what Congress intended to be valid claims of hardship.

Under § 202(b)(5)(C) the Administrator could grant the suspension only if he made four specific determinations: that the suspension was in the public interest, that the vehicle manufacturers had made all good faith efforts, that the control technology was unavailable, and that the study by the National Academy of Sciences (NAS) confirmed the unavailability of the technology. The third and fourth conditions clearly require consideration of technological feasibility. None of the conditions explicitly mentions the consideration of economic factors, but the Conference Report indicates that Congress desired the Administrator to give, within the third condition, "appropriate consideration to the cost of applying such technology within the time available to the manufacturers." Thus § 202(b)(5)(C) appears to create four independent conditions for the emission deadline suspension, each necessary but none sufficient by itself. As we show below, the District of Columbia Circuit did not respect the independence of these conditions and changed the nature of the consideration of economic and technological factors from that which Congress intended for the suspension decision.

In March and April 1972, shortly after the statute authorized applications, most of the automakers applied for the one-year delay. On May 12, 1972, 60 days after the filing of the first application and after an extended public hearing, the Administrator denied the applications. He concluded that the manufacturers had failed to satisfy the first and third conditions, i.e., that the suspension was not in the public interest and that the technology was available. The Administrator declined to reach the issue of the manufacturers' good faith, nor did he comment on the NAS study, which indicated more problems of availability than the Administrator conceded.

The manufacturers petitioned for judicial review. In International Harvester the District of Columbia Court of Appeals remanded the denial for further explanation of aspects of the decision which the court thought were deficient. In so concluding, the court converted the four apparently independent conditions into one interlocking inclusive benefit/cost analysis. The court's statutory interpretation clashed

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305. 1970 CONFERENCE REPORT, supra note 61, at 49.
307. Id. at 647-50, 4 ERC at 2059-62.
with the twin congressional objectives embodied in § 202(b)(5): to limit the decision making to 60 days, and to limit the role of technological and particularly economic considerations in this decision.

The court affirmed the Administrator's contention that Congress intended that the vehicle emission standards be technology forcing. Thus he might base a determination that the controls were available on reasonable predictions of what technological improvements would be developed between 1972 and 1975. The court linked the public interest requirement, the question of availability, and the advice of the NAS report into one broad analysis of the risks, benefits, and costs of erring in the prediction of the 1975 state of the art.

The court conceded that Congress' desire for such a broad analysis was not explicit, but it found the desire implied in the public interest requirement. The court criticized the Administrator's finding that the public interest required denial as:

obviously only a restatement of, and dependent on the validity of, the conclusion of a failure to satisfy standard (iii) by showing that the effective control technology is not available.

Thus, in order to give the public interest requirement meaning, the court believed that it must infer a requirement for the broad analysis of the consequences of an erroneous decision. The court then outlined the elements of the analysis which it expected EPA to follow on remand.

First, citing the NAS report, the court concluded that the potential health and environmental costs of postponing the achievement of the carbon monoxide and hydrocarbon standards until 1976 were small, in view of the fact that only a relatively small portion of the total fleet of automobiles is replaced every year. Moreover, the court noted the possibility that denying the suspension would have more health and environmental costs than granting it, because consumers might react to the higher prices of 1975 "clean" cars by retaining their older "dirty" cars longer.

On the other hand, the economic consequences of the manufacturers' failure to meet the 1975 standards could be great. The law effectively empowered the Administrator to shut down the industry, but

308. Id. at 628-29, 4 ERC at 2046.
309. Id. at 641, 4 ERC at 2055.
310. Id. at 648, 4 ERC at 2060.
311. Id. at 627, 4 ERC at 2045.
312. Id. at 634, 4 ERC at 2050.
313. Section 205 of the Clean Air Act authorizes a fine of up to $10,000 per vehicle for the sale of non-complying vehicles. 42 U.S.C. § 1857f-4 (1970). A fine of this size, two to three times the value of the cars at stake, would effectively shut down the industry.
the court observed that Congress could be expected to intervene in that situation.\textsuperscript{314} It was more concerned, however, with the consequences of partial failures to meet the 1975 standards. Two partial failures were possible: (1) that some, but not all, of the manufacturers would fail to meet the standards and (2) that only the smaller vehicles in the production lines would meet the standards. Of course, combinations of these two were possible also.\textsuperscript{315}

In the first case EPA held open the possibility of a suspension issued any time until 1975 if it became apparent that the technology would not be available. The court rejected this approach because a later suspension, affording relief to a company which had been unable to meet the standards, would penalize a company which had succeeded by committing itself to costly design changes.\textsuperscript{316} In the second case EPA had found that the technology was available for at least a "basic demand" for new vehicles. The court agreed that the statute did not guarantee that all models of vehicles would survive. But the court required the agency to explain more thoroughly its criterion for "basic demand" and to make a finding on whether manufacturers were able to shift their production sufficiently to make the necessary changes in the mix of their models.\textsuperscript{317}

