New York’s Novel Strategy for Combating Air Pollution

Rachel Zaffrann*
ESSAY

NEW YORK’S NOVEL STRATEGY FOR COMBATTING AIR POLLUTION

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New York State has long alleged that air pollution from other states travels to New York and adversely effects its air quality. In what has been described as "A Bold Tactic in the Pollution Wars," the New York State Attorney General filed suit directly against electric utilities that he alleges contribute significantly to New York State’s air quality problems. In the suit, he claims that the utilities ignored federal permitting programs that required them to install pollution control equipment and that, therefore, would have resulted in appreciable emission reductions from the plants.

THE PROBLEM

Nitrogen oxides (NO\textsubscript{x}) and sulfur dioxide (SO\textsubscript{2}), among others, are air pollutant byproducts of the combustion of fossil fuels. In 1994, electric utilities contributed approximately 33% of the total atmospheric NO\textsubscript{x} emissions

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* Rachel Zaffrann is an Assistant Attorney General with the New York State Attorney General’s Office, Environmental Protection Bureau, New York City.


in the United States. Approximatively 90% of these emissions were a result of coal consumption. Prior to 1990, SO\textsubscript{2} emissions from electric utilities constituted 69% of the total annual SO\textsubscript{2} emissions in the United States. Even after implementation of legislation designed to reduce SO\textsubscript{2} emissions from electric utilities, in 1995, utilities still contributed approximately 66% of the total SO\textsubscript{2} emissions in the United States. SO\textsubscript{2} and NO\textsubscript{x} emissions are associated with a variety of adverse health and environmental impacts.

One of the most notorious effects of SO\textsubscript{2} and NO\textsubscript{x} emissions is acid rain. In the most fundamental terms, acid rain is precipitation that is more acidic than normal. It occurs when NO\textsubscript{x} and SO\textsubscript{2} emissions react with gaseous water and other chemicals in the atmosphere to create sulfuric and nitric acids that are washed to the earth in precipitation - rain, snow, sleet, etc. In New York State, the pH of precipitation is between 4.3 and

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4. See id.
7. See National Science and Technology Council Committee on Environmental and Natural Resources, National Acid Precipitation Assessment Program Biennial Report to Congress: An Integrated Assessment, at 23 (May 1998).
4.5, among the lowest in the country. Orange juice has a pH of 4.2.

Foremost, acid deposition in lakes and streams can cause long-term adverse effects on the aquatic organisms in the bodies of water. For example, a study of streams in the Adirondacks and Catskill Mountains in New York State, where water quality suffers from low pH, revealed lower numbers and weight of brook trout than were found in the nonacidic streams. Indeed, "streams having acidic episodes showed significant fish mortality." Acid deposition also adversely affects forests. First, acid deposition causes the leaching of aluminum and other minerals out of the soil, creating an environment with insufficient nutrients for plants to maintain good growth and health. Further, exposure to acidic clouds coupled with acid deposition has reduced the cold tolerance of red spruce trees in the Adirondack Mountains of New York, thereby contributing to high levels of red spruce mortality in the area.

Perhaps most importantly, SO$_2$ and NO$_x$ emissions can adversely effect human health. These emissions interact with other compounds in the atmosphere to form sulfates and nitrates, which constitute a significant portion of atmospheric fine particulate matter. Such fine particles easily reach the deepest recess of the

12. See National Science and Technology Council Committee on Environmental and Natural Resources, National Acid Precipitation Assessment Program Biennial Report to Congress: An Integrated Assessment, at 51 (May 1998).
13. See id.
14. Id.
15. See id. at 56.
16. See id. at 56.
17. See id. at 73.
lungs,\textsuperscript{18} thereby exacerbating numerous respiratory diseases including: chronic bronchitis, emphysema, asthma, heart disease and respiratory infections.\textsuperscript{19} Further, exposure to particulate matter is associated with a general decrease in lung efficiency.\textsuperscript{20} EPA has even concluded that exposure to fine particulate matter contributes to premature deaths in sensitive populations, such as the elderly and individuals with cardiopulmonary disease.\textsuperscript{21}

