

FOIA MARKER

This is not a textual record. This is used as an administrative marker by the William J. Clinton Presidential Library Staff.

Collection/Record Group: Clinton Presidential Records
Subgroup/Office of Origin: Office of Environmental Initiatives
Series/Staff Member: Roger Ballentine
Subseries:

OA/ID Number: 19512
FolderID:

Folder Title:
Climate Change Other Utilities [1]

Stack:	Row:	Section:	Shelf:	Position:
S	62	1	1	3

Clinton Presidential Records Digital Records Marker

This is not a presidential record. This is used as an administrative marker by the William J. Clinton Presidential Library Staff.

This marker identifies the place of a publication.

Publications have not been scanned in their entirety for the purpose of digitization. To see the full publication please search online or visit the Clinton Presidential Library's Research Room.

Clean Water Action Plan

2000 Budget Request



Restoring &
Protecting
America's Waters

March 1999

Why is the Clean Water Action Plan Important?

- The Clean Water Action Plan is about restoring and protecting the rivers, lakes, coastal waters, and wetlands Americans love.
- The President and Vice President initiated this multi-year effort last year to revitalize the nation's commitment to our precious water resources.
- The Action Plan seeks to protect public health, address polluted runoff, protect natural resources, and improve citizen participation. It sets ambitious goals and provides tools and resources to help farmers, landowners, local watershed groups, states and tribes meet them.
- The Action Plan seeks to reorganize restoration and protection efforts around watersheds and the unique challenges facing each of them. It seeks to apply cost-effective solutions to the most pressing problems.



Budget Summary

The Clean Water Action Plan was initiated with a five year funding proposal that would provide approximately \$2.3 billion in new funds to enhance key programs to address the critical problems facing our watersheds.

The President's 2000 Budget requests \$468 million in new funding for several key programs that will:

- Assist farmers as they address water quality impacts of crop production and animal feeding operations;
- Address the impacts of polluted drainage and runoff from abandoned mines; and
- Reduce flood damage and restore streambanks and other critical habitat.

In 1999, the President requested a funding increase of \$568 million. Unfortunately, Congress was only able to fund about 1/3 of this request or \$171 million.

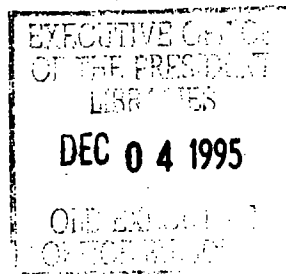
The Clean Water Action Plan is a broad plan that uses existing programs and funding as well as new investments to address problems in our watersheds. Federal, state, tribal, and local partners have made substantial progress over the last year in implementing the Action Plan's 111 Key Actions.

Clean Water Action Plan Funding (in millions)		
1998 Base Appropriation	1999 Appropriation	2000 Request
-----	+\$171.0	+\$468.0
\$1,636.0	\$1,807.0	\$2,275.0

(The Clean Water Action Plan was created in 1998 and the left column on the chart above, *1998 Base Appropriation*, represents the base resources in relevant programs available to the participating agencies when the Action Plan was created. 1999 was the first year additional funds were requested to support these programs.)



Clean Water Legislation



"He who decides a case without hearing the other side . . . Tho he decide justly, cannot be considered just" — Seneca

F O R E W O R D

With enactment of the first major environmental laws in the 1970s, the United States became broadly committed to protecting our country's natural resources. The challenge since then has been to find an appropriate balance between regulation and voluntary action in preserving and improving the quality of our air, water, and soil.

The goal of the Clean Water Act of 1972 — the Nation's principal law governing water quality — is to "restore and maintain the chemical, physical, and biological integrity of the Nation's waters." Under this mandate, the U.S. Environmental Protection Agency (EPA) has developed regulations and programs to reduce pollutants entering all surface waters, including lakes, rivers, estuaries, oceans, and wetlands. While the law is administered at the Federal level, it is designed to give States a strong role — to account for different climates and environmental conditions and to weigh the need for environmental protection against economic growth. Congress last reauthorized and strengthened the Act in 1987.

Pollutants in our waterways threaten human health, impair or destroy aquatic life, and undermine the recreational and aesthetic potential of beaches, rivers, and lakes. The job of cleaning up the Nation's waters is a complex one, however, because of the variety of sources of pollution that affect them. In general, water quality problems result from one or more of the following: municipal point sources (wastewater that runs through city sewers); industrial point sources (wastewater produced by industrial processes); nonpoint sources (multiple, diffuse sources of pollution, including water runoff from farming, urban areas, mining, forestry, and construction); and the dredging and filling of waterways, which churns up bottom sediments and other pollutants.

Over the past two decades, significant progress has been made in improving water quality. Pollution from point sources has been reduced, and some human health and environmental threats have declined as a result. How-

ever, the persistent release of large amounts of toxic and other pollutants into the Nation's waterways continues to cause contamination, and relatively little has been done to stem the tide of polluted runoff from farms and city streets.

Earlier this year, the House of Representatives passed legislation that is intended to make the Clean Water Act more flexible and provide regulatory relief for businesses, States, local governments, and landowners. Among other provisions, it would relax some regulations dealing with the discharge of wastes and stormwater into waterways; permit States to rely on voluntary measures to control nonpoint source pollution; limit Federal authority to restrict land use in areas designated as wetlands; and require the Federal Government to compensate landowners for loss of property value resulting from wetlands regulation.

Those who favor the bill say that it would maintain the goal of cleaning up the Nation's waterways while reducing what they believe to be excessive Federal regulation. They argue that it also would address the problem of unfunded mandates, which many believe place unreasonable financial burdens on local governments without really solving the problems they seek to address. Under the proposed legislation, supporters contend, States would have the money and authority to enforce Federal goals, while private property rights and local businesses would be protected.

Opponents believe that the pending measure would reverse environmental progress and weaken the Clean Water Act by effectively exempting most wetlands from regulation and relaxing pollution controls for factories and sewage treatment works. Strong Federal oversight is needed, they argue, because of the interstate nature of waterways. They also charge that the bill is driven more by political and economic interests than by scientific evidence or environmental concerns.

The outcome of the legislation is uncertain, since the Clinton Administration opposes the bill and the Senate has not yet acted. However, the debate is representative of the current reevaluation of environmental goals and laws and the trend toward reduced Federal Government spending and control.

Water Quality Issues

Glossary of Terms

Agricultural Waste — Poultry and livestock manure, and residual materials in liquid or solid form generated from the production and marketing of poultry, livestock, furbearing animals, and their products. Also includes grain, vegetable, and fruit harvest residue.

Discharge — The release of any waste into the environment from a point source. Usually refers to the release of a liquid waste into a body of water through an outlet such as a pipe.

Ecosystem — The interacting synergism of all living organisms in a particular environment; every plant, insect, aquatic animal, bird, or land species that forms a complex web of interdependency. An action taken on any level in the food chain — use of a pesticide for example — has a potential domino effect on every other occupant of that system.

Effluent — Wastewater discharged from a point source, such as a pipe.

Estuary — A complex ecosystem between a river and near-shore ocean waters where fresh and salt water mix. These brackish areas include bays, mouths of rivers, salt marshes, wetlands, and lagoons and are influenced by tides and currents. Estuaries provide valuable habitat for marine animals, birds, and other wildlife.

Floodplain — Mostly level land along rivers and streams that may be submerged by floodwater.

Ground Water — Water found below the surface of the land, usually in porous rock formations. Ground water is the source of water found in wells and springs and is used frequently for drinking.

Impoundment — A body of water or sludge confined by a dam, dike, floodgate, or other barrier.

From "Guide to Environmental Issues," prepared by the U.S. Environmental Protection Agency.

Industrial Waste — Unwanted materials produced in or eliminated from an industrial operation and categorized under a variety of headings, such as liquid wastes, sludge, solid wastes, and hazardous wastes.

Lagoon — A shallow, artificial treatment pond where sunlight, bacterial action, and oxygen work to purify wastewater; a stabilization pond.

Nonpoint Source — Any source of pollution not associated with a distinct discharge point. Includes sources such as rainwater, runoff from agricultural lands, industrial sites, parking lots, and timber operations, as well as escaping gases from pipes and fittings.

Point Source — A stationary location or fixed facility such as an industry or municipality that discharges pollutants through pipes, ditches, lagoons, wells, or stacks.

Pollution — Any substances in water, soil, or air that degrade the natural quality of the environment, offend the sense of sight, taste, or smell, or cause a health hazard.

Publicly Owned Treatment Works (POTW) — A municipal or public service district sewage treatment system.

Sediment — Topsoil, sand, and minerals washed from the land into water, usually after rain or snow melt.

Sewer — A channel or conduit that carries wastewater and stormwater to a treatment plant or receiving waters.

Surface Water — All water naturally open to the atmosphere (rivers, lakes, reservoirs, ponds, streams, seas, estuaries) and all springs, wells, or other collectors directly influenced by surface water.

Wetlands — Areas that are soaked or flooded by surface or ground water frequently enough or for sufficient duration to support plants, birds, animals, and aquatic life. Wetlands generally include swamps, marshes, bogs, estuaries, and other inland and coastal areas.

The Clean Water Act

Status of Current Programs

The principal law governing pollution in the Nation's streams, lakes, and estuaries is the Federal Water Pollution Control Act (P.L. 92-500, enacted in 1972), commonly known as the Clean Water Act (amended by P.L. 95-217 in 1977, P.L. 97-117 in 1981, and P.L. 100-4 in 1987). It consists of two major parts: regulatory provisions that impose progressively more stringent requirements on industries and cities to abate pollution and meet the statutory goal of zero discharge of pollutants; and provisions that authorize Federal financial assistance for municipal wastewater treatment construction. Both parts are supported by research activities, plus permit and enforcement provisions. Programs at the Federal level are administered by the Environmental Protection Agency (EPA); State and local governments have major responsibilities to implement those programs.

The objective declared in the 1972 Act is to restore and maintain the chemical, physical, and biological integrity of the Nation's water. That objective was accompanied by statutory goals to eliminate the discharge of pollutants into navigable waters by 1985 and to attain, wherever possible, waters deemed "fishable and swimmable" by 1983. Nearly 75 percent of assessed waters comply with standards for these pollutants. Progress has been mixed in controlling discharges of toxic pollutants (heavy metals, inorganic and organic chemicals), which are more numerous and can harm human health and the environment even when present in minute amounts — at the parts-per-billion level. Moreover, efforts to control pollution from diffuse sources (rainfall runoff, for example) have only recently begun.

