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INTRODUCTION

The Adirondack Forest Preserve is the largest wilderness area east of the Mississippi River and ninety percent of all the wilderness land in the northeastern United States.[1] One of its most valuable and abundant resources is water, including 2300 lakes and ponds and more than 1,000 miles of rivers, fed by about 30,000 miles of brooks.[2] The New York State Constitution declares that the Preserve shall be "forever kept as wild,"[3] but over the past forty-five years many Adirondack lakes have lost all forms of life. Their waters have turned to acidic solutions,[4] unable to sustain the varied animal and plant populations that used to inhabit them. Just as the collapse of the canary in the mine shaft signals to miners the presence of poisonous methane gas, the death of these Adirondack lakes warns of a more widespread harm—the pervasive presence of acidic particles in the air of the northeastern United States and Canada.

A growing body of scientific study indicates that the damage to the Adirondack waters is the result of large amounts of accumulated pollution which is transported into the area from other regions.[5] Sulfate,[6] a major component of dry acid deposition and of acid precipitation or "acid rain," is derived in part from sulfur dioxide (SO_2) gases released into the atmosphere from fossil fuel combustion.[7] Local sources of pollution alone cannot account for the high sulfate levels in the air of the

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1. THE ADIRONDACK PARK AGENCY, LAND USE PLANNING FOR THE ADIRONDACK PARK (New York State Agency) (pamphlet available through the Adirondack Park Agency).

2. *Id.*

3. N.Y. CONST. art. XIV, § 1.

4. *Evidence Summary: Sulfates Transported into New York State—Imports and Origins, In re* Interstate Air Pollution Abatement Proceedings under § 126 of the Clean Air Act, No. A-81-09, at 7 (EPA 1981) [hereinafter cited as *Evidence Summary*] (citing Schofield, *Acid Precipitation: Effects on Fish*, 5 AMBIO 228-30 (1976)).

5. *Id.*

6. *See id.* at 20, 44 & Attachment D. *See also generally* Rosencranz & Wetstone, *Acid Precipitation: National and International Responses*, 22 ENV'T 6-7 (1980).

7. *See Evidence Summary, supra* note 4.

northeastern states.[8] Studies show that sulfate and other fine particulate matter originating from midwestern SO_2 sources are carried by the prevailing winds eastward and northeastward across the continent.[9] As a result, midwestern pollution contributes heavily to pollution levels in the downwind northeastern states.[10] In order to compensate for the increased level of foreign-source pollution, the downwind states have imposed strict controls on local sources of pollution.[11] New York, for example, bears substantial economic costs for strict control of its local industries, at the same time that it suffers pollution damage from lax controls in the Midwest.[12]

Congress has recognized that air pollution does not respect political boundaries and has decided that downwind states must not become pollution dumping grounds for upwind states.[13] Unfortunately, the interstate provisions that Congress incorporated into the Clean Air Act (Act)[14] in 1977 have been virtually ignored by the Environmental Protection Agency (EPA), except when the Agency has been spurred by lawsuits.[15] The EPA persists in regulating SO_2 emissions solely on the

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8. *Id.*

9. *Id.* Attachment D, at 10.

10. *Id.* at 78 (citing UNITED STATES-CANADA WORK GROUP ON TRANSBOUNDARY AIR POLLUTION, EMISSIONS, COSTS & ENGINEERING ASSESSMENT INTERIM REPORT 12 (1981)). In 1978 Illinois, Indiana, Michigan, Ohio, Tennessee, Kentucky and West Virginia emitted approximately 11.3 million tons of SO_2 per year, while the combined emissions from New York, New Jersey and all New England states totaled only 2 million tons per year. SO_2 emissions from Ohio alone exceeded by 50% the combined total SO_2 emissions of New York, New Jersey and all New England states. *See generally id.*

Because of the prevailing meteorological pattern in the United States, states in the east derive more of their acid precipitation from transported pollution than do midwestern states. *See The Environmental Effects of the Increased Use of Coal: Hearings before the Subcomm. on Environmental Pollution of the Senate Comm. on Environmental and Public Works*, 96th Cong., 2d Sess. 19 (1980) (hereinafter cited as *1980 Subcomm. Hearings*). Since midwestern sources emit more sulfur dioxide than eastern sources, this natural effect is exacerbated, resulting in a greater amount of pollution being transported eastward. It is estimated that in New York and New Jersey twenty-eight percent of the acidity in the precipitation is caused by local sources. Of the remainder, states to the south and west account for forty-six percent, Canada for thirteen percent and New England for twelve percent. *Id.*

11. *See* S. REP. No. 127, 95th Cong., 1st Sess. 41-42 (1977).

12. *See Evidence Summary, supra* note 4, at 28-35. New York State recently enacted legislation requiring reductions in sulfur dioxide emissions from New York sources. *State's New Law is First in Nation to Curb Acid Rain*, N.Y. Times, Aug. 15, 1984, at A1, col. 2.

13. *See* Clean Air Act, 42 U.S.C. §§ 7410(a)(2)(E), 7426, 7470 (1982).

14. 42 U.S.C. §§ 7401, 7410(a)(2)(E), 7427 (1982).

15. *See, e.g.*, New York v. EPA, 716 F.2d 440 (7th Cir. 1983); New York v. EPA 710 F.2d 1200 (6th Cir. 1983); Connecticut v. EPA, 696 F.2d 147 (2d Cir. 1982); New England Legal Foundation v. Costle, 666 F.2d 30 (1981).

basis of their short range impacts—within fifty kilometers—despite the overwhelming evidence that SO_2 effects are far ranging and diverse.[16]

For more than five years, Canadian and northeastern state officials have been deeply involved in diplomatic, legislative and litigation efforts to compel the EPA to initiate steps to control transboundary air pollution, especially acid rain.[17] The most active participant both on Capitol Hill and in the courts is New York State, which has undertaken comprehensive litigation to compel the EPA to implement the Act's interstate provisions.[18] As part of this strategy, New York has petitioned the EPA not to approve increased SO_2 emissions for more than twenty-five large midwestern power plants. In two cases[19] reviewing the EPA's denial of New York's petitions, the Sixth and Seventh Circuits addressed some of the questions raised by the interstate provisions of the Act. Throughout this litigation, the EPA has defined quite narrowly its authority to act on the problem of acid rain and long-range transport of pollutants.[20] In contrast, New York State has main-

16. *See infra* note 79; *Evidence Summary, supra* note 4.

17. *See, e.g.*, Acid Precipitation Act of 1980, 42 U.S.C. § 8901 (1982). Canada is attempting to use section 115 of the United States Clean Air Act to force the United States to reduce emissions that cause acid rain in Canada. *See* Comment, *Beyond the Bargaining Table: Canada's Use of Section 115 of the United States Clean Air Act to Prevent Acid Rain*, 16 CORNELL INT'L L.J. 193, 194-95 (1983). *See also* Mulvaney, *Participation by Ontario in U.S. Administrative and Judicial Proceedings*, 4 N.Y.L. SCH. J. INT'L & COMP. L. 553 (1983) and *infra* note 18.

18. *See supra* note 15; *Evidence Summary, supra* note 4, Attachment G (proceedings in which New York State has filed petitions and comments). New York has been joined in its efforts by other northeastern states, particularly Pennsylvania, Maine and Connecticut, and by the Canadian provinces of Ontario and Quebec. *See, e.g., infra* note 24. This litigation has taken place in the midst of what sometimes looks like a free-for-all struggle to take advantage of the economic benefits of the current more relaxed regulatory climate. New York pollution sources have been the objects of lawsuits by the State of Connecticut, a recipient of pollution from the New York City area, while Connecticut has raised the allowable SO_2 emissions for its own power plants. Connecticut v. EPA, 696 F.2d 147 (2d Cir. 1982). New York State is attempting to reduce its dependence on imported low sulfur oil burned for electricity by substituting coal as fuel; this has led to significant controversies within New York about its own contribution to acid rain. All northeastern states, however, still burn fuel that is significantly cleaner than what most of the Midwest burns. *See* Lind, *Umbrella Equities: Use of the Federal Common Law of Nuisance to Catch the Fall of Acid Rain*, 21 URB. L. ANN. 143 (1981). Connecticut and New Jersey have filed administrative petitions, concerning two power plants in New York, that challenge the adequacy of New York's interstate impact determinations for its State Implementation Plan revisions. Connecticut and New Jersey v. EPA, No. 80-4176 (2d Cir. 1980). In other proceedings brought by New York, no such determination was even attempted by the midwestern states. *See infra* note 23.

