

# Pollution on the Federal Lands I: Air Pollution Law

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## I. INTRODUCTION

The birth of the modern field of environmental law is typically attributed to a series of events which occurred in 1970.<sup>1</sup> Since that time, the phenomenal growth of that field has been fueled by legislation that falls into two categories: first, laws designed to control pollution of the nation's air, water, and land resources;<sup>2</sup>

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This Article, as well as the remainder of the series of which it is the first part, is adapted from chapter eleven of GEORGE C. COGGINS & ROBERT L. GLICKSMAN, PUBLIC NATURAL RESOURCES LAW (1990) [hereinafter PNRL] (Copyright 1993 Clark Boardman Callaghan, 375 Hudson Street, New York, New York 10014. All rights reserved. Excerpts reprinted by permission of Clark Boardman Callaghan from *Public Natural Resources Law*, by George Coggins and Robert Glicksman.). My special thanks go to my friend and co-author George Coggins, who conceived of and originated that work, generously invited me to join him as co-author, and helped in the editing of chapter eleven.

1. That was the year in which the National Environmental Policy Act of 1969 (NEPA), Pub. L. No. 91-190, 83 Stat. 852 (codified as amended at 42 U.S.C. §§ 4321-4370d (Supp. III 1991)), became effective and in which President Richard Nixon created the Environmental Protection Agency (EPA), Reorg. Plan No. 3 of 1970, 84 Stat. 2086 (1970), *reprinted in* 5 U.S.C. app. at 1343 (1988). It also was the year in which the first Earth Day was celebrated. 1 JACKSON B. BATTLE, ENVIRONMENTAL LAW: ENVIRONMENTAL DECISIONMAKING AND NEPA 3 (1986) (quoting ENVIRONMENTAL QUALITY — 1979, The Tenth Annual Report of the Council on Environmental Quality (December 1979)); *see also id.* (discussing “the burst of environmental consciousness” reflected in the enactment, beginning in 1970, of “a body of legislation which by the end of the decade would have a major impact on people’s lives and the nation’s way of doing business”).

2. These laws include: the Toxic Substances Control Act, 15 U.S.C. §§ 2601-2671 (1988); the Clean Water Act, 33 U.S.C. §§ 1251-1387 (1988); the Marine Protection, Research, and Sanctuaries Act of 1972, *id.* §§ 1401-1445; the Oil Pollution Act of 1990, *id.* §§ 2701-2761 (Supp. III 1991); the Safe Drinking Water Act, 42 U.S.C. §§ 300-300j-26 (1988); the Solid Waste Disposal Act, *id.* §§ 6901-6992k; the Clean Air Act, *id.* §§ 7401-7671q (1988 & Supp. III 1991); the Comprehensive Environ-

and second, laws enacted to control activities that include development, recreational use, and preservation of the federal public lands and natural resources.<sup>3</sup>

As these statutes have proliferated, the dimensions of the two branches of environmental law have broadened considerably. The first branch, pollution control law, is an immense, complex, intricate, and arcane body of laws, regulations, policies, and decisions at all levels of government.<sup>4</sup> Legal problems in this area, beyond the mundane, usually require specialized knowledge and experience. Similarly, the second branch of environmental law, which deals with the management of federal lands and natural resources,<sup>5</sup> is "vast and complex, . . . difficult to organize and understand, . . . and often nearly impenetrable."<sup>6</sup> It encompasses literally thousands of statutes, many of which have generated considerable bodies of administrative and judicial interpretation.<sup>7</sup>

As the field of environmental law has grown, so has the legal literature that describes and analyzes that field. A profusion of books and articles has been devoted to both pollution control<sup>8</sup>

mental Response, Compensation, and Liability Act, *id.* §§ 9601-9675 (1988); and the Pollution Prevention Act of 1990, *id.* §§ 13101-13109 (Supp. III 1991).

3. Among the plethora of laws in this second category, some of which pre-date 1970, are: the Multiple-Use, Sustained-Yield Act of 1960, 16 U.S.C. §§ 528-531 (1988); the Wilderness Act of 1964, *id.* §§ 1131-1136; the Endangered Species Act of 1973, *id.* §§ 1531-1544; the National Forest Management Act of 1976, *id.* §§ 1600-1614; the Alaska National Interest Lands Conservation Act of 1980, *id.* §§ 3101-3233; NEPA, 42 U.S.C. §§ 4321-4370d (Supp. III 1991); the Federal Land Policy and Management Act of 1976, 43 U.S.C. §§ 1701-1784 (1988); and the Public Rangelands Improvement Act of 1978, *id.* §§ 1901-1908. For a more complete listing of statutes dealing with management of federal public lands and resources, see GEORGE C. COGGINS & CHARLES F. WILKINSON, *FEDERAL PUBLIC LAND AND RESOURCES LAW, 1990 STATUTORY SUPPLEMENT* (2d ed. 1990). For comprehensive analysis of the application of these statutes, see generally PNRL, *supra* note \*.

4. The analysis in the articles in this series will be confined to the application of the federal pollution control laws to federal lands and resources, although under many of these laws the states have significant responsibilities for statutory implementation. See, e.g., 33 U.S.C. § 1313 (1988) (state water quality standards); 42 U.S.C. § 7410 (1988 & Supp. III 1991) (state implementation plans for achieving the national ambient air quality standards).

5. As Professor Coggins has indicated, the terminology employed to describe the lands and resources owned or managed by the United States has been inconsistent and confusing. See PNRL, *supra* note \*, § 1.02[1][e]. In this series of articles, I will use the term "federal lands" to describe these lands and related resources.

6. *Id.* at vii.

7. See *id.* § 1.03[1]-[3].

8. The treatises that explore the federal pollution control laws include ENVIRONMENTAL LAW INSTITUTE, *LAW OF ENVIRONMENTAL PROTECTION* (Sheldon M. Novick ed., 8th ed. 1992) [hereinafter ELI, *LAW OF ENVIRONMENTAL PROTECTION*];

and public natural resources law<sup>9</sup> topics. Relatively little has been written, however, about the intersection of the two branches of environmental law. Most books and articles are devoted exclusively to one of the two disciplines.<sup>10</sup> Even the books that cover both branches tend to treat them as discrete, separate entities.<sup>11</sup>

Segmentation of the field of environmental law into two branches has its advantages. Each branch is sufficiently extensive that any effort to condense all environmental laws into an undifferentiated mass probably would make the subject overwhelmingly complicated and unmanageable.<sup>12</sup> Furthermore, different issues tend to characterize each branch. Pollution control law involves government regulation of private conduct which has potential adverse effects on the environment,<sup>13</sup> whereas public natural resources law involves the allocation and use of lands and

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FRANK P. GRAD, ENVIRONMENTAL LAW (3d ed. 1985); DONALD M. STEVER, LAW OF CHEMICAL REGULATION AND HAZARDOUS WASTE (11th ed. 1991). Environmental law journals that specialize in one or the other (and sometimes each) branch of environmental law are collected in PNRL, *supra* note \*, § 1.03[5][f].

9. The book that defined public natural resources law was the law school casebook GEORGE C. COGGINS & CHARLES F. WILKINSON, FEDERAL PUBLIC LAND AND RESOURCES LAW (1981). In 1993, the third edition of the book was published with a third co-author, John D. Leshy. For more complete analysis of public natural resource management law issues, see generally PNRL, *supra* note \*.

10. The first sentence in ELI, LAW OF ENVIRONMENTAL PROTECTION, *supra* note 8, for example, announces that it "is about the release of pollutants, wastes and toxic substances into the environment. It does not otherwise concern natural resources, wildlife, wilderness, or public parks." *Id.* § 1.01.

11. Several law school casebooks on environmental law are symptomatic. In ROGER W. FINDLEY & DANIEL A. FARBER, CASES AND MATERIALS ON ENVIRONMENTAL LAW (3d ed. 1991), for example, the authors devote four chapters covering more than 400 pages to various aspects of the law of pollution control, confining public natural resource management issues to a single chapter of just over 100 pages. Similarly, THOMAS J. SCHOENBAUM & RONALD H. ROSENBERG'S ENVIRONMENTAL POLICY LAW (2d ed. 1991), commits nearly 700 pages in three chapters to air, water, and hazardous waste pollution matters, but treats "conflicts over natural resources" in a separate, 250-page chapter. See also JAN G. LAITOS, NATURAL RESOURCES LAW (1985) (treating pollution control and "public land and resources law" in separate chapters).

12. As it is, "[t]he field of environmental law is too vast for any lawyer to have personal experience in all of its sub-areas." JOHN E. BONINE & THOMAS O. MCGARITY, THE LAW OF ENVIRONMENTAL PROTECTION v (2d ed. 1992).

13. *Id.* at x. The authors divide environmental law along lines similar to the dichotomy described in this Article. Their first category covers statutes that "control . . . the discretion of the government itself as a developer and manager of activities having direct impacts on the environment." *Id.* This category is analogous to the second branch of environmental law described in this Article, the law of public land and natural resources management. Their second category includes statutes authorizing government control of private entities that generate pollution. *Id.*

resources owned by the federal government.<sup>14</sup> Retention of a bipartite structure may assist the development of themes unique to each branch of environmental law and the analysis of the issues central to each branch.

Nonetheless, the division of the field into two separate branches has its drawbacks. While pollution control and public natural resources law often involve different subjects, there are common issues as well. In large part, both branches of environmental law deal with resource allocation. Each set of laws seeks to allocate resources potentially valuable to a variety of different users in a manner that is likely to achieve one of several common aims. The laws are sometimes designed, for example, to maximize the value of the resources in dispute, while at other times the statutes elevate other values above economic efficiency. At the risk of vast oversimplification, one can view pollution control laws as an effort to allocate existing air, water, and land resources among those seeking to use them as a waste receptacle and those who would prefer to devote them to other, sometimes irreconcilable uses. Just as pollution control law can be viewed as a battle between polluters and those adversely affected by the negative externalities they generate, public natural resources law has been described as a series of disputes between resource preservation and development.<sup>15</sup> Even where the choice is not quite so stark, the basic point is the same. Many public natural resource management statutes explicitly require the federal land management agencies<sup>16</sup> to allocate the resources under their control among a multiplicity of conflicting uses.<sup>17</sup> Continued compartmentalization of environmental law into two discrete branches may mask

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14. PNRL, *supra* note \*, § 1.01[1].

15. *See id.* § 1.02[3][b].

16. The statutes that comprise the second branch of environmental law commit various federal lands and resources to the jurisdiction of a wide variety of federal departments, agencies, and offices. The four principal federal land management agencies are the National Park Service (NPS), the U.S. Fish and Wildlife Service (USFWS), the Bureau of Land Management (BLM) (all of which are housed within the Interior Department), and the U.S. Forest Service (USFS) (which is part of the Agriculture Department). *See id.* §§ 5.03, 6.02. Although this series of articles will focus on the responsibilities of these agencies, as well as of the EPA, in controlling pollution of the federal lands and resources, where appropriate the articles also will refer to other agencies with more limited responsibilities, including the Army Corps of Engineers and the Commerce Department. *Cf. id.* § 5.03[5] (listing some of these "peripheral agencies").

17. *E.g.*, National Forest Management Act of 1976, 16 U.S.C. §§ 1600-1614 (1988); Federal Land Policy and Management Act of 1976, 43 U.S.C. §§ 1701-1784 (1988). *See generally* PNRL, *supra* note \*, part D.

these common issues and prevent insights drawn from analysis in one branch from reaching the other.

The failure to recognize the common ground beneath pollution control and public natural resources law may not be the only consequence of continuing to view environmental law as composed of two more or less unconnected branches. An additional risk is that those charged with the task of managing the federal lands and resources will fail to devote adequate attention to the consequences of pollution of those resources. The federal lands are not immune to the harms caused or threatened by pollution. In fact, in some instances federal resources are particularly vulnerable. In its 1980 State of the Parks Report,<sup>18</sup> for example, the National Park Service (NPS) found that activities occurring outside of the parks — including residential, commercial, industrial and road development; grazing; logging; agriculture; energy extraction and production; mining; and recreation — were causing serious damage to park values and resources.<sup>19</sup> The Report indicated that air quality resources were endangered in more than forty-five percent of the national parks, while mammal, plant, and fresh water resources were threatened in more than forty percent of park waters.<sup>20</sup> Reported threats related to air quality included those caused by smoke, acid rain, chemical particulates, dust, hydrocarbons, odors, carbon monoxide, carbon dioxide, nitrogen oxides, fog, and radioactivity.<sup>21</sup> Water-quality related threats were caused by organic and inorganic materials, unnatural flooding or flow decrease, toxic chemicals, salt, sediment deposition, oil spills, acid mine drainage, radioactivity, and thermal discharges.<sup>22</sup> Even the national parks have been marred by improperly disposed hazardous waste.<sup>23</sup> A similar array of

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18. OFFICE OF SCIENCE AND TECHNOLOGY, NATIONAL PARK SERVICE, UNITED STATES DEPT. OF THE INTERIOR, STATE OF THE PARKS — 1980: A REPORT TO THE CONGRESS (May 1980) [hereinafter STATE OF THE PARKS REPORT].

19. *Id.* at 1.

20. *Id.* at viii. In a 1988 report on air quality in the national parks, the NPS found “that in excess of 90 percent of the time scenic vistas are affected by man-made air pollution at all monitoring locations within the lower 48 states.” NATIONAL PARKS AND CONSERVATION ASSOCIATION, A RACE AGAINST TIME: FIVE THREATS THAT ENDANGER AMERICA’S NATIONAL PARKS AND THE SOLUTIONS TO AVERT THEM 4 (1991) [hereinafter A RACE AGAINST TIME].

21. STATE OF THE PARKS REPORT, *supra* note 18, at 12 tbl. 2.

22. *Id.* at 12 tbl. 3. A 1991 report by the National Parks and Conservation Association found that one of the five most serious kinds of threats to the parks is pollution. See A RACE AGAINST TIME, *supra* note 20, at 4.

23. Hazardous substances have been found in what appear to be the most unlikely places, including Yellowstone National Park, where the NPS found soil and water

pollution problems, attributable to the same kinds of activities, faces many tracts in other categories of federal land holdings.

More recently, a congressional committee report surveyed the extent of environmental contamination on lands owned by the Interior Department. According to the report, "[t]he federal government has encouraged, promoted, supported and subsidized activities that have resulted in severe environmental crises."<sup>24</sup> As examples of the sources of widespread federal lands contamination, the report cited antiquated mining laws that have failed to require environmental restoration, irrigation laws and policies that have more or less ignored the impact of drainwater on water resources and wildlife, and the use of federal lands for weapons testing. As a result of these and other unregulated or underregulated use of the federal lands, tens of thousands of mine sites fail to comply with surface and groundwater standards; hundreds of onshore oil and gas wells on federal lands may be improperly closed or contaminated with oil and gas drilling waste; Bureau of Land Management (BLM) lands and wildlife refuges are contaminated by unexploded ordnance; drainage from Bureau of Reclamation irrigation projects has caused contamination throughout the West; and extensive dumping of solid and hazardous waste has occurred on all categories of the federal lands.<sup>25</sup> Although the report concedes the impossibility of estimating with any confidence the cost of responding to these problems, it concludes that "[i]f all environmental liabilities [on the federal lands] are considered — including remediation of highly contaminated [Department of Energy and Department of Defense] sites — clean-up costs will rival the expense of the savings and loan bailout."<sup>26</sup>

No single article or series of articles could recount every pertinent aspect of federal pollution control law as it applies to the federal lands and resources. Nevertheless, a comprehensive survey of the overlap of the two main branches of environmental law is an overdue and useful endeavor. Accordingly, the series of articles of which this one is the first is designed to serve several

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contaminated with toxic chemicals emanating from underground fuel storage tanks. See Robert Reinhold, *Pollution from Old Tanks Threatens Future of Park Services at Yosemite*, N.Y. TIMES, Sept. 17, 1992, at B9.

24. MAJORITY STAFF REPORT, SUBCOMM. ON OVERSIGHT AND INVESTIGATIONS, COMM. ON NATURAL RESOURCES, DEEP POCKETS: TAXPAYER LIABILITY FOR ENVIRONMENTAL CONTAMINATION 1 (July 1993).

25. *Id.* at 1-2.

26. *Id.* at 25.

purposes. First, the series will describe the basic framework of the major federal pollution control laws to provide a context for the discussion of those provisions that apply to activities on or near the federal lands.<sup>27</sup> Second, it will explore in greater depth the pollution law provisions of particular relevance to public natural resources law. Third, the series will highlight those areas in which federal laws and regulations do not deal adequately with pollution of federal lands and resources and will suggest corrective measures.

As the articles in this series will indicate, pollution of federal lands and resources is extensive despite the enactment of far-reaching legislation directed at reducing resource contamination. This state of affairs is attributable to a combination of factors. To begin with, certain sources of pollution — nonpoint sources of water pollution are probably the best example — are not subject to adequate controls regardless of their location. Because many of these sources operate on or in close proximity to the federal lands, the failure to regulate them has had adverse consequences for federal land and resource protection. Similarly, relatively few provisions of the federal pollution control laws were designed to deal with the problems unique to federal lands management. As a result, the laws often are ill equipped to respond to those problems. Even among those laws and regulations that are aimed specifically at federal land and resource pollution, some have been virtually ignored (such as the program to prevent impairment of visibility on the federal lands), while others (such as the acid rain provisions of the 1990 Clean Air Act (CAA) amendments<sup>28</sup> and the Oil Pollution Act of 1990<sup>29</sup>) are of such recent vintage that they have not yet had any measurable, positive impact.

The series of articles that will explore pollution of the federal lands and resources begins with this Article on air pollution. Part II of this Article provides an overview of the kinds and sources of air pollution that affect the federal lands. Part III summarizes the principal regulatory programs under the federal CAA<sup>30</sup> as they apply to activities on or affecting federal lands and re-

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27. The series will provide ample references to the literature on both the general pollution control laws and the provisions of those laws directly applicable to activities affecting the federal lands.

28. 42 U.S.C. §§ 7651-7651o (Supp. III 1991).

29. 33 U.S.C. §§ 2701-2761 (Supp. III 1991).

30. 42 U.S.C. §§ 7401-7671q (1988 & Supp. III 1991).

sources. Parts IV and V analyze the two CAA programs with the greatest impact on these activities: the prevention of significant deterioration (PSD) program<sup>31</sup> and the visibility impairment provisions.<sup>32</sup> This Article concludes that these programs have not fulfilled their promise of protecting federal lands from air pollution, and suggests statutory and regulatory changes to strengthen them.