Separate and apart from acid rain and nitrate concerns, NO\textsubscript{x} emissions contribute to the formation of ground-level ozone. Ozone is created when volatile organic compounds (VOCs) mix with NO\textsubscript{x} in the presence of sunlight.\textsuperscript{22} Ozone is associated with a vast array of adverse impacts. In healthy individuals, both short and long term prolonged exposure to ozone can reduce lung functioning during exercise.\textsuperscript{23} Acute ozone exposures for healthy, exercising individuals also can impair the host defense capabilities, potentially predisposing the individual to bacterial infections in the lower respiratory tract.\textsuperscript{24}

Sensitive populations exposed to excessive ozone levels, such as children active outdoors and outdoor workers, can suffer from damage to lung tissue.\textsuperscript{25} Those with

\begin{itemize}
\item[18.] See United States Environmental Protection Agency, Office of Air & Radiation Factsheet, \textit{Health and Environmental Effects of Particulate Matter} (July 17, 1997).
\item[19.] See National Science and Technology Council Committee on Environmental and Natural Resources, \textit{National Acid Precipitation Assessment Program Biennial Report to Congress: An Integrated Assessment}, at 75 (May 1998).
\item[21.] See \textit{id.}
\item[22.] See State of New York v. Environmental Protection Agency, 133 F.3d 987, 989 (7th Cir. 1998).
\item[24.] See \textit{id.} at 65,720.
\item[25.] See \textit{id.} at 65,722.
\end{itemize}
preexisting respiratory diseases, such as asthma, may be unable to engage in normal activity or may need to seek medical treatment. Vegetation exposed to excessive ozone suffers several adverse effects including: 1) visible foliar injury; 2) growth reductions and yield loss in annual crops; and 3) growth reductions in tree seedlings and mature trees. Indeed, "plants appear to be more sensitive to ozone than humans."

Importantly, the basic principle that air pollution travels across state boundaries has long been recognized by Congress, the courts and the United States Environmental Protection Agency (EPA). Further, the transport of NO\textsubscript{x} and SO\textsubscript{2} emissions into New York State is clearly established. For example, EPA concluded that local emissions in the tri-state New York City metropolitan area, including both stationary and highway sources combined, create only 55% of the area's ozone problem, with New York State sources responsible for only a fraction of even that amount. Rather, emission from Maryland/Washington, DC/Delaware, Ohio, Pennsylvania, Virginia, and West Virginia make large and/or frequent contributions to New York City's ozone problem. Emissions from Kentucky, Indiana, Illinois, Michigan, and North Carolina also contribute significantly to ozone

26. See id.
27. See id. at 65,735.
28. Id.
30. See Air Pollution Control District of Jefferson County, KY v. United States Environmental Protection Agency, 739 F.2d 1071, 1075 (6th Cir. 1984).
32. See id. at 57,391.
33. See id. at 57,392.
problems in New York City.\textsuperscript{34} Similarly, New York environmental officials estimate that only seventeen to twenty percent of the emissions creating acid rain in New York are emitted by power plants in the State.\textsuperscript{35}

**NEW YORK'S PAST EFFORTS**

For many years, New York has attempted to resolve the problem of interstate transport of air pollution. Foremost, New York's efforts have been aimed at compelling EPA to address the issue. For example, based on EPA's conclusion that utilities in the United States were generating emissions that resulted in acid rain in Canada, New York requested that EPA identify the states responsible for the emissions and require such states to reduce the harmful emissions.\textsuperscript{36} However, because EPA's position was not a final agency action, New York's request was not ripe for review.\textsuperscript{37} New York also has filed petitions with EPA pursuant to 42 U.S.C. § 7426 requesting that EPA find that sources in other states emit air pollutants that adversely affect New York.\textsuperscript{38} EPA recently granted New York's current petition.\textsuperscript{39} Further, New York has participated and continues to

\textsuperscript{34} See id. at 57,392-93.
\textsuperscript{37} See id. at 1446-48.
participate in a northeast ozone transport group, and through the group, recommended that EPA mandate a low emission vehicle program throughout the Northeast in an effort to curb NO\textsubscript{x} emissions. Although EPA approved that recommendation, EPA's decision was reversed on appeal because it conflicted with Clean Air Act provisions regarding vehicular emission standards.