19. New York v. EPA, 716 F.2d 440 (7th Cir. 1983); New York v. EPA, 710 F.2d 1200 (6th Cir. 1983).

20. New York v. EPA, 716 F.2d at 442; New York v. EPA, 710 F.2d at 1204.

tained that the Act not only authorizes, but mandates broad corrective action by the Agency.[21] So far, the EPA has succeeded in convincing the courts to give it a free hand and has refused to take any action to reduce SO_2 emissions.

Despite these setbacks, New York has continued the fight in a rule-making proceeding before the EPA.[22] In this proceeding New York, Pennsylvania and Maine have presented three factual cases to support their proposal for the reduction of SO_2 emissions from seven midwestern states.[23] Representatives of the Canadian province of Ontario have also testified concerning the detrimental effects of midwestern pollution on its natural resources.[24] In spite of the sixty day time limit imposed on the EPA by section 126 of the Act, this proceeding remains unresolved after more than two years.[25] In March of 1984, New York and seven other states, along with a group of environmental organizations and individuals, brought a mandamus action in the United States District Court for the District of Columbia to force the EPA to act on the proceeding and to implement the international provisions of the Act which apply to acid rain.[26] This action is still pending. Meanwhile, the EPA maintains that it is free to approve the SO_2 emissions increases that New York has challenged, in separate actions, even though the EPA admits that these specific emissions are the same ones at issue in the section 126 proceeding.[27]

The Courts of Appeals for the Second, Sixth and Seventh Circuits have discussed some of the basic issues which are raised by the pending section 126 proceeding. However, the courts were faced each time with a challenge to a single power plant's SO_2 emissions.[28] The section

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21. New York v. EPA, 716 F.2d at 442; New York v. EPA, 710 F.2d at 1204.

22. New York Memorandum of Law in Support of Petition for Interstate Pollution Abatement, at 15-25, 37-40, *In re* Interstate Air Pollution Abatement Proceedings under § 126 of the Clean Air Act, No. A-81-09 (EPA 1981).

23. *See Evidence Summary, supra* note 4. *See also, e.g., Comments of the State of New York and Petition for Disapproval of Proposed Revision of State Implementation Plan, In re* Proposed Revision the the Indiana State Implementation: Revised Sulfur Dioxide Control Strategy for Vigo County, Indiana (EPA 1981).

24. MINISTRY OF THE ENVIRONMENT, PROVINCE OF ONTARIO, SUBMISSION OPPOSING RELAXATION OF SO_2 EMISSION LIMITS IN STATE IMPLEMENTATION PLANS AND URGING ENFORCEMENT (EPA 1981).

25. 42 U.S.C. § 7426 (Supp. V 1981). *See* N.Y. Times, Mar. 21, 1984, at A13, col. 1.

26. New York v. Ruckelshaus, No. 84-0853 (D.D.C. filed Mar. 21, 1984).

27. New York v. EPA, 716 F.2d 440, 445 (7th Cir. 1983); New York v. EPA, 710 F.2d 1200, 1202 (7th Cir. 1983).

28. In the Second Circuit case, Connecticut petitioned for review of an EPA decision granting a permit extension to the Long Island Lighting Company (LILCO), a New York utility. Connecticut v. EPA, 696 F.2d 147 (2d Cir. 1982). The Connecticut Fund for the Environment and the City of Middletown intervened in that suit, in addition to initiat-

126 proceeding faces the EPA squarely with the northeastern states' Clean Air Act claims against all of the major SO_2 emitters in the Midwest.

The air quality control scheme established by the Clean Air Act is undergoing the first strains of adjustment to cope with regional pollution problems. As pressure mounts for the EPA to act to control acid rain, its authority to do so is being questioned—for the most part by the Agency itself and the power industry's representatives. This article will outline the Act's interstate provisions and examine three of the unresolved issues in the law. It will conclude with a discussion of the legislative proposals now before Congress. These advocate rewriting the Act's interstate provisions to make them more effective guides for the EPA's treatment of long-range transport of air pollutants and acid rain.

THE CLEAN AIR ACT'S INTERSTATE PROVISIONS

The Act establishes several mechanisms to regulate air pollution. One basic tool, the National Ambient Air Quality Standards (NAAQS), is designed to control pervasive pollution of open or ambient air.[29] The EPA has set NAAQS for SO_2,[30] total suspended particles (TSP)[31] and five other pollutants, not including sulfate and acid rain.[32]

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ing a separate action, to challenge the EPA's approval of revisions to the Connecticut State Implementation Plan (SIP). *Id.* at 154. The actions were consolidated. *Id.* n.17. The court rejected all of the petitioners' claims. *Id.* at 158, 160, 168. In one opinion, however, Judge Kaufman called into question several of the EPA's practices with respect to its review of interstate impacts of SIP revisions. *Id.* at 156-68. Although the court approved the EPA's action, it stressed the narrow factual basis of the holding. *Id.* at 168. Influencing the decision was the fact that New York had performed studies which indicated that the sulfate impacts relating to the LILCO SO_2 permit would be *de minimis* in Connecticut. *Id.* at 165.

In the Sixth and Seventh Circuits, New York petitioned for review of the EPA approvals of SO_2 emissions increases at two power plants in Tennessee and Illinois. New York v. EPA, 710 F.2d 1200 (6th Cir. 1983); New York v. EPA, 716 F.2d 440 (7th Cir. 1983). The records on appeal in these cases were examined less carefully than the record before the Second Circuit. In denying New York relief, the Sixth and Seventh Circuits relied on the EPA's assurances that the Agency would give New York a full hearing in the pending section 126 proceeding. *See* New York v. EPA, 710 F.2d at 1205; New York v. EPA, 716 F.2d at 445.

29. Sections 108 and 109 of the Act establish the procedures that the EPA must follow to promulgate minimum NAAQS. 42 U.S.C. §§ 7408-7409 (1982). There are two types of NAAQS: primary NAAQS are those that the EPA decides are necessary to protect health and safety; secondary NAAQS are those that the EPA deems necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant. These standards are subject to change as the EPA Administrator deems necessary to protect the public health and welfare. 40 C.F.R. § 50 (1983).

30. 40 C.F.R. §§ 50.4-.5 (1983).

31. 40 C.F.R. §§ 50.6-.7 (1983).

32. *See* 40 C.F.R. § 50.4-.12 (1983) (current ambient air quality standards for particu-

The basic regulatory device for achieving compliance with the NAAQS is the State Implementation Plan (SIP), which each state must formulate and submit for approval to the EPA.[33] The SIP sets emission limits for particular air pollution sources or categories of sources.[34] Section 110(a)(2) of the Act directs the EPA to review each proposed SIP, applying eleven statutory criteria, one of which sets the standard for interstate violations.[35] If a SIP is disapproved, the Agency

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lates, carbon monoxide, ozone, nitrogen dioxide and lead). The EPA has eliminated specific standards for hydrocarbons, but has established primary and secondary standards for lead (43 Fed. Reg. 46,246 (1978)). In addition, the Agency has revised the standards for sulphur dioxide (38 Fed. Reg. 25,681 (1973)) and carbon monoxide (40 Fed. Reg. 7043 (1975)).

33. 42 U.S.C. § 7410(a)(1) and (2) (Supp. V 1981).

34. 42 U.S.C. § 7409(a) (Supp. V 1981).