Subsequent articles will cover water pollution, solid and hazardous waste disposal, and liability for releases of hazardous substances on the federal lands. The second article,<sup>33</sup> on water pollution, will focus on control of nonpoint source pollution (including mining, grazing, and logging), wetlands development, and oil spills. The third article<sup>34</sup> will cover regulation of waste generation and management by the mining industries and by the federal government itself. The final article<sup>35</sup> will not only describe the general liability scheme established under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA),<sup>36</sup> but also will explore at length the application of that scheme to those responsible for causing and restoring damaged natural resources.<sup>37</sup>

## II.

### OVERVIEW OF AIR POLLUTION ON THE FEDERAL LANDS

Air pollution originating both on and outside of the federal lands has significant adverse impacts upon federal resources and those who use them. These impacts are attributable to three kinds of air pollution, all well-documented public natural resources problems: criteria pollutants (including ozone, nitrogen oxides, sulfur oxides, and particulate matter), visibility impairment caused by plume blight and regional haze, and acid deposition.

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31. *Id.* §§ 7470-7479.

32. *Id.* §§ 7491-7492.

33. *Pollution on the Federal Lands II: Water Pollution Law* appears in this issue of the *UCLA Journal of Environmental Law & Policy*.

34. Robert L. Glicksman, *Pollution on the Federal Lands III: Regulation of Solid and Hazardous Waste Management*, 13 *STAN. ENVTL. L.J.* 3 (1994).

35. *Pollution on the Federal Lands IV: Liability for Hazardous Waste Disposal* will be published in volume 12, number 2 of the *UCLA Journal of Environmental Law & Policy*.

36. 42 U.S.C. §§ 9601-9675 (1988).

37. *Id.* §§ 9607(a)(1)-(4)(C), (f), 9651(c).

### A. Criteria Pollutants

The NPS considers air pollution to be one of the greatest threats to the national parks.<sup>38</sup> Many of the substances deemed "criteria pollutants"<sup>39</sup> under the CAA have caused serious damage to park resources.<sup>40</sup> Emissions of those pollutants sometimes originate from sources within or close to the parks, but often they are transported from sources in urban areas far removed from the parks. Ozone concentrations close to or in violation of the national ambient air quality standards (NAAQSs)<sup>41</sup> have been measured in national parks near both coasts.<sup>42</sup> Shenandoah National Park officials have issued health warnings stemming from excessive ozone concentrations to hikers, climbers, and joggers.<sup>43</sup>

Ozone also may injure plant life.<sup>44</sup> Symptoms of weakened resistance to parasitic infestations, slow growth, and yellowing of foliage of trees in the parks all have been traced to ozone pollution.<sup>45</sup> Nitrogen oxides and sulfur dioxide concentrations have had similar effects. Nitrogen compounds can increase vulnerability to frost damage, interfere with trees' ability to withstand drought, and withhold soil nutrients such as magnesium.<sup>46</sup> Sulfur dioxide, which has been measured at levels close to or exceeding the NAAQSs in many parks, can disrupt natural ecosystems by damaging forests and destroying lichen species.<sup>47</sup>

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38. See Craig N. Oren, *The Protection of Parklands from Air Pollution: A Look at Current Policy*, 13 HARV. ENVTL. L. REV. 313, 329 (1989). A former NPS Director ranked air pollution and visibility deterioration as the number one threat to the parks. See Robert Cahn, *The Conservation Challenge of the 80s*, in NATIONAL PARKS IN CRISIS at 7, 14 (Eugenia H. Connally ed., 1982).

39. Criteria pollutants are those for which national ambient air quality standards (NAAQSs) have been issued under 42 U.S.C. § 7409 (1988). See *infra* part III.B.1.

40. See generally Oren, *supra* note 38.

41. For a description of the national ambient air quality standards, see *infra* part III.B.1.

42. The ozone standard was violated, for example, in Acadia National Park in Maine in 1983. See Oren, *supra* note 38, at 340.

43. See B. Drummond Ayres Jr., *Pollution Shrouds Shenandoah Park*, N.Y. TIMES, May 2, 1991, at A20.

44. Ozone-related damage to plants and trees has been documented in national parks such as Acadia, Shenandoah, Sequoia, and Great Smoky Mountains, and in Saguaro National Monument and Indiana Dunes National Lakeshore. *Impacts of Air Pollution on National Park Units: Hearings Before the Subcomm. on National Parks and Recreation of the House Comm. on Interior and Insular Affairs*, 99th Cong., 1st Sess. 231-32 (1985) [hereinafter *1985 Impact Hearings*].

45. *Id.* at 162; Oren, *supra* note 38, at 341.

46. See Oren, *supra* note 38, at 341-42.

47. *Id.* at 342. Sulphur dioxide (SO<sub>2</sub>) pollution, for example, appears to have caused damage to mosses and orchids in the Everglades. *Id.*

## B. *Visibility Impairment*

Another significant effect of air pollution on the federal lands is visibility impairment. Visibility impairment has been defined as a reduction in visual range, a reduction in contrast between an object and the horizon sky, or a shift in coloration or light intensity of the sky or distant objects compared to what is perceived on a clear day.<sup>48</sup> As scenic vistas are among the foremost attractions for visitors to many federal areas, reduction of visibility obviously can be a significant annoyance. According to the NPS, man-made lessening of visibility stemming from particulates and other pollutants is present in virtually all monitored parks.<sup>49</sup> NPS officials also estimate that scenic vistas in some national parks are affected by air pollution more than ninety percent of the time.<sup>50</sup> The average visual range in most of the West, including national parks and wilderness areas, is about one-half to two-thirds of the range that would exist in the absence of air pollution. In most of the parks in the East, the average visual range is only about one-fifth of the natural range.<sup>51</sup>

Visibility impairment takes two forms.<sup>52</sup> The first is plume blight and layered haze, which are dense clouds of particulates coming from nearby sources.<sup>53</sup> The second and far more widespread form is regional or uniform haze, which EPA defines as "widespread, regionally homogeneous haze from a multitude of sources which impairs visibility in every direction over a large area."<sup>54</sup> Regional haze, which can obscure vistas by absorbing

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48. Jerome Ostrov, *Visibility Protection Under the Clean Air Act: Preserving Scenic and Parkland Areas in the Southwest*, 10 *ECOLOGY* L.Q. 397, 402 (1982). EPA defines visibility impairment as "any humanly perceptible change in visibility (visual range, contrast, coloration) from that which would have existed under normal conditions." 40 C.F.R. § 51.301(x) (1992).

49. See Oren, *supra* note 38, at 330. See generally Paul Pritchard, *Visibility in Our National Parks Is Not Being Adequately Protected*, in *NATIONAL PARKS IN CRISIS*, *supra* note 38, at 107.

50. See 136 CONG. REC. S2877 (Mar. 21, 1990) (statement of Sen. Adams).

51. NATIONAL RESEARCH COUNCIL, *PROTECTING VISIBILITY IN THE NATIONAL PARKS AND WILDERNESS AREAS 1* (1993) [hereinafter *PROTECTING VISIBILITY*]. This report cites the median visual ranges for various sites administered by the National Park Service in the West. See *id.* at 37-38.

52. For a description of the sources and atmospheric mechanisms of visibility impairment, see *PROTECTING VISIBILITY*, *supra* note 51, at 21-23, 48-54, 81-112.

53. Plume blight caused by strip mining has occurred in Mesa Verde National Park in Colorado and Bryce Canyon National Park in Utah. Oren, *supra* note 38, at 331.

54. Visibility Protection for Federal Class I Areas, 45 Fed. Reg. 80,084, 80,085 (1980). Regional haze "may cover broad expanses, move over long distances, linger

and scattering light, results primarily from the atmospheric transformation, through the action of sunlight, of volatile organic compounds and oxides of sulfur and nitrogen into particulate matter between 0.1 and 1.0 microns in diameter.<sup>55</sup> Although regional haze is sometimes caused by natural phenomena such as forest fires, much of it is man-made. Emissions from cities and automobiles in southern California, copper smelters in Arizona, New Mexico, and Nevada, and power plants in Arizona and New Mexico are all thought to be major contributors to regional haze in the Grand Canyon and in other parks and wilderness areas throughout the Southwest.<sup>56</sup>

### C. Acid Deposition

A third kind of pollution believed to be responsible for considerable damage to federal resources is the acid deposition created when sulfate and nitrate emissions combine with atmospheric water vapor to form solutions of sulfuric and nitric acids; these solutions fall to the ground as rain, fog, or dry deposition.<sup>57</sup> Fossil fuel-fired power plants and metal smelters that emit sulfur dioxide are the main sources of sulfate emissions. Nitrates result from oxides of nitrogen emitted by the same sources and by automobiles.<sup>58</sup>

Soils can absorb and neutralize acid deposition, but only to a point. In the Northeast, soils already may have lost much of their capacity to absorb any more sulfuric acid, and soils in the Southeast may be approaching that danger level.<sup>59</sup> In the mountainous West, where soil cover is typically thinner than in the East, acid rain can run off into streams and lakes with little or no neutralization by soils.<sup>60</sup> Resulting acidification of sensitive surface water and groundwater alters water chemistry in ways that can change ecosystems and kill fish. Increased acidity itself may kill some sensitive fish species. It also can cause the release of toxic

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unduly, and reduce visibility in places which have few (if any) manmade emission sources." *Maine v. Thomas*, 874 F.2d 883, 885 (1st Cir. 1989).

55. *Oren, supra* note 38, at 331-32; *Ostrov, supra* note 48, at 403-07.

56. *See Oren, supra* note 38, at 332; *Ostrov, supra* note 48, at 407-08, 411-14, 427-29. For further discussion of regional haze in the Grand Canyon and of recent efforts to abate it, see *infra* part V.E.

57. *See J. Wallace Malley, Jr., Acid Rain: A Decade of Footdragging May Be Coming to an End*, 91 W. VA. L. REV. 817, 818 (1989); *Oren, supra* note 38, at 337.

58. *Malley, supra* note 57, at 818-19.

59. *See 1985 Impact Hearings, supra* note 44, at 48.

60. *Id.* at 205-06.

metals, such as aluminum, from watersheds.<sup>61</sup> Considerable evidence indicates that acid deposition can damage forests by contributing to reduced productivity and premature tree deaths.<sup>62</sup> For example, acid rain is suspected of contributing to widespread dieback of red spruce in the Appalachian, Adirondack, and White Mountains.<sup>63</sup> Degradation of stone and metal monuments throughout the national park system is traceable to acid deposition.<sup>64</sup> Finally, acid deposition, together with ozone pollution, may have adverse effects on human health, especially among infants, children, and the elderly.<sup>65</sup>

### III.

#### A SUMMARY OF THE CLEAN AIR ACT

The principal statutory mechanism aimed at reducing air pollution is the federal CAA of 1970;<sup>66</sup> it contains a series of programs directed at virtually all significant air pollution sources. The complexity and detail of these regulatory programs precludes complete coverage here.<sup>67</sup> Instead, this part first provides an overview of the principal CAA regulatory program that is designed to achieve the national ambient air quality standards, and then outlines supplemental programs directed at specific air pollution problems: new sources, mobile sources, hazardous air pollutants, federal facility pollution, ozone-depleting chemicals, acid deposition, and interstate pollution. In each instance, the Article highlights the potential application of these programs to activities that affect federal lands and resources.

Two additional CAA regulatory programs deserve more complete treatment. The prevention of significant deterioration, or PSD, program, which is designed to protect existing clean air, and the visibility impairment provisions each may impose special emission controls on air pollution sources that have the potential to adversely impact federal lands and resources. Parts IV and V

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61. Malley, *supra* note 57, at 820; Oren, *supra* note 38, at 337 n.112.

62. See Malley, *supra* note 57, at 820-21.

63. See *id.*

64. 1985 *Impact Hearings*, *supra* note 44, at 30, 230. The NPS has estimated that acid rain has caused two million dollars worth of damage to monuments in Gettysburg National Military Park alone.

65. Malley, *supra* note 57, at 822.

66. 42 U.S.C. §§ 7401-7671q (1988 & Supp. III 1991).

67. Entire tomes have been devoted to the subject. See, e.g., MARK SQUILLACE, ENVIRONMENTAL LAW: AIR POLLUTION (2d ed. 1992). For more complete treatment of the CAA than that provided here, see chapter eleven of ELI, LAW OF ENVIRONMENTAL PROTECTION, *supra* note 8.

comprehensively analyze these programs as they relate to activities on or in proximity to the federal lands.

### A. *Statutory Overview*

The principal goal of the CAA is "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."<sup>68</sup> The Act seeks to achieve that goal through a variety of measures, including (1) adoption of ambient air quality standards for a small group of criteria pollutants, and the implementation of those standards primarily through state implementation plans; (2) the adoption of nationally uniform emission controls for new stationary sources and for stationary sources of hazardous air pollutants; and (3) the adoption of a series of emission controls and associated requirements for mobile sources. In 1990, Congress added new programs for controlling acid rain<sup>69</sup> and stratospheric ozone depletion<sup>70</sup> as well as a new permit program for stationary sources.<sup>71</sup> The 1990 amendments also fortified the Act's impressive array of civil and criminal penalties for statutory and regulatory violations.<sup>72</sup> Together, these provisions regulate, or have the potential to regulate, virtually all sources of air pollution, including those both located on and affecting the federal lands. This section summarizes this massive regulatory edifice.

### B. *The National Ambient Air Quality Standards*

#### 1. Establishment and Revision

The focal point of the CAA is its program for controlling criteria pollutants. The EPA is required to establish and periodically revise a list of air pollutants, called criteria pollutants. These are common polluting substances emitted from numerous or diverse mobile or stationary sources, which, in EPA's judgment, cause or contribute to air pollution levels that may reasonably be anticipated to endanger public health or welfare.<sup>73</sup> Once EPA has so

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68. 42 U.S.C. § 7401(b)(1) (1988). Other goals include the initiation and acceleration of a national research and development program to prevent and control air pollution, and the development and operation of regional air pollution prevention and control programs. *Id.* § 7401(b)(2), (4) (1988 & Supp. III 1991).

69. *Id.* §§ 7651-7651o (Supp. III 1991); *see infra* part III.H.

70. 4 U.S.C. §§ 7671-7671q; *see infra* part III.G.

71. 4 U.S.C. §§ 7661-7661f; *see infra* part III.B.4.

72. 42 U.S.C. §§ 7413-7414, 7603-7604 (1988 & Supp. III 1991).

73. *Id.* § 7408(a)(1) (1988).

classified a substance, the agency must issue air quality criteria for it that reflect the latest scientific knowledge concerning the effects of the pollutant on public health or welfare, as well as information on available air pollution control techniques.<sup>74</sup> Based on those criteria, EPA must then promulgate primary and secondary national ambient air quality standards for each criteria pollutant. The primary standards must be set at a level which will protect the public health, allowing an adequate margin of safety.<sup>75</sup> The secondary standards are supposed to protect the public welfare,<sup>76</sup> defined broadly to include effects on soils, water, vegetation, man-made materials, animals, wildlife, visibility, and property. Economic values, personal comfort, and general human well-being are also considered.<sup>77</sup> As of 1993, EPA had established NAAQs for six criteria pollutants: particulate matter, sulfur oxides, ozone, nitrogen dioxide, carbon monoxide, and lead.<sup>78</sup>

EPA's decisions concerning establishment and revision of the NAAQs have been challenged as providing inadequate protection of natural resources. In *EDF v. Thomas*,<sup>79</sup> environmental groups and six states sued to compel EPA revision of the secondary NAAQs for sulfur oxides, which are believed to cause acid deposition. As issued in the early 1970s, the secondary standards for sulfur oxides were not designed to protect against the deleterious effects of acid deposition, including effects on water quality, wildlife, soils, forests, and corrosion of buildings and monuments.<sup>80</sup> Although EPA recognized the effects of sulfur oxides on the public welfare when it revised the air quality criteria for this pollutant in 1982, it did not revise the NAAQs on the ground that any decision on whether the ill effects of acid rain necessitated revisions was premature.<sup>81</sup> The district court rejected the plaintiffs' contention that EPA had a nondiscretionary duty to revise the secondary NAAQs to combat acid rain's effects. The court of appeals affirmed, concluding that an order by

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74. *Id.* § 7408(a)-(b).

75. *Id.* § 7409(b)(1).

76. *Id.* § 7409(b)(2).

77. *Id.* § 7602(h) (Supp. III 1991).

78. 40 C.F.R. pt. 50 (1992). Hydrocarbons were deleted from the list of criteria pollutants in 1983 because their contribution to smog was regulated by the NAAQs for ozone. National Primary and Secondary Ambient Air Quality Standards, 48 Fed. Reg. 628 (1983) (codified at 40 C.F.R. pt. 50).

79. 870 F.2d 892 (2d Cir.), *cert. denied*, 493 U.S. 991 (1989).

80. *Id.* at 895.

81. *Id.* at 895-96.

the district court requiring EPA to revise the NAAQS would be meaningless unless it also specified the manner of revision required.

Although the CAA vests the court of appeals, rather than the district court, with the authority to review the content of a NAAQS,<sup>82</sup> the appellate court added that EPA's issuance of revised air quality criteria in 1982 triggered a nondiscretionary agency duty to make some formal decision whether to revise the NAAQS, and a citizen suit in the district court was appropriate to force EPA to comply with that duty. To hold otherwise would create "a bureaucratic twilight zone, in which many of the Act's purposes might become subject to evasion."<sup>83</sup> Once EPA ended its silence by making a formal, final decision, the issue of whether it was erroneous could be brought before the court of appeals.<sup>84</sup> Thus far, other attempts to seek appellate court review of NAAQS revisions or of formal decisions not to revise the NAAQSs, on the ground of inadequate protection of natural resources, including resources on the federal lands, also have been inconclusive.<sup>85</sup>

## 2. State Implementation Plans

Once EPA establishes NAAQSs for a particular pollutant, each state is responsible for formulating and submitting for EPA's approval a state implementation plan (SIP) to achieve, maintain, and enforce the NAAQSs<sup>86</sup> within all of the state's air quality control regions (AQCRs).<sup>87</sup> At a minimum, each SIP must include the following: enforceable emission limitations, other control measures, and timetables for compliance as may be

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82. *Id.* at 900.