■ Funding Municipal Wastewater Treatment

The Act's program of financial aid for municipal wastewater treatment plant construction is a central feature of the law. Since 1972, Congress has provided \$65

From a Library of Congress, Congressional Research Service Issue Brief entitled "Clean Water Act Reauthorization."

billion to assist cities in achieving requirements for secondary treatment of municipal sewage (equivalent to 85 percent reduction of wastes), or higher where required by local water quality conditions. State and local governments have spent an estimated \$25 billion of their own funds, as well. Nevertheless, funding needs remain very high: an additional \$130 billion nationwide, according to the most recent estimate by EPA and the States.

The Act, as amended in 1987, initiated a program of grants to capitalize State Water Pollution Control Revolving Funds (SRFs), or loan programs. This new Title VI program replaced the previous categorical grants program, under which the Federal share was 55 percent of project costs and localities were not obligated to repay Federal funds that they received. Under the revolving fund concept, monies used for construction will be repaid by loan recipients to the States, to be recycled for future construction in other communities, thus providing an ongoing source of financing.

The intent of the 1987 amendments was that Federal contributions to SRFs would assist in making a transition to full State and local financing by Fiscal Year 1995. States are required to deposit a 20 percent match of the Federal amount. The essential trade-off embodied in these provisions was that States would have greater flexibility to set priorities and administer funding in exchange for an end to Federal aid after Fiscal Year 1994. All States have established the legal and procedural mechanisms to administer the new loan programs and are now eligible to receive SRF capitalization funds under Title VI.

■ Wet Weather Issues

The Clean Water Act has traditionally not distinguished between water pollution that occurs under dry or wet conditions. Regulatory programs have generally been concerned with limiting the potential environmental harm from highly concentrated pollutants under low-flow conditions. Thus, controls on industrial waste discharges are based on restricting the concentration of pollutants, regardless of the volume of wastewater. More recently, however,

policymakers have recognized that many of the Nation's remaining water pollution problems are distinctly related to rainfall events, and these problems are receiving special attention.

Nonpoint Source Pollution. Nonpoint source pollution is diffuse runoff of pollutants from farm lands, forests, city streets, construction sites, mines, and other areas. As the more traditional point sources of pollution (from industry and sewage treatment plants) are controlled, nonpoint source pollution represents a larger and more pervasive portion of total water quality problems. EPA estimates that nonpoint sources are responsible for 60 percent of current water quality standard violations and that agricultural sources contribute 80 percent of the violations from nonpoint sources. Pollutants vary widely and include sediments and other conventional (e.g., nutrients) and toxic wastes that degrade water quality.

The 1987 amendments established the first comprehensive program to address this aspect of water pollution problems in a new Section 319 of the Act. While the Act previously had provided for State and regional planning to address all sources and types of pollution, nonpoint sources have been viewed as so diverse and site-specific that they are not amenable to national standards or controls. Moreover, controlling nonpoint sources typically requires controlling individual actions associated with land use, decisions generally made by State and local governments. Nevertheless, Section 319 reflects a widespread recognition that failure to manage nonpoint sources will prevent achieving the Nation's overall water quality objectives.

Section 319 consists of three elements. First, States were required to assess the extent of nonpoint source-related water quality impairments. Second, they were to develop and implement plans for managing nonpoint sources. Third, Section 319 authorized \$400 million in grants to States for plan implementation.

Combined Sewer Overflows. Nearly 1,200 municipalities have combined sewers where domestic sanitary sewage, industrial wastes, infiltration from groundwater, and stormwater runoff are collected and treated together. These systems serve approximately 40 million persons, mainly in older urban and coastal cities. Normally (under dry-weather conditions), the combined wastes are conveyed to a municipal sewage treatment plant to remove pollutants.

Properly designed, sized, and maintained combined sewers can be an acceptable part of a city's water pollution control infrastructure. However, combined sewer over-

flow (CSO) occurs when the capacity of the collection and treatment system is exceeded due to high volumes of rainwater or snowmelt, and the excess volume is diverted and discharged directly into receiving waters, bypassing the sewage treatment plants. Often the excess flow that contains raw sewage, industrial wastes, and stormwater is discharged untreated. Many combined sewer systems are found in coastal areas where recreational areas, fish habitat, and shellfish beds may be harmed by the discharges.

Combined sewers are categorized as point sources under the Act, yet they have not been considered a high regulatory or permitting priority for EPA or States. There are no express provisions in the Act dealing with CSOs, except to the extent that they are subject to permit requirements and deadlines, as are other point sources.

■ Critical Areas/Sensitive Habitats

While the objectives of the Act apply broadly to chemical, physical, and biological aspects of water quality, implementation has emphasized restoring the chemical integrity of the Nation's waters by focusing on controlling individual pollutants and chemicals. Less emphasis has been given to the related statutory objectives of restoring the physical and biological integrity of those same waters. More recently, EPA identified a need to focus renewed attention on ecological concerns, in addition to longstanding concern with protecting public health. EPA and others have recognized that the standard focus on individual chemicals may not adequately reflect other adverse effects on ecosystem health, for example, cumulative effects of discharges of multiple pollutants (including from atmospheric sources), effects from unknown or unregulated chemicals, or effects from episodic events such as spills, dumping, or treatment plant malfunctions. Thus, while maintaining control requirements already in place, EPA is also augmenting the water quality programs in more targeted ways.

Geographic areas such as the Great Lakes and Chesapeake Bay, with unique characteristics or special pollution problems, have received special attention under the Act. In addition, critical aquatic ecosystem areas, such as wetlands and sediments, are receiving new attention. Coastal and inland wetlands are valued as habitat for wildlife and aquatic species — they often serve as spawning areas for fish and shellfish. Wetlands also have the potential to control or modify flood waters and to filter pollutants. Another critical ecological concern is sediments, which are found at the bottom of rivers, harbors, and lakes. They can be

Continued on page 314

National Water Quality

EPA Report to Congress

The Clean Water Act gives States the responsibility to monitor and assess their waters and report the results to the Environmental Protection Agency (EPA). EPA provides technical assistance and guidance on monitoring and reporting, and summarizes the results of the State assessments in this Report to Congress.

This report is based on water quality assessments submitted by 57 States, territories, interstate jurisdictions, and an American Indian Tribe (hereafter collectively referred to as the States). States measure water quality by determining if individual waters are clean enough to support uses such as fishing, swimming, and drinking.

■ Summary of Findings

For their 1992 reports to EPA, the States assessed the quality of roughly the same amount of waters as in previous reporting cycles. Many waters remained unassessed. States assessed:

- 18 percent of the Nation's 3.5 million river miles;
- 46 percent of the Nation's 39.9 million lake acres; and
- 74 percent of the Nation's 37,000 estuary square miles.

From a U.S. Environmental Protection Agency Fact Sheet on the 1992 National Water Quality Inventory Report to Congress.

This represents a near doubling of waters assessed in 1984 when EPA first started to gather this type of information.

About two-thirds of assessed waters are of good enough quality to support the uses States set for them, such as fishing and swimming, and therefore meet the Clean Water Act goals established by Congress. The remaining waters are impaired to varying degrees.

In the one-third of assessed waters that have water quality problems, the leading contributors to problems are agricultural runoff, municipal sewage treatment plant discharges, storm sewers, and urban runoff. Agricultural runoff is the most extensive source of pollution in the Nation's waters.

Nutrients, siltation, pathogens, metals, and organic enrichment are the most commonly reported pollutants in impaired waters. Nutrients can overstimulate the growth of algae and weeds; siltation smothers bottom-dwelling organisms and destroys stream habitat; pathogens cause shellfish harvesting restrictions, drinking water restrictions, and recreational beach closures; and organic enrichment leads to reduced levels of dissolved oxygen in water.

Municipal sewage treatment facilities, industries, and others that discharge into waterways from "points" such as pipes continue to contribute to water quality problems. Municipal discharges are the leading pollution source in estuaries and the second leading source in rivers. Industrial discharges are often the source of severe problems due to toxicants and are the leading source of fish consumption restrictions and the second leading source of fish kills.

Five Leading Sources of Water Quality Impairment

Rank	Rivers	Lakes	Estuaries
1	Agriculture	Agriculture	Municipal Point Sources
2	Municipal Point Sources	Urban Runoff/ Storm Sewers	Urban Runoff/ Storm Sewers
3	Urban Runoff/ Storm Sewers	Hydrologic/ Habitat Modification	Agriculture
4	Resource Extraction	Municipal Point Sources	Industrial Point Sources
5	Industrial Point Sources	Onsite Wastewater Disposal	Resource Extraction

Source: 1992 National Water Quality Inventory Report to Congress

Storm sewers and urban runoff have emerged as significant problems nationwide and are the second leading source of impairment in lakes and estuaries.

Wetland loss continues at a significant rate and is attributed primarily to residential and urban development, agriculture, resource extraction activities such as mining, and the building of impoundments (confined bodies of water) and highways. Loss of these resources (1) reduces the biological productivity of waters because wetlands are nurseries and breeding grounds for many fish, shellfish, and birds; (2) increases the impacts of floods and storm sewers that wetlands would otherwise attenuate; and (3) deprives open waters of a natural "filter" for the removal of pollutants.

Toxic substances, though not as widely found as other pollutants, continue to cause locally severe impacts. Among these impacts are fish consumption restrictions, fish kills, and contamination of bottom sediments.

Although, in general, the quality of the Nation's ground water is good, an increasing number of pollution incidents affecting ground water have been reported. Underground storage tanks, septic systems, municipal landfills, agriculture, and abandoned hazardous waste sites are sources of ground water pollution cited by the States.

In ground water, the leading pollutants include nitrates, metals, pesticides, petroleum products, and volatile organic compounds.

■ Inventory of Specific Water Resources

Any single river mile, lake acre, or estuarine square mile is counted only once in tabulating total waters impaired. Since the waterbody can be impaired by multiple sources and causes, the sum of specific impairment categories discussed in the following sections may total more than 100 percent.

River and Stream Water Quality. Fifty-five States assessed the quality of 642,881 miles of rivers and streams, or 18 percent of the Nation's total 3.5 million miles of rivers and streams. Of these 642,881 miles:

- 56 percent fully support swimming, fishing, and other uses, and an additional 6 percent currently support uses but are threatened and could become impaired if pollution control actions are not taken;
- 38 percent are impaired. Of these, 25 percent are considered partially supporting uses and the remaining 13 percent are not supporting uses.