35. 42 U.S.C. § 7410(a)(2) (1982):

> (2) The Administrator shall, within four months after the date required for submission of a plan under paragraph (1), approve or disapprove such plan or each portion thereof. The Administrator shall approve such plan, or any portion thereof, if he determines that it was adopted after reasonable notice and hearing and that—
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> (A) except as may be provided in subparagraph (I)(i) in the case of a plan implementing a national primary ambient air quality standard, it provides for the attainment of such primary standard as expeditiously as practicable but (subject to subsection (e) of this section) in no case later than three years from the date of approval of such plan (or any revision thereof to take account of a revised primary standard); and (ii) in the case of a plan implementing a national secondary ambient air quality standard, it specifies a reasonable time at which such secondary standard will be attained;
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> (B) it includes emission limitations, schedules, and timetables for compliance with such limitations, and such other measures as may be necessary to insure attainment and maintenance of such primary or secondary standard, including, but not limited to, transportation controls, air quality maintenance plans, and preconstruction review of direct sources of air pollution as provided in subparagraph (D);
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> (C) it includes provision for establishment and operation of appropriate devices, methods, systems, and procedures necessary to (i) monitor, compile, and analyze data on ambient air quality and, (ii) upon request, make such data available to the Administrator;
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> (D) it includes a program to provide for the enforcement of emission limitations and regulation of the modification, construction, and operation of any stationary source, including a permit program as required in parts C and D of this subchapter and a permit or equivalent program for any major emitting facility, within such region as necessary to assure (i) that national ambient air quality standards are achieved and maintained, and (ii) a procedure, meeting the requirements of paragraph (4), for review (prior to construction or modification) of the location of new sources to which a standard of performance will apply;

(E) it contains adequate provisions (i) prohibiting any stationary source within the State from emitting any air pollutant in amounts which will (I) prevent attainment or maintenance by any other State of any such national primary or secondary ambient air quality standard, or (II) interfere with measures required to be included in the applicable implementation plan for any other State under part C of this subchapter to prevent significant deterioration of air quality or to protect visibility, and (ii) insuring compliance with the requirements of section 7426 of this title, relating to interstate pollution abatement;

(F) it provides (i) necessary assurances that the State will have adequate personnel, funding, and authority to carry out such implementation plan, (ii) requirements for installation of equipment by owners or operators of stationary sources to monitor emissions from such sources, (iii) for periodic reports on the nature and amounts of such emissions; (iv) that such reports shall be correlated by the State agency with any emission limitations or standards established pursuant to this chapter, which reports shall be available at reasonable times for public inspection; (v) for authority comparable to that in section 7603 of this title, and adequate contingency plans to implement such authority; and (vi) requirements that the State comply with the requirements respecting State boards under section 7428 of this title;

(G) it provides, to the extent necessary and practicable, for periodic inspection and testing of motor vehicles to enforce compliance with applicable emission standards;

(H) it provides for revision, after public hearings, of such plan (i) from time to time as may be necessary to take account of revisions of such national primary or secondary ambient air quality standard or the availability of improved or more expeditious methods of achieving such primary or secondary standard; or (ii) except as provided in paragraph (3)(C), whenever the Administrator finds on the basis of information available to him that the plan is substantially inadequate to achieve the national ambient air quality primary or secondary standard which it implements or to otherwise comply with any additional requirements established under the Clean Air Act Amendments of 1977;

(I) it provides that after June 30, 1979, no major stationary source shall be constructed or modified in any nonattainment area (as defined in section 7501(2) of this title) to which such plan applies, if the emissions from such facility will cause or contribute to concentrations of any pollutant for which a national ambient air quality standard is exceeded in such area, unless, as of the time of application for a permit for such construction or modification, such plan meets the requirements of part D of this subchapter (relating to nonattainment areas);

(J) it meets the requirements of section 7421 of this title (relating to consultation), section 7427 of this title (relating to public notification), part C of this subchapter (relating to prevention of significant deterioration of air quality and visibility protection); and

(K) it requires the owner or operator of each major stationary source to pay to the permitting authority as a condition of any permit required under this chapter a fee sufficient to cover—

(i) the reasonable costs of reviewing and acting upon any application for such a permit, and

must develop and enforce a plan for the state.[36] Either the state or the EPA must develop a factual record to support the Agency action.[37] The Agency must also give a reasoned response to significant public comments on the legal sufficiency of the state plan and must set out the facts upon which it has relied.[38]

The Act also contemplates that SIPs will be revised from time to time to account for construction of new sources,[39] modification of existing sources,[40] changes in the Act, or upon receipt of information questioning the adequacy of the current SIP to meet national air quality goals.[41] The same criteria governing the adequacy of the initial promulgation of a SIP also apply to any subsequent revision.[42]

Judicial decisions interpreting the 1970 version of the Act did not require the EPA to take any action to implement the interstate provisions.[43] Congress therefore tightened the requirements of section 110(a)(2)(E) in the 1977 amendments and added section 126 to the Act.[44] Section 406(d)(2) established a one-year deadline for the Administrator to review existing SIPs for conformity with the 1977 amendments.[45] Therefore, before mid-1978, the EPA Administrator should have reviewed each of the states' SIPs and made a determination whether these SIPs contributed to pollution in other states in violation of the new section 110(a)(2)(E). Instead, the EPA ignored the mandate of Congress and continued to review SIPs and SIP revisions according to pre-1977 standards.

The second interstate provision added to the Act in 1977, section

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(ii) if the owner or operator receives a permit for such source, whether before or after August 7, 1977, the reasonable costs (incurred after such date) of implementing and enforcing the terms and conditions of any such permit (not including any court costs or other costs associated with any enforcement action).

36. 42 U.S.C. § 7410(c)(1) (Supp. V 1981).
37. 42 U.S.C. § 7414 (Supp. V 1981).
38. 42 U.S.C. § 7410(c)(E) (Supp. V 1981).
39. 42 U.S.C. § 7411(b)(3) (Supp. V 1981).
40. 42 U.S.C. § 7411(d) (Supp. V 1981).
41. 42 U.S.C. § 7411(g) (Supp. V 1981).
42. *Id.*
43. Metropolitan Washington Coalition for Clean Air v. District of Columbia, 511 F.2d 809 (D.C. Cir. 1975); Natural Resources Defense Council, Inc. v. EPA, 507 F.2d 905 (9th Cir. 1974).
44. *See* S. REP. No. 294, 95th Cong., 1st Sess. 329 (1977). In this report the Senate Committee on Interstate and Foreign Commerce noted that the courts had viewed the Clean Air Act as leaving up to the EPA Administrator's discretion the decision as to whether to enforce these provisions. *See* Natural Resources Defense Council, Inc. v. EPA, 483 F.2d 690, 692-93 (8th Cir. 1973).
45. 42 U.S.C. § 7401 note (Supp. V 1981).

126,[46] provides a procedure for states to seek a quick remedy for interstate pollution.[47] Section 126(b) provides that any state may petition the EPA for a finding of interstate air pollution in violation of section 110(a)(2)(E) standards and that a determination of the facts must be made within sixty days.[48] Section 126(c) directs the EPA to issue orders superseding an existing SIP to abate interstate pollution identified pursuant to section 126(b).[49] While section 110(a)(2)(E) establishes that certain interstate effects of air pollution emissions are impermissible and requires each SIP to prevent such pollution, section 126 complements it by providing a procedure to correct a SIP which does not prevent interstate air pollution.

