



EPA's Acid Rain Program

Charting a New Course in Environmental Protection



EMISSIONS
REDUCED
2000
10 MILLION TONS

EMISSIONS
REDUCED
1005
5 MILLION TONS

EMISSIONS
MONITORS
1003
INSTALLED

ALLOWANCE
SYSTEM AND
PERMIT RULES
1002

Making Markets Work for Environmental Protection

In July of 1989, President Bush submitted to Congress a comprehensive package of Clean Air Act amendments. The centerpiece of this initiative was an innovative program to harness the power of the marketplace to combat acidic deposition using tradeable allowances and free market incentives. The Acid Rain Program subsequently enacted by Congress last November makes use of these approaches to facilitate significant reductions in sulfur dioxide, the main component of acidic deposition. This use of economic incentives to achieve environmental goals is already seen around the world as a prototype for tackling other environmental issues in the years to come.

We believe that economic incentives have significant advantages over traditional "command and control" regulations. For example, we are confident that the Acid Rain Program will demonstrate that creating ways to "let the market do the work" will result in tapping the creative talents of industry to bring about the most cost-effective pollution reductions possible.

Making the Acid Rain Program work efficiently and to the benefit of all Americans will take our best efforts. With that in mind, we want to share with you our vision of the way in which we intend to develop and implement this program.

We look forward to working with all interested parties to make it a success.

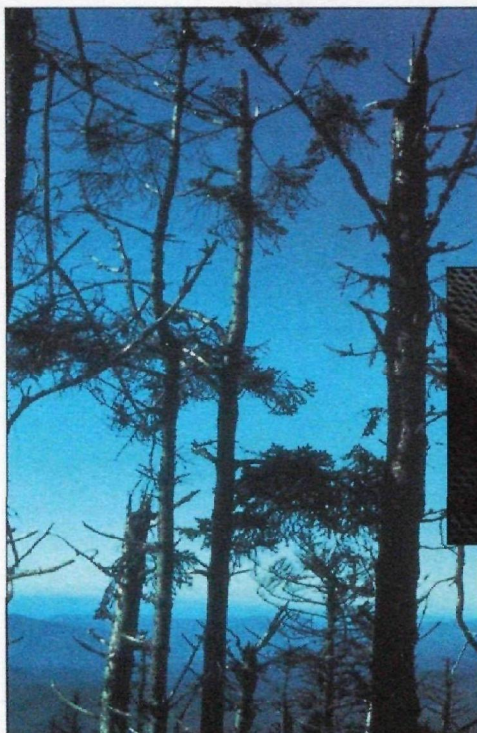
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Background

Since the Clean Air Act was passed in 1970, the United States has made impressive strides in improving and protecting the quality of our air. Nonetheless, formidable challenges still remain. To address these challenges, Congress amended the Clean Air Act in November of 1990. This landmark legislation includes provisions for reducing and controlling acidic deposition (often referred to as acid rain), which is a serious environmental concern in many parts of the country.

The 1990 amendments to the Clean Air Act mandate reductions in sulfur dioxide (SO₂) and nitrogen oxide (NO_x) emissions, the primary components of acidic deposition. To achieve these reductions, the U.S. Environmental Protection Agency (EPA) is implementing an innovative market-based Acid Rain Program that uses economic incentives to achieve cost-effective emissions reductions.



Acid Rain Program Goals

EPA has set three goals for the Acid Rain Program:

- Achieve a 10-million-ton reduction of SO₂ and mandated reductions of NO_x.
- Facilitate active trading of allowances to minimize compliance costs, maximize economic efficiency, and permit strong economic growth.
- Promote the development and use of pollution prevention and energy-efficient strategies and technologies.

The articulation of these goals was influenced by the heightened awareness of and expectations for the program. Consideration of these goals illustrates their strong interdependence. Clearly, the legislation charges the Agency with the responsibility for achieving a 10-million-ton reduction of SO₂ and significant reductions of NO_x annually, beginning in the year 2000. Our primary goal is to ensure that these mandated reductions are achieved.