Despite EPA's predictions that the technology would be available, the court was concerned that there might be significant failures to meet the 1975 standards. It ordered EPA to hear and answer objections to these predictions which had been raised by the manufacturers and, implicitly, by the NAS study. The predictions of availability contained many critical assumptions about the behavior of present devices and about the development of future ones. In resolving doubts about these assumptions the court gave the manufacturers, as the parties controlling the relevant information about present capabilities, the burden of showing by a preponderance of evidence that the technology was presently unavailable. It gave the Administrator, who controlled the relevant information about predictions of future capabilities, the burden of responding with a "reasoned presentation" in support of the reliability

\textsuperscript{314} 478 F.2d at 636, 4 ERC at 2051-52.
\textsuperscript{315} Id. at 636-41, 4 ERC 2051-55.
\textsuperscript{316} Id. at 636-38, 4 ERC at 2051-53. The court noted that the Act provides for mandatory licensing of innovations from one company to another in order to prevent a successful innovator from gaining a competitive advantage from the air pollution control program. Clean Air Act § 308, 42 U.S.C. § 1857h-6 (1970). However, the court dismissed the adequacy of this provision with the observation that access to the innovation might not be sufficient protection, if the innovation was incompatible with the lagging company's basic vehicle. Id. at 637 n.78, 4 ERC at 2052 n.78. Such design incompatibility, however, is very unlikely, since all the vehicle manufacturers use nearly identical propulsion systems.
\textsuperscript{317} Id. at 640-41, 4 ERC at 2054-55.
of his predictive methodology. The court gave the Administrator a lighter standard of proof than the manufacturers because his decisions are entitled to stand unless they are arbitrary or capricious.318 The manufacturers had met their burden; the vast majority of test cars failed meet the 1975 standards even at low mileages, and none had been driven 50,000 miles, the distance over which Congress directed the emission standards be maintained.319

The court concluded that, in contrast, the Administrator had not met his burden. First, in order to allow the reviewing court to determine whether the predictions of availability were reasonable, the court ordered EPA to grant the manufacturers an opportunity to criticize its methodology.320 The Administrator was required to explain the basis for the differences between his assumptions and conclusions concerning availability and those of the NAS study, and he was required to explain his reasons for rejecting the manufacturers' criticisms.321 The court cited as critical assumptions: (1) the probability that owners would have necessary maintenance performed, (2) the accuracy of certain adjustments for lead content of test fuels and estimates for the deterioration of the control devices at higher mileages, (3) the emission levels of General Motors vehicles with the more effective Ford control system, and (4) the reliability of the many statistical manipulations upon which the results depended.322

Finally, the Administrator was required to balance the potential health and economic benefits and costs of a one-year delay with the potential benefits and costs of retaining the 1975 deadline. Furthermore, in this calculation he was required to weigh each side of the balance by the probability that the technology actually would be available in 1975.323 For example, if, as the court posited, (a) the health and environmental costs of a one-year delay were small, (b) the economic costs of denying the delay were potentially great, and (c) the risk of unavailability in 1975 were high, then the public interest would demand that the suspension be granted. In contrast, if the Administrator could show that (a) the health costs of a one-year delay were greater than the court thought, (b) the economic costs of denying the delay were less than the court feared, and (c) the risk of unavailability was lower than the man-

318. Id. at 642-43, 4 ERC at 2055-56.
319. Id. at 642, 4 ERC at 2056.
320. Id. at 630-33, 4 ERC at 2047-49.
321. Id. at 642-43, 4 ERC at 2056. Here the court states only that the Administrator bears the burden of making a "reasoned presentation." In the following pages, however, the court makes it clear that the Administrator must respond to divergencies between his position and the positions of the NAS report and of the manufacturers. Id. at 643-47, 4 ERC at 2056-59.
322. Id. at 643-44, 4 ERC at 2056-59.
323. Id. at 648, 4 ERC at 2061.
manufacturers and the NAS report asserted, then the court would uphold his denial.

The court ordered the Administrator to hold new hearings on these matters, and to allow the manufacturers "reasonable" cross-examination on "critical questions." Finally, the Administrator was directed to render a decision within 60 days, and he was permitted to condition the suspension upon the manufacturers' meeting interim standards that were between the 1974 and 1975 levels.

The *International Harvester* decision made the suspension decision process far more complex than Congress had indicated it desired. The requirement of the broad benefit/cost analysis did not rest on the third condition, concerning technological availability, alone. We have seen that one year later, in *Portland Cement I*, the court refused to require the agency to perform a narrower benefit/cost analysis even when the direction to take account of costs was in the statute itself, rather than only in the Conference Report. In *International Harvester* the court inferred the benefit/cost analysis requirement from the conditions concerning the public interest and the NAS study. It did so despite the absence in the statute or the Conference Report of any definition of the factors going into the public interest and the NAS study. It did so despite the absence in the statute or the Conference Report of any indication that the NAS study was to be more than a source of expert advice to the Administrator, or of any interrelationship between the four conditions.