THE ACT'S INTERSTATE PROVISIONS AND ACID RAIN

Three substantive questions that relate to the problem of acid rain have predominated in the interstate litigation under the Act. First, must SIPs address secondary pollutants? That is, must a SIP which is written to control one kind of NAAQS pollutant also account for transformation in the atmosphere of this pollutant into a second substance, regulated under a separate NAAQS? The Sixth and Seventh Circuits have upheld the EPA argument that it may ignore a pollutant's secondary impacts,[50] but the Second Circuit has questioned this practice.[51]

Second, must the EPA utilize the most advanced techniques available for tracking and measuring air pollution transport? The EPA claims that it need not evaluate long-range impacts of air pollution, since state-of-the-art air quality computer models, capable of measuring transport of sulfates beyond fifty kilometers, have not been formally adopted by it for general use.[52]

Third, must the EPA be able to identify individual source and receptor area relationships before imposing controls on pollution sources, or may it identify a region as the cause of pollution and impose con-

46. 42 U.S.C. § 7426 (Supp. V 1981).
47. *Id.*
48. *Id.* § 7426(b).
49. *Id.* § 7426.
50. New York v. EPA, 710 F.2d at 1204; New York v. EPA, 716 F.2d at 445.
51. Connecticut v. EPA, 696 F.2d at 163. The court had "serious difficulty with the EPA's contention that New York is free to revise its SIP for SO_2 without any federal consideration of whether the revision will prevent the attainment of the NAAQS for TSP in Connecticut." *Id.* The court concluded that the word "any" in section 110(a)(2)(E) "seems precisely tailored to require the EPA to consider the effects of a revision of one state's implementation plan upon *all* NAAQSs in other states." *Id.* (emphasis added).
52. New York v. EPA, 716 F.2d at 444.

trols on groups of sources within the region?[53] In at least one SIP revision proceeding, the EPA has adopted the position that it is not obligated to consider the impact of more than one emission source at a time.[54] Thus, the EPA has avoided assuming responsibility for controlling the cumulative impact from multiple sources or source regions.

CONTROL OF SECONDARY POLLUTANTS

The Act directs the EPA Administrator to decide when there is enough evidence to regulate a pollutant.[55] The EPA usually promulgates air pollution controls chemical by chemical, as the academic and regulatory communities gather evidence concerning each suspect pollutant's effects.[56] This results in gaps in the controls, because one pollutant may be regulated while a similar or potentially more dangerous one is not. Health damage from SO_2, for example, was documented long ago and SO_2 was one of the first pollutants to be regulated under the Act.[57] Dioxin, a "new" pollutant which is not regulated under the Act, is relatively unexamined.[58] As research yields more specific data about the behavior and impacts of different pollutants, administrative regulations may be revised.

Acid deposition and acid rain are not currently regulated by the EPA, in part because of this chemical by chemical approach and in part because air quality regulation has tended to focus on the local impacts that are easiest to demonstrate. However, since the early 1970's studies have indicated that SO_2 emissions are transformed into sulfate in the atmosphere and are linked to acidic pollution effects hundreds of miles downwind. By 1983, a substantial body of evidence had developed documenting these connections. Yet, the EPA continues to regulate pursuant to traditional methods.[59]

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53. *See, e.g., id.* at 443-44.

54. *See, e.g., id.* at 442-43. *Contra* Wooley & Wappett, *infra* note 60. *See also* Connecticut v. EPA, 696 F.2d at 162 & n.34, where the Second Circuit noted that the Act does not contain a provision requiring EPA to ascertain the impact of a proposed SIP revision of one state upon another state's proposed SIP revision, but left open the possibility that the EPA may be required under the general scheme of the Act to consider the combined effect of the two proposed SIP revisions before granting approval of either.

55. 42 U.S.C. § 7408(a)(1) (Supp. V 1981).

56. *See* New York v. EPA, 710 F.2d at 1204.

57. *See* EPA National Primary Ambient Air Quality Standards for Sulfur Oxides, 38 Fed. Reg. 25,681 (1973), 40 C.F.R. § 50.51 (1983).

58. *See* DIOXIN STRATEGY TASK FORCE, DIOXIN STRATEGY (EPA Nov. 28, 1983).

59. *See National Academy of Science, infra* note 132. *See also* Urone & Schroeder, *Atmospheric Chemistry of Sulfur-Containing Pollutants*, 1 SULFUR IN THE ENV'T 297 (J. Nriagu ed. 1978); Johnston & Finkle, *Acid Precipitation in North America: The Case For Transboundary Cooperation*, 14 VAND. J. TRANSNAT'L L. 787, 793-95 (1981).

NAAQS violations in downwind states trigger the interstate provisions of the Act.[60] Accordingly, the EPA may only find interstate violations of the Act where the NAAQS are not met in the injured state. Increasing evidence of the sources and extent of northeastern sulfate pollution has made it clear that a substantial portion of the TSP levels in the Northeast are in fact composed of sulfate which cannot be accounted for locally.[61] Several areas of New York State do not meet the secondary TSP NAAQS, and one in particular, the Buffalo-Niagara industrial region, violates the primary standard.[62] New York maintains that transported pollution, originating as SO_2 but transformed into particulates in the atmosphere, has prevented the state from attaining the TSP standard.[63]

The EPA does not dispute the conclusion that SO_2 gas transforms in the atmosphere into sulfate particles.[64] However, the EPA argues that since the challenged SIP regulates SO_2 emission limits and does not alter direct particulate emissions, "cross pollutants," such as particulate impacts of the SO_2 emissions, may be ignored.[65] Since section 110(a)(1) requires that SIPs address only one pollutant at a time, the EPA asserts that its own SIP approval process need not address multiple impacts of secondary pollutants formed by these same pollutants.[66]

The structure of the NAAQS scheme suggests that the EPA's position is wrong. The Act focuses not only on the form of pollution as it is emitted from the source, but also as it is measured in the open air.[67] Attainment of air quality goals is the entire purpose of the SIP program.[68] Consequently, the role of the EPA in reviewing SIPs, and as

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60. 42 U.S.C. § 7426(a)(1)(B) (1982); *See also* H.R. REP. No. 294, 95th Cong., 1st Sess. 135, *reprinted in* 1977 U.S. CODE CONG. & AD. NEWS 1214; Wooley & Wappett, *Cumulative Impacts and the Clean Air Act: An Acid Rain Strategy*, 47 ALB. L. REV. 37, 45-47 (1982).

61. *Evidence Summary, supra* note 4, at 44-87.

62. *Id.* at 44-51.

63. *Id.* at 44-46.

64. Wooley & Wappett, *supra* note 60, at 57. New York has produced evidence that a substantial amount of its TSP is composed of out-of-state sulfate particulates. *Evidence Summary, supra* note 4, at 46-47. New York asserts that if out-of-state sulfate particulates were excluded from the Buffalo TSP measurement, it would attain the NAAQS for TSP. *Id.* at 45. New York also believes that other areas' TSP levels in the Niagara Frontier Air Quality Region could be improved or brought into compliance with the NAAQS for TSP if midwestern sulfate particulate transport were reduced. *Id.* at 47, 56-59.

65. *See* New York v. EPA, 710 F.2d at 1202.

66. *See id.* at 1203.

67. H.R. REP. No. 294, 95th Cong., 1st Sess. 135, *reprinted in* 1977 U.S. CODE CONG. & AD. NEWS 1077, 1214. *See also* Wooley & Wappett, *supra* note 60, at 43.

68. 42 U.S.C. § 7410(a)(1) (1982). For a discussion of SIPs, *see* Pedersen, *Why the Clean Air Act Works Badly*, 129 U. PA. L. REV. 1059, 1072 (1981).

federal mediator in the interstate context, is to regulate the interstate effects that an upwind state, writing its SIP to improve local air quality, may miss. By ignoring the facts concerning sulfate formation and relying on administrative and procedural technicalities, the EPA has abandoned this statutory leadership responsibility. Nor is there anything in the Act or in the EPA's other air standards to support this position. The NAAQS for TSP make no distinction between primary and secondary pollutants,[69] and the EPA's ozone standard is set to control a secondary pollutant.

The EPA argues that it need not consider the impact of SO_2 emissions on TSP levels until a formal determination that SO_2 emissions lead to particulate impacts has been made under sections 108 and 109 of the Act.[70] This policy ignores the scientific evidence that particulate transformation does take place and flies in the face of the logic and structure of the Act. It is the EPA itself which has the responsibility to take the initiative in implementing sections 108 and 109.[71] Since there is convincing evidence of a particulate impact from SO_2, the EPA should make this determination and revise the appropriate standards.