Leading sources: States attribute 72 percent of problems in assessed rivers to agriculture; 15 percent to municipal discharges; 11 percent to resource extraction; and 11 percent to storm sewers and urban runoff.

Leading pollutants: States attribute 45 percent of problems in assessed rivers to siltation; 37 percent to nutrients; 27 percent to pathogens; 26 percent to pesticides; and 24 percent to organic enrichment.

Lake and Reservoir Water Quality. Forty-nine States assessed the quality of 18.3 million acres of lakes, ponds, and reservoirs, or 46 percent of the Nation's 39.9 million lake acres. Of these 18.3 million acres:

- 43 percent fully support fishing, swimming, and other uses, and an additional 13 percent currently support uses but are threatened and could become impaired if pollution control actions are not taken;
- 44 percent are impaired. Of these, 35 percent are considered partially supporting uses, and the remaining 9 percent are not supporting uses.

Leading sources: States attribute 56 percent of problems in lakes to agriculture; 24 percent to storm sewers and urban runoff; 23 percent to hydrologic modifications; 21 percent to municipal discharges; and 16 percent to onsite wastewater disposal.

Leading pollutants: States attribute 47 percent of problems in assessed lakes to metals; 40 percent to nutrients; 24 percent to organic enrichment; and 22 percent to siltation.

Pollution can accelerate the natural aging process of lakes, known as eutrophication. Eutrophic lakes are characterized by various conditions, such as the growth of weeds and algae due to high nutrient levels; reduced water clarity; and reduced lake depth due to buildup of silt and organic matter.

Almost half of all lakes assessed (47 percent) were found to be eutrophic or hypereutrophic.

Estuary and Coastal Water Quality. Twenty-five States assessed the quality of 27,227 square miles of estuaries, or about 74 percent of the Nation's total 37,000 square miles. Of these 27,227 square miles:

- 56 percent fully support fishing, swimming, and other uses, and an additional 12 percent currently support uses but are threatened and could become impaired if pollution control actions are not taken;

Five Leading Causes of Water Quality Impairment

Rank	Rivers	Lakes	Estuaries
1	Siltation	Metals	Nutrients
2	Nutrients	Nutrients	Pathogens
3	Pathogens	Organic Enrichment/ Low DO	Organic Enrichment/ Low DO
4	Pesticides	Siltation	Siltation
5	Organic Enrichment/ Low DO	Priority Organic Chemicals	Suspended Solids

Source: 1992 National Water Quality Inventory Report to Congress

- 32 percent are impaired. Of these, 23 percent are considered partially supporting uses and the remaining 9 percent are not supporting uses.

Leading sources: States attribute 53 percent of problems in assessed estuaries to municipal discharges; 43 percent to storm sewers and urban runoff; 43 percent to agriculture; and 23 percent to industrial point sources.

Leading pollutants: States attribute 55 percent of problems in assessed estuaries to nutrients; 42 percent to pathogens; 34 percent to organic enrichment; and 12 percent to siltation.

Water quality reporting for ocean coastal waters is limited. States assessed water quality in about 6 percent of the U.S. coastline miles. Only 14 percent of the assessed coastline miles were found to be impaired.

Water Quality in the Chesapeake Bay. The Chesapeake Bay Program has implemented programs to reduce impacts from nutrients, oxygen-demanding substances, and pathogens. Nutrients (primarily phosphorus and nitrogen) feed the excessive algal growth in the Bay that results in low dissolved oxygen concentrations and losses of underwater grasses that provide critical food and habitat for waterfowl and shellfish. Pathogen contamination in shellfish beds results in shellfish harvesting restrictions.

Wastewater plant upgrades, enhanced compliance with permits, bans on phosphorus detergents in the Bay watersheds, and nonpoint source controls reduced annual discharges of phosphorus into the Chesapeake Bay by 40 percent (4.7 million pounds) between 1985 and 1991. Water quality monitoring data confirm that the reduction in phosphorus loading is reducing phosphorus concentration. Total phosphorus concentrations in the Bay decreased by 16 percent between 1984 and 1992. However, total nitrogen concentrations have remained stable in the mainstem of the Bay and increased in some tributaries.

The Chesapeake Bay Program's nonpoint source program emphasizes controls for runoff generated by agricul-

tural activities, paved surfaces, and construction in urban areas.

Water Quality in the Great Lakes. Seven Great Lakes States assessed 5,319 miles of Great Lakes shoreline, or about 99 percent of the Nation's total Great Lakes' shoreline. Of these 5,319 miles:

- 2 percent fully support fishing, swimming, and other uses, and an additional 1 percent currently support uses but are threatened and could become impaired if pollution control actions are not taken;
- 97 percent are impaired. Of these, 30 percent are considered partially supporting uses and 67 percent are not supporting uses.

These statistics only address nearshore waters, not conditions in the deeper, less stressed central waters of the Great Lakes. States attribute a high percentage of problem waters in the Great Lakes to fish consumption restrictions in place for nearshore areas.

Information on sources and pollutants in the Great Lakes is limited. Atmospheric deposition, contaminated sediments, and landfills are the leading sources of pollution, and leading pollutants include toxic organic chemicals, such as PCBs, metals, nutrients, and organic enrichment. Persistent Great Lakes problems include toxic fish tissue and sediments. However, the trophic status of the Great Lakes has improved due to declining phosphorus concentrations.

Status of Wetlands. Wetlands are being lost at a significant rate, totaling a net loss of 2.6 million acres over the nine years of a recent U.S. Fish and Wildlife Survey Report to Congress.

States report that agriculture and commercial and residential development are the leading sources of wetland losses. Sedimentation and nutrients are cited as the leading pollution problems in wetlands.



Bill Summary

Clean Water Act Amendments of 1995

The purpose of H.R. 961 is to reauthorize and amend the Clean Water Act to provide a flexible, scientifically sound, and cost-effective basis on which to maintain and continue improvements in water quality.

■ Unfunded Mandates

On March 23, 1995, President Clinton signed into law the Unfunded Mandates Reform Act of 1995. However, this Act does not address the impacts of unfunded mandates in existing law. The Clean Water Act has been cited as placing the most costly unfunded mandates on local government.

H.R. 961 addresses unfunded mandates by providing increased funding to meet Clean Water Act mandates and by providing regulatory relief by increasing both the flexibility and cost-effectiveness of the Act. Specifically, the bill authorizes \$2.5 billion a year from Fiscal Year 1996 through Fiscal Year 2000 for capitalization grants to States for the State Revolving Loan Fund (SRF). The bill also authorizes \$500 million per year for an SRF dedicated to addressing nonpoint sources of pollution. The bill will double (to \$150 million a year) previously authorized levels for grants to States for administering and enforcing water pollution control programs. The bill establishes a \$150 million a year grant fund for water infrastructure improvements for small communities and a \$150 million a year grant fund for coastal localities, contingent on full funding of the SRF.

■ Nonpoint Source Discharges

Nonpoint source discharges include runoff from rural fields, urban streets, and other areas.

The bill strengthens the existing Section 319 nonpoint source program by authorizing \$1 billion over five years

for State program grants and establishing a new State revolving loan fund that is dedicated to control of nonpoint sources and is capitalized at \$2.5 billion over five years.

The bill requires States to develop and implement nonpoint source management programs that must include goals for achieving water quality standards as soon as practicable, but no later than 15 years from the date of program approval. If a State does not develop an appropriate program, the Environmental Protection Agency (EPA) must develop and implement a program for the State.

The bill requires EPA to develop guidance on model management practices and measures. The committee expects that States will work with conservation districts and other local groups to tailor management measures to best address specific situations and to rely first on voluntary measures. States also have the authority to require enforceable measures for the control of nonpoint source pollution. However, the bill expresses the belief that nonpoint source programs should be built upon a foundation of voluntary initiatives that represent that approach most likely to succeed in achieving the objectives of the Act.

■ Stormwater

The current stormwater permitting program, Section 402(p) of the Act, was added in 1987. This section required industrial facilities and municipalities with populations over 250,000 to obtain permits for stormwater discharges by February 4, 1991, and municipalities with populations over 100,000 to obtain permits by February 4, 1993. However, EPA did not promulgate its stormwater permit regulations until November 1990. EPA administratively extended the deadline by which such dischargers were to have filed individual permit applications or obtained coverage under a general permit to October 1, 1992 (which extension was subsequently approved by Congress).

The purpose and requirements of stormwater discharge permits remain unclear. The statute currently requires permits for industrial discharges to meet all applicable requirements of Sections 402 and 301. Permits for municipal stormwater discharges are required to reduce

From House Committee on Transportation and Infrastructure Report 104-112 on H.R. 961, the Clean Water Act Amendments of 1995.

the discharge of pollutants to the maximum extent practicable. Compliance with these requirements is to be achieved no later than three years from the date a permit is issued.

The bill replaces the current Section 402(p) permitting program with new Section 322 State stormwater management programs. The bill requires States to develop stormwater management programs within four years and to meet the goal of attainment of water quality standards for stormwater within 15 years of program approval. To meet that goal, States have the flexibility to target receiving waters and sources of stormwater discharges. The premise of the program is that pollution prevention measures are most likely to result in attainment of the goal of achieving water quality standards. Accordingly, State controls begin with enforceable pollution prevention plans and may proceed to general and site-specific permits as determined to be necessary by the State.

■ Flexibility and Increased State Role

Many parties testified to the need to increase State and local flexibility to prevent the Act from imposing "one-size-fits-all" standards and requirements that do not reflect regional and local differences. Flexibility is necessary to achieve the greatest environmental benefits from scarce resources.

The bill responds to this concern in a variety of ways. It allows States to take into account the unique nature of streams in arid areas when establishing water quality standards. The bill allows EPA or States to modify technology-based permit requirements to allow dischargers to take pollution prevention measures or to engage in pollution trading, provided there is reduction in overall discharges and a net environmental benefit.

The bill also provides relief from the application of secondary treatment requirements for municipal wastewater treatment facilities that discharge from ocean outfalls. This flexibility addresses concerns expressed by communities faced with the prospect of spending billions of dollars for secondary treatment that will provide questionable added environmental benefit.