If this goal is to be accomplished cost-effectively, our next two goals follow directly: we will need to have an active emissions allowance trading program, and ensure that interested parties have the information, regulatory flexibility, and incentives necessary to make the trading system work. We also will need to see the implementation of policies and application of technologies that use energy in the most efficient manner possible. Accomplishing these goals will keep costs down and ensure that allowances are available to allow for strong economic growth. Finally, closely linked to our primary goal of achieving the mandated numerical reductions is an objective that lies at the heart of the Agency's mission—we must be committed to assessing the achievement of environmental results.



Acid rain causes loss of fish and other aquatic life, and damages high-elevation forests.

Acid Rain Program Principles

As we develop the regulatory framework necessary to achieve our program goals, we are committed to carrying out our actions in accordance with the following principles.

- Keep our eyes on the prize.**
 Develop a precise and accountable program to ensure that the 10-million-ton SO_2 and mandated NO_x reductions are achieved, progress is evaluated, and benefits are measured.
- Let the market do the work.**
 Maintain a simple, flexible, and predictable program to promote the development and operation of the market for allowances.
- Consult, communicate, and strive for consensus.**
 Understand and consider the views and definitions of success for all of the parties involved in implementing the program, develop and communicate easily understandable information to key audiences, and attempt to build a consensus on major policy and implementation issues.
- Promote regulatory efficiency.**
 Consider the program's integration with existing and required regulatory elements to avoid redundancy and achieve efficiencies both within the Agency and among EPA, the Public Utility Commissions (PUCs), and other regulatory agencies.

Program Highlights



Allowance Trading

The centerpiece of the Acid Rain Program is an innovative market-based approach for bringing about significant reductions in SO_2 .

This approach, which calls for free trading of emissions allowances, sets a precedent in environmental regulation. It envisions a shift from EPA's historic mode of command and control regulation to one that harnesses the incentives of the free market to reduce emissions. As noted above, it is primarily this program component that will help to ensure that reductions are achieved at a lower cost.

This market-based approach is being viewed as a model for future environmental programs, and it is on this program component that many will judge the success or failure of the entire Acid Rain Program. For this reason, we believe that the definition of success of this program must go beyond its ability to achieve mandated reductions. A successful program also must ensure our ability to meet the nation's future energy needs and achieve the reductions in compliance costs that we believe will result through the use of this market-based approach. Since robust allowance trading would help to ensure the accomplishment of these goals, we must work collaboratively to demonstrate both the feasibility and desirability of allowance trading. However, given some of the legislative encouragement devised to foster trading (e.g., auctions and sales) and the potential that further actions may burden a "free market" and have unin-

tended inhibiting consequences, our methods for encouraging trading should be as unobtrusive as possible. Without question, the most important thing EPA can do to promote trading is to facilitate the flow of essential information and develop a simple, flexible program that provides potential traders with a sense of certainty about the regulatory consequences of trading decisions. Rules must be clear and unambiguous, drafted to minimize bureaucratic interference, and issued in a timeframe that will allow all parties to conduct requisite planning.

To fulfill this role, the Agency must actively seek out the views of interested parties early during the regulatory development stage, and take into account the expressed concerns and interests of all of the players in the complicated regulatory network. Finally, sharing information with the interested public and creatively demonstrating the potential gains of trading will go a long way toward engendering an understanding that it is in the mutual interest of all parties to make use of the trading provisions.