The language of section 110(a)(2)(E) clearly contemplates control of secondary pollutants. It requires each SIP to contain:

> adequate provisions (i) prohibiting any stationary source within the state from emitting *any* air pollutant in amounts which will (I) prevent attainment or maintenance by any other state of any such national primary or secondary ambient air quality standard . . . .[72]

In *Connecticut v. EPA*,[73] Judge Kaufman of the Court of Appeals for the Second Circuit accepted the argument that the Act requires control of secondary pollutants, but found that the EPA had complied with the Act, since it was conceded that the secondary impact of LILCO SO_2 emissions on Connecticut were *de minimus*.[74] The courts in the Sixth and Seventh Circuits have not pursued this point, but have accepted the EPA's argument that the best it could do was to study short range SO_2 impacts.[75] Judge Kaufman's analysis is compel-

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69. *See* EPA National Primary and Secondary Ambient Air Quality Standards for Particulate Matter, 40 C.F.R. §§ 50.6, 50.7 (1983).

70. *See, e.g.*, New York v. EPA, 716 F.2d at 443.

71. *See, e.g.*, New York v. EPA, 710 F.2d at 1202-04.

72. 42 U.S.C. § 7410(a)(2)(E) (1982) (emphasis added).

73. 696 F.2d 147 (2d Cir. 1983).

74. *Id.* at 165.

75. New York v. EPA, 710 F.2d 1200, 1204 (6th Cir. 1983); New York v. EPA, 716 F.2d 440, 444 (7th Cir. 1983).

ling and seems likely to be adopted in the future. At least in the interstate context, the EPA should not ignore any pollutants' impacts which may cause NAAQS violations.

EPA's Restriction of Modelling Evidence

The EPA has established a national air quality monitoring network, which consists of mechanical air sampling collection devices and personnel who collect and analyze the samples.[76] This monitoring system can be correlated with meteorological records to track the movement of pollution. To quantify the air quality impacts of pollution sources, the EPA also relies on mathematical techniques of dispersion modelling.[77] From emissions data, which include the temperature of the emissions, the height at which emissions are released, meteorological factors, terrain and other information, dispersion models estimate impacts at a given distance from the source being modelled.[78] During the 1970's, regulators and regulated industrial sources alike developed and became accustomed to source-by-source regulation using dispersion modelling of short-range impacts—within fifty kilometers—of individual sources.[79] Short-range models became the chief tool of air quality regulations.

Under the 1977 amendments to the Act, Congress directed the EPA to continually refine its modelling techniques by holding conferences, at least biennially.[80] Congress also directed the EPA to employ the most advanced transport models available and mandated that the EPA encourage adaptation of models to simulate as accurately as possible atmospheric transport and dispersion in the area of interest.[81]

The growing body of information on the behavior of pollutants in the atmosphere and on the science of meteorology has led to the development of new models capable of estimating the long-range regional impacts of groups of air pollution sources.[82] Although the complexity of these regional models compounds the inherent mathematical uncertainty of short-range dispersion models, their accuracy and usefulness has become increasingly accepted. To date, however, EPA's implementation of the Act has been exclusively concerned with local impacts of

76. New York v. EPA, 716 F.2d at 444; New York v. EPA, 710 F.2d at 1204.
77. *See* Guideline on Air Quality Models, *infra* note 84.
78. *Id.*
79. *Id.*
80. 42 U.S.C. § 7620 (1982).
81. *Id.*
82. *See Evidence Summary, supra* note 4.

emissions.[83] Although long-range transport models have been developed, none have yet been incorporated into the EPA's guidelines.[84]

In New York's litigation over midwestern SO_2 emissions, the EPA asserted that it could not evaluate the long-range impacts of the plants' SO_2 emissions, because it had not formally approved models which measure impacts beyond fifty kilometers.[85] The EPA acknowledged that long-range transport models are available which can perform an interstate pollution impact analysis of the midwestern SIPs.[86] The EPA also did not dispute the non-modelling evidence of interstate movement of pollution from the Midwest to the Northeast. However, the EPA based its approval of SO_2 emission increases on a purported lack of reliable long-range transport models to quantify these SO_2 emission increases. The EPA portrays this refusal to use any long-range models as an exercise of scientific judgment. New York argues that the EPA does not have the discretion to use only models which are irrelevant to long-range impacts, while ignoring the existence of models which would yield relevant information. The EPA may not postpone implementation of the section 110 interstate provision until all scientific uncertainty associated with the long-range transport models is eliminated. Rather, the EPA has a nondiscretionary duty to de-

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83. The EPA has stated:

> EPA reference models are only valid to 50 km from a source. No reference techniques have yet been established for accurately evaluating impacts beyond 50 km. The 'state of the art' of long-range transport models is not sufficiently advanced to be used for regulatory purposes.

47 Fed. Reg. 8,773 (1982). *See also* Pedersen, *supra* note 68, at 1103-06.

At an EPA sponsored workshop on regional modelling, held in 1979, Dr. Arthur Bass, principal meteorologist for Environmental Research and Technology, Inc., stated:

> Much progress, more than was anticipated even a few years ago, is being made to refine and validate long-range transport models, and more will be forthcoming. Yet, the present regulatory requirements for near-term decision-making about source impacts at long transport ranges, and the increasing emphasis on secondary effects of major pollution sources (acid precipitation, regional haze, and the like), underscore the practical necessity for selecting long-range transport models for use now.

A. Bass, *Modeling Long-range Transport and Diffusion, reprinted in* EPA OFFICE OF RESEARCH AND DEVELOPMENT, RESEARCH GUIDELINES FOR REGIONAL MODELING OF FINE PARTICULATES, ACID DEPOSITION AND VISIBILITY (1980) (report of a workshop held at Port Deposit, Maryland, Oct. 29 through Nov. 1, 1979).

84. New York v. EPA, 716 F.2d at 444 ("The EPA chose to use a short-range model rather than one of the modeling techniques preferred by New York because it concluded that despite its limited scope the short-range model was most reliable"). *See also* EPA OFFICE OF AIR QUALITY PLANNING AND STANDARDS, GUIDELINE ON AIR QUALITY MODELS (1978).

85. New York v. EPA, 716 F.2d at 442-43.

86. *Id.*

velop and use the modelling techniques most likely to yield useful information applicable to the problem at hand.[87]

Since the only model on which the EPA relies is admittedly invalid beyond fifty kilometers from the source, the EPA cannot determine whether the SIPs, as revised, meet the criteria for approval under section 110(a)(2)(E).[88] According to New York, the courts need not defer to the EPA's discretion in circumstances where the EPA has neglected to use a model to measure impacts which it is mandated to assess under section 110(a)(2)(E).[89] Conceding that a court should not second-guess the Agency when dealing with technical areas, New York argued that an administrative decision should nevertheless be set aside whenever the record demonstrates a lack of a rational basis.[90]

In arguing that it had not approved long-range dispersion models, the EPA essentially raised a defense of administrative impossibility.[91] The EPA posture is that it is not ready to deal with the problem and would prefer to gather more information before acting. Yet every important EPA decision involves an exercise of judgment based on incomplete or uncertain data. The courts have rejected the argument that the EPA may lawfully withhold implementation of a statutory mandate on the basis of claims of scientific uncertainty.[92] Two district courts have recently directed the EPA to publish regulations pursuant to section 112 of the Act, concerning inorganic arsenic and radionuclides.[93] In these cases, the courts relied on the statutory deadlines to find that Congress intended the EPA to move forward and issue the most comprehensive regulations it could, given the information at its disposal.[94]

This reasoning should also apply to the New York interstate petitions. Congress intended that the EPA should review SIPs for their interstate impacts; such action is not contingent on the availability of

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87. *Id.*

88. 42 U.S.C. § 7410(a)(2)(E) (1982) provides that a SIP must contain:

> adequate provisions (i) prohibiting any stationary source within the State from emitting any air pollutant in amounts which will (I) prevent attainment or maintenance by any other State of any such national primary or secondary ambient air quality standard, or (II) interfere with measures required to be included in the applicable implementation plan for any other State under part C to prevent significant deterioration of air quality or to protect visibility, ...

89. New York v. EPA, 716 F.2d at 444; New York v. EPA, 710 F.2d at 1204.

90. *Id.*

91. Hartman, *Alternatives For Regulatory Control of Acid Rain In The Northeastern United States*, 11 FORDHAM URB. L.J. 455, 467 (1983).

92. New York v. Gorsuch, 554 F. Supp. 1060, 1064-65 (S.D.N.Y. 1983); Sierra Club v. Gorsuch, 551 F. Supp. 785, 788-89 (N.D. Cal. 1982).