The new analysis raised the Administrator's burden of proof on the availability of controls higher than Congress had intended. The new analysis also could not reasonably be performed in the original 60 days or in the 60 days granted on remand. Granting even a limited right of cross-examination aggravated the time dilemma. Thus the result of the remand was quite predictable. The Administrator had two alternatives: to deny the applications or to grant a suspension conditioned on the meeting of interim standards that were nearer present capabilities. After employing the *International Harvester* analysis of benefits, costs, and risks, the Administrator concluded that he must choose the latter alternative. A subsequent NAS report and other information available to the Administrator indicated that impressive strides in control technology had occurred since the initial decision in May 1972. Nevertheless, the Administrator found that in the new analysis the risks of economic dislocation from significant potential

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324. *Id.* at 649, 4 ERC at 2061.
325. *Id.* at 649-50, 4 ERC at 2061.
326. See text accompanying notes 264-65 *supra*.
supply problems called for granting the suspension.\textsuperscript{328} Had the Administrator been free to use the congressional approach of making several independent, narrower determinations, the suspensions would not have been granted.

This criticism of \textit{International Harvester} does not ignore the potential for economic disruptions from a decision process which downplays economic and technological factors. But Congress intended to place great pressure on the vehicle manufacturers in order to stimulate them to develop the necessary technology. The success of technology forcing depends on the maintenance of predictable pressure and on the absence of easy escape hatches. If the congressional goals were truly beyond the industry's capabilities, Congress, as the court noted, could relax them at any time until the 1975 model year. Congress apparently is able to amend its previous goals in the light of information on the success and costs of technology forcing; in 1974 Congress delayed the 1975 and 1976 deadlines to 1977 and 1978 respectively.\textsuperscript{329}

When the court lessened the pressure on the manufacturers, it invalidated the largest experiment in the possibilities of technology forcing contained in the environmental laws. While the court's broad benefit/cost balancing may be a wiser or more sophisticated approach than the statute's, the court seems to have assumed Congress' role of choosing between approaches.\textsuperscript{330} Notwithstanding its expressions of "diffidence,"\textsuperscript{331} the court went beyond its proper role of limited review.

In reviewing the Administrator's regulation of the lead content of fuels,\textsuperscript{332} the District of Columbia Circuit Court maintained its proper role. At issue here were regulations requiring the marketing of lead-free gasoline in order to prevent the deleterious effect of lead on the catalytic converter, the device by which most vehicles were expected to meet the interim emission standards set in response to \textit{International Harvester}.\textsuperscript{333} Section 211(c) permits the Administrator to "control or prohibit" the manufacture and distribution of a fuel or fuel additive:

\begin{quote}
if emission products of such fuel or fuel additive will impair to a significant degree the performance of any emission control device or system which is in general use, or which the Administrator finds
\end{quote}

\textsuperscript{328} \textit{Id.} The Administrator did make an independent analysis on the issue of good faith, condition two, questioning the policies of Chrysler Corporation, but granted the suspension as to that company notwithstanding. \textit{Id.} at 10327-29.


\textsuperscript{330} Chief Judge Bazelon's concurrence hints at this point. \textit{International Harvester Co. v. Ruckelshaus}, 478 F.2d 615, 650-53, 4 ERC 2041, 2062-63 (D.C. Cir. 1973).

\textsuperscript{331} \textit{Id.} at 647-48, 4 ERC at 2059-60.


\textsuperscript{333} See text accompanying notes 327-28 \textit{supra}. 
has been developed to a point where in a reasonable time it would be in general use were such regulation to be promulgated.\footnote{334} The statute establishes certain hearings and findings requirements as prerequisites to such action. Section 211(c)(2)(B) states:

No fuel or fuel additive may be controlled or prohibited by the Administrator pursuant to clause (B) of paragraph (1) except after consideration of available scientific and economic data, including a cost benefit analysis comparing emission control devices or systems which are or will be in general use and require the proposed control or prohibition with emission control devices or systems which are or will be in general use and do not require the proposed control or prohibition. On request of a manufacturer of motor vehicles, motor vehicle engines, fuels, or fuel additives submitted within 10 days of notice of proposed rulemaking, the Administrator shall hold a public hearing and publish findings with respect to any matter he is required to consider under this subparagraph. Such findings shall be published at the time of promulgation of final regulations.\footnote{335}

Section 211(c)(2)(C) states:

No fuel or fuel additive may be prohibited by the Administrator under paragraph (1) unless he finds, and publishes such finding, that in his judgment such prohibition will not cause the use of any other fuel or fuel additive which will produce emissions which will endanger the public health or welfare to the same or greater degree than the use of the fuel or fuel additive proposed to be prohibited.\footnote{336}

While this section does not specify a timetable for the rulemaking, one may infer a congressional desire for speed from the requirement that an interested party request a hearing within ten days of the proposal of a regulation.