New York also has challenged EPA's relaxation of emission limitations for sources in other states, arguing that the increased emissions would negatively impact New York's air quality. For example, New York challenged EPA's decision to allow a power plant in Illinois to increase its emissions of SO\textsubscript{2}. New York argued that the Clean Air Act required EPA to determine whether such emission increases would adversely impact other states before it agreed to the increases. Deferring to the agency's decision to utilize short-range modeling of the increased emissions rather than a long-range model, the court rejected New York's arguments. Similarly, when EPA waived the NO\textsubscript{x} emission limit requirements for a geographic area surrounding Lake Michigan, New York challenged EPA's decision, arguing that the increased emissions would adversely impact New York's air quality. Again, deferring to the agency's

45. See id. at 442.
46. See id. at 444-45.
47. See State of New York v. United States Environmental Protection Agency, 133 F.3d 987 (7th Cir. 1998).
interpretation of the Clean Air Act, the court denied New York's petition. In so doing, however, the court noted that EPA had issued a notice of proposed rulemaking that would require the Lake Michigan states, among others, to reduce NOx emissions in an effort to abate interstate ozone transport, thereby addressing New York's concerns.

**THE CLEAN AIR ACT AND REGULATIONS**

Although the Clean Air Act (The "Act") contains several programs designed to address the problems of NOx and SO2 emissions, the recently filed lawsuits by the New York State Attorney General's Office against electric utilities focuses on the permitting requirements of the New Source Review (NSR) and Prevention of Significant Deterioration (PSD) programs. In order to protect public health from the adverse effects of air pollution, Congress created the PSD and NSR preconstruction permitting programs. Under the PSD program as provided in the Clean Air Act, no major emitting facility may be constructed or modified without obtaining pre-construction approval. Significantly, major emitting facilities operating prior to enactment of the PSD program in 1977 were exempt from its requirements because Congress recognized that retrofitting existing plants with modern pollution control technology would

48. See id.
49. See id. at 991.
52. 42 U.S.C §§ 7470 - 7479.
54. See Wisconsin Electric Power Company v. Reilly, 893 F.2d 901, 909 (7th Cir. 1990).
be costly. Rather, Congress intended that existing plants install control technology when the plant is modified and upgraded, reasoning it would be more cost effective.

Among the stationary sources considered "major emitting facilities" are fossil-fuel fired steam electric plants of more than two hundred and fifty million British thermal units per hour heat input that emit or that have the potential to emit 100 tons per year or more of any air pollutant. In practical terms, a power plant of this magnitude could provide electricity to approximately 36,500 homes annually. All of the power plants targeted by the Attorney General's Office are major sources under the Act, and all initially avoided PSD review because the original facility was constructed prior to adoption of the program.

The PSD regulations apply in areas where air quality has been determined to satisfy the minimum standards necessary to protect human health as determined by EPA, termed attainment areas. As part of the preconstruction approval, a facility subject to the PSD requirements must satisfy several requirements, the most important being compliance with best available control technology (BACT) for each pollutant subject to regulation under the Act. The BACT requirement is de-

55. See id.
56. See id.
57. See 42 U.S.C. § 7479(1).
60. Congress defined BACT as an emission limitation based on the maximum degree of reduction of the subject pollutant, taking into account energy, environmental and economic impacts and other costs. See 42 U.S.C. § 7479(3).
signed to minimize the emissions of the particular pollutant from the facility and entails a case-by-case review. Because it is a dynamic standard, as technology improves, the BACT standard becomes more stringent. In 1990, BACT for \( \text{SO}_2 \) required a 92% reduction in uncontrolled \( \text{SO}_2 \) emissions, and, based on the nature of the analysis, BACT today likely requires more stringent control of \( \text{SO}_2 \) emissions. During the PSD review, the facility owner also must demonstrate that emissions from the proposed construction will not cause or contribute to air pollution in excess of an air quality standard in any air quality region, which apparently includes areas in other states.

The NSR program applies to sources in areas where air quality does not meet the minimum standards necessary to protect human health as determined by EPA, also known as nonattainment areas. Similar to the PSD program, the NSR program requires new or modified major emitting facilities to undergo preconstruction review. Because air quality is below federal standards, among other provisions, sources subject to NSR must comply with the lowest achievable emission rate (LAER). LAER is the most stringent emission limitation imposed by a state in its effort to comply with the Act or the most stringent emission limitation achieved in

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64. See 42 U.S.C. § 7475(a)(3).
66. See 42 U.S.C. § 7502(c)(5).
67. Congress has defined LAER as the emission rate which reflects the more stringent of: 1) the most stringent emission limitation contained in any State's Implementation Plan; or 2) the most stringent emission limitation achieved in practice. See 42 U.S.C. § 7501(3).
practice, whichever is more stringent, and is more stringent than BACT. Further, sources must obtain emission reductions, either internally or from other sources within the nonattainment area, such that the increased emissions from the construction are offset by other emission reductions, thereby resulting in a net emissions decrease of the pollutant in the nonattainment area. Like BACT, the LAER analysis is performed on a case-specific basis.