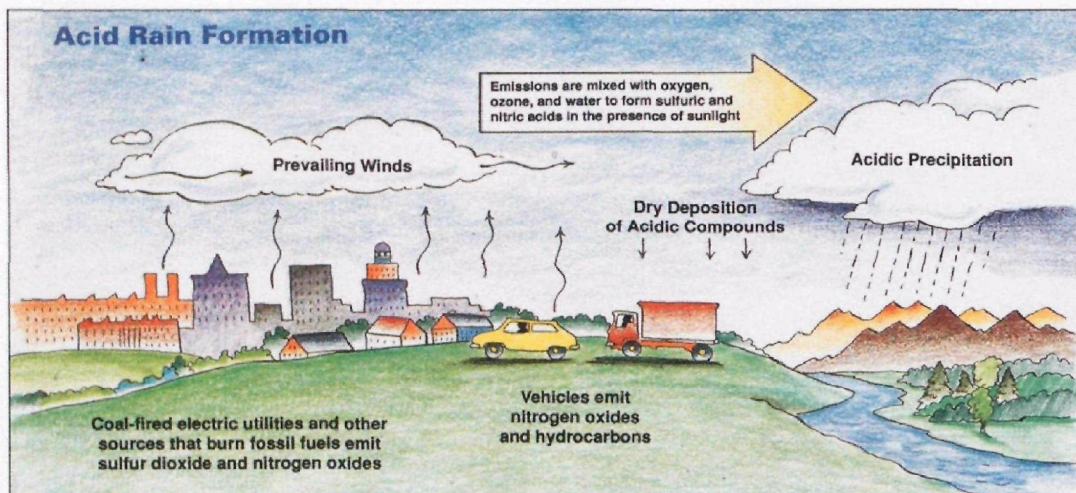


Permits and Compliance Plans

Permits and compliance plans should complement the allowance system and foster trading by providing sufficient flexibility to allow sources to make real-time allowance trading decisions.

Our challenge in this critical program area is to develop permit and compliance plan requirements that maximize flexibility while providing information for the market, certainty and predictability for sources, and accountability in achieving mandated emissions reductions.

To afford affected sources maximum flexibility in reducing emissions, the legislation authorizes a wide range of compliance methods. The compliance plan, which is developed by the source and submitted with its permit application, is the vehicle for a source to articulate its choice to rely on one or more of the authorized compliance methods. The information required to be included in a plan should be carefully tailored to the statutory requirements underlying a chosen compliance strategy. For example, compliance schedules



Sulfur dioxide and nitrogen oxide emissions react with water vapor and oxidants in the atmosphere and are chemically transformed into acidic compounds. These compounds are deposited in rain or snow; the compounds also may join dry airborne particles and fall to earth as dry deposition.

and demonstrations would not be required for units that will simply meet their emissions limitation by the statutory deadline, but would be required for Phase I or repowering extensions.

While crafting an accountable system that does not require a fixed level of emissions reductions for any source seems to create a policy dilemma, the legislation's primary mechanism to ensure compliance — the \$2,000 per ton excess emissions fee and offset requirements for sources that do not have "balanced books" for each year — creates strong market incentives to ensure compliance. We therefore believe that the market will do much of the work of ensuring compliance with the SO₂ and NO_x reduction requirements, and that we can craft regulatory requirements that will ensure sources maximum flexibility to minimize the cost of compliance.