83. *Id.*

84. *Id.*

85. In *NRDC v. EPA*, 902 F.2d 962 (D.C. Cir. 1990), *vacated in part*, 921 F.2d 326 (D.C. Cir.), *cert. denied*, 498 U.S. 1082 (1991), for instance, NRDC sought to force EPA to issue a new secondary NAAQS for fine particulate matter to protect against visibility impairment and acid rain. *Id.* at 980. The court held that EPA's failure to promulgate a standard for visibility for two years following an advanced notice of proposed rulemaking soliciting comments on the need for a new standard constituted unreviewable, non-final action. *Id.* at 986. The agency's ten-year-long failure to make any statement concerning the need for a secondary standard to protect against the adverse effects of acid rain, despite a statutory deadline to review the adequacy of the NAAQS, prompted the court to order EPA to explain why it had failed to act. *Id.* at 988. The CAA's provisions concerning acid rain and visibility impairment are discussed *infra* parts III.H and V.

86. 42 U.S.C. § 7410(a)(1) (1988 & Supp. III 1991).

87. *Id.* § 7407(a).

necessary to meet the requirements of the CAA; monitoring, data submission, and enforcement provisions; a program to regulate the construction and modification of certain stationary sources; provisions to minimize interstate air pollution; and a requirement that major stationary sources be subject to fees sufficient to recover the state's cost of implementing the permit program required by the statute.<sup>88</sup> EPA is authorized to promulgate a federal implementation plan (FIP) in the event a state fails to submit an acceptable SIP.<sup>89</sup>

Decisions by the federal land management agencies to permit activities on lands under their jurisdiction may be vulnerable to attack by environmental groups to the extent those activities generate air pollution inconsistent with SIP requirements.<sup>90</sup> Section 176(c) of the CAA prohibits any federal agency from issuing a license or permit for, or otherwise approving or financing, any activity which does not conform to a SIP approved by EPA.<sup>91</sup> One attempt to invoke that provision to stop commercial development on a national forest was unsuccessful. In the *Methow Valley* case,<sup>92</sup> environmental groups opposing the Forest Service's issuance of a special use permit for a ski development claimed that construction of the ski resort would lead to secondary development, including lodgings with wood stoves, which would cause an increase in particulate emissions in violation of the applicable PSD increment.<sup>93</sup> But because the state's SIP did not regulate woodstoves or other minor sources, the court rejected the challenge.<sup>94</sup>

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88. *Id.* § 7410(a)(2).

89. *Id.* § 7410(c)(1); *see also id.* § 7410(k).

90. EPA regulations directing states how to develop and apply their SIPs also may affect development activities on the federal lands. *Cf. NRDC v. Thomas*, 838 F.2d 1224, 1241-42 (D.C. Cir. 1988), *cert. denied*, 488 U.S. 888 & 488 U.S. 901 (1988) (unsuccessful attack by industry on EPA regulation of sources with tall stacks under 42 U.S.C. § 7423 (1988) as unduly prejudicial to sources located in mountainous terrain).

91. 42 U.S.C. § 7506(c) (1988 & Supp. III 1991).

92. *Methow Valley Citizens Council v. Regional Forester*, 16 *Envtl. L. Rep.* (Envtl. L. Inst.) 20,641 (D. Or. Apr. 30, 1986), *rev'd on other grounds*, 833 F.2d 810 (9th Cir. 1987), *rev'd on other grounds*, 490 U.S. 332 (1989).

93. For a description of the PSD program see *infra* part IV.

94. The court said that instead of attacking the Forest Service's permit decision under § 7506(c), the plaintiffs should have sought revision of the SIP itself. *Methow Valley*, 16 *Envtl. L. Rep.* (Envtl. L. Inst.) at 20,644. The court's dictum that PSD increments are merely goals rather than means to achieve statutory goals may be misleading in other contexts. *Id.* at 20,643. Violation of a PSD increment, for example, is grounds for challenging issuance of a PSD permit under 165(a)(3), 42 U.S.C. § 7475(a)(3) (1988). *See infra* part IV.D.

### 3. Nonattainment

Had the schedules included in the 1970 version of the CAA been met, the NAAQSs would have been achieved around 1975 or 1976. By 1977, however, many AQCRs throughout the country, designated as "nonattainment areas,"<sup>95</sup> still had pollution concentrations that exceeded one or more NAAQSs. In response, Congress extended the deadline<sup>96</sup> for achieving the primary NAAQSs to the end of 1982 or, for some areas violating the ozone and carbon monoxide standards, the end of 1987.<sup>97</sup> States with nonattainment areas were required to revise their SIPs in three ways. They had to implement all reasonably available control measures,<sup>98</sup> achieve annual incremental emission reductions through the imposition of reasonably available control technology on existing sources,<sup>99</sup> and issue permits for the construction and operation of new or modified major stationary sources.<sup>100</sup> States that failed to make acceptable SIP revisions or meet the extended deadlines were subject to such sanctions as a moratorium on the construction or modification of major stationary sources<sup>101</sup> or the cut-off of federal funds for the construction of highways and sewage treatment plants.<sup>102</sup>

Although the 1977 amendments helped to reduce pollutant concentrations in some nonattainment areas, Congress was forced to revisit the issue when it again amended the CAA in 1990.<sup>103</sup> The amended provisions dealing with nonattainment are notable for their length, complexity, and wealth of detail. The general deadline for achieving the primary NAAQSs is now "as expeditiously as practicable," but no later than five years from the date an AQCR is designated a nonattainment area.<sup>104</sup> Furthermore, specific deadlines are set for ozone, carbon monoxide,

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95. 42 U.S.C. § 7501(2) (1988 & Supp. III 1991).

96. The deadline extensions were included in the 1977 amendments to the CAA, Pub. L. No. 95-95, 91 Stat. 685 (1977).

97. 42 U.S.C. § 7502(a) (1988).

98. *Id.* § 7502(b)(2).

99. *Id.* §§ 7502(b)(3), 7501(1).

100. *Id.* §§ 7502(b)(6), 7503.

101. *Id.* § 7410(a)(2)(I).

102. *Id.* §§ 7506, 7616.

103. Pub. L. No. 101-549, tit. I, 104 Stat. 2399, 2399-2471 (1990).

104. 42 U.S.C. § 7502(a)(2)(A) (Supp. III 1991). The EPA can allow a state ten years to achieve the primary NAAQSs from the date of designation of an AQCR as a nonattainment area if it deems it appropriate, given the severity of the violations and the availability and feasibility of control measures. *Id.* The deadline for achieving the secondary standards remains "as expeditiously as practicable." *Id.*

particulate matter, sulfur and nitrogen oxides, and lead. These deadlines vary depending upon the severity of the nonattainment problem.<sup>105</sup> Ozone nonattainment areas, for example, are classified as marginal, moderate, serious, severe, or extreme, with attainment deadlines ranging from three to twenty years after November 15, 1990.<sup>106</sup> Under the 1990 amendments, states with nonattainment areas must again revise their SIPs to require a variety of more stringent controls, such as tougher permit programs for new and modified sources, enhanced vehicle inspection and maintenance programs, gasoline vapor recovery systems at service stations, and new controls on emissions of volatile organic compounds.<sup>107</sup> In addition to previously available sanctions,<sup>108</sup> states failing to comply with the nonattainment requirements may face annual penalty fees for major stationary sources of volatile organic compounds, and may be required to achieve percentage reductions of emissions and to develop economic incentive programs.<sup>109</sup> Although these new, more stringent controls on emissions of nonattainment pollutants do not appear to have many unique federal lands applications, it is likely that they will translate into more burdensome control measures for sources located in or near federal lands designated as nonattainment areas.

#### 4. Permits

Before the 1990 amendments were adopted, most state-initiated emission controls on stationary sources were imposed through SIP provisions and construction and operating permits issued by the states. The amended CAA creates a new federally-supervised, state-run operating permit program. This program apparently will convert SIPs into broad planning tools, while specific controls for individual sources will be spelled out in a state permit issued in accordance with EPA regulations dictating minimum federal requirements.<sup>110</sup>

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105. *Id.* §§ 7511(a)(1)-(2), 7512(a), 7513(c), 7514a.

106. *Id.* § 7511(a)(1)-(2).

107. *See, e.g., id.* § 7511a.

108. *E.g., id.* § 7509(b)(1) (loss of highway construction funds).

109. *See, e.g., id.* §§ 7511d, 7511a(g).

110. *See* JOHN QUARLES & WILLIAM H. LEWIS, JR., *THE NEW CLEAN AIR ACT: A GUIDE TO THE CLEAN AIR PROGRAM AS AMENDED IN 1990* 47-48 (1990). EPA's initial regulations specifying the contents of state permit programs are found at 57 Fed. Reg. 32,250 (1992).

After the effective date of the permit program, it will be unlawful for any of the following sources to operate except in compliance with a CAA permit: affected sources subject to the acid deposition control program,<sup>111</sup> major sources,<sup>112</sup> sources subject to regulation under the programs for controlling new sources or hazardous air pollutants, sources required to have either a nonattainment area or PSD permit, and any other source so designated by EPA regulations.<sup>113</sup> The states must issue permits in accordance with EPA guidance; if a state fails to submit an acceptable permit program, EPA will administer the program in that state.<sup>114</sup> The statute requires each permit applicant to submit a plan describing how it will comply with all applicable statutory requirements and certify at least annually that it is in compliance with permit requirements.<sup>115</sup> Permit applicants will be assessed permit fees of at least \$25 (adjusted upward annually for inflation) per ton of each regulated pollutant emitted, to cover the reasonable costs of developing and implementing the permit program.<sup>116</sup>

The statute does not require state permits under this new, federally-supervised program to impose any special requirements on sources because of their proximity to federal lands or resources. Nevertheless, the 1990 amendments will subject many of those sources at a minimum to increased paperwork and financial burdens (in the form of the new permit fees).

## 5. Enforcement

The CAA contains the usual array of enforcement provisions, including injunctive relief against imminent hazards, administrative civil penalties, judicial civil sanctions, criminal penalties, and citizen suits.<sup>117</sup> In addition, a provision added by the 1990 amendments allows the district courts in citizen suits to order

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111. An "affected source" is one that includes one or more units subject to emissions limitations under the acid rain control provisions. 42 U.S.C. § 7651a(1)-(2) (Supp. III 1991).

112. For purposes of the permit program, this term means a major source as defined under the hazardous air pollutant provisions, see *infra* part III.D., or a major stationary source as defined under § 302(j), 42 U.S.C. § 7602(j) (1988), or under the nonattainment provisions. *Id.* § 7661(2) (Supp. III 1991). The nonattainment program is described *supra* part III.B.3.

113. 42 U.S.C. § 7661a(a) (Supp. III 1991).

114. *Id.* § 7661a(b), (d), (i).

115. *Id.* § 7661b(b).

116. *Id.* § 7661a(b)(3).

117. *Id.* §§ 7413, 7603-7604 (1988 & Supp. III 1991).

payment of penalties that can be used in mitigation projects to benefit the environment.<sup>118</sup> Courts may be particularly inclined to authorize such remedial measures if air pollution has impaired resources in the national parks, wildlife refuges, or similar federal lands categories. Restoration of these resources is apt to enhance public recreational opportunities or further legislative preservation mandates.<sup>119</sup>

Shortly after adoption of the 1977 amendments to the CAA, one court permitted the government to supplement the statutory enforcement provisions with a common law trespass theory in order to enjoin fluoride emissions deposited in Flathead National Forest by an aluminum reduction plant. The government also sought damages for injury to trees and wildlife.<sup>120</sup> According to the court, when the government acts in its proprietary capacity, it has a right to seek injunctive relief to protect its property.<sup>121</sup> The result in that case probably would be different today, however, because subsequent Supreme Court decisions have held that various federal common law remedies are preempted by the federal pollution control laws.<sup>122</sup>

### C. Regulation of New Sources

New and modified stationary sources<sup>123</sup> typically are subject to more stringent regulation under the CAA than existing sources.<sup>124</sup> While states retain considerable discretion to determine the manner and extent of regulating existing sources under their SIPs, new sources must comply with applicable nationally uniform standards of performance promulgated by EPA. These

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118. *Id.* § 7604(g)(2) (Supp. III 1991).

119. Mitigation of damage to the critical habitat of endangered species, for example, would promote the objectives of the Endangered Species Act, 16 U.S.C. §§ 1531-1544 (1988).

120. *United States v. Atlantic-Richfield Co.*, 478 F. Supp. 1215 (D. Mont. 1979).

121. *Id.* at 1218.

122. *Middlesex County Sewerage Auth. v. National Sea Clammers Assoc.*, 453 U.S. 1 (1981); *City of Milwaukee v. Illinois*, 451 U.S. 304 (1981); see Robert B. Keiter, *On Protecting the National Parks from the External Threats Dilemma*, 20 LAND & WATER L. REV. 355, 379 (1985).

123. The terms "new source," "modification," and "stationary source" are defined at 42 U.S.C. § 7411(a)(2)-(4) (1988). See also *Idaho Dep't of Health and Welfare v. Department of Energy*, 959 F.2d 149 (9th Cir. 1992) (rejecting Idaho's argument that the Energy Department's storage of nuclear waste in Idaho constituted construction of a new source or modification of an existing source that therefore required a permit under Idaho regulations implementing the CAA).

124. An "existing source" is any stationary source other than a new source. 42 U.S.C. § 7411(a)(6) (1988).

standards, issued on a category-by-category basis, are supposed to reflect the degree of emission reduction achievable through the application of the best technology which has been adequately demonstrated, taking into account the cost of achieving such reduction and any non-air quality health and environmental impact and energy requirements.<sup>125</sup> In addition, new and modified sources may be subject to the nonattainment and PSD permit programs.<sup>126</sup>

The degree of emission control required under the standards of performance can affect the degree to which new and modified stationary sources on or near federal lands may emit pollutants. In *Sierra Club v. Costle*,<sup>127</sup> the plaintiff challenged standards of performance for power plants partly on the ground that a sliding scale of percentage reductions in the regulations, based on the sulfur content of the fuel burned, was inconsistent with the CAA's goal of preventing visibility impairment in mandatory class I PSD areas.<sup>128</sup> The court rejected that contention, concluding that standards of performance are "only a minimum national standard, and there are mechanisms provided in the [CAA] which should be activated in the appropriate circumstances to protect troubled areas."<sup>129</sup> Until recently, however, the visibility protection provisions referred to by the court had not been utilized to impose controls more stringent than those contained in the standards of performance for new sources.<sup>130</sup>

#### D. Hazardous Air Pollutants

Concerned with EPA's slow pace in issuing emission standards for hazardous air pollutants, Congress overhauled this part of the CAA in the 1990 amendments. Instead of allowing the agency to determine which pollutants merit regulation, the Act now lists 189 hazardous pollutants for which EPA must issue emission

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125. *Id.* § 7411(a)(1) (Supp. III 1991). Standards of performance for new stationary sources are collected at 40 C.F.R. pt. 60 (1992).

126. *See supra* part III.B.3. and *infra* part IV.

127. 657 F.2d 298 (D.C. Cir. 1981).

128. The PSD program is described *infra* part IV, and the visibility protection program is discussed *infra* part V.

129. 657 F.2d at 339. The requirement that new source standards of performance achieve a percentage reduction of uncontrolled emissions, regardless of the sulfur content of the fuel burned, was deleted in 1990. *Compare* 42 U.S.C. § 7411(a)(1) (1988) with 42 U.S.C. § 7411(a)(1) (Supp. III 1991).

130. *See infra* part V.E. for a discussion of recent efforts to increase use of the visibility impairment provisions to reduce emissions from both existing and new sources.

standards.<sup>131</sup> EPA is required to issue a list of major source categories<sup>132</sup> and of area sources<sup>133</sup> presenting a threat of adverse effects to human health or the environment, which emit any of the listed hazardous air pollutants.<sup>134</sup> Once EPA lists a source category, it must establish emission standards for the category.<sup>135</sup> Because many of the listed pollutants are emitted by industries operating on or adjacent to federal lands — primarily extractive mineral industries — the new scheme for regulating hazardous air pollutants could be an important mechanism for curtailing pollution with potential adverse effects on federal lands and resources.

Like the new acid deposition control program for sulfur dioxide,<sup>136</sup> the revamped scheme for controlling emissions of hazardous air pollutants will be implemented in two phases. Unlike the pre-1990 emission standards for hazardous air pollutants, which were primarily risk-based,<sup>137</sup> the new “round one” standards will be technology-based — that is, set at a level requiring the maximum degree of emissions reduction achievable, taking into account considerations that include cost.<sup>138</sup> These standards, which may compel installation of control technology, process changes, and materials substitution, cannot be less stringent than the average emission limitation achieved by the best-performing twelve percent of existing sources in the category.<sup>139</sup>

After issuing the “round one” standards, EPA must report to Congress on the remaining risks to public health after application of those standards and recommend further legislation to address those residual risks.<sup>140</sup> If Congress does not act on those recom-

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131. 42 U.S.C. § 7412(b)(1) (Supp. III 1991). EPA may add pollutants to or delete them from the original list. *Id.* § 7412(b)(2)-(3).

132. This term is defined as any stationary source or group of stationary sources located within a contiguous area and under common control that emits or has the potential to emit in the aggregate ten tons per year or more of any hazardous air pollutant or 25 tons per year or more of any combination of hazardous air pollutants. *Id.* § 7412(a)(1).

133. An “area source” is any stationary source of hazardous air pollutants other than a major source. *Id.* § 7412(a)(2).

134. *Id.* § 7412(c)(1).

135. *Id.* § 7412(c)(2).

136. *See infra* part III.H.

137. *See* 42 U.S.C. § 7412(b)(1)(B) (1988).

138. 42 U.S.C. § 7412(d)(2) (Supp. III 1991).

139. *Id.* § 7412(d)(3). If a source category has fewer than 30 sources, the limitations may not be less stringent than those achieved by the best-performing five sources in the category. *Id.*

140. *Id.* § 7412(f)(1).

mendations, and if EPA finds that they are necessary to provide an ample margin of safety to protect the public health or to prevent adverse environmental effects, EPA must issue a second round of standards.<sup>141</sup> The factors EPA must consider in issuing the risk-based "round two" standards will be governed in large part by existing case law interpreting the pre-1990 statute.<sup>142</sup> The amended Act, however, confines EPA's discretion in determining the threshold level of risk that will require the agency to issue risk-based controls for a particular category of sources emitting hazardous air pollutants. Thus, the CAA now specifies that if technology-based round one standards for a category of sources emitting a known, probable, or possible human carcinogen do not reduce lifetime excess cancer risks to the most exposed individual to less than one in a million, EPA must issue round two standards for that source category.<sup>143</sup>

#### E. *Mobile Sources*

As of the adoption of the 1990 amendments, mobile sources continued to be responsible for significant amounts of ozone precursors and carbon monoxide emissions. Most of the 1990 provisions intended to reduce mobile source emissions are directed at businesses that manufacture, sell, lease, or repair automobiles. These provisions thus should have little direct application to federal land users.<sup>144</sup> A few provisions, however, may be relevant to federal land use. EPA regulations may require the use of reformulated gasoline and other special fuels in certain nonattainment areas, which could encompass some federal lands.<sup>145</sup> Requirements for enhanced vehicle inspection and maintenance programs, vehicle mileage reduction, and traffic control in nonattainment areas<sup>146</sup> also could affect federal lands. Furthermore, federal agencies must comply with automobile inspection and maintenance programs, and those with jurisdiction over property must require all employees who operate motor vehicles on the property to furnish proof of compliance with such programs.<sup>147</sup>

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141. *Id.* § 7412(f)(2).