These provisions have no history in air quality legislation prior to 1970, although the 1967 Act and 1970 Act contain provisions for regulating fuels or additives which themselves directly endanger health.\footnote{337} Congress developed the provisions considered here with lead poisoning of the catalytic converter expressly in mind.\footnote{338}

Oil company petitioners unsuccessfully attacked these lead regulations in \textit{Amoco Oil Co. v. EPA}.\footnote{339} They raised three contentions which bear on the agency's responsibility to consider economic factors

\footnotesize{
\begin{itemize}
\item 336. Id. § 211(c)(2)(C), 42 U.S.C. § 1857f-6c(c)(2)(C) (1970).
\item 337. Id. § 211(c)(1)(A), 42 U.S.C. § 1857f-6c(c)(1)(A) (1970); Ethyl Corp. v. EPA, — F.2d —, 8 ERC 1795 (D.C. Cir. 1976), cert. denied, 96 S. Ct. 2663 (1976).
\item 338. 1970 Senate Report, supra note 1, at 34-35.
\item 339. 501 F.2d 722, 6 ERC 1481 (D.C. Cir. 1974).
\end{itemize}
}
in implementing the program to reduce motor vehicle emissions. First, they argued that the Administrator must make specific, detailed findings regarding the costs and benefits of alternative control devices and regarding the health and welfare effects of controlling lead. Second, they contended that the agency lacked support for setting the maximum lead content of "lead-free" gasoline as low as 0.05 grams per gallon. Third, they argued that the statute did not permit the Administrator to require the marketing of lead-free fuels.

The court rejected the petitioners' contentions concerning findings. The court noted that the House bill would have mandated "specific findings" on medical, scientific, economic, and technological issues. The Senate bill, however, lacked the adjective "specific," and the Conference Committee deliberately agreed on unmodified "findings" in the final version of the Act. The court explained that detailed findings of fact are particularly unsuited to rulemaking. Rulemaking involves:

- normative conflicts, projections from imperfect data, experiments and simulations, educated predictions, differing assessments of possible risks, and the like. The process is quasi-legislative in character, and one will search it in vain for those intermediate "findings" of fact which mark the mid-way point in an adjudicator's linear march from raw evidence to a single, ultimate conclusion.

To require particularized findings would delay the rulemaking and would create "endless confusion and great uncertainty" concerning the adequacy of the explanation of the rule. Thus the court concluded that the Administrator should have substantial discretion to make policy conclusions from uncertain facts and should be free of the need to make detailed findings concerning the disposition of each such fact.

The court upheld the Administrator's conclusion that unleaded gasoline would not cause health problems equal to or greater than those associated with leaded gasoline. The petitioners had placed nothing in the record or before the court to indicate any such health problems.

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340. Id. at 732-33, 6 ERC at 1486-87. See 1970 Conference Report, supra note 61, at 52.
341. The Conference Report states only that "the Administrator is required to consider specific technical and cost factors." 1970 Conference Report, supra note 61, at 52 (emphasis added).
343. Id.
and absent any contrary evidence, the Administrator's conclusion was entitled to the usual presumption of validity.

The court construed the requirements concerning findings of "scientific and economic data" and "cost benefit analysis" to apply only to what it called the "threshold" question of whether to control lead. The court cited legislative history which showed that Congress contemplated such findings only on the basic decision to regulate, not on each aspect of the regulations themselves. In this particular situation, since the Administrator had found (1) that the catalytic converter was poisoned by leaded fuels, (2) that it would be in "general use" at the effective date of these regulations, and (3) that no other control device would be in general use to meet the 1975 interim standards, he had made all the findings necessary to comply with § 211(c)(2)(B). Finally, the court held that the record contained ample support for these three findings.

The court rejected the oil companies' second claim that the ceiling of 0.05 grams of lead per gallon of gasoline was so low as to be arbitrary and capricious. The Administrator had found, on the basis of testimony that the court described as "credible and uncontradicted," that lead concentrations averaging more than 0.03 grams per gallon would poison the converters, and he concluded that a ceiling concentration of 0.05 grams per gallon was required to maintain an average of 0.03. The court cited two reasons for upholding the Administrator. First, it stated "the conclusion is in the nature of a prediction for which supporting data is necessarily sparse or absent." Moreover, the average attained from any ceiling depended on the behavior of the oil companies, or on how close they tried to approach the ceiling. The court deferred to the Administrator's anticipation of the oil companies' behavior because "EPA is closer to the scene, and has more expertise in these matters." Second, the court noted that the choice of a ceiling represents a balance between the risks of converter poisoning and the excessive economic costs of unnecessarily stringent cleanup. It concluded that such a "legislative policy judgment" was within the Administrator's discretion.