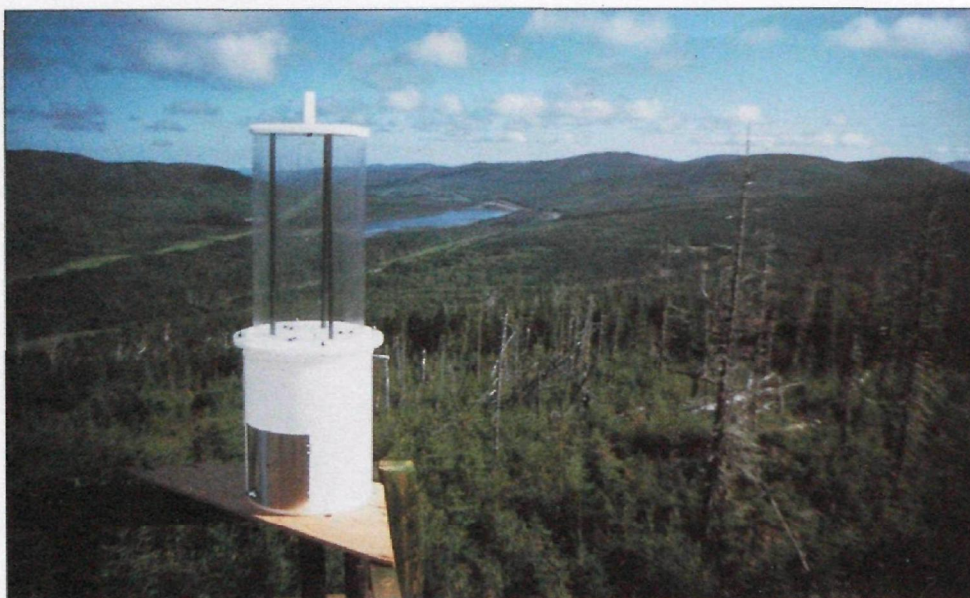
Finally, an integral part of permits will be their provisions governing continuous emissions monitoring, record-keeping, and reporting of quality-assured data. For these permit components, our goal is to provide clear guidance on what is required, and certainty and predictability of the consequences for failure to comply. As our overall program goal cannot be evaluated without information that is as accurate as possible, and our program credibility rests on our ability to accurately track emissions, we must require strict adherence to permit commitments in these areas.



Energy Efficiency/Pollution Prevention

Energy efficiency and the use of renewable energy sources can not only help mitigate emissions of acidic deposition precursors in an expeditious and cost-effective manner, they can also further the environmental goal of pollution prevention.

The legislation contains special incentives for encouraging the use of renewable energy or energy conservation through the allocation of additional allowances to certain sources that make use of these strategies. The legislation also provides incentives for the use of clean coal technologies. Additionally, the market-based allowance system provides its own efficiency incentive: a ton of SO₂ reduced through conservation or energy efficiency is one less allowance that will have to be used in meeting allowable emissions levels. We believe that this fact will go a long way toward



fostering the use of integrated resource management.

In addition to relying on the market and carrying out the legislation's efficiency-related provisions, we have a role to play in promoting pollution prevention activities. First, we expect sources that are required to reduce their emissions will want to consider energy-efficient control options. Therefore, we want to work with all interested parties to identify and address any regulatory impediments or disincentives to least-cost strategies, which include active demand-side energy efficiency programs. We believe that such a cooperative examination would be most fruitful given increased public support for environmental protection, increased competition in the utility industry, the advent



Acid rain corrodes stone, metal, and other substances.

EPA is involved in an interagency effort to monitor acidic deposition and study the effects of acid rain on various media, including high-elevation forests.

of high efficiency end-use technologies, and the requirements of this legislation that will undoubtedly alter the "cost calculus" for utilities.

Finally, we are committed to promoting energy conservation and efficiency through collaboration with energy stakeholders. We will use and distribute the wealth of relevant information being developed in both the public and private sectors to ensure that sources have the necessary information on the availability, viability, and advantages of using these measures as control options.