The bill allows municipal treatment works to impose local pretreatment limits on facilities that introduce pollutants into the treatment works, in lieu of national categorical pretreatment standards, provided the treatment works demonstrates that it will remain in compliance with its effluent limits, sludge quality standards, air emissions limits, and all other applicable State requirements. Thus, the bill provides relief from otherwise redundant treatment

H.R. 961 – Contents

Title I:	Research and Related Programs
Title II:	Construction Grants
Title III:	Standards and Enforcement
Title IV:	Permits and Licenses
Title V:	General Provisions
Title VI:	State Water Pollution Control Revolving Funds
Title VII:	Miscellaneous Provisions
Title VIII:	Wetlands Conservation and Management
Title IX:	Navigational Dredging

that may occur if a facility must install equipment to meet national categorical pretreatment standards before discharging to a POTW (publicly owned treatment works) that already has established local pretreatment limits to prevent pass-through of toxics and already adequately treats the indirect discharger's wastes.

■ Small Communities

The impacts of the Clean Water Act mandates fall particularly hard on small communities. Several provisions of the bill relating to funding, technical assistance, and regulatory relief address this concern.

Relating to funding, the bill provides up to \$250 million in grants for wastewater treatment plants at hardship coastal communities and communities with a population of 75,000 or fewer. The bill requires EPA to issue guidance on simplified procedures for communities with populations of 20,000 or fewer to obtain assistance from the SRF. Disadvantaged communities are eligible for extended repayment schedules of up to 40 years and negative interest rates as low as negative 2 percent on SRF loans. States may use up to 2 percent of SRF grants for technical assistance to small communities.

The bill establishes a technical assistance "circuit rider" program for rural and small POTWs and authorizes \$10 million for this program.

The bill provides regulatory relief by allowing EPA or a State to modify secondary treatment requirements for POTWs serving communities with a population of 20,000 or fewer if the effluent is from domestic users and the treatment works has an alternative treatment system that is



Recent Action in the Congress

The last time Congress amended the Clean Water Act was in 1987. Reauthorizations under those amendments (P.L. 100-4), including grants to States for wastewater treatment projects, have expired, and in recent years Congress has made several attempts to revise and extend the law.

In both the 102nd and 103rd Congresses, Senate and House committees held hearings and considered water quality legislation but did not act on a reauthorization bill.

■ 103rd Congress

In May 1994, the Senate Environment and Public Works Committee reported a comprehensive reauthorization bill (S. 2093) that, among other provisions, continued assistance for wastewater treatment through Fiscal Year 2000, further regulated industrial toxic pollutant discharges, regulated activities in wetlands areas, and expanded and increased funding for the Act's nonpoint source management program.

In the House, similar legislation (H.R. 3948) was introduced in March 1994, following oversight hearings held by the Public Works and Transportation Committee in 1993. The House bill was less extensive than S. 2093. In September, because of the controversy surrounding various provisions of the bill, the committee abandoned efforts to reauthorize the Clean Water Act during the 103rd Congress. Since the legislation was stalled in the House, the Senate followed suit.

■ 104th Congress

The House moved quickly in 1995 on Clean Water Act reauthorization legislation, passing a comprehensive reauthorization bill, H.R. 961, on May 16, by a vote of 240 to 185. During the floor debate, the House adopted 16 amendments to the committee bill, among them:

- An amendment by Rep. Sherwood Boehlert (NY-R) to repeal a program under the Coastal Zone Act requiring

coastal States to develop enforceable nonpoint source control programs. The Boehlert amendment modified existing requirements, giving States additional compliance time.

- An amendment by Rep. Steve Largent (OK-R) to reduce funding for State Revolving Loan Fund (SRF) capitalization grants and to eliminate a provision in the committee bill that would have established a \$500-million-per-year SRF for nonpoint pollution control.
- An amendment by Rep. William O. Lipinski (IL-D) providing a new State-by-State allotment formula for distribution of SRF capitalization grants.
- An amendment by Rep. Frank Riggs (CA-R) to allow increased volumes of treated wastewater to be discharged into waterways as long as water quality is not degraded.

The House rejected 20 amendments that were intended to modify the most controversial features of the bill, including amendments related to water quality standards, classification and delineation of wetlands, property owner compensation under the wetlands title of the bill, stormwater permitting, risk assessment, and cost-benefit analysis.

■ Outlook

There has been no legislative action on the Clean Water Act in the Senate this session; however, the Senate Environment and Public Works Committee plans to hold hearings and draft a bill early in 1996.

Meanwhile, H.R. 961 has been endorsed by many industry groups and State and local governments, but is opposed by the Clinton Administration and environmental groups. A May 10 White House statement said that the Administration "strongly opposes" the bill because it "threatens to undermine achievements in cleaning up the Nation's waters."

PRO

Should Congress the Clean Water Act

Honorable Bud Shuster

United States Representative, Pennsylvania, Republican

Congressman Shuster, of the Ninth District of Pennsylvania, has served in the House of Representatives since 1972. He is Chairman of the Transportation and Infrastructure Committee, and a member of the Intelligence Committee. The following is from the House floor debate of May 10, 1995, on H.R. 961, the Clean Water Act Amendments of 1995.

**"What does this bill do?
It gives more flexibility to
the State and local water
quality officials. It is a
fundamental shift from
the current Federal,
top-down approach."**

I rise in strong support of H.R. 961, the Clean Water Act Amendments of 1995.

This debate is essentially between two groups: the professional environmentalists, the Washington-knows-best crowd, the EPA [Environmental Protection Agency], the career bureaucrats, and the lobbyists on the one hand and the rest of America on the other hand.

This bill, contrary to some of the fiction that is being spread about, keeps the goals of the successful clean water program while it fixes the problems that we have uncovered.

What does this bill do? It gives more flexibility to the State and local water quality officials. It is a fundamental shift from the current Federal, top-down approach. Those who oppose the approach in this bill are saying that they do not trust the governors and the State regulators.

This bill requires EPA to subject its mandates and its regulations to risk assessment and cost-benefit analysis. In a major victory for common sense, this bill gives State and local government the flexibility to manage and control stormwater like other forms of runoff. This bill provides market-based approaches allowing for trading in certain circumstances to provide the most cost-effective pollution reduction.

This bill addresses unfunded mandates by providing regulatory flexibility. The bill reduces the cost of unfunded mandates, particularly in the area of stormwater management, where billions of dollars can be saved.

Cities estimated that the unfunded Federal mandates in the Clean Water Act cost the cities \$3.6 billion in 1993. Grand Rapids, Michigan, a city of 250,000 people, had to spend \$400,000 preparing its stormwater permit. The average cost exceeds \$600,000. Tulsa, Oklahoma, had to spend \$1.1 million just on its permit application, without solving the problem at all.

The bill also reforms the wetlands program. It provides for comprehensive reforms to the beleaguered wetlands permitting program. No longer will we have a situation, as in Morristown, New Jersey, where the pilot was unable to see down the runway, and they were told they could not cut down a tree that was blocking the view because it was a wetland. Or in Muncie, Indiana, an 80-year-old farmer, who had farmed his land all his life and his father and grandfather before him, inadvertently broke a water pipe and it flooded the field. They went in and told him he was no longer allowed to farm because it was a wetland.

Continued on page 302

Pass H.R. 961, Amendments of 1995?

Honorable Norman Y. Mineta

United States Representative, California, Democrat

Congressman Mineta, of the Fifteenth District of California, has served in the House of Representatives since 1974. He is Ranking Minority Member of the Transportation and Infrastructure Committee. The following is from the House floor debate of May 10, 1995, on H.R. 961, the Clean Water Act Amendments of 1995.

Americans know that there is very little as important in their daily lives as clean water. Their health depends on it, the quality of life in their community depends on it, and the prospects for economic growth depend on it. That is why Americans hold in such high regard the efforts we have made over the past two decades to clean up our Nation's rivers, lakes, and coastal areas.

Americans know they cannot clean up the water in their own community by themselves, because the pollution in their water comes from others upstream, maybe even in another State. It may come from a factory, it may come from a sewage treatment works, it may come from a feedlot — but what somebody else in another jurisdiction puts in the river becomes one of the most important issues in their lives. They drink it, their kids swim in it, they rely on a supply of clean water to attract new jobs to their area.

That is why we have a Federal Clean Water Act. And that is why we should not weaken the Clean Water Act now on the books.

There are many complex provisions in the Clean Water Act. But what matters most to the majority of Americans is that somebody is limiting the amount of pollution being dumped into the river upstream from them by factories and by sewage treatment works. That is what the American people want. That's what they have in the existing Clean Water Act. And that is exactly what this bill would take away from them.

This is a bill by and for major polluters.

There are differences of opinion about how to fix problems in the stormwater program. There are differences of opinion about how to fix the wetlands program. There are differences of opinion about whether or not we should do more to deal with pollution which runs off farms.

But when you get to the core of the clean water program, and you ask the question whether factories and sewage treatment works should be able to do less treatment than they are doing today before they discharge into the river, very few Americans would say that is what they want. Some want factories and sewage treatment works to do more, but very few think they should do less.

Yet that is exactly what this bill would do. Over a hundred pages of this bill are rollbacks, waivers, and loopholes for factories and sewage treatment works to dump more pollution upstream than they are allowed to today. Americans did not march in here and ask for that.

"Over a hundred pages of this bill are rollbacks, waivers, and loopholes for factories and sewage treatment works to dump more pollution upstream than they are allowed to today."

Continued on page 303

"There are hundreds and thousands of horror stories of the excessive regulation of wetlands, and this bill attempts to cure that."

There are hundreds and thousands of horror stories of the excessive regulation of wetlands, and this bill attempts to cure that. In fact, we have heard today about the National Academy of Sciences [NAS] coming out with its wetlands approach and alleging that our approach is not scientific. Well, there is absolutely no scientific approach in the original clean water bill, because the original clean water bill does not even mention wetlands.

Beyond the wetlands issue, our bill provides renewed investment in our Nation's clean water infrastructure. We provide over \$3 billion a year authorized for this program. We provide more money than has previously been provided. Indeed, in spite of all the money we provide, clean water costs in 1996, estimated by EPA, are \$23 billion for our country. Yet the total Federal environmental grants to State and local governments will total a little over \$3 billion. In fact, EPA estimates that the States face long-term clean water capital needs of over \$137 billion over the next 20 years.

There has been a concerted effort to mischaracterize the provisions of this bill. This bill does not, as has been alleged, abolish a requirement that industry treat contaminated water for toxic chemicals and heavy metals for discharging it into urban reservoirs.