142. *E.g.*, *Natural Resources Defense Council, Inc. v. EPA*, 824 F.2d 1146 (D.C. Cir. 1987).

143. 42 U.S.C. § 7412(f)(2) (Supp. III 1991).

144. *Id.* §§ 7521-7525 (1988 & Supp. III 1991).

145. *Id.* § 7545(h), (k), (m).

146. *See, e.g., id.* § 7511a(c)(3),(5), (d)(1) (Supp. III 1991).

147. *Id.* § 7418(c)-(d) (1988 & Supp. III 1991).

## F. Federal Facilities

Section 118 of the CAA requires federal agencies with jurisdiction over any property or facility, or which are engaged in any activity resulting in the discharge of air pollutants, to comply with all state and local air pollution requirements.<sup>148</sup> This mandate applies to both substantive and procedural requirements, such as the obligation to apply for state and local permits.<sup>149</sup> The Supreme Court's decision in *United States Department of Energy v. Ohio*<sup>150</sup> appears to preclude states from imposing civil penalties on federal facilities for past noncompliance.<sup>151</sup>

## G. Stratospheric Ozone Protection

The provisions of the 1990 CAA amendments for protecting the stratospheric ozone layer are not directed at local air pollution problems, so they likely have little application to public natural resources law. The statute lists two classes of substances, chlorofluorocarbons and hydrochlorofluorocarbons, which cause or contribute significantly to harmful effects on the stratospheric ozone layer.<sup>152</sup> Production of the first class will be gradually phased out between 1991 and 2001, after which it will be unlawful to produce any amount of a class I substance.<sup>153</sup> Production and use of class II substances will be phased out between 2015

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148. *Id.* § 7418(a).

149. *Id.* This section reverses *Hancock v. Train*, 426 U.S. 167 (1976) (holding that federal installations need not obtain operating permit from state with federally-approved SIP).

150. *United States Dep't of Energy v. Ohio*, 112 S. Ct. 1627 (1992).

151. The Court in *Ohio* held that provisions in the Clean Water Act and the Resource Conservation and Recovery Act (RCRA) similar to the CAA's federal facilities provisions constituted a waiver of the federal government's sovereign immunity from coercive fines but not from punitive fines. The Court used the former term to mean fines imposed to induce agencies to comply with injunctions or other court orders designed to modify behavior prospectively. *Id.* at 1640. Punitive fines are intended to punish past statutory and regulatory violations. *Id.* The Federal Facility Compliance Act, Pub. L. No. 102-386, 106 Stat. 1505 (1992), overruled *Ohio* with respect to RCRA, but did not affect the CAA. *Cf.* *Commonwealth of Pennsylvania, Dep't of Env'tl. Resources v. United States Postal Service*, 810 F. Supp. 605 (M.D. Pa. 1992) (Postal Service is immune under the federal Clean Water Act from civil penalties for past violations of state water pollution law). *But cf. Multimedia Approach to Be Tried by EPA for Compliance Plans at 40 or More Sites* 23 [Current Developments] *Env't Rep.* (BNA) 2351 (Jan. 15, 1993) (the Director of EPA's Office of Federal Facilities Enforcement interprets the CAA to authorize state enforcement against federal facilities).

152. 42 U.S.C. § 7671a(a)-(b) (Supp. III 1991).

153. *Id.* § 7671c(a). The statute is loaded with the usual panoply of exemptions. *Id.* § 7671c(d)-(g).

and 2030.<sup>154</sup> EPA has the authority to accelerate these schedules if necessary to protect human health and the environment,<sup>155</sup> and the government already has accelerated the deadlines for CFCs by five years.<sup>156</sup>

#### H. *Acid Deposition Control*

Acid deposition is a particularly troublesome form of interstate pollution which has had demonstrable adverse effects on federal lands and resources.<sup>157</sup> The 1990 CAA amendments address this problem in a comprehensive way for the first time. Congress intended implementation of the new Title IV amendments eventually to reduce annual emissions of sulfur dioxide by ten million tons from 1980 levels to a national cap of 5.6 million tons per year, and to reduce nitrogen oxide emissions by about two million tons from 1980 levels.<sup>158</sup>

The sulfur dioxide emission reductions will be achieved through a two-phased system of emission limitations directed primarily at fossil fuel-fired power plants, which account for about eighty percent of all sulfur dioxide emissions in the country. During phase one, EPA will allocate to large power plants listed in the statute<sup>159</sup> a certain number of allowances, each of which authorizes its holder to emit one ton of sulfur dioxide.<sup>160</sup> Beginning on January 1, 1995, an affected power plant cannot emit sulfur dioxide in excess of the allowances it holds.<sup>161</sup> The Act establishes an elaborate system for trading allowances intended to increase the efficiency of emission reductions.<sup>162</sup> In effect, phase one will require each affected utility to reduce its emissions to a level of 2.5 pounds of sulfur dioxide per million British thermal units (Btu's) of heat generated during a baseline period, normally 1985 to 1987.<sup>163</sup> Phase two, encompassing more power

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154. *Id.* § 7671d(a)-(b).

155. *Id.* § 7671e.

156. In February 1992, President Bush announced that the U.S. ban on CFCs would go into effect at the end of 1995 instead of 2001. EPA is responsible for implementing this decision. *See* Protection of Stratospheric Ozone; Refrigerant Recycling, 58 Fed. Reg. 28,660, 28,663 (1993) (to be codified at 40 C.F.R. pt. 82).

157. *See supra* part II.C.

158. 42 U.S.C. § 7651(b) (Supp. III 1991).

159. *Id.* § 7651c, tbl. A.

160. *Id.* §§ 7651a(3), 7651b(a).

161. *Id.* § 7651c(a). Limited extensions of the January 1, 1995 deadline may be available. *Id.* § 7651c(d).

162. *Id.* § 7651b(b)-(d).

163. *Id.* § 7651c(a)(1)-(2).

plants than phase one, will impose emission limitations based on the size of the generating unit, the type of fuel used, and the baseline emission rate.<sup>164</sup> For example, all power plants with generating capacities greater than 75 megawatts will have to cut their emissions by about half of phase one levels, to 1.2 pounds of sulfur dioxide per million Btu's.<sup>165</sup>

Unless it can purchase allowances from existing plants or from EPA — in sales or auctions conducted by the agency — a new utility unit may not emit any sulfur dioxide.<sup>166</sup> This prohibition has the potential to prevent the construction of new power plants, including those proposed for locations on or close to federal lands. Although industrial facilities that emit sulfur dioxide are not covered by either phase one or two, they may opt into the allowance system.<sup>167</sup> This opportunity may appeal to a facility that believes it can reduce its emissions below the level of allowances EPA allocates to it, because the facility then may sell its excess allowances for a profit.

To reduce emissions of nitrogen oxides, EPA must issue regulations containing annual emission limitations for utility boilers and revise new source standards of performance for fossil fuel-fired steam generating units, both utility and nonutility.<sup>168</sup> The new acid deposition provisions for both sulfur dioxide and nitrogen oxides will be enforced through permits and compliance plans which permit applicants must submit.<sup>169</sup>

There is little doubt that emissions of sulfur dioxide from large power plants in the Midwest are responsible for much of the acid deposition affecting the northeastern United States.<sup>170</sup> The emissions reductions mandated for these sources by the 1990 CAA amendments should ameliorate some of the damage to federal lands and resources in that region attributable to acid deposition. Whether the new program is strong enough to eliminate future threats from acid deposition to those and similar resources elsewhere in the country, however, remains to be seen.

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164. *Id.* § 7651d.

165. *Id.* § 7651d(b)(1).

166. *Id.* § 7651b(e).

167. *Id.* § 7651i.

168. *Id.* § 7651f.

169. *Id.* § 7651g.

170. *See* Malley, *supra* note 57, at 818-19.

## I. Interstate Pollution

Before 1990, the CAA required each major proposed new or modified stationary source that either was subject to the PSD program or may have significantly contributed to levels of pollution in excess of the NAAQSs in adjacent states to notify such states of proposed construction or modification.<sup>171</sup> A state receiving such notice could petition EPA to issue a finding that a major stationary source or group of sources<sup>172</sup> emits or would emit air pollution in amounts that would contribute significantly to nonattainment or interfere with maintenance of the NAAQSs or with implementation of the PSD provisions in the petitioning state.<sup>173</sup> If EPA issued such a finding, the source would be in violation of the SIP of the state in which it was located or intended to locate, notwithstanding issuance of a permit by that state.<sup>174</sup> If the state that issued the permit did not enforce that SIP violation, EPA and private citizens were free to do so.<sup>175</sup>

Although affected states filed several petitions alleging that sources in another state were causing pollution problems for them, EPA never issued the findings necessary to trigger SIP violations.<sup>176</sup> Typically, EPA found insufficient evidence that the petitioning state had been able to trace the problem to a particular source in another state. The courts upheld these determinations.<sup>177</sup>

The 1990 amendments provide more ammunition for states alleging that their pollution problems are attributable to sources in other states. The CAA now authorizes EPA to create a "trans-

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171. 42 U.S.C. § 7426(a)(1) (1988).

172. The reference to a group of sources was added in 1990 to address the difficulty that petitioning states encountered in proving that a particular source in another state would exacerbate air pollution in the petitioning state. Pub. L. No. 101-549, § 109(a)(1), 104 Stat. 2399, 2469 (1990).

173. 42 U.S.C. §§ 7426(b), 7410(a)(2)(D)(i) (1988 & Supp. III 1991).

174. *Id.* § 7426(c).

175. *Id.* §§ 7413, 7604.

176. For discussion of the deficiencies of the CAA's interstate pollution provisions before the 1990 amendments, see Kay M. Crider, *Interstate Air Pollution: Over A Decade of Ineffective Regulation*, 64 CHI.-KENT L. REV. 619 (1988); Bruce M. Kramer, *Transboundary Air Pollution and the Clean Air Act: An Historical Perspective*, 32 KAN. L. REV. 181 (1983). See also Robert L. Glicksman, *Watching the River Flow: The Prospects for Improved Interstate Water Pollution Control*, 43 WASH. U. J. URB. & CONTEMP. L. 119, 162, 166-74 (1993); Timothy Talkington, Comment, *Interstate Air Pollution Abatement and the Clean Air Act Amendments of 1990: Balancing Interests*, 62 U. COLO. L. REV. 957 (1991).

177. See, e.g., *New York v. EPA*, 852 F.2d 574 (D.C. Cir. 1988), cert. denied, 489 U.S. 1065 (1989); Glicksman, *supra* note 176, at 166-68.

port region" if it finds that the interstate transport of pollution contributes significantly to a violation of the NAAQSs.<sup>178</sup> For each transport region, EPA must establish a transport commission to recommend measures necessary for mitigation of the interstate pollution.<sup>179</sup> Congress itself established the first transport region for interstate ozone pollution; the region comprises most of the eastern seaboard from the District of Columbia to Maine, and includes adjacent states such as Pennsylvania and Vermont.<sup>180</sup> This ozone transport region includes all federal lands located in those states. At a minimum, states within the region must revise their SIPs to implement enhanced vehicle inspection and maintenance programs, reasonably available control technology for sources of volatile organic compounds, and vehicle refueling or similar controls.<sup>181</sup> Transport commissions may recommend additional control measures to EPA, such as use of cleaner-burning fuels in automobiles, tighter tailpipe emission standards, and control of the evaporative content of paints, finishes, and aerosol sprays.<sup>182</sup> Adoption and implementation of such controls could reduce concentrations of the nonattainment pollutants on federal lands within the transport region.

#### J. *Summary*

The basic CAA regulatory scheme, as refined in 1990, encompasses a bewildering array of programs and provisions intended to control and abate air pollution from many sources. While the Act has succeeded in reducing emissions of many of the criteria pollutants in certain areas, it has not fully lived up to initial expectations. Disastrous air pollution episodes may have been avoided, but the anticipated universal improvement in nationwide air quality did not materialize.

As this part has indicated, virtually all of the principal statutory programs have the potential to affect pollution-generating activities located on or near the federal lands. With certain exceptions, the application of the general CAA scheme described above to resource users on or near federal lands rarely will raise issues unique to those activities. But two CAA programs have

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178. 42 U.S.C. § 7506a(a) (Supp. III 1991).

179. *Id.* § 7506a(b).

180. *Id.* § 7511c.

181. *Id.*

182. *Id.*; Allan R. Gold, *New Battle Opens Today on Smog in the East*, N.Y. TIMES, May 7, 1991, at B13.

special relevance to public natural resources law: prevention of air quality deterioration and visibility impairment. These are the theoretically separate, but practically interrelated, subjects taken up in the next two parts of this Article.

#### IV.

##### PREVENTION OF SIGNIFICANT DETERIORATION

###### A. *Origins and Purposes of the PSD Program*

The flip side of the nonattainment area coin<sup>183</sup> is the CAA's program for the prevention of significant deterioration of air quality that exceeds requirements under the NAAQSs.<sup>184</sup> Of all the CAA's programs designed to control pollution emanating from stationary sources, the PSD program, including its provisions relating to visibility protection, is of most direct relevance to activities occurring on or affecting the federal lands.<sup>185</sup> The program has been called, "particularly in the West, perhaps the most significant environmental constraint on the construction of major industrial facilities."<sup>186</sup>

The PSD program originated in response to a 1972 district court order enjoining EPA from approving any SIP that would permit the "significant deterioration" of air quality in regions where it exceeded the NAAQSs.<sup>187</sup> The court based its decision on the CAA's goal of "protect[ing] and enhanc[ing] the quality of the Nation's air resources,"<sup>188</sup> as well as the Act's legislative history. EPA issued its first PSD regulations in 1974,<sup>189</sup> and Congress endorsed EPA's approach in the 1977 CAA amendments.<sup>190</sup> The statute's PSD program generally is intended to protect public health and welfare from adverse air pollution ef-

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183. The nonattainment provisions of the CAA are described *supra* part III.B.3.  
184. 42 U.S.C. §§ 7470-7479, 7491-7492 (1988 & Supp. III 1991).

185. For an introduction to the PSD program, see generally Amy R. Coy & Eric A. Groten, *New Growth in the PSD Forest: A Trail Map*, NAT. RESOURCES & ENV'T, Spring 1989, at 33.

186. Michael B. Barr, *The PSD Program and Its Impacts on Natural Resource Development*, 26 ROCKY MTN. MIN. L. INST. 475, 475 (1980).

187. *Sierra Club v. Ruckelshaus*, 344 F. Supp. 253, 256 (D.D.C.), *aff'd without opinion*, 2 Env'tl. L. Rep. (Env'tl. L. Inst) 20,656, 4 Env't Rep. Case. (BNA) 1815 (D.C. Cir. 1972). The early history of the PSD program is discussed in Barr, *supra* note 186, at 476-84.

188. 42 U.S.C. § 7401(b)(1) (1988).

189. 39 Fed. Reg. 42,510 (1974). The D.C. Circuit upheld the regulations, *Sierra Club v. EPA*, 540 F.2d 1114 (D.C. Cir. 1976), but the decision was later vacated in light of legislation in 1977, *Montana Power Co. v. EPA*, 434 U.S. 809 (1977).

190. Pub. L. No. 95-95, 91 Stat. 685 (1977).

fects and to ensure that economic growth occurs in a manner consistent with the preservation of existing clean air resources.<sup>191</sup> Although the program is not limited to clean air resources on federal lands, the sponsors of the 1977 amendments intended the new PSD program in large part "to preserve, protect, and enhance the air quality in national parks, national wilderness areas, national monuments, national seashores, and other areas of special national or regional natural, recreational, scenic, or historic value."<sup>192</sup>

### B. *Classification of Air Quality Control Regions*

The PSD program creates three categories of clean air, or PSD, areas, and permits different degrees of air quality degradation in each. Class I areas permit the least amount of degradation. The CAA requires that all international parks, national wilderness areas exceeding 5000 acres, national memorial parks exceeding 5000 acres, and national parks established before August 7, 1977 exceeding 6000 acres be designated as mandatory class I areas; these areas may not be redesignated.<sup>193</sup> Thirty-six of the 50 national parks are included among the 158 mandatory class I areas, though some of those are covered only in part.<sup>194</sup> All other PSD areas, except those that had been designated class I under EPA's pre-1977 regulations, are initially designated as class II areas.<sup>195</sup> Certain class II areas may be redesignated only to class I. These include national monuments, national primitive areas, national preserves, national recreation areas, national wild and scenic rivers, national wildlife refuges, national lakeshores or seashores, and national parks or national wilderness areas established after August 7, 1977, if each exceeds 10,000 acres.<sup>196</sup> This limitation on redesignation has had no practical importance, however, because states have made little effort to redesignate

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191. 42 U.S.C. § 7470(1), (3) (1988).

192. *Id.* § 7470(2); see Oren, *supra* note 38, at 316.

193. 42 U.S.C. § 7472(a) (1988); 40 C.F.R. § 51.166(e)(1) (1992). These areas are listed in Oren, *supra* note 38, app. A.

194. See Oren, *supra* note 38, at 357. Only 120 of the 474 wilderness areas that existed when Oren wrote his article were designated as class I PSD areas. *Id.* Most of the class I areas are located west of the Mississippi River, and nearly one-quarter are in the Four Corners region of Utah, Arizona, Colorado, and New Mexico. *Id.* at 322-23.

195. 42 U.S.C. § 7472(b) (1988 & Supp. III 1991); 40 C.F.R. § 51.166(e)(2) (1992).