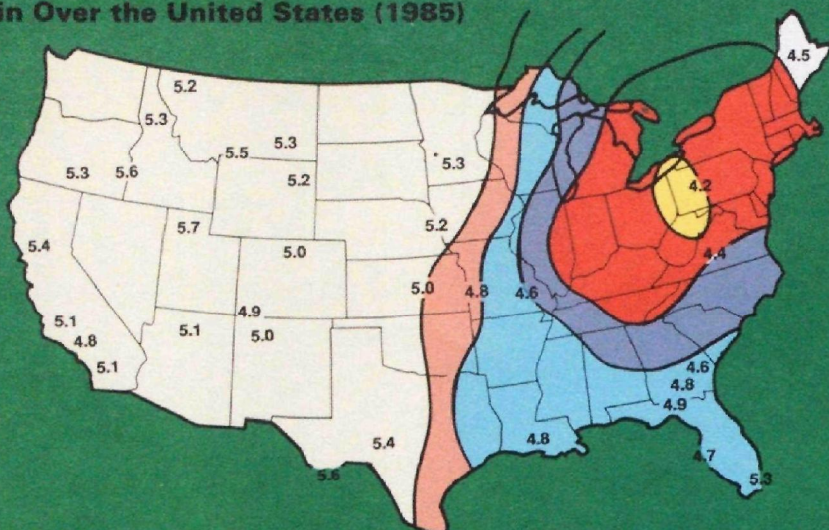
Program Evaluation

While much of the focus of Congressional discussions has been on the numerical goal of the acid rain legislation—that is, the 10-million-ton reduction of SO₂ and mandated reductions of NO_x, the underlying goal is obviously the reduction of acidic deposition and its negative environmental consequences.

We are committed to a coordinated environmental monitoring and assessment effort to measure reductions in acid rain and resulting environmental benefits. We also are committed to producing timely and complete information sufficient to meet program evaluation and communication needs.

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Contour and Selected Station Map of pH in Rain Over the United States (1985)



Source: National Acid Precitation Assessment Program

We also will work with interested parties to define indicators of success in the context of specific regulations, and develop feedback mechanisms so that progress can be regularly assessed and necessary corrective actions taken. Building a new program will provide us with a unique opportunity to consider and then integrate success indicators into the program, and obtain valuable feedback on such issues as the extent to which trading is occurring and how conservation and energy efficiency methods are being used to achieve reductions.



Communication

Because of the precedent-setting nature of the Acid Rain Program and the high public profile of acid rain issues, EPA should take a strong leadership role in building consensus and in supplying technical assistance.

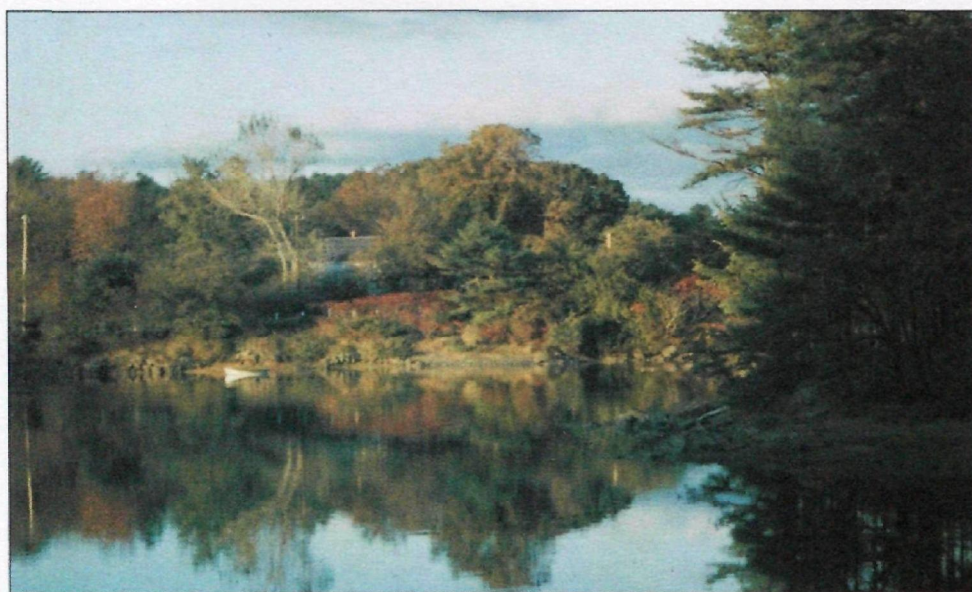
While the public's immediate expectations will be high, our ability to accurately demonstrate environmental benefits will necessarily follow program implementation by several years. Additionally, we must reach out to those areas of the country that are expected to face economic dislocations as a result of the legislation. Finally, unlike many other programs that the Agency deals with, the allowance trading component cannot work without the cooperation of and between a wide variety of groups and sources including state PUCs, the affected utilities, and state and local agencies.