93. 554 F. Supp. at 1066; 551 F. Supp. at 789.

94. 554 F. Supp. at 1063; 551 F. Supp. at 788-89.

models.[95] It is also clear from the Act that models are to be adapted to the needs of the case and not the reverse. In fact, the EPA is not bound to rely on modelling at all.[96] Several plans to reduce SO_2 emissions throughout the eastern half of the United States have been developed by Congress.[97] One has been incorporated in a Senate bill which was voted out of the Senate Committee on the Environment and Public Works in July, 1982.[98] Under the present Act, the EPA has both the authority and adequate information to devise a similar plan.[99]

In reviewing the New York and Connecticut challenges to section 110(a)(2)(E), the appellate courts accepted without criticism the EPA's claim that the choice of transport model to be applied was a matter of administrative discretion.[100] Deciding the issue by avoiding it, the courts declined to substitute their judgment for that of the EPA.[101] The EPA argued that it did not need to regulate interstate pollution as long as it chose to rely on regulatory tools that did not even address the problem. By accepting the argument of the Agency, the courts determined that the EPA in effect possesses the discretion to ignore the mandates of the Act.

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95. H.R. REP. No. 294, 95th Cong., 1st Sess. 329-31 (1977), *reprinted in* 1977 U.S. CODE CONG. & AD. NEWS 1077, 1408-10.

96. See New York v. EPA, 710 F.2d at 1203-04, in which the court agreed with the EPA's contention that no duty was imposed on it by Congress under the Clean Air Act to utilize modelling, particularly where the model has not been shown to be accurate.

97. These plans have been incorporated into the following proposed bills: S. 1706, 97th Cong., 1st Sess. § 181 (1981); S. 1709, 97th Cong., 1st Sess. § 181 (1981); S. 1718, 97th Cong., 1st Sess. § 181 (1981); H.R. 4816, 97th Cong., 1st Sess. (1981); H.R. 4829, 97th Cong., 2d Sess. § 181 (1981); H.R. 5555, 97th Cong., § 181 (1982). See Hartman, *supra* note 91, at 469-74 for a general discussion of the various proposals.

98. This amendment establishes a thirty-one state region in which SO_2 emissions would have to be reduced by some eight million tons by 1994 and requires that the governors of these states meet within eighteen months of passage of the amendment and agree on a plan that will successfully meet the required regional reduction. Hartman, *supra* note 91, at 475.

99. Under §§ 108 and 109 of the Clean Air Act the EPA Administrator may choose to list any pollutant that is considered to be a contributor to air pollution which endangers the public health and, once this has been done, the Administrator must eventually promulgate ambient air quality standards for that pollutant. Thus, the Administrator could require substantial reductions in the national production of a given pollutant such as sulfate. 42 U.S.C. §§ 7408-09 (1982). *See* Note, *Acid Precipitation Limits of the Clean Air Act and the Necessary Role of the Federal Common Law*, 34 SYRACUSE L. REV. 619, 643 (1983).

100. New York v. EPA, 716 F.2d at 444 ("This is the kind of technical decision particularly within the realm of Agency expertise"); Connecticut v. EPA, 696 F.2d at 157.

101. New York v. EPA, 716 F.2d at 444; Connecticut v. EPA, 696 F.2d at 159 ("To reject the EPA's conclusion under these circumstances would be to substitute our judgment concerning mathematical modeling techniques for that of the Agency").

Upon review, the EPA's simple "no model" defense is not likely to withstand close scrutiny. In the pending section 126 proceeding, the states have compiled a massive record of damage to their inhabitants' health and natural resources in the very forum to which the courts have found they are entitled.[102] There is also overwhelming evidence, including extensive meteorological tracking of pollution episodes, that this damaging pollution is coming from the Midwest.[103] The EPA will have to justify its refusal to act with a reasoned refutation of the states' claims.

DEFINING A SECTION 110(A)(2)(E) VIOLATION—CUMULATIVE IMPACTS

In dismissing the long-range modelling techniques cited by New York, the EPA argues that these techniques are not sufficient, in part because they do not attempt to identify "particular sources" that contribute to violations of the national standards in downwind states.[104] The EPA's focus upon individual pollution sources is not warranted. The Act is not concerned with the impact of an individual source on a downwind area, but with reduced open air pollution, regardless of the contributing source.[105] Source-by-source impact analyses miss the interaction and combination of pollution from multiple sources, particularly when the impact area is distant from the source.[106]

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102. *See generally Evidence Summary, supra* note 4. This submission to the EPA by the Attorney General of the State of New York documents the effects of acid rain on the state as a whole.

103. *Id.*

104. See New York v. EPA, 710 F.2d at 1202, in which the EPA argued that the impact of air pollution from a specific source cannot be accurately measured beyond fifty kilometers.

105. The general purposes of the Clean Air Act, as established by Congress, do not assert a specific focus on individual pollution sources. Rather, they are:

> (1) 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;
>
> (2) to initiate and accelerate a national research and development program to achieve the prevention and control of air pollution;
>
> (3) to provide technical and financial assistance to State and local governments in connection with the development and execution of their air pollution prevention and control programs; and
>
> (4) to encourage and assist the development and operation of regional air pollution control programs.

42 U.S.C. § 4201(b) (1982).

106. Section 126 of the Clean Air Act takes a source-by-source approach, and, as a result, "cumulative upper atmosphere loading by a consortium of smaller sources and major complying sources thus avoids the notice requirement." Lind, *supra* note 18, at 158.

Like the other positions discussed above, the EPA's focus on individual sources finds its origin in the history of SIP development under the Act. Since the SIP system was originally designed to control only local impacts,[107] the EPA approved most state SO_2 SIPs before Congress enacted the section 110(a)(2)(E) criteria.[108] The planning and implementation of the local air quality controls contained in the SIPs were a tremendous task, which was accomplished only with great effort by state and federal agencies.[109] Particularly in the midwestern states, where air pollution controls were relatively new, writing the first SIPs was a substantial project. The EPA itself wrote SIPs for a few states, among them Ohio,[110] and subsequently several states embroiled the Agency in litigation over this action, claiming that the Act violated the tenth amendment to the United States Constitution.[111]

After the enactment of section 110(a)(2)(E), the EPA made no effort either to implement it or to determine whether existing SIPs complied with it. In the New York litigation, which was brought in the context of SIP revision proceedings, the EPA flatly contended that in the case of a SIP promulgated before the 1977 amendments it need not review and revise that SIP to make it comply with the new provisions of the Act.[112] Instead, the EPA maintained that it could relax emission limits for individual plants, as long as the pollution from each plant, in isolation, did not cause impermissible interstate air pollution within the definition of section 110(a)(2)(E).[113] In other words, the EPA contends that it may ignore the cumulative interstate effects of a SIP and focus solely on the interstate effect of the pollution emitted by any individual source which seeks a SIP revision.[114]

The statutory authority the EPA claims for its position is section 110(a)(3), which states: "The Administrator shall approve any revision

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107. *See* New York v. EPA, 710 F.2d at 1203.

108. Before enactment of the § 110(a)(2)(E) criteria in 1977, the Clean Air Act provided no set format for SIPs. As a result, when SIP submissions were initially required in 1971 most states responded by "simply compiling their existing state air pollution control statutes, regulations, codes, ordinances, and possibly some permits. . . ." Pedersen, *supra* note 68, at 1081.

109. *See id.* at 1082; S. WETSTONE & A. ROSENCRANZ, ACID RAIN IN EUROPE AND NORTH AMERICA: NATIONAL RESPONSES TO AN INTERNATIONAL PROBLEM 100 (1983).

110. *See* Comment, *Acid Precipitation: Can The Clean Air Act Handle It?*, 9 B.C. ENVTL. AFF. L. REV. 687, 710 n.162; S. WETSTONE & A. ROSENCRANZ, *supra* note 109, at 100; Pedersen, *supra* note 68, at 1084.