196. 42 U.S.C. § 7474(a) (1988); 40 C.F.R. § 51.166(e)(4) (1990). These "mandatory class II" or "class II floor areas" are listed in Oren, *supra* note 38, app. B.

any area, public or private, as class III, and no PSD area has ever been so redesignated.<sup>197</sup> Likewise, states have been reluctant to redesignate non-mandatory areas as class I, in part because states often are averse to the restrictions on development that stem from class I status.<sup>198</sup>

Before the 1977 amendments, the federal land managers (FLMs)<sup>199</sup> of federally-owned clean air areas had the same power to control redesignation that states had over non-federal lands.<sup>200</sup> The 1977 amendments removed the FLMs' control of redesignation, leaving them with mere advisory powers.<sup>201</sup> If a state proposes to redesignate an area containing federal lands, it must notify the FLM, who may then submit comments.<sup>202</sup> States must explain any disagreement with the land manager but need not abide by his or her recommendations. Indeed, the Act requires that FLMs recommend reclassification to class I of all areas in which air quality related values are important attributes.<sup>203</sup> The Forest Service and the Interior Department recommended in 1979 and 1980 that 59 areas be upgraded to class I status, but the states refused to reclassify any of them.<sup>204</sup> EPA retains limited disapproval authority over state redesignations.<sup>205</sup>

Both the potential for a class I PSD designation to restrict development on or near the federal lands and the subordinate role that FLMs play in that process are illustrated by a 1983 Ninth Circuit Court of Appeals decision.<sup>206</sup> In 1980, the Interior Department recommended that California redesignate Death Valley National Monument from class II to class I. At the time, Kerr-McGee Chemical Corporation had pending a permit application

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197. See Coy & Groten, *supra* note 185, at 57; Oren, *supra* note 38, at 324.

198. See 136 CONG. REC. S2875, S2879 (daily ed. Mar. 21, 1990) (Exhibit 1) (GAO report).

199. Federal Land Manager means "with respect to any land in the United States, the Secretary of the department with authority over such lands." 42 U.S.C. § 7602(i) (Supp. III 1991); see also 40 C.F.R. § 51.166(b)(24) (1992).

200. See 39 Fed. Reg. 42,510, 42,515 (1974) (codified at 40 C.F.R. § 52.21(c)(3)(iv)).

201. See H.R. REP. NO. 294, 95th Cong., 1st Sess. 8 (1977), reprinted in 1977 U.S.C.C.A.N. 1077, 1085.

202. 42 U.S.C. § 7474(b)(1)(B) (1988); 40 C.F.R. § 51.166(g)(2)(iv) (1992). The notice and comment procedures for redesignation are set forth at *id.* § 51.166(g).

203. 42 U.S.C. § 7474(d) (1988).

204. See 136 CONG. REC. S2875, S2883 (daily ed. Mar. 21, 1990) (Exhibit 1, App. IV) (GAO report).

205. 42 U.S.C. § 7474(b)(2) (1988).

206. Kerr-McGee Chem. Corp. v. U.S. Dep't of Interior, 709 F.2d 597 (9th Cir. 1983).

to expand a chemical processing plant in California's Searles Valley, about eighteen miles from the boundary of Death Valley. The company brought a declaratory judgment action against the state and the Interior Department, alleging that the Department's recommendation for redesignation would cause the state to delay processing the corporation's permit application and might subject the facility to more stringent controls if California redesignated the area.<sup>207</sup> According to Kerr-McGee, the Department violated the CAA by failing to consider the non-air quality environmental, economic, social, and energy effects of redesignation before making its recommendation.<sup>208</sup> The court dismissed the case on both standing and ripeness grounds.<sup>209</sup> The court pointed to the 1977 amendments reducing the FLM's power to "only an advisory" role.<sup>210</sup> Because the state may act independently of — and therefore inconsistently with — any federal recommendation, Interior's recommendation was not a prerequisite to redesignation by California. The recommendation caused no injury to Kerr-McGee in that it created no duty to delay permit applications, it did not initiate redesignation proceedings, nor did it commit anyone to any other acts injurious to Kerr-McGee.<sup>211</sup> The company therefore lacked standing to sue, and the case was not ripe.

### C. PSD Increments and Pollutants

The significance of the PSD classification scheme lies in the increments of air quality deterioration permitted in the various PSD areas. For each PSD area, the statute requires the establishment of a baseline concentration, which is generally the ambient concentration of a particular pollutant existing at the time the first application for a PSD permit in that area is filed.<sup>212</sup> Maximum allowable increases in concentrations of pollutants for PSD areas are specified for each class, the smallest increments being

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207. *Id.* at 598-99.

208. *Id.* at 599; *see* 42 U.S.C. § 7474(b)(1)(B) (1988).

209. 709 F.2d at 600 (the standing and ripeness inquiries "merge into a determination whether the federal recommendation has injured Kerr-McGee").

210. *Id.* at 601, citing H.R. REP. No. 294, 95th Cong., 1st Sess. 7-8 (1977), *reprinted in* 1977 U.S.C.C.A.N. 1077, 1085.

211. *Id.* at 602. At most, the recommendation triggered a duty for California to acknowledge the federal position on redesignation. *Id.*

212. 42 U.S.C. § 7479(4) (1988). Baseline concentrations are further described at 40 C.F.R. § 51.166(b)(13)-(15) (1992).

those allowed in class I areas.<sup>213</sup> Each state that has PSD areas must include in its SIP measures to assure that concentrations of the applicable pollutants do not exceed the baseline plus the maximum allowable increase, or the NAAQS, whichever is lower.<sup>214</sup> In short, the effect is to limit the growth of particular pollutant emissions for which an area is designated PSD.

The more pollutants that are covered by the PSD program, the more activities the program will affect. The statute itself created the essential PSD framework for sulfur dioxide and particulate matter.<sup>215</sup> EPA was required to issue PSD regulations for the so-called "Set II" criteria pollutants — carbon monoxide, photochemical oxidants, and nitrogen oxides — by 1979.<sup>216</sup> The only one of these for which PSD regulations currently exist, however, is nitrogen oxides, for which EPA issued regulations in 1988<sup>217</sup> pursuant to a court order;<sup>218</sup> their interpretation is still unsettled.

In promulgating the nitrogen oxide regulations, EPA relied on the same three-tiered classification system that the statute establishes for sulfur dioxide and particulates, and it set the PSD increments by reference to the NAAQS for nitrogen oxides.<sup>219</sup> In *EDF v. EPA*,<sup>220</sup> the appellate court remanded these regulations to EPA. Under the court's reading of the statute, EPA's first task in devising PSD regulations for a Set II pollutant is to determine whether the increments included in these regulations are at least as stringent as those for the Set I pollutants.<sup>221</sup> Next, EPA must determine whether the goals and purposes of the statute require

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213. 42 U.S.C. § 7473(b) (1988). The CAA itself sets the PSD increments for particulate matter and sulfur dioxide for all three classes. *Id.*; see also 40 C.F.R. § 51.166(c) (1992). EPA has set PSD increments for nitrogen oxides. See *id.*

214. 42 U.S.C. § 7473(a), (b)(4) (1988). Maximum allowable concentrations are set forth at 40 C.F.R. § 51.166(d) (1992). The minimum requirements for SIPs in states with PSD areas are listed at *id.* § 51.166. A similar list for states with SIPs deficient as to PSD requirements, including federal lands within such states, appears at *id.* § 52.21.

215. 42 U.S.C. § 7473 (1988).

216. *Id.* § 7476(a).

217. 53 Fed. Reg. 40,656 (1988) (codified at 40 C.F.R. pts. 51-52 (1992)).

218. See *Sierra Club v. Thomas*, 658 F. Supp. 165 (N.D. Cal. 1987) (ordering the agency to comply with nondiscretionary duty to issue regulations in accordance with statutory deadlines). Between 1979 and 1981, EPA took steps to issue PSD regulations for all Set II pollutants, at one point soliciting public comment on ten alternative programs. 45 Fed. Reg. 30,088 (1980). In October 1981, EPA without explanation canceled the Set II rulemaking. See *Environmental Defense Fund v. EPA*, 898 F.2d 183, 184-85 (D.C. Cir. 1990).

219. See 898 F.2d at 185.

220. 898 F.2d 183 (D.C. Cir. 1990).

221. *Id.* at 189 (citing 42 U.S.C. § 7476(d) (1988)).

even more stringent regulation for the Set II pollutants.<sup>222</sup> Since EPA engaged in neither inquiry, its nitrogen oxide regulations were defective.

The *EDF* court's conclusion that the PSD program must be at least as stringent for Set II as for Set I pollutants, and perhaps more stringent, may result in a tougher, more expansive PSD program in the future. Another portion of the court's opinion may have a similar effect. The court found that EPA's choice of the NAAQs as the sole basis for deriving PSD increments was erroneous.<sup>223</sup> Exclusive reference to the NAAQs meant that EPA set PSD increments only for nitrogen dioxide, the only current nitrogen oxide criteria pollutant. The court said that the goals of the PSD program might require inclusion of other nitrogen oxides in the PSD program, since those goals, which emphasize protection of areas with natural, recreational, scenic, and historic values, do not necessarily lead to consideration of the same factors the agency considers in issuing NAAQs. A pollutant with only a mild effect on the public health, which was the focus of the primary NAAQs, but which may have severe effects on wilderness areas, for example, might demand a smaller PSD increment than one with severe health effects but only a mild effect on wilderness areas.<sup>224</sup> Thus, the PSD program may enable, if not require, EPA to expand its regulation of criteria pollutants beyond the scope of the NAAQs as a means of protecting public natural resources and the values they represent.

#### D. PSD Permits

The principal mechanism for complying with maximum allowable PSD increases and concentrations is the requirement that each major emitting facility<sup>225</sup> on which construction is commenced after 1977 in a PSD area apply to the state for a PSD

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222. *Id.* (citing 42 U.S.C. § 7476(c) (1988)).

223. *Id.* at 189-90.

224. *Id.* at 190.

225. 42 U.S.C. § 7479(1) (1988). For purposes of the PSD program, the CAA defines a major emitting facility as any one of a variety of listed categories of stationary sources which emits or has the potential to emit 100 tons per year or more of any air pollutant, or any other source with the potential to emit 250 tons per year or more. EPA has interpreted "major emitting facility" to include a major stationary source and a major modification as defined in 40 C.F.R. § 51.166(b)(1)-(2) (1992). *See id.* § 51.166(i). In *Natural Resources Defense Council v. EPA*, 937 F.2d 641 (D.C. Cir. 1991), the court upheld EPA's decision, on cost-benefit grounds, to exclude fugitive emissions from surface coal mines from the definition of a major emitting facility.

permit.<sup>226</sup> EPA is authorized to issue an administrative order or to seek injunctive relief in court to prevent the construction or modification of a major emitting facility in violation of the PSD provisions, including the permit requirement.<sup>227</sup>

EPA's early PSD regulations required a PSD permit for all major stationary sources, whether located within a PSD area or not, if emissions from the source would have an impact on any clean air area.<sup>228</sup> The District of Columbia Circuit, however, overturned this portion of the regulations, holding that the permit program applies only to facilities located within PSD areas.<sup>229</sup> The agency's desire to maintain air quality on federal lands did not justify applying the permit program in a manner more extensive than the clear language of the statute allows.<sup>230</sup> The court said that EPA should rely instead on the visibility protection program to achieve that end.<sup>231</sup>

Each facility that applies for a permit must undergo a review, which may include air quality monitoring and modeling,<sup>232</sup> and the applicant must demonstrate that emissions from construction and operation will neither cause nor contribute to violations of the PSD increments, NAAQSs, or any other applicable emission standards.<sup>233</sup> The proposed facility also must achieve emission limits that reflect use of the best available control technology (BACT) for each pollutant subject to regulation that the facility

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226. 42 U.S.C. § 7475(a)(1) (1988 & Supp. III 1991). On the application of the PSD permit requirement to mining operations prior to the 1990 amendments, see Robert T. Connery, *The Effects of the Clean Air Act Amendments of 1977 on Mining and Energy Developments and Operations*, 24 ROCKY MTN. MIN. L. INST. 1, 9-27 (1978).

227. 42 U.S.C. § 7477 (1988 & Supp. III 1991).

228. See *Alabama Power Co. v. Costle*, 636 F.2d 323, 364 (D.C. Cir. 1979).

229. *Id.* at 368.

230. *Id.* (citing 42 U.S.C. § 7475(a)(1) (1988)). *Alabama Power* and EPA's reaction to it are discussed in Barr, *supra* note 186, at 500-14.

231. 636 F.2d at 368. Following the decision in *Alabama Power*, the Fifth Circuit remanded to EPA for reconsideration EPA's veto of a variance issued to an oil-fired power generating plant in a mandatory class I area containing Everglades National Park. Florida had granted a variance to increase emissions due to the utility's need to switch from scarce low-sulfur fuel oil to a higher polluting fuel. EPA denied the variance because it would result in a violation of the PSD increments, but the court remanded because EPA relied on portions of its PSD regulations invalidated in *Alabama Power*. *Florida Power & Light Co. v. Costle*, 650 F.2d 579, 589-90 (5th Cir. 1981).

232. 42 U.S.C. § 7475(a)(2), (6), (e) (1988); see also 40 C.F.R. § 51.166(f) (1992).

233. 42 U.S.C. § 7475(a)(3) (1988).

would have the potential to emit in significant amounts.<sup>234</sup> If a proposed facility is located within ten kilometers of a class I area, it may be subject to BACT even if it otherwise would have been exempt because its emissions would be below EPA's threshold "significance levels" for determining the applicability of BACT.<sup>235</sup>

BACT is an individualized emission limitation that is achievable for the applicant, based on consideration of a variety of factors, including energy, environmental, and economic impacts.<sup>236</sup> EPA's current "top-down" approach requires the imposition of the most stringent control available for a particular source or source category, unless the applicant can prove that it is technologically or economically impossible to comply.<sup>237</sup> Variances are available for applicants using innovative control technology, but the conditions for receiving a variance are tougher on sources located in class I areas.<sup>238</sup> For several major western power plants, this standard has resulted in controls significantly more stringent than otherwise required by EPA's national standards of performance for new sources.<sup>239</sup>

The statute and regulations require a series of special permit conditions to protect class I areas. EPA must provide notice to FLMs of permit applications filed for any proposed facility to be located within 100 kilometers of a mandatory class I area, or even further for very large facilities.<sup>240</sup> The FLMs have the "affirmative responsibility" to protect air quality related values (AQRV), including visibility, of lands in class I areas, and to consider whether a proposed major emitting facility would adversely affect those values.<sup>241</sup> If the land manager demonstrates to a state considering the permit that emissions from the proposed

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234. *Id.* § 7475(a)(4); 40 C.F.R. § 51.166(j)(2)-(3) (1992). Under EPA's "North County" policy, the toxic effects of unregulated pollutants are considered in setting BACT if those pollutants pose a potential adverse environmental effect. *See Coy & Groten, supra* note 185, at 59.

235. *See* 40 C.F.R. §§ 51.166(b)(23), 52.21(b)(23) (1992); Oren, *supra* note 38, at 325 n.53.

236. 42 U.S.C. § 7479(3) (1988 & Supp. III 1991).

237. *See Coy & Groten, supra* note 185, at 59.

238. *See* 40 C.F.R. §§ 51.166(s)(2)(iv)(b), 52.21(v)(2)(iv)(b) (1992); Oren, *supra* note 38, at 326 n.53.

239. *See Ostrov, supra* note 48, at 435. For further discussion of the national standards of performance for new sources, *see supra* part III.C. *See also* PROTECTING VISIBILITY, *supra* note 51, at 67.

240. 42 U.S.C. § 7475(d)(2)(A) (1988); 40 C.F.R. § 124.42(a) (1992); Oren, *supra* note 38, at 325 n.51.

241. 42 U.S.C. § 7475(d)(2)(B) (1988); 40 C.F.R. § 51.166(p)(2) (1992).

facility would have an adverse impact on AQRV, and the state concurs, no permit may be issued.<sup>242</sup> However, if an applicant demonstrates to the FLM that emissions will not adversely affect AQRV despite a violation of applicable PSD increments resulting from the facility's emissions, the state may issue a permit, provided the permit includes emission limitations to ensure that special "maximum allowable increases over minor source baseline concentrations" are not exceeded.<sup>243</sup> Essentially, these limitations must prevent violations only of class II increments, even though the facility will affect a class I area. If a permit applicant's facility would not violate a class I PSD increment, the state has the final say on permit issuance, but the statute suggests that the FLM may veto a proposed state permit that would violate a class I PSD increment.<sup>244</sup>

Thus the Class I increments amount to a device to assign the burden of proof on whether a proposed source should be allowed. If the source can show that it will not adversely affect air quality related values, the source is subject to increments as lenient as the Class II increments. If the source cannot, it may be allowed to build only if it passes successfully through a lengthy variance process that may ultimately require Presidential approval of the proposed source.<sup>245</sup>

The AQRV test was designed to assuage the concerns of those who felt that the PSD program would create "buffer zones" near national parks in which no development would be permitted.<sup>246</sup> Professor Oren points out that the test has had no effect, however, since no source has ever been denied a permit under it.<sup>247</sup> Nevertheless, industry has not been able to create a major loophole out of the provision allowing violations of class I increments to occur as long as AQRV will not be adversely affected. Only seven sources have been granted permits despite findings that they would cause class I violations.<sup>248</sup>

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242. 42 U.S.C. § 7475(d)(2)(C)(i) (1988); 40 C.F.R. § 51.166(p)(3) (1992).

243. 42 U.S.C. § 7475(d)(2)(C)(iii)-(iv) (1988); 40 C.F.R. § 51.166(p)(4) (1992). The term "minor source baseline data" is defined at *id.* § 51.166(b)(14)(ii).

244. See Oren, *supra* note 38, at 378.

245. *Id.* at 326-27 (footnotes omitted). The variance process is described at 42 U.S.C. § 7475(d)(2)(D) (1988); 40 C.F.R. § 51.166(p)(5)-(7) (1992).