The development of a new regulatory program that will facilitate cooperation and take into account the various needs of numerous stakeholders will require a significant communication effort that will involve EPA in both disseminating information and building consensus. While both of these components are critical to program success, our regulatory timelines are such that we must begin consultation on regulatory issues as soon as possible. These consultations are needed to craft a workable program to which all parties will commit. One significant forum for consultation regarding both program development and implementation will be the federally chartered Acid Rain Advisory Committee.

The Agency also will have a significant role in developing and disseminating information. For the program to be effective, all parties must have a clear understanding of their responsibilities; in this regard, we must make easily understandable information readily available. However, considering our program goals, we must go much further. We also must work with all parties to create a clear understanding of the benefits that would result from free allowance trading, thoughtful planning, and energy conservation. Finally, public education on the benefits of the Acid Rain Program and the linkage between energy efficiency and reducing SO_2 , NO_x , and other pollutants will foster public support and ease implementation of the program for all parties.

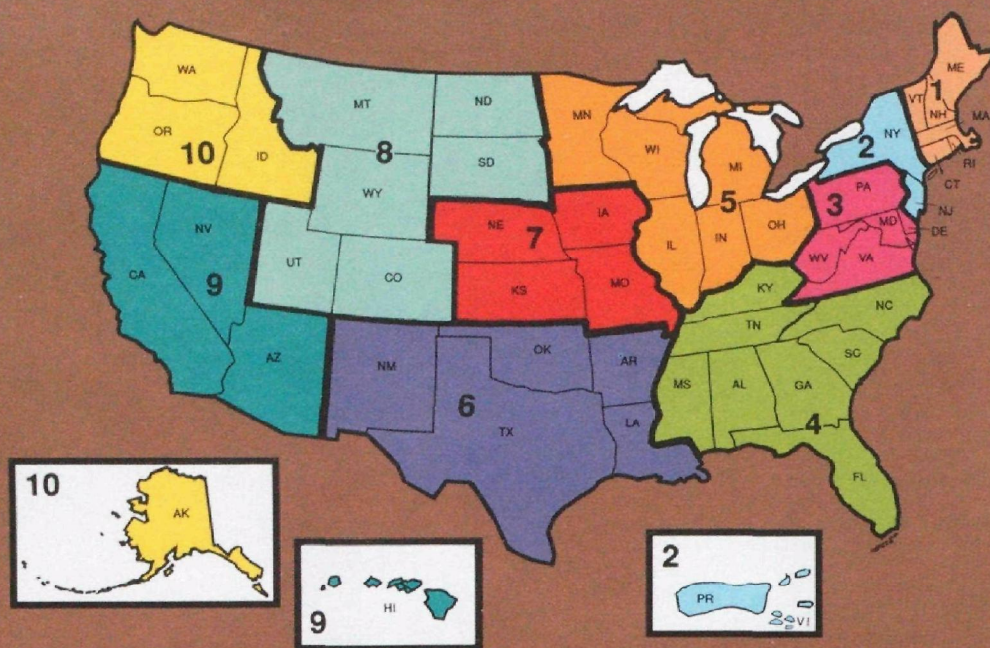
An International Prototype

Implementation of the acid rain provisions of the Clean Air Act amendments presents significant challenges and opportunities for all stakeholders in the abatement of acidic deposition. The innovative market-based components of the program are already being viewed around the world as the prototype for tackling emerging environmental issues in a more cost-effective manner. As a consequence, the success of this program and its ability to achieve its goals will be closely monitored both in and out of government. We look forward to collaborating with all interested parties to ensure the realization of the promise of this important new program.



Surface waters that have a low buffering capacity cannot neutralize acidic deposition effectively. In these cases, the deposition may increase the acidity of the water, reducing much or all of its ability to sustain aquatic life.

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Sulfur dioxide and nitrogen oxide emissions form sulfates and nitrates in the atmosphere that can impair visibility. These two photographs show a reduction in the visual range in Shenandoah National Park from 43 to 6 miles, primarily due to sulfates.



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