111. Friends of the Earth v. Carey, 552 F.2d 25 (2d Cir. 1977); Brown v. EPA, 521 F.2d 827 (9th Cir. 1975); Arizona v. EPA, 521 F.2d 825 (9th Cir. 1975); Maryland v. EPA, 530 F.2d 215 (4th Cir. 1975).

112. *See* New York v. EPA, 710 F.2d at 1203-04.

113. *Id.*

114. *Id.* at 1204.

of an implementation plan applicable to an air quality control region if he determines that *it* meets the requirements of paragraph (2) and has been adopted by the State after reasonable notice and public hearings."[115] According to the EPA, "it" means "the SIP revision."[116] However, it is as likely and, indeed, more logical to conclude that "it" refers not to "revision," but "plan." The EPA's reading of section 110(a)(3) permits a SIP to be revised on a plant-by-plant basis, without regard to whether combined impacts of more than one plant's emissions will result in a violation of a NAAQS. This interpretation allows it to indulge in the fiction that the emissions at one plant occur in isolation and do not interact with emissions from other sources regulated by a SIP. And, since the EPA has not validated the underlying SIP, it cannot conclude, as section 110(a)(3) requires, that the SIP revision will not further "cause the plan to fail to meet the standards set forth in [section] 110(a)(2)."[117]

In *Train v. Natural Resources Defense Council*,[118] the Supreme Court recognized this problem. The Court found that unless a SIP revision was evaluated in the context of other sources' emissions permitted by the SIP, there would be no assurance that the national air quality goals would be met.[119] The correct interpretation of section 110(a)(3) must be that "it" refers to "implementation plan." Thus, a SIP revision must be denied, unless the EPA can determine that the SIP itself "meets the requirements" of section 110(a)(2).

Lacking support in the statute and case law, the EPA resorted to a policy argument.[120] The Agency asserted that each time a revision is proposed, it should not be put to the unnecessary burden of a "reassessment" or "reexamination" of the validity of the underlying SIP.[121] This argument created the false impression that the underlying SIP already had been assessed and had been found adequate to meet the requirement of section 110(a)(2)(E), as in *Train*. Yet SIPs approved prior to the 1977 amendments have never been reviewed for compliance with section 110(a)(2)(E). Had the EPA already assessed the SIPs for interstate impacts, a section 110(a)(2)(E) examination would have been relatively simple. However, as long as the underlying SIPs have never been evaluated and have yet to be determined to be in compliance, a full scale analysis is necessary. Otherwise, the EPA has no fac-

115. 42 U.S.C. § 7410(a)(3)(A) (1983) (emphasis added).
116. New York v. EPA, 716 F.2d at 442.
117. 42 U.S.C. § 7410(a)(3) (1983).
118. 431 U.S. 60 (1975).
119. *Id.* at 79.
120. *Id.* at 80.
121. *Id.*

tual basis to determine whether the plan as a whole continues to adhere to the requirements of section 110(a)(2).

The EPA's assertion that the statute creates no duty to ensure that SIPs comply with the 1977 amendments is contradicted by the language of the Act. Section 406 of the Act explicitly states that where the 1977 amendments require the EPA and the states to revise SIPs in order to comply with the new provisions, they must act within one year.[122] The EPA has disregarded its statutory duty to effectuate the 1977 amendments.

Unfortunately, this EPA position has been accepted by the courts of appeals.[123] Unpersuaded by the argument that the interstate provisions cannot be implemented at all, if they are not applied to entire SIPs,[124] the courts have relied on the EPA's assertion that it will address New York's concerns in the pending section 126 proceeding.[125] The courts have ignored the illogic of allowing the EPA to postpone a decision where it has already passed the section 126 deadline for action, while under section 110(a)(2) the EPA continues to approve increases of the very emissions which are the focus of the section 126 proceeding.

Under section 110(a)(2) all revisions to the Act must be given full force and effect.[126] If the states are not required to revise their plans in response to section 110(a)(2)(E), there is no method of implementing this section and it will become a dead letter. Congress surely did not intend this result. The House Conference Report specified that section 110(a)(2)(E) was amended to provide for "specific requirements" in SIPs.[127] The Senate Committee expressed its intent to create "an effective mechanism for prevention, control and abatement of interstate air

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122. Clean Air Act Amendments of 1977, Pub. L. 95-95, § 406(d)(2) provides:
Except as otherwise provided, each State required to revise its applicable implementation plan by reason of any amendment made by this Act shall adopt and submit to the Administrator of the Environmental Protection Administration such plan revision before the later of the date—
(A) one year after the date of the enactment of this Act, or
(B) nine months after the date of promulgation by the Administrator of the Environmental Protection Administration of any regulations under an amendment made by this Act which are necessary for the approval of such plan revision.

123. *See, e.g.*, New York v. EPA, 716 F.2d 440 (7th Cir. 1983); New York v. EPA, 710 F.2d 1200 (6th Cir. 1983); Connecticut v. EPA, 696 F.2d 147 (2d Cir. 1982).

124. *See, e.g.*, New York v. EPA, 716 F.2d at 443; New York v. EPA, 710 F.2d at 1203; Connecticut v. EPA, 696 F.2d at 117.

125. *See, e.g.*, New York v. EPA, 716 F.2d at 445; New York v. EPA, 710 F.2d at 1205; Connecticut v. EPA, 696 F.2d at 177.

126. *See* United States Steel Corporation v. EPA, 633 F.2d 671, 673-74 (3d Cir. 1980).

127. H.R. REP. No. 564, 95th Cong., 1st Sess. 145-46 (1977).

pollution."[128] In not stating exactly how this was to be accomplished, Congress left the difficult questions for the EPA to answer, but the EPA has not yet attempted to do so.

LEGISLATIVE OPTIONS

Acid rain has become the most pressing environmental issue on Capitol Hill. In 1977, the Senate Committee on the Environment and Public Works reported out a bill containing a compromise between Senator Moynihan's and Senator Mitchell's thirty-one state SO_2 reduction programs.[129] Comparable bills were introduced in the House.[130] During the past two years lengthy hearings have been held on the leading acid rain bills in both the Senate and the House.[131] And in June 1983, the National Academy of Science (NAS) recommended that national SO_2 emissions be reduced by fifty percent.[132]

Following the publication of the NAS Report, bills proposing to reduce SO_2 emissions by various technical and cost sharing approaches have proliferated.[133] The industry position and the Reagan administra-

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128. S. REP. No. 294, 95th Cong., 1st Sess. 330 (1977).

129. S. 252, 95th Cong., 1st Sess. (1977).

130. *See* H. 6161, 95th Cong., 1st Sess. (1977); H. 4151, 95th Cong., 1st Sess. (1977).

131. *See, e.g., Acid Rain: Hearings Before the Subcomm. on Natural Resources, Agriculture Research and Environment of the House Comm. on Science and Technology,* 97th Cong., 1st Sess. (1981). For a further discussion of the legislative options, see Lee, *Interstate Sulfate Pollution: Proposed Amendments to the Clean Air Act,* 5 HARV. ENVTL. L. REV. 71, 75-77 (1981).

132. *See National Academy of Science, Mitigating Acid Rain with Technology: Avoiding the Scrubbing-Switching Dilemma, House Subcomm. on Natural Resources, Agriculture Research and Environment,* 98th Cong., 1st Sess. (1983).

133. On June 23, 1983, Representatives Henry A. Waxman of California and Gerry Sikorski of Michigan introduced a bill (H.R. 3400) calling for a cut in sulfur and nitrogen oxide emissions totalling 12 million tons. 39 CONG. Q. ALMANAC 341 (1983). The proposal, which has 80 cosponsors, attempts to ease the potential cost burden on midwestern utility customers by funding capital costs of pollution control equipment through a nationwide charge or fee for each kilowatt-hour of electricity used. *Id.* Other bills proposing to reduce SO_2 emissions include those introduced by Representatives D'Amours, Conte and Markey on Nov. 16, 1983 (H.R. 4404); Representatives Udall and Cheney on April 4, 1984 (H.R. 5370); Representatives Green (H.R. 5590) and Lloyd (H.R. 5592 and 5593) on May 3, 1984; and Senator Glenn (S. 2215) on January 26, 1984.