246. Oren, *supra* note 38, at 371.

247. See *id.* at 372.

248. *Id.*

### E. *Recommendations for Improvements in the PSD Program*

Although the PSD permit process theoretically provides a powerful tool to protect air quality where it is relatively pristine, the program has not performed that role successfully. One problem is that the program either grandfathers most sources or exempts them from the permit requirement as minor sources. A General Accounting Office study of five class I areas found, for example, that exempted sources accounted for more than 90 percent of all sulfur dioxide, nitrogen oxide, and particulate emissions.<sup>249</sup> The same report alleges that FLMs do not have enough information about the resources they are trying to protect, and may not receive notice of permit applications early enough, to have effective input into the PSD permit process.<sup>250</sup> Oren finds "some anecdotal evidence" that the NPS, by commenting on prospective new sources located near the parks, has forced state permit issuers to impose tougher controls than they otherwise would, but he concludes that the PSD program has caused only minor shifts in pollution away from the parks.<sup>251</sup>

In light of these deficiencies, Congress should consider several means of strengthening the PSD program. First, in response to the states' failure to respect the FLMs' reclassification requests,<sup>252</sup> Congress could expand the list of mandatory class I PSD areas by designating, for example, all or some of the areas now limited to class I or II status<sup>253</sup> as mandatory class I areas.<sup>254</sup> Second, to remedy the principal deficiency cited in the General Accounting Office Report, Congress could expand the scope of the PSD permit program. It could require permits not only for major emitting facilities,<sup>255</sup> but also for categories of smaller sources whose aggregate emissions comprise a significant percentage of the emissions that affect PSD areas containing federal lands. Congress adopted just such a strategy in the provisions of the 1990 amendments that authorize EPA to regulate "area sources" of hazardous air pollutants.<sup>256</sup> In addition, Congress or

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249. 136 CONG. REC. S2879 (daily ed. Mar. 21, 1990) (Exhibit 1).

250. *Id.*

251. *See* Oren, *supra* note 38, at 355-56.

252. *See supra* notes 203-05 and accompanying text.

253. 42 U.S.C. § 7474(a)(1)-(2) (1988).

254. This could be accomplished by adding the areas now referred to in § 7474(a) to the areas listed under § 7472(a).

255. *See* 42 U.S.C. §§ 7475(a)(1), 7479(1) (1988).

256. *Id.* § 7412(c)(3) (Supp. III 1991) (EPA must list and regulate sufficient categories of area sources to ensure that area sources representing 90% of the area

EPA could require a permit for, and impose BACT upon, any smaller source otherwise exempt from the permit program that seeks to locate within a certain distance of a class I PSD area.<sup>257</sup>

Third, the role of the FLMs in the PSD permit issuance process could be enhanced. At a minimum, the statute should specify a minimum period of notice which states are required to provide to the FLMs of any PSD areas whose air quality might be affected by permit issuance before any action may be taken on the permit application.<sup>258</sup> This period should be long enough to give FLMs a realistic opportunity to make informed comments on the permit application. Substantively, Congress should strengthen the federal government's authority in situations in which the FLM objects to a state's permit on the ground that it would adversely affect AQRV. If it is unwilling to grant the FLMs a veto power over state permits, Congress could insure at a minimum that EPA retains adequate authority to resolve disputes between states and FLMs over the propriety of permit issuance. EPA should have the power, for example, to prohibit permit issuance if it concludes that a proposed facility's emissions may cause or contribute to adverse impacts on air quality in a class I PSD area. The current authorization to a state to issue a permit to such a facility if the facility can demonstrate that its emissions will not cause or contribute to violations of class I PSD increments<sup>259</sup> could then be eliminated. Similarly, Congress should clarify what the current statute suggests — that, even though they lack veto power in most situations, the FLMs may veto permits for facilities whose emissions would violate a class I increment.<sup>260</sup>

## V.

### VISIBILITY PROTECTION

The CAA's prevention of significant deterioration part contains a separate subpart, added in 1977, which aims to prevent

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source emissions of the 30 hazardous air pollutants that present the greatest threat to public health in the largest number of urban areas are subject to regulation).

257. EPA's regulations currently impose this requirement on facilities that plan to locate within ten kilometers of a class I area. 40 C.F.R. §§ 51.166(b), 52.21(b) (1992); *see supra* note 235 and accompanying text. Expansion of that minimum distance to 50 or 100 kilometers would subject more sources to permit review.

258. The statute currently requires only that states provide an unspecified period of notice to the FLMs. 42 U.S.C. § 7475(d)(1) (1988).

259. *Id.* § 7475(d)(2)(C)(i).

260. *See Oren, supra* note 38, at 378; *supra* note 244 and accompanying text.

future, and remedy existing, impairment of visibility<sup>261</sup> resulting from man-made pollution in mandatory class I PSD areas.<sup>262</sup> Until now, this program was of no practical importance, but recent events indicate that those contemplating certain kinds of development near mandatory class I PSD areas may need to pay greater attention to the impact of their development on visibility. If recent attempts to tighten emission restrictions on existing plants and to block new plant construction in order to protect visibility are indicative of a trend toward increased resort to the visibility provisions, these provisions could provide for the first time significant protection of federal lands from visibility-related threats.

#### A. EPA's Visibility Protection Regulations

The 1977 CAA amendments required the Secretary of the Interior to review all mandatory class I areas and, in consultation with EPA, list those in which visibility is an important value.<sup>263</sup> EPA also was required to issue regulations by August 1979 assuring reasonable progress toward meeting the national goals of prevention and remediation of visibility impairment.<sup>264</sup> The regulations were supposed to provide guidelines to states with mandatory class I areas in which visibility is an important value,<sup>265</sup> or states with sources whose emissions might cause or

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261. Visibility impairment is defined to include reduction in visual range and atmospheric discoloration. 42 U.S.C. § 7491(g)(6) (1988); see also *supra* note 48 and accompanying text.

262. On the early history of the visibility protection program, see generally David W. Tundermann, *Protecting Visibility: The Key to Preventing Significant Deterioration in Western Air Quality*, 11 NAT. RESOURCES LAW. 373 (1978); *Protecting Visibility Under the Clean Air Act: EPA Establishes Modest "Phase" I Program*, 11 ENVTL. L. REP. (Envtl. L. Inst.) 10,053 (1981). For more recent commentary, see David R. Everett, Comment *The Hazy Future: Are State Attempts to Reduce Visibility in Class I Areas Caught Between Scylla and Charybdis?*, 8 PACE ENVTL. L. REV. 115 (1990). EPA's current visibility protection regulations are published at 40 C.F.R. §§ 51.300-51.307, 52.26-52.29 (1992).

263. 42 U.S.C. § 7491(a)(2) (1988). In *Chevron U.S.A., Inc. v. EPA*, 658 F.2d 271 (5th Cir. 1981), Chevron challenged EPA's acceptance of the Interior Department's conclusion that the Breton Wilderness Area met the criteria for listing. According to Chevron, Breton was not over 5000 acres on August 7, 1977, and therefore did not qualify as a mandatory class I federal area. The court held that EPA's acceptance of Interior's assessment of the size of Breton was not arbitrary given the inherent uncertainties in measurement. *Id.* at 275.

264. 42 U.S.C. § 7491(a)(3)-(4) (1988).

265. Thirty-six states contain such areas. See 40 C.F.R. § 51.300(b)(2) (1992). As of 1989, all but two of the mandatory class I areas, Rainbow Lake Wilderness in Wisconsin and Bradwell Bay Wilderness in Florida, were listed as areas in which

contribute to visibility impairment in such an area.<sup>266</sup> These states would then be required to revise their SIPs<sup>267</sup> to identify each major stationary source<sup>268</sup> in existence on August 7, 1977 (but not in operation for more than fifteen years as of that date) which emits any pollutant that causes or contributes to visibility impairment.<sup>269</sup> Each identified source would be required to install as expeditiously as practicable the best available retrofit technology (BART).<sup>270</sup> Affected states also would be required to formulate a long-term (ten to fifteen-year) strategy for making reasonable progress toward meeting the statutory visibility impairment goals, including emission limitations, schedules of compliance, and other necessary measures.<sup>271</sup>

The entire process got off to a slow start when EPA "played the laggard"<sup>272</sup> by failing to issue visibility regulations until after it was sued and entered into a consent decree.<sup>273</sup> The regulations EPA issued in 1980 classified air pollution impairing visibility as either plume blight<sup>274</sup> or regional haze.<sup>275</sup> The regulations deal-

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visibility is an important value. See 40 C.F.R. §§ 81.401-81.437 (1992); 44 Fed. Reg. 69,123 (1979); Oren, *supra* note 38, at 327.

266. There are no additional states in this second category. See Oren, *supra* note 38, at 327.

267. See generally 40 C.F.R. § 51.302(a)(1) (1992).

268. For purposes of the visibility protection program, this term is defined as any one of a series of listed types of stationary sources having the potential to emit 250 tons or more of any pollutant. 42 U.S.C. § 7491(g)(7) (1988). Among the listed source categories are several, such as metals smelters and mineral processing plants, which are likely to be located near federal lands.

269. See 40 C.F.R. § 51.301(e) (1992) (defining existing stationary facilities subject to emission controls under the visibility program).

270. States determine BART on a case-by-case basis, taking into consideration the costs of compliance, energy, and non-air quality environmental impacts of compliance, any existing pollution control technology in use at the source, and the degree of improvement in visibility which may reasonably be anticipated to result from use of BART. 42 U.S.C. § 7491(g)(2) (1988); see also 40 C.F.R. § 51.302(c)(2)(iii) (1992).

271. 42 U.S.C. § 7491(b)(2)(B) (1988); 40 C.F.R. §§ 51.302(c)(2), 51.306(e) (1992). EPA's regulations also require affected states to adopt a strategy for evaluating visibility by visual observation or other monitoring techniques, *id.* § 51.305(a), and to assess how each element of the SIP relates to visibility goals. *Id.* § 51.302(c)(2)(ii).

272. *Maine v. Thomas*, 874 F.2d 883, 885 (1st Cir. 1989).

273. *Friends of the Earth v. Costle*, No. 79-3211 (D.D.C. 1979).

274. "Plume blight" is defined as "[s]moke, dust, colored gas plumes, or layered haze . . . which obscure the sky or horizon and are relatable to a single source or a small group of sources. . . ." 45 Fed. Reg. 80,084, 80,085 (1980).

275. "Regional haze" means widespread, homogeneous haze from a multitude of sources which impairs visibility in large areas, often for hundreds of miles from the source. *Id.*

ing with plume blight were uncontroversial.<sup>276</sup> As to regional haze, however, EPA merely promised to deal substantively with the matter in the future under what would be "Phase II" visibility regulations or orders, concluding that it had insufficient knowledge to monitor, model, or fully understand regional haze.<sup>277</sup>

No one sought review of the 1980 regulations, but when EPA still had not issued additional regulations for regional haze six years later, several states and environmental groups brought a citizen suit to compel EPA to act. In *Maine v. Thomas*,<sup>278</sup> the court of appeals affirmed dismissal of the suit, holding that the district court lacked subject matter jurisdiction because EPA had no nondiscretionary duty to regulate regional haze.<sup>279</sup> It noted, however, that EPA does have both statutory and self-imposed duties,<sup>280</sup> so that plaintiffs might not be left without a remedy. Plaintiffs could petition EPA for action based on circumstances arising after the time for challenging the 1980 decision had passed, such as the development of more sophisticated monitoring and modeling techniques, and, if the agency refused to act, review might be available in the court of appeals.<sup>281</sup> To date, EPA has taken no further action on regional haze.

### B. *Visibility and Review of SIPs*

At least one unsuccessful attempt has been made to force EPA to disapprove SIPs that do not deal adequately with regional haze.<sup>282</sup> Vermont's SIP, submitted to EPA for review in 1986, sought to remedy haze that in the summertime reduced visibility by as much as forty percent at Lye Brook National Wilderness Area in the Green Mountain National Forest, the state's only class I area. Vermont had decided that the only way to assure

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276. *Maine v. Thomas*, 874 F.2d 883, 885 (1st Cir. 1989).

277. 45 Fed. Reg. 80,085-86; *see also* *Vermont v. Thomas*, 850 F.2d 99, 101 (2d Cir. 1988).

278. 874 F.2d 883 (1st Cir. 1989).

279. The court found that EPA's 1980 decision to defer further action on regional haze was final action, and that citizens unhappy with the pace of regulation should have sued then in the court of appeals under 42 U.S.C. § 7607(b) (1988). 874 F.2d at 887. The court said that EPA's "temporizing 'promise' anent [sic] uniform haze, given the congressional mandate and the state of the art, was a bit greener at the edges [than the decision about plume blight] — but also ripe." *Id.*

280. EPA's promise to act in the future "had the force of law and . . . removed any discretion [not to act] when certain conditions take place." *Id.* at 890 n.9.

281. *Id.* at 889-90 (citing 42 U.S.C. § 7607(b)(1) (1988)).

282. By the beginning of 1993, only ten of the thirty-six states required to do so had revised their SIPs to meet the requirements of the 1980 regulations. *See* PROTECTING VISIBILITY, *supra* note 51, at 69.

reasonable progress toward the CAA's visibility goal was to reduce out-of-state sulfate emissions. Therefore, Vermont's SIP proposed a federally enforceable strategy to combat regional haze at Lye Brook, including a summertime ambient sulfate standard and a forty-eight state emission reduction plan to meet that standard by 1995. Furthermore, Vermont asked EPA to disapprove and revise the SIPs of eight upwind states which were the major contributors to the Lye Brook problem, and to add four states to the thirty-six already required to address visibility in their SIPs. Although it agreed that visibility impairment at Lye Brook was attributable predominantly to regional haze caused by out-of-state sources, EPA announced that it would take no action on the portions of Vermont's SIP dealing with regional haze.<sup>283</sup>

On review, the court of appeals upheld EPA's "no action" decision on the ground that Vermont's proposed interstate measures were not federally enforceable because they were outside the scope of EPA's visibility regulations, which did not deal with regional haze.<sup>284</sup> While the court lamented that little or no progress could be made on regional haze at Lye Brook without federal enforcement, it held that "Vermont may not impose its standards on upwind states."<sup>285</sup> As in *Maine v. Thomas*,<sup>286</sup> the court suggested an alternative course of action to the plaintiffs: they could file a petition for rulemaking with EPA and obtain judicial review afterwards in the court of appeals.<sup>287</sup> According to the court, the issues raised by Vermont's petition "are best left to the national rulemaking process rather than to an SIP approval proceeding."<sup>288</sup> Federal land users will be interested parties should such a national rulemaking occur with respect to the visibility regulations.

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283. *Vermont v. Thomas*, 850 F.2d 99, 101-02 (2d Cir. 1988).

284. *Id.* at 103-04.

285. *Id.* at 104 (citing *Air Pollution Control Dist. v. EPA*, 739 F.2d 1071, 1087-88 (6th Cir. 1984), and *Connecticut v. EPA*, 656 F.2d 902, 909 (2d Cir. 1981)).

286. *See supra* part V.A.

287. The court suggested that such a petition should be filed under the Administrative Procedure Act (APA). 850 F.2d at 104. *But see* *Maine v. Thomas*, 874 F.2d 883, 890 n.8 (1st Cir. 1989) (CAA is self-contained statute and all relevant rulemakings must be conducted under its procedures, not under the APA, so if a rulemaking petition is filed, it must be under the CAA.).

288. 850 F.2d at 104.

### C. *Visibility and Interstate Pollution*

An effort by three other states to address visibility impairment through EPA's petition process for controlling interstate pollution<sup>289</sup> reached the same dead end as Vermont's effort to force EPA to deal with that problem through the SIP revision process. In 1980 and 1981, Pennsylvania, New York, and Maine filed petitions with EPA alleging "violations of the NAAQs and impaired visibility within their borders substantially attributable to the cumulative impact of sulfur dioxide emissions from sources in seven Midwestern states."<sup>290</sup> Both Pennsylvania and New York contended that specific sources in other states were preventing them from attaining and maintaining the NAAQs for sulfur dioxide and particulates, while Maine argued that particulates derived from sulfur dioxide emissions were interfering with its ability to comply with the PSD program and to protect visibility. In particular, Maine alleged that regional haze in Acadia National Park was the result of emissions from sources in the Midwest, but it was unable to trace the haze to any specific sources.<sup>291</sup> In 1982, the three states brought a citizen suit to force EPA to rule on their petitions. After the court mandated a ruling,<sup>292</sup> EPA denied all three petitions.

The states sought review of EPA's decision. In *New York v. EPA*,<sup>293</sup> the court of appeals held that EPA's denial of the petitions was not arbitrary or capricious. Because Maine's petition concerned only the problem of regional haze, it did not fall within the ambit of the interstate pollution petition process, which only addresses violations of the NAAQs, the PSD increments, and SIP measures required by EPA regulations to protect visibility. In short, EPA's regulations did not address the regional haze problem that was the focus of Maine's petition.<sup>294</sup> In addition, Maine failed to allege that major sources in any other state were interfering with visibility measures contained in its SIP, because Maine had never even incorporated into its SIP any of the measures required by EPA's visibility regulations.<sup>295</sup> Ac-

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289. 42 U.S.C. § 7426(b) (1988). For a discussion of the statutory provisions relating to interstate pollution, see *supra* part III.I.

290. *New York v. EPA*, 852 F.2d 574, 577 (D.C. Cir. 1988), *cert. denied*, 489 U.S. 1065 (1989).

291. *Id.* at 577, 579.

292. *New York v. Ruckelshaus*, 21 Env't Rep. Cas. (BNA) 1721 (D.D.C. 1984).

293. 852 F.2d 574, 577 (D.C. Cir. 1988), *cert. denied*, 489 U.S. 1065 (1989).

294. *Id.* at 577, 579.

295. *Id.* at 579-80.

ording to the court, EPA's rejection of Pennsylvania's petition was not unreasonable because the state never proved its allegation that particular major sources in Ohio and West Virginia were significantly contributing to violations in Pennsylvania.<sup>296</sup> The court did, however, remand New York's petition to EPA for submission of new data in light of EPA's issuance of new NAAQs for particulate matter.<sup>297</sup>

D. *Best Available Retrofit Technology, Integral Vistas, and Visibility Permits*

Under EPA's visibility regulations for plume blight, states must revise their SIPs to identify any existing stationary facility that may reasonably be anticipated to cause or contribute to visibility impairment in mandatory class I areas, where the impairment is reasonably attributable to that facility.<sup>298</sup> Each identified facility must install BART, which is determined on a case-by-case basis,<sup>299</sup> as expeditiously as practicable, but no later than five years after EPA's approval of the revised SIP.<sup>300</sup> This requirement is supposed to apply not only to views within a mandatory class I area, but also to "integral vistas" designated by FLMs at least six months before submission of a revised SIP.<sup>301</sup> An integral vista is "a view perceived from within the mandatory Class I Federal area of a specific landmark or panorama located outside the boundary" of that area.<sup>302</sup> Thus, since any visibility impairment of an integral vista could adversely affect a visitor's visual experience, that vista should be protected by imposition of BART on sources responsible for interfering with it.<sup>303</sup> This portion of the BART program, however, has been effectively eviscerated, because (at least as of 1993) neither the Agriculture nor the Interior Departments had designated any integral vistas.<sup>304</sup>

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296. *Id.* at 580.