The bill allows for the removal of redundant pretreatment requirements before industry sends their wastewater to municipal treatment plants. Those plants must still enforce local pretreatment standards that prevent pollutants from interfering with or passing through the treatment works.

This bill does not wipe out the coastal nonpoint program and, as some claim, make nonpoint programs weaker everywhere. The bill authorizes more funding for nonpoint programs. It retains environmental safeguards such as achieving water quality standards while providing more flexibility in getting there.

It repeals the controversial coastal zone provision, but it includes the successful components in the national nonpoint program. It eliminates two separate nonpoint programs, but it combines them into one in a victory for both State flexibility and regulatory reform.

I would urge my colleagues to support the bill we bring to the floor today, which has strong bipartisan support.

Honorable Pat Roberts

United States Representative, Kansas, Republican

Congressman Roberts, of the First District of Kansas, has served in the House of Representatives since 1980. He is Chairman of the Agriculture Committee, and a member of the House Oversight Committee. The following is from the House floor debate of May 10, 1995, on H.R. 961, the Clean Water Act Amendments of 1995.

I rise in strong support of H.R. 961, the Clean Water Amendments of 1995, as reported by the Committee on Transportation and Infrastructure.

As the committee noted in its report, the Clean Water Act was last amended in 1987 and most of its authorizations expired in 1991. Because past Congresses could

Continued on page 304

How did all these rollbacks, loopholes, and waivers for big industry and big sewage treatment works get into this bill? Almost none of them were in the introduced bill. Almost none of them were in the bill we held hearings on. Almost all of them first appeared after hearings were over and right before we went into markup, at which point the bill roughly doubled in size.

What do these hundred-plus pages do?

These rollbacks, loopholes, and waivers sometimes repeal a requirement outright; they are sometimes written as though they are a waiver at the discretion of the regulating agency, but under the bill the agency in fact would have no discretion; and they are sometimes written as though it really is up to the regulating agency, but if the agency says no, the polluter will have new grounds to sue and to tie the issue up in courts for years, while the pollution continues. This is, in fact, one of the worst features of this bill, because it will make the Clean Water program more like the Superfund program, all litigation and no clean-up.

This bill has many other features which are contrary to the public interest.

It attempts to fix the wetlands program, but in so doing eliminates 60 to 80 percent of all wetlands from the program, including parts of the Everglades. It directly contradicts the National Academy of Sciences [NAS] study just released, and it puts huge new cost burdens on taxpayers.

It attempts to fix the stormwater program as it affects cities, but then uses that as an excuse to virtually eliminate the stormwater program as it affects industrial sites.

It adds billions to the deficit just in the next three years, and much more beyond that, according to OMB [Office of Management and Budget].

It adopts a version of risk assessment which was rejected on the floor of the House after the advocates of risk assessment argued it would be unworkable.

And it would result in increased costs to many municipal ratepayers who will have to try to pay for more pollution clean-up because others are doing less.

But the worst thing it does is to allow factories and sewage treatment works, upstream from somebody else's town, somebody else's property, somebody else's drinking water intake, to pollute more than they do today. That is wrong, and we should not allow that to happen. In some cases, industries would be turning off treatment facilities they have already built and are successfully operating. Whatever you think about wetlands or stormwater or feedlots, there is no excuse at the end of the day for voting yes on a bill that allows factories and sewage treatment works to do less than they are already doing.

I and other Members will offer amendments to strike these industrial and sewage rollbacks. But if we are not successful, then I would urge you to vote no on the bill itself. Make no mistake about it, this Nation would be better off, and our people would enjoy cleaner water, if we passed no bill than if we passed this bill.

If we defeat this bill we can go back and do what we should have done all along — produce a moderate bill which fixes the wetlands program without throwing out most wetlands protection and raiding the Treasury; which fixes the municipal stormwater situation; which provides the basic authorization; and which, unlike this bill, can be signed into law.

**“ . . . this bill . . . will
make the Clean Water
program more like the
Superfund program, all
litigation and no clean-up.”**

Cons, continued on page 305

Current Programs

Continued from page 292

rich in some of the smaller forms of aquatic life that provide food for larger species. Yet, sediments also are areas where pollutants can settle and accumulate, thus harming species that reproduce and live there.

The growing concern with total ecosystem health has led to interest in expanding the scientific and regulatory tools available to protect these areas. EPA has begun to develop a new range of scientific criteria to serve as the backbone for State water quality standards and potentially for greater control requirements on pollution sources. The scientific task is more complex than was true when the agency focused on individual chemicals; it is also more resource-intensive, and methodologies are less well developed.

Wetlands are special critical areas. The marshes, bogs, and swamps that constitute many wetlands were long viewed as waste lands to be drained and converted to more productive use. Yet, as the habitat, flood control, and other functions of wetlands have been identified, efforts to protect those areas have grown. Activities in wetlands are regulated by a permit program under Section 404 of the Clean Water Act. Section 404 has evolved through judicial interpretation and regulatory change to become one of the principal Federal tools used to protect wetlands.

Unlike the rest of the Act, the permit aspects of Section 404 are administered by the U.S. Army Corps of Engineers, using EPA guidance. Other Federal agencies, including the Fish and Wildlife Service and Soil Conservation Service, have significant but more limited roles in the Corps' permitting decisions. Tension has existed for many years between the regulation of activities in wetlands under Section 404 and related laws, on the one hand, and the desire of landowners to develop lands that may include wetlands, on the other hand. Congress has not amended Section 404 since 1977, when it provided regulatory exemptions for categories of routine activities, such as normal farming and forestry.

■ Other Issues

Industrial Pretreatment and Toxic Pollutant Control. Another area that has received attention as part of the water quality agenda is programs in the Act to restrict industrial discharges to municipal sewers by requiring industries to pretreat the most toxic of those materials before discharge. EPA data indicate that twice the volume of industrial toxics

are discharged to sewers than are treated and discharged directly to surface waters, and some are seeking to strengthen the pretreatment program, since municipal wastewater plants are not principally designed to treat industrial wastes.

Market Incentives. EPA in particular has begun to discuss options for using market-based approaches to solving remaining water quality problems. New strategies would supplement, not replace, current regulatory approaches in the Act, but theoretically would allow for more flexibility and economic efficiency to achieve overall objectives. Among the options being discussed are: allowing "trading" between point and nonpoint sources to control nutrients such as phosphorus and nitrogen; establishing wetlands mitigation "banks" to compensate in advance for adverse impacts caused by wetlands development; and assessing effluent fees based on toxicity of the discharge. Although many of these ideas are not new, they are receiving more attention. Some concepts were incorporated in the 1990 Clean Air Act Amendments (P.L. 101-549), for example, which allows emissions trades among sources that are subject to acid rain reduction requirements. A wide-ranging Administration plan to "reinvent government," announced in September 1993, included a proposal to use market-based approaches in reducing water pollution.

Enforcement. A number of enforcement issues may be considered, such as whether to allow citizens or government to bring legal action over past violations of the Act, and provide that civil penalties may be used to fund beneficiary water quality projects instead of being deposited in the U.S. Treasury. EPA's "Green Book" of clean water proposals recommended a number of initiatives to clarify enforcement provisions of the Act and ensure compatibility between enforcement under the Clean Water Act and other environmental laws.

Stormwater. Stormwater discharge systems are the pipes and sewer lines that carry rainwater or snow melt (but not sanitary wastes) away from urban areas and commercial and industrial facilities. Because stormwater can transport significant amounts of pollutants, the 1987 amendments directed EPA to implement a specific permit program for stormwater discharges from industrial sources and municipalities. Delays in issuing regulations, coupled with high compliance costs (especially for some cities) have brought stormwater back as a legislative issue.



United BioEnergy Commercialization Association

HEADQUARTERS:

501 School Street
Suite 500
Washington, DC 20024
(202) 479-2748

MAILING ADDRESS:

7164 Gateway Drive
Columbia, MD 21046

CONTACT US AT:

(301) 621-3002
Fax: (410) 423-2195
www.ubeca.org
jbadin@energetics.com

Joseph Badin
Executive Director

UBECA BACKGROUND INFORMATION

The United BioEnergy Commercialization Association (UBECA) was formed in 1994 to encourage the development of sustainable biomass resources and economically competitive biomass energy conversion technologies for the benefit of electric utilities, power producers, fuel suppliers, their customers, and society. Electric utilities and other power producers joined together to form the nonprofit association in collaboration with the Electric Power Research Institute (EPRI) and the U.S. Department of Energy (DOE). Building upon the experience of its members, UBECA is responding to the challenge of commercialization by defining appropriate commercialization paths for various biomass technologies. UBECA also provides contacts and facilitates joint development projects as and where appropriate.

UBECA activities reflect the needs of the marketplace. Of significant near-term interest to UBECA members is cofiring biomass with coal. This technology, which can reduce coal consumption by as much as 15%, has been demonstrated at several power plants to be technically feasible. Because the possibility of cofiring in coal-fired facilities exists today, this pathway can be a near-term contributor to greenhouse gas reduction. In addition to cofiring, UBECA's interests extend to advanced gasification technologies and to promoting the use of forest and agricultural residues, short rotation woody crops such as poplar and willow, and dedicated herbaceous energy crops such as switchgrass.

Located in the Washington, D.C. area, UBECA maintains close contact with several federal agencies including the Department of Energy's Office of Energy Efficiency and Renewable Energy which administers the DOE Office of Biomass Power. UBECA also maintains contact with the Federal Energy Technology Center (FETC), the National Renewable Energy Laboratory (NREL), Sandia National Laboratory, and the Oak Ridge National Laboratory. Along with other leading institutions, these organizations are working to develop low-cost, high-quality biomass feedstocks and efficient technologies for converting those feedstocks to energy.

UBECA publishes a weekly newsletter which is distributed to members by electronic mail. The newsletter is a digest of articles and news briefs covering issues relating to biomass, global climate change, national energy policy and the restructuring of the electric power industry. Congressional actions that might affect the progress of renewable energy research and development are also reported.

UBECA maintains an active information exchange with other allied trade associations, and sponsors an annual conference in November. This meeting serves as a forum for the discussion of issues relating to the promotion of biomass, and are an excellent opportunity to meet people who are actively engaged in biomass projects. Speakers from government and industry, including economists, scientists, engineers, and venture capitalists are invited to present papers on topics ranging from feedstock development to financing of biomass power projects.