The companies also asserted that delivering gasoline with so low a lead content was technologically infeasible. But the court concluded that the record showed that the ceiling was

347. 501 F.2d at 736-37, 6 ERC at 1489-90.
348. Id. at 737-39, 6 ERC at 490-91.
349. Id. at 741, 6 ERC at 1493.
350. Id. at 742, 6 ERC at 1493.
351. Id.
already being met by one company nationwide and by many companies in New York City, which had a local ordinance providing for lead-free fuels. Moreover, the companies had not demonstrated any "scientific or technological obstacles." The problem was "a straightforward one of cost and effort" and thus it was within the Administrator's authority to resolve in the balancing of the risks of poisoning with the costs of compliance.\textsuperscript{353}

Third, the companies asserted that the power to "control or prohibit" the sale of leaded gasoline did not include the power to require the marketing of lead-free gasoline. The court answered that the marketing requirement was a "control" when construed as a condition on the sale of leaded fuels. While the House bill would have authorized the Administrator only to prohibit, the Senate version, which the Conference Committee accepted, added the power to control. The Senate Report specifically envisioned measures to make lead-free gasoline available to protect the catalytic converters if they became widespread.\textsuperscript{354} Finally, the petitioners argued that the Administrator lacked support for requiring the marketing of lead-free gasoline nationwide, and that EPA must rely on market forces to supply such fuel to areas where there would be few catalytic converters. But the Administrator had determined that a "significant number" of converter-equipped vehicles would be "distributed across the country," and that the marketing requirement was necessary to overcome the uncertainty concerning the availability of fuel which would not poison their converters. The court upheld his "considered policy judgment" to impose the costs of affirmative marketing on the oil companies in order to assure protection of the converters.\textsuperscript{355}

Judicial treatment of economic and technological factors in \textit{Amoco Oil} contrasts sharply with \textit{International Harvester}. In \textit{International Harvester} the court interpreted the statute as requiring many detailed determinations and findings unsuited to uncertain information and value-laden choices. This interpretation frustrated Congress' purpose of giving rapid administrative consideration to a narrow policy judgment as part of a larger experiment in technology forcing, in which the vehicle manufacturers had ample opportunities for legislative protection. The court in \textit{Amoco Oil}, however, refused to require such determinations and findings about similar information and choices. As a result, the congressional purpose of facilitating the achievement of vehicle emission standards through fuel regulation was achieved in the time and manner Congress contemplated. \textit{Amoco Oil} is a model for

\textsuperscript{353} Id. at 742-43, 6 ERC at 1494.
\textsuperscript{354} Id. at 744-45, 6 ERC at 1495-96.
\textsuperscript{355} Id. at 747, 6 ERC at 1497-98.
judicial review of EPA determinations concerning the balance of health factors with economic and technological considerations.

VII

PROGRAM 5: PREVENTION OF SIGNIFICANT DETERIORATION

The 1970 Act obligated the EPA Administrator to prevent significant deterioration of air which was cleaner than required by the secondary standards. The so-called clean air areas—where air quality meets this definition—cover more than half, and perhaps as much as 80 percent, of the nation's land. This fifth program has been the most difficult to define and implement because of its origins. Congress created the first four programs expressly, with varying degrees of delegation to the states and the EPA to determine the role of economic, technological, and social factors. But Congress did not explicitly create or define the fifth program anywhere in the 1970 Act. Administrative and judicial interpretation and extrapolation are largely responsible for the creation, definition, and scope of the program.

In 1971, the Administrator promulgated a regulation regarding clean air areas which required state control strategies to do no more than “prevent . . . ambient pollution levels from exceeding . . . secondary standard[s].” In Sierra Club v. Ruckelshaus, the District Court for the District of Columbia ruled that the Administrator had breached a mandatory duty of the Act by setting this regulation. The court enjoined him from approving the portions of any SIP which would permit “significant deterioration” of air quality in clean air areas. The court relied on the statements of purpose of the 1967 and 1970 Acts and on their legislative and administrative history. The 1967 and 1970 Acts stated that Congress’ purpose was “to protect and enhance the quality of the Nation’s air resources.” This language

356. “The majority of the land mass of the United States has air quality cleaner than [the secondary] ambient standards.” 1976 Senate Report, supra note 11, at 21. For the estimate that 80 percent of the country has air better than the secondary standards for at least one pollutant, see Wall St. J., Feb. 14, 1974, at 4, col. 1.
357. 40 C.F.R. § 51.12(b) (1975).
359. 344 F. Supp. at 257, 4 ERC at 1208.
alone "would appear to declare Congress' intent... to prevent deterioration of that air quality, no matter how presently pure that quality in some sections of the country happens to be." In 1969 NAPCA, EPA's predecessor, apparently coined the term "significant deterioration" and concluded that state programs which would permit it "clearly would conflict with this expressed purpose of the [1967 Act]." In 1970 congressional hearings, both the Secretary and Under Secretary of HEW stated that the 1967 Act and the 1970 proposals would not permit significant deterioration. Finally, the 1970 Senate Report stated that EPA must disapprove an SIP which fails to insure "to the maximum extent feasible" the protection of air quality in the clean air areas. The court concluded that in 1970 Congress had reaffirmed its 1967 policy and had ratified the agency's interpretation of it. Thus the EPA Administrator's subsequent assertions that he lacked the power to prevent the degradation of superior air quality were incorrect and were ineffective to cancel the policy.

The legislative and administrative history, however, does not contain any definition of "significant" nor did it establish any program of definition and implementation. The court did not attempt to define the goal or to state how it should be implemented, but it ordered the Administrator to do so and to promulgate substitute regulations for states whose plans did not comply with it.