297. *Id.* at 581.

298. 40 C.F.R. § 51.302(c)(4)(i) (1992).

299. EPA has issued guidelines for determining BART for fossil-fuel fired generating plants having a generating capacity in excess of 750 megawatts. 40 C.F.R. § 51.302(c)(4)(iii) (1992).

300. *Id.* § 51.302(c)(4)(iv).

301. *Id.* §§ 51.302(c)(4)(i), 51.304(a).

302. *Id.* § 51.301(n). Integral vistas are to be identified according to criteria developed by FLMs; criteria must include consideration of a vista's importance to visitor's visual experiences in a mandatory class I area. *Id.* § 51.304(a).

303. See Ostrov, *supra* note 48, at 445.

304. See Oren, *supra* note 38, at 396; see also PROTECTING VISIBILITY, *supra* note 51, at 69.

The visibility regulations can affect new and modified as well as existing stationary sources. Although the legislative history is unclear on how the visibility program would affect new sources,<sup>305</sup> EPA has taken the position that the program does apply to new sources.<sup>306</sup> In particular, EPA's regulations require states — as part of their long-term strategy for making progress toward the national visibility goal — to operate a permit program for all major new source construction. The requirement applies whenever the source is to be located in a PSD, nonattainment, or unclassified area, and may affect visibility in mandatory class I federal areas.<sup>307</sup> EPA justifies application of the permit requirement to sources located in nonattainment areas by pointing out that many mandatory class I federal areas in which visibility is an important value are close to those areas.<sup>308</sup> The visibility program permit regulations thus supplement the PSD permit program by requiring states to consider the impact of emissions of nonattainment area pollutants on visibility in mandatory class I areas.<sup>309</sup>

Despite the broad scope of the visibility protection permit program, one commentator argues that it gives the states "virtual carte blanche to decide whether a new source affecting national park visibility should be allowed."<sup>310</sup> This is because the permit review process enables states to balance adverse visibility effects against the energy and economic impacts of forbidding construction.<sup>311</sup> Professor Oren speculates that EPA's reluctance to impose a more protective standard may stem from its desire to

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305. See Oren, *supra* note 38, at 392; Tundermann, *supra* note 262, at 382.

306. Oren, *supra* note 38, at 393-94 (citing 45 Fed. Reg. 34,762 (1980)). *But cf.* PROTECTING VISIBILITY, *supra* note 51, at 3 (it is not clear that the Class I increments ensure effective protection against new sources of visibility impairment).

307. 40 C.F.R. § 51.307(a)(3), (b)(2) (1992). See Ostrov, *supra* note 48, at 436, 447-48. If a state fails to include these permit requirements in its SIP, EPA can incorporate them for the state. 40 C.F.R. §§ 51.241(a), 51.247(a), 51.248(a)(4) (1992).

308. Ostrov, *supra* note 48, at 447. States also must consider the impact of new major stationary sources on any integral vistas that may be designated by FLMs "unless the state determines that identification was not in accordance with the identification criteria." 40 C.F.R. § 51.307(b)(1) (1992).

309. See Oren, *supra* note 38, at 328.

310. *Id.* at 390.

311. *Id.* at 328, 396 (citing 40 C.F.R. § 51.307(c) (1992)). Permit-issuing authorities must give notice to the FLMs of any proposed permit to a source that might affect visibility in a class I federal area, but the permit may be issued despite opposition by the FLM as long as the state explains why the project would not have an adverse impact. 40 C.F.R. § 51.307(a)(3) (1992).

avoid raising the specter of buffer zones of no development around the national parks.<sup>312</sup>

### E. *Current Visibility Issues*

Until the beginning of 1991, BART had not been imposed on any source because of the inability or unwillingness of EPA and the states to ascribe visibility impairment to any particular existing source.<sup>313</sup> Several recent controversies, however, may breathe some life into the visibility impairment program.

The most widely reported dispute concerns charges by EPA and the NPS, based on the Winter Haze Intensive Tracer Experiment (WHITEX) conducted by those agencies, that the Navajo Generating Station is responsible for a substantial part of the wintertime visibility impairment in Grand Canyon National Park.<sup>314</sup> The Navajo plant, located about fifty miles north of the Canyon near Page, Arizona, is a low-sulfur, coal-burning power plant which emits sulfur dioxide.<sup>315</sup> In 1979, EPA identified the Grand Canyon as a mandatory class I federal area in which visibility is an important value.<sup>316</sup> Environmental groups thereafter sued EPA, alleging that it had failed to comply with a nondiscretionary duty to issue visibility FIPs for the states, including Arizona, that had not yet submitted SIP revisions in response to EPA's 1980 visibility regulations. The suit resulted in a consent decree requiring EPA to assess the adequacy of SIPs under the visibility regulations and to promulgate plans for states with deficient SIPs.<sup>317</sup>

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312. Oren, *supra* note 38, at 397-400.

313. *See id.* at 327.

314. *See* Assessment of Visibility Impairment: Proposed Rule, 54 Fed. Reg. 36,948, 36,951 (1989) (proposed finding by EPA that Navajo may reasonably be anticipated to cause or contribute to visibility impairment in the Grand Canyon). *See generally* D. Michael Rappoport & John F. Cooney, *Visibility at the Grand Canyon: Regulatory Negotiations Under the Clean Air Act*, 24 ARIZ. ST. L.J. 627, 631 (1992) (the Navajo Generating Station was responsible for 40% of wintertime haze in the Grand Canyon and up to 70% during peak periods).

315. *See* James E. Norris, *The Navajo Generating Plant and Grand Canyon Haze*, PUB. UTIL. FORT., Jan. 15, 1991, at 48-49. The plant is owned by the Salt River Project, the U.S. Bureau of Reclamation, and the Los Angeles Department of Water and Power, among others. Salt River is the plant's operator. *Id.* at 49.

316. 44 Fed. Reg. 69,122, 69,122-25 (1979).

317. *EDF v. Reilly*, No. C82-6850 RPA (N.D. Cal. 1984); *see also* 49 Fed. Reg. 20,647 (1984); Rappoport & Cooney, *supra* note 314.

In February 1991, EPA responded to the consent decree by proposing to revise Arizona's FIP<sup>318</sup> to include emission limitations representing BART for the Navajo plant.<sup>319</sup> The proceedings were regarded as a precedent-setting test case for applying BART to protect visibility in class I federal areas, generating controversy within the government over the stringency of the proposed Navajo controls. The NPS recommended requiring a ninety percent reduction in emissions, while the Bureau of Reclamation, a co-owner of the plant, and the Office of Management and Budget favored more lenient controls.<sup>320</sup> EPA proposed seventy percent reductions but requested comments on other alternatives, both more and less stringent.<sup>321</sup> Ultimately, the owners of Navajo and the environmental groups involved reached an agreement which EPA adopted as a final rule in September 1991. The agreement sought to achieve the ninety percent emissions reductions recommended by NPS, but at a cost of about \$17 million less than earlier estimated.<sup>322</sup>

Despite the acquiescence of all the plant's owners in the increased level of emission controls, the agreement was challenged by the Central Arizona Water Conservation District and four of its irrigation district customers. The Conservation District was contractually required to repay to the Bureau of Reclamation, one of the owners of the Navajo Generating Station, much of the Bureau's share of the costs of installing and maintaining the emission controls required by the final rule that resulted from the

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318. In 1986, EPA determined that the SIPs of 32 states, including Arizona, were deficient under the visibility regulations. 51 Fed. Reg. 3046, 3047-48 (1986). When those states failed to act, EPA disapproved their SIPs and issued FIPs for them. 55 Fed. Reg. 24,060, 24,061 (1990).

319. 56 Fed. Reg. 5173, 5189 (1991).

320. See *EPA Staff Worry First Visibility Call May Go Before Competitiveness Council*, INSIDE EPA WKLY REP., Jan. 25, 1991, at 1, 7 (for example, OMB requested that EPA do a cost analysis on 50% controls); *Environmentalists Turn to DOI to Back Strict Controls for Grand Canyon Plant*, INSIDE EPA WKLY REP., Mar. 22, 1991, at 13-14 (EPA proposed 70% controls and Department of the Interior, of which the Bureau of Reclamation is a part, endorsed the EPA proposal.).

321. Approval and Promulgation of Implementation Plans: Revision of the Visibility FIP for Arizona, 56 Fed. Reg. 5173, 5178 (1991) (proposed rule). Environmentalists criticized the 70 percent option as too lenient. *Emissions Reductions Proposed at Power Plant Near Grand Canyon*, 21 [Current Developments] Env't Rep. (BNA) 1798 (Feb. 8, 1991) [hereinafter *Emissions Reductions*].

322. See Approval and Promulgation of Implementation Plans: Revision of the Visibility FIP for Arizona, 56 Fed. Reg. 50,172 (1991) (final rule) (codified at 40 C.F.R. pt. 52).

agreement.<sup>323</sup> The District charged that the final rule impermissibly regulated regional haze because EPA's own regulations had deferred regulation of that form of visibility impairment until scientific and technical advances permitted a better understanding of the mechanisms of regional haze. The District also contended that EPA acted arbitrarily by overestimating the improvements in visibility to be expected from the new emission controls.<sup>324</sup>

In *Central Arizona Water Conservation District v. EPA*,<sup>325</sup> the Ninth Circuit rejected these claims and upheld the final rule as a legitimate component of EPA's phase one visibility impairment program.<sup>326</sup> The statute directs EPA to require any state the emissions from which "may reasonably be anticipated to cause or contribute to any impairment of visibility" to impose whatever emission limits are necessary to make reasonable progress toward meeting the national visibility goal.<sup>327</sup> Such a state must revise its SIP to require existing major stationary sources whose emissions may reasonably be anticipated to cause or contribute to visibility impairment to meet emission limits based on the best available retrofit technology.<sup>328</sup> Although EPA had acknowledged that the Navajo plant was not the only source of visibility impairment at the Grand Canyon, the court interpreted the statute to authorize EPA to remedy that part of the impairment that was reasonably attributable to the plant. Relying on the National Research Council's report on WHITEX,<sup>329</sup> the court concluded that Congress "has not required ironclad scientific certainty establishing the precise relationship between a source's emission and resulting visibility impairment" as a prerequisite to regulation.<sup>330</sup> Contrary to the District's claim, EPA's authority

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323. *Central Arizona Water Conservation Dist. v. EPA*, 990 F.2d 1531, 1537 (9th Cir.), *cert. denied*, 114 S. Ct. 94 (1993).

324. *Id.* at 1540.

325. 990 F.2d 1531 (9th Cir.), *cert. denied*, 114 S. Ct. 94 (1993).

326. The court distinguished *Vermont v. Thomas*, 850 F.2d 99 (2d Cir. 1988), as "a direct and explicit attempt to regulate 'regional haze.'" 990 F.2d at 1540.

327. 42 U.S.C. § 7491(b)(2) (1988).

328. *Id.* § 7491(b)(2)(A). EPA had assumed responsibility for implementing the Act's visibility protection requirements in Arizona after finding the state's SIP to be inadequate. 52 Fed. Reg. 45,132, 45,133 (1987).

329. NATIONAL RESEARCH COUNCIL, *HAZE IN THE GRAND CANYON: AN EVALUATION OF THE WINTER HAZE INTENSIVE TRACER EXPERIMENT (1990)* [hereinafter *HAZE IN THE GRAND CANYON*].

330. 990 F.2d at 1541. The statutory reference to emissions which "may reasonably be anticipated" to cause or contribute to visibility impairment suggested that Congress did not intend that EPA attribute a specific fraction of the visibility impairment in a class I area to a particular source. Instead, EPA may "assess the risk in

to address sources of visibility impairment is not limited to situations in which impairment is caused by a noticeable plume that is directly traceable to a given source through the use of visual observation or simple direct monitoring techniques.<sup>331</sup> Because the technical record supported EPA's conclusion that visibility impairment in the Grand Canyon was "reasonably attributable" to Navajo, EPA's decision was not arbitrary.<sup>332</sup> Furthermore, EPA engaged in reasoned decisionmaking because its weighing of the factors involved in determining what controls represented "reasonable progress" toward the national visibility goals was unassailable.<sup>333</sup> Finally, the court held that EPA did not exceed its authority by choosing not to impose the controls that represented the best available retrofit technology. The court accepted EPA's position that the agency has the discretion to forego controls based on BART where it concludes that other kinds of controls are more likely to result in reasonable progress.<sup>334</sup>

The *Central Arizona* decision represents a significant judicial stamp of approval on EPA's first serious effort to enforce the Clean Air Act's visibility protection provisions. Had the court overturned the agreement to impose new emission controls on the Navajo Generating Station, efforts to protect visibility most likely would have suffered not only at the Grand Canyon but at class I areas throughout the nation. Instead of interfering with EPA's attempt to strengthen the phase one visibility protection program, the decision should bolster EPA's confidence. The court granted the agency a great deal of leeway in its reading of both the statute and the administrative record. It concluded that EPA has "broad discretion" to determine whether visibility impairment is attributable to a given source,<sup>335</sup> and it afforded the agency the almost complete deference that the courts reserve for review of decisions "at the frontiers of science."<sup>336</sup> Both aspects of the court's decision should facilitate future efforts to control visibility-impairing emissions.

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light of policy considerations regarding the respective risks of overprotection and underprotection." *Id.* (quoting *HAZE IN THE GRAND CANYON*, *supra* note 329, at 5).

331. *Id.*

332. *Id.*

333. *Id.* at 1541-42.

334. *Id.* at 1542-43.

335. *Id.* at 1541.

336. *Id.* at 1543 (quoting *Baltimore Gas & Elec. Co. v. NRDC*, 462 U.S. 87, 103 (1983)).

Efforts to use the visibility program to block construction of new sources also may be on the rise. Late in 1990, the NPS declared for the first time that a generating plant proposed to be located in Clover, Virginia, could have adverse effects on visibility in a mandatory class I area, Shenandoah National Park. Shenandoah ranks first among major parks in sulfate concentrations and second in ozone.<sup>337</sup> Despite the NPS's concern, Virginia issued a draft PSD permit for the plant on the grounds that EPA has as of yet no visibility regulations yet for regional haze and that Virginia sources are responsible for less than ten percent of pollution affecting the state. Virginia later agreed, however, to make the permit contingent upon the permittees reducing emissions at their other plants in the state if EPA determined within six months that such reductions were needed to prevent adverse impacts on Shenandoah and the James River Face Wilderness Area.<sup>338</sup> When EPA's Region III subsequently indicated that the impact of new sources in the area could not be quantified and that therefore no finding of adverse impact was justified, a coalition of environmental groups petitioned the EPA Administrator for review.<sup>339</sup> The coalition argued that the state had improperly overlooked the NPS's adverse impact findings and that it should have denied the permit for the Clover facility.<sup>340</sup>

In early 1992, EPA Administrator William Reilly rejected the petition, concluding that Virginia was justified in refusing to require the owner of the Clover plant to demonstrate that the plant's emissions would neither cause nor contribute to violations of CAA requirements.<sup>341</sup> According to the Administrator, requiring such a demonstration after the state had considered and rejected the merits of the FLM's findings would serve no pur-

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337. The NPS is also concerned about impacts on stream quality and plant life. *Park Service Makes First 'Adverse Impact' Visibility Call, Opposes New Permit*, INSIDE EPA WKLY. REP., Nov. 9, 1990, at 5.

338. *State Approves New Utility Provided Other Sources Will Cut Adverse Emissions*, INSIDE EPA WKLY. REP., Mar. 22, 1991, at 6.

339. *Environmentalists Urge EPA to Halt Plant Permits Pending Overall Impact Study*, INSIDE EPA WKLY. REP., Apr. 26, 1991, at 8 [hereinafter *Environmentalists Urge EPA*].

340. *Environmentalists Urge EPA*, supra note 339; Ayres, supra note 43, at A20.

341. See *EPA Denial of Permit Review Suggests Scaled Back PSD Protection Critics Say*, INSIDE EPA WKLY. REP., Feb. 21, 1992, at 3 [hereinafter *EPA Denial*]. The Act prohibits the issuance of a PSD permit for construction or operation of a major emitting facility unless the owner or operator of the facility demonstrates that emissions from the facility will not cause or contribute to air pollution in excess of any maximum allowable concentrations, NAAQSs, or other applicable emission standards under the Act. 42 U.S.C. § 7475(a)(3) (1988); see supra part IV.D.

pose.<sup>342</sup> Environmentalists criticized the decision, characterizing it as an effort to shift the burden of proof on the issue of the proposed plant's adverse effects from the permit applicant to the FLM. A contrary decision, they asserted, would have provided important quantifiable information that would have supported the NPS's adverse impact findings.<sup>343</sup> The outcome of the Clover plant proceedings is important because more than thirty power plant permit applications are pending in nearby areas that might implicate visibility concerns.<sup>344</sup> EPA's failure to support the NPS's findings may make it more difficult for the FLMs in other areas likely to be affected by new plant construction and operation to protect against impairment of visibility.

The significance of objections by FLMs to the issuance of state permits to new sources located near a class I PSD area is an open question. In a second dispute over a proposed new plant near federal lands, both the NPS and the Forest Service objected to the construction of a new power plant in Buena Vista, Virginia, on the grounds that the plant would increase nitrogen loading in nearby Shenandoah National Park by three times the state's available PSD increment, and acid deposition in the James River Face Wilderness by two to three percent.<sup>345</sup> Despite objections by both FLMs, the Virginia Department of Air Pollution issued a PSD permit. Environmentalists appealed, arguing that the state impermissibly ignored the federal agencies' findings.<sup>346</sup>

A panel of EPA appellate administrative law judges remanded the permit to the state to review the FLMs' determinations of adverse impact, concluding that the state misinterpreted the burden of proof required of FLMs seeking to block permits for new sources.<sup>347</sup> The panel decided that the FLMs' finding that the plant's sulfur dioxide emissions would increase acidification of

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342. *EPA Denial*, *supra* note 341, at 3.

343. *Id.*

344. *Emissions Reductions*, *supra* note 321, at 1798.

345. See *Environmentalists Seek EPA Permit Review, Fear CAA Park Protection at Stake*, *INSIDE EPA WKLY. REP.*, May 22, 1992, at 3-4.

346. The appellants based their challenge on the CAA provision that bars issuance of a permit if the FLM demonstrates to the satisfaction of the state that emissions from the facility will have an adverse impact on air quality-related values (including visibility), even if emissions from the proposed new source would not cause or contribute to violations of the applicable PSD increments. 42 U.S.C. § 7475(d)(2)(C)(ii) (1988).