UBECA maintains a site on the World Wide Web which contains additional information about the organization as well as links to other biomass sites. The URL is <<http://www.ubeca.org>>.

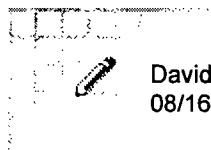
UBECA is managed by Energetics, Incorporated



Printed on Recycled Paper

POWER PLANT FACTS

- Air pollution from power plants is a serious public health threat. EPA estimates that the Moynihan bill (50% reduction in Sox and 60% reduction in Nox beyond current levels) generates \$31.4 billion in benefits from reductions in fine particles alone. Sulfur dioxide is the major contributor to fine particles (soot) that are a particular public health problem, exacerbating various lung diseases and causing premature death. Nitrogen oxides contribute to smog which worsens asthma and other lung diseases.
- Power plants are a major source of these pollutants. According to EPA, the power generation sector is responsible for 29% of national nitrogen oxide emissions, 67% of sulfur dioxide emissions, and 39% of carbon dioxide emissions. 33% of mercury emissions come from electric utilities, although this number will change as new EPA rules applying to the largest current source, incinerators, come on line in the next few years.
- Grandfathered power plants are among the largest sources. Power plants that are 25 years or older are responsible for 18.3% of all carbon dioxide emissions in the U.S.



David Gardiner
08/16/99 04:52:46 PM

Record Type: Record

To: George T. Frampton/CEQ/EOP@EOP, Roger S. Ballentine/WHO/EOP@EOP
cc: See the distribution list at the bottom of this message
Subject: Jeffords Bill summary for Tuesday's environmental group meeting

SUMMARY OF JEFFORDS BILL

The Jeffords electricity restructuring bill proposes five elements related to the environment and greenhouse gases -- emission caps, a Public Benefits Fund, a Renewable Portfolio Standard, net metering, and consumer information disclosure. The Administration opposes the emission caps, and favors a different Renewable Portfolio Standard. The provisions on the Public Benefits Fund, net metering and consumer information disclosure are similar to the Administration's positions. The Pallone bill is similar to the Jeffords bill, except that it has a Renewable Portfolio Standard that is the same as the Administration's position.

Specifically, the bill would:

- Establish a single national standard or emissions cap for four pollutants -- nitrogen oxide, sulfur dioxide, carbon dioxide and mercury. All combustion power plants larger than 15 megawatts must meet requirements under the cap by 2005. It is designed to return carbon dioxide emissions from these facilities to their 1990 levels. The bill also creates an emissions trading program for all pollutants based on a generation performance standard. The Pallone bill has the same provisions, except that the caps apply to 22 Eastern states in 2003, and then expand to the 48 states and the District of Columbia in 2005.
- Creates a Public Benefits Fund of \$6 billion to provide matching funds for renewable and alternative energy, energy efficiency, affordability, and universal access programs.
- Establishes a minimum Renewable Portfolio Standard that requires utilities to produce a percentage of their power from renewable sources. The standard begins at 2.5% in 2000 and rises to 20% by 2020. The standard would be 10% in 2010. The Administration favors a standard of 7.5% in 2010. The Pallone bill is identical to the Administration's position on this matter.
- Requires electric companies to connect customers to the power grid with a meter that measures the flow of electricity in both directions, thus allowing consumers to generate their own electricity and sell it into the grid. The customer is only charged for the net amount of

electricity used.

- Requires utilities disclose to their customers information about the generation source, emissions, and price of their electricity.

Message Copied To:

Jefferson B. Seabright/WHCCTF/EOP@EOP
Beth A. Viola/CEQ/EOP@EOP
Daniel Sakura/CEQ/EOP@EOP
Ian Bowles/CEQ/EOP@EOP
Linda Lance/CEQ/EOP@EOP

February 25, 2000

To: John Podesta
cc: George Frampton
Roger Ballentine

From: David Hawkins, NRDC, on behalf of Green Group Climate Committee

Re: Integrated Powerplant Clean-up Policies

At our meeting with you on February 3 you requested additional information on two issues:

- developments in electric industry views regarding pollution control programs; and
- the relative costs of 3-pollutant versus 4-pollutant control proposals.

Attached are two memos on these topics. Please feel free to have your staff contact me (202-289-6868 or dhawkins@nrdc.org) for any additional follow-up.

Factors Promoting Electric Generator Support for Comprehensive Clean-up Bills

Two converging trends are building interest among some members of the electric generating industry for integrated multi-pollutant powerplant clean-up bills. First, operators face increasing regulatory and judicial liability for additional air pollution controls and significant uncertainty about the timing and magnitude of these obligations. This uncertainty can increase investment risks for generating companies. Second, acceleration of economic deregulation and introduction of competition in the electric generating sector changes the calculus of the traditional “fight and delay” strategy on environmental regulation.

I. Growing Clean-up Demands

Fossil electric generators are major sources of sulfur oxides (SO_x), nitrogen oxides (NO_x), mercury (Hg) and carbon dioxide (CO₂). Regulations requiring significant additional reductions in these pollutants either have been adopted, are under active consideration, or may be adopted during the next decade. While some existing rules have been challenged in the courts and remanded, few observers believe that these control efforts are dead. In addition, well-funded activist campaigns for multi-pollutant powerplant control legislation are making progress at State and Federal levels. Bipartisan bills (Jeffords/Lieberman and Waxman/Boehlert) have been introduced in both Houses of Congress and the environmental community is active in building support for these bills. Finally, suits to enforce the existing New Source Review requirements have been filed by Federal and State governments and by environmental groups. The potential financial liability flowing from these suits is large.

Traditionally, the industry strategy to confront these controls efforts has been to prolong debate and defer the adoption and implementation of new pollution targets for as long as possible. Many in the industry continue to practice this approach. However, there is evidence that the industry is less monolithic, due to emerging competitive pressures and other changes in the economic regulatory landscape.

II. Challenges of Deregulation and Competition

Traditionally, electric generating firms have viewed any new environmental proposal as a production cost adder and therefore something to oppose. However, with the emergence of wholesale-market competition several years ago, companies with cleaner generating assets (or with plants located in areas with a high certainty of added control requirements) have analyzed their situation in a new way. They have realized that what is most important is the impact new air pollution control requirements on their competitive position in the marketplace. Owners of plants already subject to more stringent controls now operate at a competitive disadvantage to firms with a large amount of grandfathered capacity. “Cleaner” firms have recognized that establishing tight caps for the industry with allocations based on a uniform performance standard would eliminate the competitive disadvantage caused by today’s disparate air pollution requirements.

Other changes driven by competition create pressures for owners of dirty generating plants as well. Companies are now actively buying and selling existing generating plants. Uncertain future pollution requirements increase the risks to buyers and sellers in these multi-billion dollar transactions. The sale price of an existing plant is a function of how much future revenue it is expected to produce. The stringency and timing of new pollution control requirements will be a major determinant of whether a particular plant's operating costs will be above or below the competitive market price for electricity. And small differences in operating costs will make large differences in how much individual plants run in a competitive market. Today, sellers and buyers are simply guessing about the regulatory future and many are almost certainly guessing wrong. Firms buying and selling plants would value certainty about near- to mid-term policy control requirements as an aid to more accurate determination of asset value.

Competition is also forcing existing firms to think broadly about their strategy to define a successful market position after their monopoly status disappears. The lack of certainty about pollution control requirements complicates analysis of which strategy is best for a particular firm. In the past, delay in adoption of new control requirements was a winning strategy for nearly all firms. When the new requirements eventually were adopted, firms would simply seek rate increase approvals to cover their costs. As economic deregulation progresses, more and more firms will not be able to pass through these compliance costs. The sooner they know the details of new control requirements, the more opportunities they will have to pursue cost-minimizing strategies.

In short, electric generating firms have something to gain from early adoption of an integrated program to lay out their pollution controls obligations for the next decade. While many of them will undoubtedly seek lenient targets and long compliance schedules in such a policy, other firms will support stronger, more rapid action to prevent "dirty" incumbents from securing unbreakable market positions before controls are imposed. This fracturing of industry interests provides opportunities to craft an environmentally strong program that can win passage in the next few years.

The Clean Energy Group, an association of nine generating and distribution companies, has been formed to advocate comprehensive clean-up policies. * Other utilities in the midwest and south, including Cinergy, First Energy, WEPCO, and TVA, while currently opposing Waxman and Jeffords targets, have expressed some interest in integrated policy proposals as well.

* Clean Energy Group members include Consolidated Edison, KeySpan Energy, Niagara Mohawk Power, Northeast Utilities, PECO Energy, PG&E Generating, Public Service Electric and Gas, Rochester Gas and Electric, and Sempra Energy.

Cost Implications of 3-Pollutant v. 4-Pollutant Powerplant Bills

We have been asked to discuss the comparative compliance costs of three different policy scenarios to control air pollution from electric generators:

- a bill requiring large reductions in nitrogen oxides (NO_x), sulfur dioxide (SO_x), mercury (Hg);
- a bill reducing these three pollutants and capping carbon dioxide (CO₂) at 1990 levels;
- a 3-pollutant bill followed by a CO₂ cap bill several years later.

A program that requires reductions in the four major air pollutants from electric generation is likely to have somewhat higher compliance costs than one that controls only the first three pollutants. However, if programs to limit CO₂ are adopted after a 3-pollutant program is enacted, total compliance costs will be higher than if control targets for all four pollutants had been set in one integrated program.

An analysis by EPA in 1997 examined the comparative costs of a NO_x and SO_x control program, a CO₂ cap at 1990 levels, and a combined program reducing all three pollutants. Mercury was not included and the SO_x and NO_x reductions were not as large as required by the Waxman and Jeffords bills. However, the results do demonstrate the benefits of a combined program in reducing total compliance costs. EPA's analysis found annual compliance costs (1995 \$) of \$4.3 billion for a NO_x/SO_x program only, \$3.8 billion for a CO₂ cap only and 5.8 billion for a combined program addressing the three pollutants. Thus, assuming a policy decision to control NO_x and SO_x from powerplants, the incremental compliance costs for capping CO₂ at 1990 levels is \$1.5 billion if all targets are established at the same time.

To put these cost estimates in context, current US expenditures on electricity are about \$215 billion a year. Over the next decade as restructuring introduces competitive efficiencies, DOE projects savings of \$20-40 billion in electricity costs. Going forward now with an integrated clean-up program would give families a "green" dividend from restructuring and still leave bills lower than before.