Except for the Senate Report's expression that deterioration should be prevented "to the maximum extent feasible," EPA had no congressional guidance for the definition and implementation of this judicially revived program. This vacuum contrasts with explicit congressional guidance regarding ambient standards, the SIP process, NSPSs, and vehicle emission reductions, in which Congress specifically excluded or limited the consideration of economic, technological, and social factors. Moreover, in standard setting for clean air areas, protection of public health is an irrelevant factor, because the secondary

361. 344 F. Supp. at 255, 4 ERC at 1206.
363. 344 F. Supp. at 255, 4 ERC at 1206.
364. 1970 SENATE REPORT, supra note 1, at 3, cited at id.
365. 344 F. Supp. at 256, 4 ERC at 1207.
366. The injunction was issued on May 30, 1972, the day before EPA was to approve or disapprove SIPs. It is reprinted in Hearings on the Nondegradation Policy of the Clean Air Act Before the Subcomm. on Air and Water Pollution of the Senate Comm. on Public Works, 93d Cong., 1st Sess., at 4-5 (1973). The court described this order as "a very limited one... [I]t provides the Administrator with sufficient time and flexibility so that he may exercise his expertise and carry out his duties under the Act with as little inconvenience as possible." 344 F. Supp. at 257, 4 ERC at 1208.
standards, which are the upper boundary to pollution in these areas, account for the lowest level of pollution that is anticipated to affect health adversely.\textsuperscript{367} Thus to balance the pressures for economic growth in clean air areas, EPA had only an implied congressional policy of indefinite vigor. As a result, the Administrator was almost entirely on his own. In July 1973, in the preamble to his first proposals he stated that any program against deterioration should be made with full consideration of its wide social and economic ramifications:

A national policy of preventing significant deterioration, however defined and implemented, will have a substantial impact on the nature, extent, and location of future industrial, commercial, and residential development throughout the United States. It could affect the utilization of the Nation's mineral resources, the availability of employment and housing in many areas, and the costs of producing and transporting electricity and manufactured goods. Without implying any judgment as to the general acceptability of any of the effects of a "no significant deterioration" policy, the Administrator believes that they are potentially so far-reaching that the question of how such a policy should be defined and implemented cannot properly be addressed, much less decided, on narrow legal grounds. Rather, it is a question that must be discussed, debated, and decided as a public policy issue, with full consideration of its economic and social implications.\textsuperscript{368}

As a lower boundary for these policy choices, the legislative and administrative history, the Sierra Club's position, and the District Court's opinion all supported the conclusion that, despite the Senate Committee's desire for "maximum feasible" protection, some deterioration was permissible. As an upper boundary, all comments on the proposals agreed that pollution could not be permitted to exceed the secondary standards.\textsuperscript{369}

Revealing his quandary over the appropriate balance to strike between these extremes, the Administrator first proposed four alterna-
tive plans and invited wide-ranging public comments.\textsuperscript{370} The plans had certain similarities. First, they all would have required 16 categories of stationary sources built in clean air areas to use the best available control technology (BACT).\textsuperscript{371} As we have seen regarding NSPSs,\textsuperscript{372} the determination of BACT involves substantial balancing of health and environmental protection interests with economic and technological concerns. Second, only emitters of sulfur dioxide and particulates above a certain threshold size would have been subject to source-by-source review of whether they would cause significant deterioration, however defined. Stationary sources of carbon monoxide, hydrocarbons, and oxides of nitrogen would not be so reviewed, because the Administrator determined that the vehicle emission reduction program alone would suffice to prevent significant deterioration by these pollutants and because the ambient concentrations resulting from given emissions of these pollutants cannot be predicted reliably at concentrations lower than the secondary standards.\textsuperscript{373} The determination that the vehicle emission reduction program alone will suffice permits economic development that creates automobile use, such as highways and recreational and residential development, to go on unimpeded. Third, EPA proposed to use 1972 as the baseline year for measuring the quality of the air to be protected.\textsuperscript{374} The choice of the baseline year has the potential to alter radically the "final" air quality and the amount of development permitted in clean air areas. Thus it too becomes a major indirect determinant of the balance of factors.

The four plans were different in the ways they proposed to balance the interest against deterioration with economic factors in the definition of "significant." Plan I, the Air Quality Increment Plan, would have allowed the ambient air of all clean air areas to deteriorate by a fixed increment for both pollutants.\textsuperscript{375} The upper limit, of course, remained the secondary standards. The increment would be determined after balancing economic, technological and environmental factors in some undefined manner. With this policy EPA could be said to be neutral about the land use impacts of air quality rules. However, EPA had reservations about this plan because it would have allowed the same amount of degradation everywhere—treating "waste" areas the same as national parks—and would have provided little flexibility to states


\textsuperscript{371} Significant Deterioration—First Proposals, supra note 367, at 18989.

\textsuperscript{372} See text accompanying notes 241-87 supra.

\textsuperscript{373} Significant Deterioration—First Proposals, supra note 367, at 18988-89.

\textsuperscript{374} Id. at 18989-90.

\textsuperscript{375} Id. at 18990-91.
for developing some areas more intensively than others or for protecting some areas more stringently than others.