EPA has refined the PSD and NSR programs through the promulgation of regulations. One of the more significant clarifications involves the definition of modification, which EPA has limited to a physical or operational change that results in a significant net emissions increase of any pollutant. A physical change can result in an emission increase where, for example, an electrical utility installs or alters a component part at its existing plant, such as a steam drum, that enables the plant to produce more electricity, and therefore, more emissions. For NO\textsubscript{x} and SO\textsubscript{2}, a significant net emissions increase is forty tons per year of either pollutant. EPA further has excluded various activities from the definition of "modification," including routine mainte-

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68. See United States EPA, Guidance on Determining Lowest Achievable Emission Rate (February 28, 1989).
70. EPA has devised a fairly complex procedure for determining whether an emission increase qualifies as a net emission increase. The procedure is explained at 40 C.F.R. § 52.21(b)(3) and 40 C.F.R. § 52.24(f)(6) and involves aggregating emissions increases and decreases over the five year time period prior to construction to determine whether the significance threshold level is triggered.
71. See 40 C.F.R. § 52.21(b)(2)(i) (PSD program); 40 C.F.R. § 52.24(f)(5)(i) (NSR program).
72. See Wisconsin Electric Power Company v. Reilly, 893 F.2d 901, 908 (7th Cir. 1990).
73. See 40 C.F.R. § 52.21(b)(23)(i) (PSD program); 40 C.F.R. § 52.24(f)(10) (NSR program).
nance, repair or replacement. Construing the Act provisions together with EPA's regulations, an electric utility of sufficient size to be characterized as a "major source" would trigger the PSD/NSR provisions when it performed a physical or operational change at its facility that was nonroutine maintenance or repair, resulting in a net emissions increase of 40 tons annually for NO\textsubscript{x} or SO\textsubscript{2}.\footnote{See 40 C.F.R. § 52.21(b)(2)(iii)(a) (PSD program); 40 C.F.R. § 52.24(f)(5)(iii)(a).}

**NEW YORK'S CITIZEN'S SUIT**

On September 15, 1999, Eliot Spitzer, Attorney General of the State of New York, sent Notice of Intent to Sue letters to 17 power plants in Indiana, Ohio, Virginia, West Virginia, and Kentucky.\footnote{See Andrew C. Revkin, *In New Tactic, State Aims to Sue Utilities Over Coal Pollution*, N.Y. TIMES, Sept 15, 1999, at A1.} The Attorney General alleged that each plant had violated the PSD or NSR requirements by undertaking a construction project that resulted in a significant net emissions increase at the plant. To support the claims, the Office reviewed documents submitted by the utilities to state and federal regulators and other relevant information.

For example, the Office looked at many sources of information, such as documents submitted to the Federal Energy Regulatory Commission (FERC), to identify the various construction projects performed at a plant during the relevant year, which established when a utility modified its plant. The Office also reviewed publicly-available EPA databases which contained extensive information regarding plant operations, such as yearly SO\textsubscript{2} and NO\textsubscript{x} emissions for each plant, the plant's annual electricity generation, and the plant's annual heat input. Reviewing these and other documents, the Office

\footnote{Although an increase in any criteria pollutant can trigger PSD/NSR review (40 CFR § 52.21(b)(2)(i); 40 CFR § 52.24(f)(5)(i)) this article focuses on increases in SO\textsubscript{2} or NO\textsubscript{x} emissions.}
was able to determine when a utility modified its plant and whether corresponding emissions increases were associated with the construction projects, thereby triggering PSD or NSR permitting requirements.

Another source of utility information was the State utility regulatory commission filings, in which the utilities explained and justified some of the construction projects identified by the Office and further established that the projects were not merely routine maintenance. For example, in several cases, utilities admitted that the construction was so expansive that it served to extend the useful life, and therefore, the retirement date, for a coal fired unit. However, in none of the construction projects identified by the Attorney General had the utility obtained a PSD or NSR permit.