The reason a combined program is less costly than separately adopted programs is straightforward. As discussed in more detail below, if reduction targets for only the three "conventional" pollutants are set, there will be a heavier reliance on retrofits of existing coal capacity with devices that reduce only one or two pollutants and do not reduce CO₂. In contrast, adopting a 4-pollutant bill will promote greater reliance on replacement of some existing coal capacity with gas, since that strategy will achieve simultaneous reductions in all four pollutants.

We are not aware of any completed studies that have compared the compliance costs of programs with targets at the Waxman and Jeffords levels with and without a carbon cap. However, pending completion of such analyses, we can make some useful qualitative points.

All analyses predict the electric industry would comply with a bill requiring large (>70-90%) reductions in “conventional” pollutants (SO_x, NO_x, and Hg) in three basic ways:

1. a substantial fraction of existing coal capacity would be “retrofit” with control devices for SO_x, NO_x, and Hg;
2. some fraction of existing coal capacity would be retired and replaced by new gas (and some renewable) capacity;
3. in addition, some of the remaining coal capacity would likely be run at lower generating rates, with more dispatch to lower-emitting gas units.

Even without an explicit CO₂ cap there will be some CO₂ benefits *if* companies rely significantly on strategies 2 and 3 and less on strategy 1. The assumptions analysts make about the costs of retrofit devices, the other operating costs for existing coal plants, the costs of new gas plants, and the future costs of gas, determine the forecasted degree of reliance on retrofits versus retirements and fuel switching in the models used to analyze compliance costs.

Absent an explicit CO₂ cap, the amount of carbon reduction that results from a NO_x/SO_x/Hg control bill is directly related to how much coal generation is predicted to be replaced with gas. Using different assumptions about relative coal and gas generation costs, analysts have forecast that similar NO_x/SO_x/Hg control proposals would accomplish carbon reductions ranging from only modest changes from business as usual to reductions bringing the industry most of the way back to 1990.

Assuming the same level of NO_x/SO_x/Hg reductions, we can be confident that an analysis will forecast greater reliance on retrofits for a program without a CO₂ cap and greater reliance on coal retirements in a program with a CO₂ cap. Every megawatt-hour of coal generation that is replaced by gas reduces all four pollutants, while retrofits reduce only one or two pollutants and do not reduce CO₂. Hence if firms know that a CO₂ target is part of the program they will use fewer retrofits and replace more coal with gas generation.

Compared to a decision to support a 4-pollutant bill, a scenario of enacting a 3-pollutant program with delayed decision-making on CO₂ has clear cost risks. A decision *not* to include CO₂ in a powerplant clean-up bill is itself a strong signal. It is likely to be interpreted by many in the industry as indicating that if future CO₂ controls are adopted, it will be only after substantial delay. This view would cause them to rely more heavily on retrofits as the apparent short-term least-cost compliance strategy. Having done so they would fight any attempt to put CO₂ on the control agenda within a few years of passage of a 3-pollutant bill with the argument that their retrofit investments would be “stranded.” Thus, delay in adoption of a CO₂ target will almost certainly increase the total costs of the program if it can be enacted.

As an example of current piecemeal thinking by electric companies, the successful purchaser of the 30-year-old Centralia power plant in Washington intends to spend about \$200 million on SO_x and NO_x controls. This decision does nothing to reduce CO₂; instead it is a significant additional investment in coal at a plant site located next to a gas transmission line.

To provide more quantitative information on costs of integrated programs, we recommend that EPA be asked to conduct a direct cost comparison of three policy options:

1. a 3-pollutant bill with reductions of 70-90% in NO_x, SO_x, and Hg;
2. the option 1 bill integrated with a CO₂ cap at 1990 levels; and
3. the option 1 bill followed by a CO₂ cap bill enacted five years later.

Clinton Presidential Records Digital Records Marker

This is not a presidential record. This is used as an administrative marker by the William J. Clinton Presidential Library Staff.

This marker identifies the place of a publication.

Publications have not been scanned in their entirety for the purpose of digitization. To see the full publication please search online or visit the Clinton Presidential Library's Research Room.

VALLEY



ANNUAL ENVIRONMENTAL REPORT

TVA

Lethal Legacy

The Dirty Truth About The Nation's Most
Polluting Power Plants

By U.S. Public Interest Research Group Education Fund and
The State PIRGs
for
Clear the Air, the National Campaign Against Dirty Power
April 2000

Written by Rebecca Stanfield and Carmen Lopez of U.S. Public Interest Research Group (U.S. PIRG) Education Fund for Clear the Air, the National Campaign Against Dirty Power.

The authors wish to extend thanks to all those who assisted with this report, including: John Coequyt of the Environmental Working Group for providing estimates of mercury emissions; the Clean Air Task Force and David Schoengold at MSB Energy Associates for vulnerable populations data; and Enis Carter at Design for Social Impact for layout and graphic design assistance.

For general guidance and editorial assistance, thanks to: Anna Aurilio of U.S. PIRG, Conrad Schneider of the Clean Air Task Force, Patricio Silva of the Natural Resources Defense Council, Angela Ledford of Clear the Air, and Mark Wenzler of National Environmental Trust.

Initiated by the Pew Charitable Trusts through a grant to Pace University, CLEAR THE AIR is a joint project of three leading clean air groups, the Clean Air Task Force, National Environmental Trust and the U.S. PIRG Education Fund. Clear the Air works with grassroots organizations throughout the country to safeguard public health and the environment by reducing power plant air pollution.

The opinions expressed in this report are those of the author(s) and do not necessarily reflect the views of The Pew Charitable Trusts

Clear the Air: The National Campaign Against Dirty Power
1200 18th Street, N.W.
Washington, DC 20036
PH: 202-887-1715
Fax: 202-887-8800
E-mail: Admin@cleanerpower.org

To contact the authors:
U.S. PIRG Education Fund
218 D Street SE
Washington, DC 20003
Ph. 202-546-9707
Fax 202-546-2461
www.pirg.org

Table of Contents

Executive Summary.....	1
Methodology	5
Introduction: Electricity Generation, Public Health, and the Environment.....	6
Chart 1: 1998 U.S. Electricity Sources	6
Section 1: Health and Environmental Impacts of Power Plant Pollution.....	9
A. Ground-level Ozone or "Smog"	9
B. Fine Particulate Matter or "Soot"	10
C. Acid Rain.....	12
D. Nitrogen Loading.....	13
E. Mercury.....	14
F. Carbon Dioxide	15
Section 2: Report Findings	16
A. Sulfur Dioxide	
Chart 2: Proportion of total U.S. SO ₂ emissions from the dirty power plants	17
Chart 3: Comparison of total vs. excess SO ₂ emissions	17
Chart 4: Excess SO ₂ emissions from plants primarily fueled with coal	18
Chart 5: Excess SO ₂ emissions from plants beginning operation by or before 1977	18
Table 1: Ranking of 100 power plants emitting highest quantities of SO ₂ in 1999	20
Table 2: Ranking of states by amount of SO ₂ emitted by power plants in 1999.....	22
Table 3: Dirty Dozen holding companies, ranked by total 1999 SO ₂ emissions	23
B. Nitrogen Oxides	
Chart 6: Proportion of total U.S. NO _x emissions from 594 dirty power plants	23
Chart 7: Comparison of total vs. excess NO _x emissions	24
Chart 8: Excess NO _x emissions from plants primarily fueled with coal	24
Chart 9: Excess NO _x emissions from plants beginning operation by or before 1977	25
Table 4: Ranking of 100 power plants emitting highest quantities of NO _x in 1999	26
Table 5: Ranking of states by amount of NO _x emitted by power plants in 1999.....	28
Table 6: Dirty Dozen holding companies, ranked by total 1999 NO _x emissions	29
C. Mercury	
Chart 10: Proportion of total U.S. mercury emissions from 594 dirty power plants	29
Chart 11:	
Proportion of mercury emissions from coal plants, proportion from older plants.....	30
Table 7: Ranking of 100 power plants emitting highest quantities of mercury in 1998	31
Table 8: Ranking of states by amount of mercury emitted by power plants in 1998	33
Table 9: Dirty Dozen holding companies, ranked by total 1998 mercury emissions.....	34
D. Carbon Dioxide	
Chart 12: Proportion of total U.S. CO ₂ emissions from 594 dirty power plants	34
Chart 13: Proportion of CO ₂ emissions from coal plants, proportion from older plants	35
Table 10: Ranking of 100 power plants emitting highest quantities of CO ₂ in 1999	36
Table 11: Ranking of states by amount of CO ₂ emitted by power plants in 1999	38
Table 12: Dirty Dozen holding companies, ranked by total 1999 CO ₂ emissions.....	39
Section 3: Policy Recommendations	
A. Closing the Lethal Loophole	40
B. Standards for Power Plant CO ₂ Emissions	40
C. Standards for Power Plant Mercury Emissions	40
D. Energy Efficiency and Renewable Energy.....	41
E. Electric Industry Restructuring and Dirty Power Plants.....	41
Appendix	

Executive Summary:

Today, as we begin a new millennium, several hundred older, coal-burning power plants across the nation are still operating with out-of-date or no pollution controls. Pollution from these plants poses grave threats to public health and the environment. Some of the costs of continuing to rely on these old, dirty power plants include:

Asthma attacks and emergency room visits: A 1999 study by Abt Associates estimated that in a single ozone season of 1997, smog pollution in the eastern U.S. caused more than 6 million asthma attacks and sent more than 150,000 Americans to hospital emergency rooms.¹ Children whose lungs are still developing are especially vulnerable to these health threats, as are senior citizens and people with asthma or other respiratory disease. Power plants are the largest industrial source of the nitrogen oxide (NOx) pollution that causes smog formation.

Premature mortality: The U.S. Environmental Protection Agency (EPA) estimates that "soot," or "fine particulate" air pollution causes more than 40,000 premature deaths each year. Older-coal-burning power plants are the largest source of sulfur dioxide (SO₂), a primary component of soot.

Loss of aquatic and forest ecosystems: Due to acid rain, twenty-five percent of lakes in the Adirondacks cannot support plant or animal life.² Similarly alarming, today six percent of Virginia's native brook trout streams are incapable of supporting fish life due to acid rain.³ Moreover, the acidity of the rain and fog has caused extensive damage to forest ecosystems from the Shenandoahs, through the Adirondacks and on into Canada. Power plants are the largest source of the nitrogen (NOx) and sulfur pollution (SO₂) that causes acid rain.