347. *In re Hadson Power 14 — Buena Vista*, PSD Appeal Nos. 92-3, 92-4, 92-5, 23 [Current Developments] *Env't Rep. (BNA)* 1605, 1617 (Oct. 16, 1992) (decided Oct. 5, 1992 before the Environmental Appeals Board).

the PSD area's waters constituted the required causal link between the source and the projected impact; the state should not have ignored this finding.<sup>348</sup> If the decision stands, it could restrict significantly the ability of state permit authorities to authorize new source operation over the objections of FLMs.<sup>349</sup>

The NPS has sought to avoid being forced to battle on a site-by-site basis each new plant proposal that might adversely affect visibility in the parks. In February 1992, it recommended preliminarily that air pollution control officials in Tennessee, North Carolina, South Carolina, and Georgia refuse to issue permits for major new sources within 120 miles of the Great Smoky Mountains National Park, unless steps are taken to prevent further impacts on the Park.<sup>350</sup> According to the NPS, high ozone levels and nitrate deposition in the Park are injuring plant species such as spruce trees. In addition, acidic depositions have been responsible for damage to lakes and streams, and volatile organic compounds have contributed to serious visibility impairment.<sup>351</sup> Although final decisions on permits remain within the control of the states, in March 1992 federal and state regulators agreed that the problem of visibility impairment in parks such as the Great Smoky Mountains should be addressed on a regional basis, with EPA taking a leadership role.<sup>352</sup> This kind of regional approach could impose significant constraints on new sources whose operation threatens impairment of visibility, provided the FLMs have meaningful input into decisions on permit issuance and conditions.

In addition to more stringent federal regulation, plants with potential impacts on federal land visibility may be subject to state air pollution controls. The Washington Department of Ecology announced at the end of 1990 that it would impose emission limitations on new industrial plants to prevent further deterioration of air quality in Mount Rainier National Park and the Alpine Lakes Wilderness Area. As part of that initiative, a company

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348. *Id.* at 1613.

349. See *EPA Says State Must Weigh Adverse Impact Findings in CAA New Source Calls*, *INSIDE EPA WKLY. REP.*, Oct. 9, 1992, at 1, 8.

350. Preliminary Notice of Adverse Impact on Great Smoky Mountains National Park Under Section 165(d)(2)(C)(ii) of the Clean Air Act, 57 Fed. Reg. 4465, 4467 (1992).

351. See *id.*; *Regional Emissions Curbs Needed to Protect Smoky Mountains Park Ecosystem*, *Interior Says*, 22 [Current Developments] *Env't Rep. (BNA)* 2335 (Feb. 7, 1992).

352. See *EPA, States Settle on New Regional Approach for Park Visibility Program*, *INSIDE EPA WKLY. REP.*, Mar. 13, 1992, at 1.

proposing to build a new paint hangar was required to offset planned emissions of volatile organic compounds elsewhere.<sup>353</sup>

F. *Recommendations for Reducing Visibility Impairment on the Federal Lands*

More than a dozen years after EPA promised to issue "Phase II" visibility regulations to control regional haze,<sup>354</sup> no regulations have been issued and none seem imminent. Because regional haze is far more widespread than plume blight, it will be impossible to fulfill Congress' stated goal of controlling visibility impairment on the federal lands<sup>355</sup> until the agency establishes such a regulatory program. Ultimately, Congress must determine whether it is still committed to that goal. If it is, Congress also must decide whether, in light of recent national economic difficulties, it considers unobstructed visibility on the federal lands to be worth the cost of the emission controls that will be necessary to achieve that goal. If it answers both questions affirmatively, Congress should take steps to enhance the effectiveness of the program to prevent visibility impairment from decreasing the value of federal lands use.

EPA excluded regional haze from its 1980 regulations because of ignorance of the mechanisms of that form of pollution.<sup>356</sup> In the 1990 CAA amendments, Congress ordered EPA to supplement its existing data base by engaging in a five-year research program. That program is supposed to include expanded monitoring efforts in class I PSD areas, an assessment of current sources of visibility impairing pollution, adaptation of regional air quality models for assessing visibility, and studies of the atmospheric chemistry and physics of visibility.<sup>357</sup> If EPA follows this program, it will be difficult to justify failure to issue Phase II regulations on a lack of adequate information.<sup>358</sup> If, after a reasonable period of time following completion of the five-year re-

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353. *Air Quality Problems in Park Areas Lead to Tougher Emission Rules for Industry*, 21 [Current Developments] *Env't Rep. (BNA)* 1604 (Dec. 28, 1990).

354. See 45 Fed. Reg. 80,085-86 (1980); see also *supra* text accompanying note 277.

355. See 42 U.S.C. § 7491(a)(1) (1988).

356. 45 Fed. Reg. at 80,085-86.

357. 42 U.S.C. § 7492(a)(1) (Supp. III 1991).

358. In the 1990 amendments, Congress authorized EPA and the NPS to spend eight million dollars a year for each year of the five-year program, *id.*, but the Bush Administration did not request any of this money in its fiscal year 1991 budget. See *Legislation That Would Empower the Interior Secretary*, *INSIDE ENERGY/WITH FEDERAL LANDS*, Aug. 26, 1991, at 15.

search program, EPA still has not issued Phase II regulations, Congress should consider imposing a deadline on EPA for development of a regulatory program for regional haze.<sup>359</sup>

Regardless of whether Congress decides to impose such a deadline, it should consider whether the differences between plume blight and regional haze require modifications to the current visibility protection program. Unlike plume blight, regional haze, by definition, is attributable to a multitude of sources.<sup>360</sup> As a result, it makes no sense to require proof that any particular source is responsible for regional haze on the federal lands before imposing controls on sources that contribute to that form of visibility impairment. Congress should direct EPA in its regional haze regulations to prohibit states from inserting into SIPs a requirement of proof of a causal link between the emissions of a particular source and impaired visibility in a particular PSD area before subjecting that source to the visibility permit program.<sup>361</sup>

The multiple-source origin of regional haze also accounts for its regional rather than local character.<sup>362</sup> The adoption of a regional approach to reducing visibility-impairing pollution has been endorsed by the National Research Council's Committee on Haze in National Parks and Wilderness Areas in a 1993 report on visibility protection.<sup>363</sup> The report concluded that progress toward the national goal of remedying and preventing man-made visibility impairment in class I PSD areas will require regional programs that limit emissions of pollutants that contribute to regional haze.<sup>364</sup> Although it recognized that assessment of individual sources is necessary, the report endorsed the adoption of

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359. For a discussion of the advantages and pitfalls of imposing statutory deadlines on agencies such as EPA, see Sidney A. Shapiro & Robert L. Glicksman, *Congress, the Supreme Court, and the Quiet Revolution in Administrative Law*, 1988 DUKE L.J. 819, 828-36, 841-45 (1988).

360. See *supra* part II.B. and note 275.

361. The statute already requires certain existing major stationary sources "which may reasonably be anticipated to cause *or contribute to* any impairment of visibility" in a mandatory class I PSD area to install BART. 42 U.S.C. § 7491(b)(2)(A) (1988) (emphasis added). Implementation of a rigorous tracing requirement — for example, exempting a major stationary source from the permit program unless a FLM or other interested person can prove that a particular source is the cause of regional haze on the federal lands — would eviscerate the italicized statutory language.

362. See *supra* note 275.

363. PROTECTING VISIBILITY, *supra* note 51.

364. *Id.* at 6.

regional controls on many sources simultaneously.<sup>365</sup> The report recommended the use of several models for apportioning visibility impairment among sources, indicating that these models could be used for the design and refinement of regional visibility programs.<sup>366</sup> According to the report, efforts to improve visibility in class I areas also would benefit visibility outside those areas. Furthermore, reductions in the emissions of the pollutants (such as sulfur dioxide, oxides of nitrogen, and volatile organic compounds) that contribute to visibility impairment will help alleviate other air-quality problems (such as acid rain), and vice versa.<sup>367</sup> Ultimately, the report concluded that current scientific knowledge is adequate and control technologies are available for taking regulatory action to improve visibility. But achieving the statutory visibility goals will require a long-term effort and a far greater commitment by both EPA and the federal land managers to the expeditious achievement of statutory visibility goals than those agencies have demonstrated in the past:<sup>368</sup>

The slowness of progress to date is due largely to a lack of commitment to an adequate government effort to protect and improve visibility and to sponsor the research and monitoring needed to better characterize the nature and origin of haze in various areas. The federal government has accorded the national visibility goal less priority than other clean-air objectives. Even to the extent that Congress has acted, EPA, the Department of Interior, and the Department of Agriculture have been slow to carry out their regulatory responsibilities or to seek resources for research.<sup>369</sup>

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365. *Id.* at 7. For a more complete discussion of the National Research Council's recommendations, see *id.* at 239-64.

366. *Id.* at 7-8. The report describes some of the currently available models. *Id.* at 127-135, 146-208.

367. *Id.* at 10.

368. The NRC report argued that EPA has sufficient statutory authority to attack the causes of visibility from several different angles, but that the agency has not pursued the available regulatory avenues. For example, EPA could establish national secondary ambient air quality standards for sulfur dioxide and particulate matter at levels sufficient to protect visibility. It has not done so. *Id.* at 65-66. Although the PSD program has contributed to the protection of visibility impairment, the extent of that protection has been limited by the lack of correlation between visibility effects and the class I increments for maximum permissible increases, the primary mechanism for determining whether to permit new sources in those areas. *Id.* at 79.

369. *Id.* at 11; see also *id.* at 15-16, 25-26. As an example of the lack of commitment displayed by the federal government to protection of visibility, the report cited the use of prescribed burning by the NPS and the Forest Service as a forest management practice. This burning "conflicts with [the] responsibility [of these agencies] to protect visibility in Class I areas." *Id.* at 25.

Only a regional solution is likely to result in appreciable improvement on federal lands afflicted with this form of pollution.<sup>370</sup> The 1990 amendments move toward adopting a regional solution for reducing this kind of visibility-impairing pollution. The Act now requires EPA, in conjunction with the NPS and other agencies, to evaluate sources and regions of visibility impairment in class I PSD areas. Based on those studies, EPA must report periodically to Congress on existing visibility problems and the extent to which other provisions of the Act are likely to redress them.<sup>371</sup> Whenever EPA believes that current or projected interstate transport of air pollutants contributes significantly to visibility impairment in class I areas, EPA may establish a transport commission, whose members will include a representative of each federal agency charged with management of the affected class I areas.<sup>372</sup> Transport commissions will be responsible for recommending to EPA measures for remedying adverse effects on visibility. Possible remedies include the establishment of clean air corridors, in which additional emissions restrictions would apply, and the imposition of nonattainment area permit requirements even on major stationary sources not located in such areas.<sup>373</sup> If EPA issues any regulations in response to a commission's recommendations, affected states will have one year to revise their SIPs to conform to the regulations.<sup>374</sup>

These preliminary steps toward a regional approach to halting regional haze, the most widespread form of visibility-impairing pollution, do not go far enough. The 1990 amendments do not actually require EPA to act in response to transport commission recommendations. Instead, the CAA simply requires EPA to "carry out [its] regulatory responsibilities" under the pre-1990 version of the Act,<sup>375</sup> which EPA presumably was required to do anyway. If Congress is serious about tackling visibility-impairing pollution on a regional basis, it should delegate meaningful authority to the transport commissions. Congress could require, for example, that EPA implement the transport commission recom-

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370. Cf. 42 U.S.C. § 7492(a)(1)(C) (Supp. III 1991) (EPA research program must include adaptation of regional air quality models).

371. *Id.* § 7492(b).

372. *Id.* § 7492(c). Congress already has ordered EPA to establish a visibility transport commission for the region affecting visibility in the Grand Canyon. *Id.* § 7492(f).

373. *Id.* § 7492(d).

374. *Id.* § 7492(e)(2).

375. See *id.* § 7492(e)(1).

mentations unless EPA can prove that further action is unnecessary to alleviate visibility impairment in class I PSD areas. Alternatively, Congress could expand the CAA's interstate pollution control provisions to cover regional haze (whether or not EPA ever issues its Phase II regulations).<sup>376</sup> The provisions of the 1990 amendments that eliminated the need for one state to trace its air pollution problems to a particular source in another state<sup>377</sup> should alleviate problems encountered in the past by states that invoked the interstate petition process as a means of curtailing regional haze.<sup>378</sup>

Furthermore, the visibility impairment program is unlikely to operate effectively, either as it applies to plume blight or regional haze, without some clarifying and strengthening amendments to the permit program, particularly with respect to major new sources. If Congress is committed to the development of a workable program for protecting visibility, it should confirm that the visibility permit program, including the obligation to achieve emissions that reflect the application of BART, applies to new as well as existing sources.<sup>379</sup> It should consider limiting the extent to which the states may rely on adverse economic impact to justify issuing permits to major stationary sources despite expected adverse impacts on federal lands visibility.<sup>380</sup> At present, the

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376. Previous attempts to control regional haze by resorting to these provisions have been unsuccessful. In *New York v. EPA*, 852 F.2d 574 (D.C. Cir. 1988), *cert. denied*, 489 U.S. 1065 (1989), for example, the court upheld EPA's denial of a state's petition requesting that EPA curtail visibility-impairing emissions that originated in other states. It held that the interstate pollution provisions only applied to SIP measures required by EPA regulations. Because EPA had not yet issued regional haze regulations, the interstate petition process was unavailable. *Id.* at 577, 579; *see supra* notes 293-95 and accompanying text.

377. 42 U.S.C. §§ 7410(a)(2)(D)(i)(II), 7426(b) (Supp. III 1991) (states may petition EPA for a finding that any major source or group of stationary sources emits air pollutants that interfere with measures to protect visibility).

378. *See supra* note 296 and accompanying text.

379. *See supra* notes 305-09 and accompanying text.

380. *See supra* notes 310-11 and accompanying text. Congress could curtail state discretion by amending the definition of BART, 42 U.S.C. § 7491(g)(2) (1988), to specify what weight the states may place on the various factors available for consideration by the permit issuing authority. *Cf. Weyerhaeuser Co. v. Costle*, 590 F.2d 1011 (D.C. Cir. 1978), in which the court indicated that EPA's discretion in issuing effluent limitations under the Clean Water Act is confined more narrowly by "comparison factors," which require EPA to compare economic costs of regulation with environmental benefits, than by "consideration factors," which merely list the factors the agency may consider. *Id.* at 1045-48. The statutory definition of BART contains a list of factors that a permit issuer "shall take into consideration." 42 U.S.C. § 7491(g)(2) (1988). None of these factors need be compared with any others.

statute requires that state permit-issuing authorities consult with FLMs before issuing a permit, but those authorities need not heed the FLMs' advice.<sup>381</sup> The FLMs' views deserve to be taken more seriously. An FLM's finding that a proposed new major stationary source reasonably may be anticipated to cause or contribute to visibility impairment in a class I PSD area could create a rebuttable presumption that the source may not operate except in compliance with BART.<sup>382</sup> The source would have the opportunity to rebut the presumption, but a decision to exempt such a source from BART, as well as the definition of BART for a source that could not rebut the presumption, should be subject to EPA review.<sup>383</sup> Finally, to insure that BART is imposed on facilities whose emissions would interfere with integral vistas, Congress should order the FLMs to issue a list of areas within their jurisdiction that contain such vistas.<sup>384</sup> Alternatively, Congress itself could devise such a list.<sup>385</sup>

## VI.

### CONCLUSION

Air pollution presents a broad range of threats to federal lands and resources. The 1990 CAA amendments established an array of new and expanded programs having the potential to regulate

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381. 42 U.S.C. § 7491(d) (1988). Under EPA's visibility regulations, a state may issue a permit despite the FLM's opposition as long as it explains why the permittee would not adversely affect visibility. 40 C.F.R. § 51.307(a)(3) (1992); *see supra* note 311.

382. *See* 42 U.S.C. § 7491(b)(2)(A) (1988).

383. State permit decisions under the visibility impairment program already appear to be subject to EPA review as a result of the 1990 CAA amendments. The new permit program, *see supra* part III.B.4., applies to any source required to have a permit under part C of subchapter I of the CAA. 42 U.S.C. § 7661a(a) (Supp. III 1991). Part C includes the visibility impairment provisions. EPA has the authority to object to the issuance of any permit that contains provisions that are "not in compliance with the applicable requirements" of the CAA. *Id.* § 7661d(b)(1). If the state does not revise the permit to cure the deficiencies EPA identifies, EPA may deny the permit. *Id.* § 7661d(c).

384. *See supra* notes 301-04 and accompanying text. As of 1993, none of the principal federal land management agencies had complied with their obligation under EPA regulations to designate integral vistas.

385. Congress already has designated the Grand Canyon National Park as a visibility transport region. 42 U.S.C. § 7492(f) (Supp. III 1991). Compilation of a list of areas containing integral vistas would not appear to require any more expertise than that involved in making transport region designations, and would appear to be a far easier task than some others Congress has performed under the CAA, such as the identification of 189 hazardous air pollutants. *See id.* § 7412(b)(1). For an explanation of how Congress may develop the expertise to enact detailed legislation, see Shapiro & Glicksman, *supra* note 359, at 841-42.

virtually any source, stationary or mobile, that emits air pollution. The CAA and associated state programs thus may be an important factor in determining whether and how various industrial activities with the potential to cause air pollution will be able to proceed, including all activities with the potential to affect federal lands, whether occurring on or outside of them.

The two CAA programs with the greatest potential impact on federal land and resource use are those designed to prevent the significant deterioration of existing clean air and to protect against impairment of visibility on the federal lands. Neither has realized its potential for protecting federal lands and resources from damage attributable to air pollution. To enhance the effectiveness of the PSD program, Congress should expand the list of mandatory class I PSD areas, increase the scope of the PSD permit program, and vest in the federal land management agencies greater authority to prevent states from issuing permits to sources whose emissions will threaten air quality on lands under their jurisdiction.

The visibility impairment program is more active now than it has ever been. Recent efforts by the NPS to breathe new life into the program reveal its utility as a potentially formidable weapon for protecting federal lands and resources from plume blight and regional haze. Activities that may impair visibility on federal lands with scenic vistas, particularly in the national parks, may soon face additional, new controls to prevent those adverse impacts. To maximize the program's impact, Congress should put pressure on EPA to issue Phase II regulations to deal with regional haze, continue to work for the adoption of regional approaches to prevent visibility impairment, and shift the balance of power in the permit issuance process from the states to the federal government.