Plan II, the Emissions Limitation Plan, focused on emissions rather than on ambient air. It proposed to permit an increase of either 20 percent of existing emission, or a fixed increment based on an emission density factor,\textsuperscript{376} whichever was larger. The Air Quality Control Regions (AQCRs) would have been the area over which the increases would have been calculated.\textsuperscript{377} Since each AQCR is quite large, the increase would often have been sufficient to permit intensive development in any portion of it.

Plan III, the Local Definition Plan, would have permitted each state to make the definition of significant deterioration and to designate the areas to which it would apply.\textsuperscript{378} EPA envisioned a source-by-source review by the state pollution control agency to determine if the effect of a proposed development would be significant. EPA would have reserved the right to overrule any particular decision. But the agency noted that this plan had the severe drawback of creating a "sliding baseline," in that deterioration is always measured relative to current air quality." States could have approved developments until eventually the secondary standards were reached, and EPA would have no effective criteria for the term "significant" upon which to intervene. It is difficult to imagine how EPA could have believed that this plan would have met the terms, however vague, of the District Court's opinion.

Plan IV, the Area Classification Plan, proposed to divide the clean air areas into two classes in which different amounts of deterioration would be permitted.\textsuperscript{379} Class I would have permitted minor degradation, to an upper limit of two to three percent of the secondary standards. To this class states would have assigned areas to be especially protected. Class II would have allowed "moderate growth" by permitting pollution levels to reach 35 percent of secondary standards.\textsuperscript{380} In Class II there would be room for large sources such as coal-fired power plants provided they were well-spaced.\textsuperscript{381} This proposal was EPA's favorite at the time.\textsuperscript{382} It can be criticized, however, for desig-

\textsuperscript{376} \textit{Id.} at 18991-92.

\textsuperscript{377} Pursuant to § 107 of the Clean Air Act, the entire country is divided into Air Quality Control Regions. 42 U.S.C. § 1857c-2 (1970). For descriptions of their boundaries, see 40 C.F.R. part 81 (1975).

\textsuperscript{378} Significant Deterioration—First Proposals, \textit{supra} note 367, at 18992.

\textsuperscript{379} \textit{Id.} at 18992-93. The original proposal called the classes "zones." The final rules call them "classes." For consistency we use the final term.

\textsuperscript{380} To calculate these percentages, compare the increments specified \textit{id.} at 18993 with the ambient standards, 40 C.F.R. §§ 50.5, 50.7 (1975).

\textsuperscript{381} Significant deterioration—First Proposals, \textit{supra} note 367, at 18993.

\textsuperscript{382} Id.
nating no minimum amount or character of land that must be assigned to Class I. While EPA would have retained the opportunity to reject state classifications, the proposal gives no criteria for such a decision.383

Thirteen months after making the original proposals, and after receiving comments on them, EPA proposed an amended version of Plan IV.384 Five months later, after taking additional comments, the agency promulgated its final plan.385 In both the second proposal and the promulgation, the Administrator again emphasized the broad policy judgments involved in determining the weight to give economic and social factors.386 This plan added a Class III region in which deterioration could proceed until air quality reached the secondary standards, thus allowing major industrial development.387 The plan retained the provision for source-by-source review only for sulfur dioxide and particulate emission sources.388 The Administrator rejected suggestions that review be required for the impact of the other ambient pollutants as well, by reiterating the inadequacy of modeling and prediction techniques for these pollutants. He repeated his belief that the vehicle emission reduction program would suffice for these pollutants. For 19 categories of sources releasing a threshold amount of pollution, BACT would be accomplished by compliance with NSPSs or by case-by-case review for sources for which NSPSs have not been set.389

The process for assigning areas to classes was tightened up somewhat. All clean air areas are initially assigned to Class II. The states may redesignate an area upward or downward on the basis of "the economic and other factors that may justify a somewhat different level of deterioration as being 'significant'."380 The Administrator stated that redesignation to Class I "should" be considered when the location of a pollution source:

is inconsistent with current or planned uses for the area, or where it is desirable to protect the area from any further deterioration because it is one of exceptional scenic or recreational value or is eco-

383. Id.
This was an increase of three source categories over the first proposals. See text accompanying note 371 supra.
390. Id. at 31004.
logically fragile, or where no further industrial growth is desired irrespective of existing air quality.\textsuperscript{391}

Class II permits "a reasonable amount of well-planned and controlled industry" if it is sufficiently dispersed.\textsuperscript{392} Finally, the Administrator stated that redesignation to Class III "should" be considered for areas which:

> are intended to experience rapid and major industrial or commercial expansion (including areas in which extensive mineral development is desired). . . .\textsuperscript{393}

The Administrator announced that "normally" he would approve state redesignations. There is one relevant situation, however, in which he would disapprove a redesignation:

> where the redesignation authority has arbitrarily and capriciously disregarded relevant environmental, social or economic considerations. . . .\textsuperscript{394}

Thus in the final regulations EPA has specified some criteria for reviewing state designations, although the criteria are still highly discretionary.