Following these notice letters, EPA filed suit against American Electric Power (AEP) and its subsidiaries\(^77\) and Ohio Edison Company and its subsidiary\(^78\). On November 29, 1999, the States of New York and Connecticut filed a Complaint in Intervention\(^79\) under the Clean Air Act's citizen's suit provision\(^80\) to join in the AEP lawsuit.\(^81\) In his Complaint, the Attorney General identified ten plants owned by AEP subsidiaries that illegally upgraded their plant without undergoing the requisite pre-construction review. The plants include: 1) the Muskingum River, Cardinal, and General J.M. Gavin plants in Ohio; 2) the Kammer, Philip Sporn, Mitchell, Kanawha River, and John E. Amos plants in West Vir-

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\(^79\). See id.

\(^80\). 42 U.S.C § 7604(a) provides that "any person may commence a civil action on his own behalf . . . against any person who . . . constructs any new or modified major emitting facility without a permit required under . . ." the PSD or NSR programs.

\(^81\). The motion was granted on December 1, 1999. See United States v. American Electric Power et al., No. C2-99-1182.
Virginia; 3) the Clinch River plant in Virginia; and 4) the Tanner's Creek plant in Indiana. Some of the modifications identified in the complaint involved projects that essentially rebuilt an old boiler unit into a new unit, an activity clearly outside the scope of routine maintenance, yet no permit was obtained for the construction. In 1998, these ten plants alone emitted over 350,000 tons of NOx emissions and over 729,000 tons of SO2 emissions. Further, EPA found that all of these plants significantly contribute to ozone nonattainment in New York State. This lawsuit against AEP is currently pending in the federal district court for the Southern District of Ohio.

On December 1, 1999, the State of New York and the State of Connecticut filed a Complaint in Intervention against Ohio Edison Company, owner of the W.H. Sammis plant in Ohio, seeking to intervene in EPA's pending lawsuit against the company. New York identified construction projects on four separate units at the plant that had triggered the NSR/PSD permitting requirements. Some of the projects dated back to 1990. Thus, the plant may have been emitting SO2 and NOx emissions illegally for nearly a decade. This lawsuit is currently pending before the United States District Court for the Southern District of Ohio. Other power producers received notice letters from the Attorney General's Office and may still be sued, including Cinergy, Virginia Electric and Power Company and Allegheny Energy Systems.

As relief for the violations, the Office is seeking to have the utility-defendants remedy their past illegal conduct,


83. See United States of America v. Ohio Edison Company et al., No. C2-99-1181 (S.D. Ohio 1999). The motion is currently pending before the court.
which would entail undergoing PSD or NSR review for the modifications at the plants performed in violation of these regulations. As a practical matter, defendants would be required to install either BACT or LAER on the units where PSD/NSR violations occurred. Clearly, installation of pollution control technology would greatly reduce emissions from these utilities. The Office also is seeking to have the defendants mitigate the harm caused by their illegal emissions.

The Attorney General is also investigating the operations of utilities located in the State of New York. In furtherance of this investigation, on October 13, 1999, the Office sent information requests to several utilities in New York State, including: 1) Central Hudson Gas & Electric Corporation for its Danskammer plant; 2) Rochester Gas & Electric Corporation for its Russell Station plant and Beebe plant; 3) the Southern Company for its Lovett plant; 4) NRG Energy, Inc. and Niagara Mohawk Power Corporation for their Huntley plant and Dunkirk plant; and 5) New York State Electric & Gas Corporation and the AES Corporation for their Goudey plant and Greenidge plant. In the letters, the Office explained that it was investigating excessive amounts of air pollutants from the identified plant that may have resulted from a PSD/NSR violation, and requested information regarding specific types of construction projects performed at the plants, emissions data, utilization data, and plant capacity, among other things. The New York State Department of Environmental Conservation (DEC) joined the Attorney General's efforts and on January 13, 2000, issued administrative subpoenas to the companies ordering them to produce the documents identified in the Attorney General's information request. This investigation is ongoing. Further, the Governor of New York instructed DEC to implement emission reduction requirements at New York utilities that would result in a decrease of SO₂ emissions of approximately 130,000
tons annually and a decrease of NO\textsubscript{x} emissions of approximately 20,000 tons annually.\textsuperscript{84}

CONCLUSION

By identifying utility plants that have ignored environmental regulations, New York State is protecting not only the air quality for the residents of its State but for residents in the states where the utilities operate. The time has come for electric utilities to reduce their emissions, thereby making the air safer and cleaner for all.