In H.R. 4404, 98th Cong., 1st Sess. (1983), the New England Congressional Caucus on November 15 unveiled an acid rain control proposal calling for a 12-million-ton, 50 percent reduction in sulfur dioxide emissions which cosponsor Rep. Norman E. D'Amours (D-NH) described as a "fair, balanced, and bipartisan measure aimed at equitably solving one of our nation's most serious environmental problems." The bill would require the 31 eastern states to reduce sulfur dioxide emissions by 11.2 million tons by 1993, while western states would have to cut their emissions by 780,000 tons by 1993. A proposed acid rain revenue sharing program would assist states in covering up to 50

tion policy that further research is required on the causes of acid rain appear to be crumbling.[134] Acid rain is finally being seriously addressed in Congress, the only forum that has so far been willing to tackle the problem.

Perhaps Congress is the only body that *can* resolve so complex and monumental a problem. Yet there should be a better way to handle regional air pollution problems, a system which would not allow the EPA to wait until Congress specifically tailors its own remedy. If the EPA is to have a real function in resolving significant interstate air quality issues, the interstate provisions of the Act must be clarified and strengthened.

In October, 1981, Attorneys General of the Eastern States submitted a report to Congress on the interstate provisions of the Act.[135] They proposed a series of amendments to the Act which would incorporate regional and interstate regulations into the basically local SIP scheme.[136] The Report focused on three segments of the Act relating to the control of interstate pollution and suggested language to make the law's requirements more explicit.

Addressing the NAAQS first, the Report of the Attorneys General stated that Congress should ensure that the EPA is responsible for establishing pollution standards which incorporate interstate considerations, including meteorological transport patterns, chemical transformations in the atmosphere and synergism. Standards should also take into consideration the impacts of different deposition mechanisms, whether wet or dry.[137] Standards should be established for pollutants that do not cause serious local problems, but do inflict damage at a distance from sources. Sections 107 and 109 should specifically em-

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percent of the capital costs of achieving these reductions. 14 ENV'T REP. (BNA) No. 29, at 1312 (Nov. 18, 1983).

For an earlier bill see 13 ENV'T REP. (BNA) No. 46, at 2079-80 (Mar. 18, 1983). On March 10, 1983, Sen. Robert T. Stafford (R-Vt.), chairman of the Senate Environment and Public Works Committee, introduced Senate bill 768 to amend the Clean Air Act. This bill would require power plants in states east of and bordering the Mississippi to reduce sulfur dioxide emissions by 8 million tons by Jan. 1, 1995. *Id.* Sen. Stafford also introduced a more stringent acid rain control bill, S. 769, 98th Cong., 1st Sess. (1983), which would require a 12-million-ton reduction in sulfur dioxide by Jan. 1, 1998. *Id.*

134. Acid rain became a political issue in the 1984 Presidential election when President Reagan refused to support a plan to cut back on emissions and the Democratic Presidential candidates promised to do so. N.Y. Times, Mar. 21, 1984, at A13, col. 3.

135. *Eastern States Attorneys General, Proposed Amendments to the Clean Air Act: Interstate Air Pollution, Hearings Before the Senate Comm. on Environment and Public Works,* 97th Cong., 1st Sess. 127 (1981) [hereinafter cited as Eastern States Attorneys General].

136. *Id.* at 129.

137. *Id.* at 136.

power the EPA to regulate pollution on a regional and non-ambient basis.[138]

Second, according to the Report, section 110(a)(2)(E) should provide that both the states and the EPA have the responsibility to prevent interstate pollution through careful SIP preparation and review.[139] The EPA's nearly literal interpretation of section 110(a)(2)(E) deprives the provision of all meaning, but a few phrase changes would clarify the section's requirement. States should limit emissions to levels that do not burden downwind states, and the EPA should be required to disapprove any SIP provision that causes serious inequities among states.[140]

The Act now provides that the EPA must issue an affirmative finding of interstate pollution, if "any" source "prevents" a state from attaining and maintaining air quality consistent with the NAAQS, or if the source complained of "interfere[s] with" programs for the prevention of significant deterioration.[141] It is apparent that the Act was intended to prevent inequities among the states, so that no state will have to control locally generated pollution and still accommodate large amounts of pollution from upwind states.[142] The legislative history of the 1977 amendments indicates that a substantial contribution to a non-attainment condition or the hindering of the prevention of significant deterioration (PSD) of an air quality problem in a downwind state would constitute a violation.[143] Where air pollutants from another state "cause or contribute to impermissible interstate air pollution," the House intended that states be entitled to a remedy.[144] The Senate designated section 126 to provide states with a remedy when the emissions from a source in another state adversely affect the air quality in the petitioning state.[145] No quantitative standard, however, has been established under the Act.[146] Because of the differences in sources and the chemistry and geography of regional problems, no precise standard is

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138. *Id.*

139. *Id.*

140. *Id.*

141. 42 U.S.C. § 7410(a)(2)(E)(i) (1982).

142. *See* Comment, *supra* note 110, at 706. *See also generally* Comment, *Environmental Law: Attaining and Maintaining Air Quality Standards Under the 1977 Clean Air Act Amendments*, 53 TUL. L. REV. 907 (1979).

143. For a discussion of PSD, see Tkachenko, *Prevention of Significant Deterioration: The 1978 Regulations*, 3 HARV. ENVTL. L. REV. 275 (1979).

144. H.R. REP. No. 564, 95th Cong., 1st Sess. 145 (1977).

145. H.R. REP. No. 294, 95th Cong., 1st Sess., 330, *reprinted in* 1977 U.S. CODE CONG. & AD. NEWS 1409.

146. *See generally 1980 Subcomm. Hearings*, *supra* note 10.

possible or advisable.[147] The Attorneys General Report recommends that the Act prohibit pollution which "interferes with" another state's compliance with the NAAQS. Congress need not specify the amount of interstate pollution that would consitute a violation of the section 110(a)(2)(E) standards. The EPA should assess each problem that comes before it and devise an equitable approach to control it, by setting a technology-based emission standard or a total air mass loading limit.

Third, the Report recommended two basic revisions to section 126. Any pollutant, even a secondary one, should be a permissible subject for a state's section 126 petition.[148] When chemical transformations take place in the atmosphere, damaging impacts may be caused by a different chemical or compound pollutant than the one originally emitted. This is what occurs with ozone and acid rain. By limiting interstate petitions to pollutants which the EPA is presently regulating, the Act tends to preclude consideration of unique secondary impacts.

The states themselves have substantial technical expertise in the fields of meteorology, atmospheric chemistry and the health sciences. When they are prepared to present their case on any kind of regional air pollution in a federal forum, the Act should give them the opportunity to do so. As the law is presently written it provides more opportunity to foreign countries to seek relief than to states; the section 126 forum is more limited than the corresponding section for international air pollution.[149] Section 126 should be an open door for states and should direct the EPA to grant relief to states for any significant interstate pollution problem.

The Report also recommends that section 126 explicitly require the EPA to set standards to abate interstate pollution, even where the EPA cannot quantify exact source-receptor ties.[150] When large numbers of sources emit pollutants which gather in the atmosphere and are transported to distant areas, the cumulative impact may be very harmful, even though the original emissions were small and caused no local harm. The EPA should use whatever information is available to act and not be permitted to await the development of modelling which specifically identifies the impacts of individual sources. The EPA should be required to direct abatement of any interstate pollution problem which is demonstrated by a complainant.

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147. *Id.* at 451.

148. Eastern States Attorney General, *supra* note 135, at 137.

149. *See* 42 U.S.C. §§ 7426, 7415 (1983).

150. Eastern States Attorneys General, *supra* note 135, at 137.

CONCLUSION

Regional air pollution cannot be addressed on the municipal and state levels, but must be handled within a national framework. The task of Congress as it reviews the Act is to provide clear, specific and consistent guidelines that will direct the EPA to address these issues and to resolve them fairly. A real effort by the EPA to incorporate regional concerns must be demanded, in order to clarify the issues and to organize the control options. The EPA has utterly failed on acid rain in part because it has refused to try to solve the problem. Congress should demand a better performance in the future.