Perhaps the most important and most underplayed change is that in the second proposal the baseline year was advanced from 1972 to 1973,\textsuperscript{395} and in the promulgated rules, to 1974.\textsuperscript{396} This change permits development between 1972 and 1974 to escape review. The "final" air quality will therefore be substantially worse and the permissible development substantially greater than it would have been under the original proposals. Provisions exist under the final plan for states to submit SIP sections substantially similar to the federal plan and to assume responsibility for this phase of the clean air effort.\textsuperscript{397}

In August 1976 the District of Columbia Circuit Court upheld these regulations in \textit{Sierra Club v. EPA}.\textsuperscript{398} This case consolidated 14 petitions for review by environmental groups, industries, and states attacking the regulations from all directions. The court first expressly reaffirmed the obligation under the 1970 Act to prevent significant deterioration.\textsuperscript{399} Using the same principles for review as in \textit{Amoco

\textsuperscript{391} Id.
\textsuperscript{392} Id.
\textsuperscript{393} Id.
\textsuperscript{394} Id.
\textsuperscript{395} Id. at 31005.
\textsuperscript{396} Significant Deterioration—Final Rules, \textit{supra} note 385, at 42513.
\textsuperscript{397} Id. at 42510.
\textsuperscript{398} — F.2d —, 9 ERC 1129 (D.C. Cir. 1976).
\textsuperscript{399} 9 ERC at 1135-40.
Oil, the court found that Congress had delegated to EPA very wide discretion to fashion a program, and EPA had acted within that discretion. Against attacks that the rules were insufficiently stringent, the court upheld EPA's decisions (1) to subject only two ambient pollutants to source-by-source review, (2) to define BACT with reference to NSPSs and to set a size threshold below which a source's impact is not reviewed, (3) to consider economic and social factors in determining the meaning of "significant," (4) to create Classes II and III with more than nominal increments, and (5) to set back the baseline year to 1974. Against attacks that the rules were too stringent, the court upheld EPA's right (1) to balance growth considerations with the interest in preventing deterioration even without "quantified evidence of adverse effects," and (2) to use imperfect but consistent modeling techniques in source-by-source review to assess the impact of emissions on ambient air quality. In response to each challenge, the court held that EPA had made and adequately explained rational policy choices on the basis of the relevant environmental, economic, technological, and social considerations.

Since this program combines a very broad grant of discretion with a deferential standard of review, the affirmation of these rules was a near certainty. Under the direction to "protect and enhance" and to prevent "significant" deterioration, many plans more and less stringent would have survived the "arbitrary and capricious" test. All of EPA's plans, with the possible exception of the Local Definition Plan, would have passed muster. In such a sea of acceptable alternatives, it is no wonder that EPA drifted so long, blown this way and that by environmental, economic, technological, and social interests.

The 1976 amendments to the Clean Air Act would have placed the program to prevent significant deterioration on a firm statutory base. The Conference Committee's provisions regarding significant deterioration were patterned after EPA's area classification scheme. Although the opponents of a policy against significant deterioration succeeded in killing the amendments in the final moments of the 94th Congress, it

400. See text accompanying notes 339-56 supra.
402. 9 ERC at 1140-41.
403. Id. at 1142-44.
404. Id. at 1141-42.
405. Id.
406. Id. at 1142.
407. Id. at 1144-45.
408. Id. at 1145.
is expected that provisions similar to those considered this year will be enacted in 1977.410

By making the program against significant deterioration explicit and by placing it within the SIP program, which already has well-defined procedures, standards, and deadlines, Congress will make the protection of the clean air areas more likely and certain. Hopefully, the delay in establishing this program is almost over.

CONCLUSION

In its last hours, the 91st Congress abruptly and radically changed the federal government’s role in air pollution control. We have examined five major programs of the Clean Air Act in which EPA, the states, and the courts were given highly interdependent responsibilities to accomplish significant economic, technological, and social changes which Congress perceived to be necessary in order to protect public health in a short time. The complex decision making processes made delay inevitable. This has been especially true of the most complicated program, the SIP process, which involves interlocking state and federal duties.

It would be an oversimplification to state that courts have caused avoidable delays. Clearly there are cases of judicial error, of judicial recalibration of congressionally set balances, and of overzealous judicial review of administrative determinations of policy. There are contrary examples of careful and deferential reviews of a statute which legislated by silence as much as by express mandate.

Congress left EPA, the states, and the courts with tremendous interpretive burdens as well as substantive responsibilities. While some of the programs were well-defined, the meaning of others was obscured by the use of vague phrases such as “taking into account the cost of achieving such reductions,” or “such suspension is essential to the public interest or the public health and welfare of the United States.” Sometimes meaning has had to be inferred from inconclusive legislative history or from absolute silence. When important policy decisions are stated vaguely or not at all, extensive litigation and diverse decisions are inevitable. Perhaps the politics of making major change are such that more battles can be won by the significant use of silence and vagueness than by the explicit statement of intentions. It is important to realize, however, that these victories come at the cost of uncertainty and delay in subsequent implementation.

410. See note 11 supra.