Human developmental and neurological damage: Mercury pollution has contaminated the fish in thousands of U.S. lakes and streams. Today 40 states have issued warnings against consuming fish due to the risk of methylmercury exposure.⁴ When ingested by pregnant or nursing women, methylmercury can cause neurological damage, including delayed development in the fetus and young children. Coal-burning power plants are the largest known domestic industrial source of mercury.

Global Warming: The world's leading climate scientists have concluded that man-made carbon emissions are causing a rise in the Earth's temperature.⁵ Unless we can reverse this trend, they predict that global warming will have devastating ecological consequences such as sea-level rise, northward spread of insect-borne diseases such as malaria and dengue fever, and increasingly severe and frequent natural disasters such as floods, droughts and hurricanes. Power plants are the largest source of U.S. carbon dioxide (CO₂) emissions.

Eliminating these threats must be among our nation's top priorities. However, current law is inadequate to the task of cleaning up our electric industry. The Clean Air Act is riddled with loopholes allowing older plants to emit as much as ten times more SO₂ and NOx pollution than new plants, and allowing unlimited emissions of mercury and carbon dioxide from power plants.

This report documents the 1999 emissions of NOx, SO₂ and CO₂ from the dirtiest 594 power plants in the country. Each of the plants included in this report emitted at least 20 tons of "excess" NOx or SO₂, or put another way, 20 tons of pollution that would not have been permitted if the plant was required to meet modern emission standards for NOx and SO₂. In addition, the report includes estimates of 1998 mercury emissions from each plant. For each plant where information was available, the report includes the number of vulnerable people, including children under 17, senior citizens over 65, people with asthma, and people with other chronic respiratory disease including bronchitis or emphysema, living in counties falling wholly or partly within 50 miles of each plant.

¹ Out of Breath, Health Effects from Ozone in the Eastern United States. Prepared by Abt Associates for Clear the Air, October 1999.

² National Acid Precipitation Assessment Program (NAPAP), August 1998.

³ Art Bulger, et al., *Acid Rain: Current and Projected Status of Coldwater Fish Communities in the Southeastern US in the Context of Continued Acid Deposition, Trout Unlimited*, July 1998.

⁴ U.S. EPA, Factsheet, "Update: National Listing of Fish and Wildlife Advisories," EPA 823-F-005 (July, 1999), Available online at www.epa.gov/ost/fish/epafish.pdf.

⁵ Intergovernmental Panel on Climate Change, *Second Assessment Report*, 1995.

Summary of Findings:

- **Sulfur Dioxide**

Nationwide, these 594 dirty power plants emitted 12.5 million tons of SO₂ in 1999. Of this pollution, 9.4 million tons (75%) was "excess" SO₂, or would be eliminated if each plant met modern emission standards. The vast bulk of excess pollution came from older, coal-burning plants, with 89% of excess SO₂ emitted by plants primarily powered by coal, and 87% by plants that began operation of at least one unit by or before 1977.

- **Nitrogen Oxides:**

Nationwide, these 594 dirty power plants emitted 5.4 million tons of smog-forming NO_x in 1999. Of this pollution, 3.6 million tons (66%) was "excess" NO_x, or would be eliminated if each plant was required to meet modern pollution standards for NO_x. The vast bulk of excess NO_x pollution came from older, coal-burning plants, with 89% from plants primarily powered by coal, and 81% from plants that began operation of at least one unit by or before 1977.

- **Mercury**

Nationwide, older, coal-burning power plants emitted 91,422 pounds of mercury in 1998. The vast bulk of this pollution was emitted by older, coal-burning power plants, with 95% emitted by plants primarily powered by coal, and 77% emitted by plants that began operation of at least one unit by or before 1977.

- **Carbon Dioxide:**

Nationwide, these dirty power plants emitted 2.3 billion tons of carbon dioxide (CO₂) in 1999, 38% of all U.S. CO₂ emissions. The vast bulk of this pollution was emitted by older, coal-burning power plants, with 85% emitted by plants primarily powered by coal, and 74% emitted by plants that began operation of at least one unit by or before 1977.

- **Dirtiest Plants:**

For each of the four pollutants under consideration, the report ranks the dirtiest 100 plants according to total tons emitted in 1999 (for SO₂, NO_x and CO₂) and estimated emissions from 1998 for mercury. The highest emitting plants for each pollutant are:

Pollutant	Plant	State	Operating Company	Amount Emitted
SO ₂	Baldwin	Illinois	Illinois Power (Illinova)	245,243 tons
NO _x	Paradise	Kentucky	TVA	102,412 tons
Mercury	Keystone	Pennsylvania	PECO	1,911 pounds
CO ₂	Scherer	Georgia	Georgia Power (Southern Company)	23,664,019 tons

- **Ranking of the States**

For each of the four pollutants under consideration, the report ranks each state according to total tons emitted by in-state plants in 1999 (for SO₂, NO_x and CO₂) and estimated emissions from 1998 for mercury.

The top ten states for each pollutant are:

SO ₂	NO _x	Mercury	CO ₂
Ohio	Ohio	Pennsylvania	Texas
Pennsylvania	Texas	Texas	Indiana
Indiana	Indiana	Ohio	Ohio
Florida	Kentucky	Illinois	Florida

Illinois	West Virginia	Alabama	Kentucky
Texas	Florida	Indiana	Pennsylvania
West Virginia	Illinois	West Virginia	West Virginia
Kentucky	North Carolina	Kentucky	Illinois
Alabama	Pennsylvania	North Carolina	Alabama
Georgia	Missouri	Michigan	Georgia

- **The Dirty Dozen Holding Companies**

For each of the four pollutants under consideration, the report provides a list of "Dirty Dozen" companies, based on the amount of pollution emitted by plants owned by company in 1999 (for SO₂, NO_x and CO₂) and estimated emissions from 1998 for mercury.⁶ For each pollutant, the Dirty Dozen companies are:

SO ₂	NO _x	Mercury	CO ₂
Southern Company	Southern Company	Southern Company	Southern Company
American Electric Power	Tennessee Valley Authority	American Electric Power	American Electric Power
Tennessee Valley Authority (TVA)	American Electric Power	GPU, Inc.	Tennessee Valley Authority
Cinergy Corp.	Allegheny Power System	Commonwealth Edison	Texas Utilities
Allegheny Power System	Texas Utilities	Tennessee Valley Authority	Allegheny Power System
GPU, Inc.	Cinergy Corp.	Texas Utilities	Cinergy Corp.
Texas Utilities	Dominion Resources	Allegheny Power System	Entergy
Illinova Corp.	PacifiCorp	Dominion Resources	PacifiCorp
Dominion Resources	Entergy	Cinergy Corp.	Central and Southwest Corp.
Carolina Power & Light	Duke Power	Central and Southwest Corp.	Dominion Resources
Ohio Edison Company	Carolina Power & Light	Carolina Power & Light	GPU, Inc.
Duke Power Company	Central and Southwest Corp.	PacifiCorp	Carolina Power & Light

- **Vulnerable Populations Living Near Dirty Power Plants**

In 1997, there were 236.8 million Americans living in counties that fell wholly or partly within a 50 mile radius of one of the 594 dirty power plants. The health impacts of smog and soot pollution fall disproportionately on certain vulnerable populations, including children whose lungs are still undergoing development, seniors, and those who suffer from respiratory illnesses. Of the people living in counties falling wholly or partly within 50 miles of a dirty power plant, 56.3 million are children under 17 years of age, 27.9 million are seniors over 65 years of age, 13.1 million are people who suffer from asthma, and 14.7 million are people who suffer from either chronic emphysema or chronic bronchitis.

⁶ Please note that plant ownership is changing rapidly. These holding companies owned the plants as of January 1, 1999, the latest date when complete plant ownership information was available, but the ownership may have changed since this time.

Recommendations:

Comprehensive, federal legislation will be necessary to adequately abate power plant pollution. At a minimum, Congress should take action to require that:

1. By the year 2005, all power plants meet the same emission standards met by new power plants today.
2. Power plant mercury emissions are reduced by 90% by 2005.
3. Power plant carbon dioxide emissions are reduced to a level consistent with meeting the goals of the international agreement adopted by the U.S. and 37 other nations in Kyoto, Japan in 1997. At a minimum power plant CO₂ should be reduced to 1990 levels by 2005.
4. Investment in energy efficiency and renewable energy are increased.
5. Any federal bill to restructure or deregulate the electric utilities includes these important public health and environmental safeguards.

Several bills are gaining support in the Congress that would accomplish all or most of these objectives, including legislation proposed by Representatives Henry Waxman of California and Sherwood Boehlert of New York (H.R. 2900), Representative Tom Allen of Maine (H.R. 2980), and Senator James Jeffords of Vermont (S. 1369).

Methodology:

Unit-by-unit SO₂ and CO₂ emissions came from the EPA 1999 Preliminary Acid Rain Continuous Emissions Monitoring (CEM) database. EPA has not yet quality assured these data, which is why we consider these to be preliminary reports. Sources are still allowed to resubmit these data. Final quality assured data may be found in the annual emissions scorecards later in the year.

Unit-by-unit NO_x emissions were calculated by multiplying the heat input by the NO_x emission rate for each unit. Both the heat input and the NO_x rate came from the EPA 1999 Preliminary Acid Rain Continuous Emissions Monitoring (CEM) database.

Plant-by-plant mercury emissions estimates were provided by the Environmental Working Group, and were calculated from 1998 coal consumption data and pollution control data.

Excess NO_x and Excess SO₂ were derived by comparing total 1999 emissions to the level of emissions that would have been allowed under modern emission standards of .15 pounds/mmBTU for NO_x and .30 pounds/mmBTU of SO₂, assuming the same heat input.

For each plant the owner, county, dates of operation and primary fuel came from the Energy Information Administration's Inventory of Electric Utility Power Plants in the United States, 1999.

The data on lung disease was obtained from the American Lung Association Report, "Estimated Prevalence and Incidence of Lung Disease," April 1999. This report provides estimates of various lung disease cases by county. The data on population by age came from U.S. 1990 Census data.

We used a geographical information system (GIS) model to determine which counties were within a fifty mile radius of the power plants in question. Counties which fell within this radius but which extended beyond the circle were included. The data for the included counties was totaled to give the total for the plant in question.

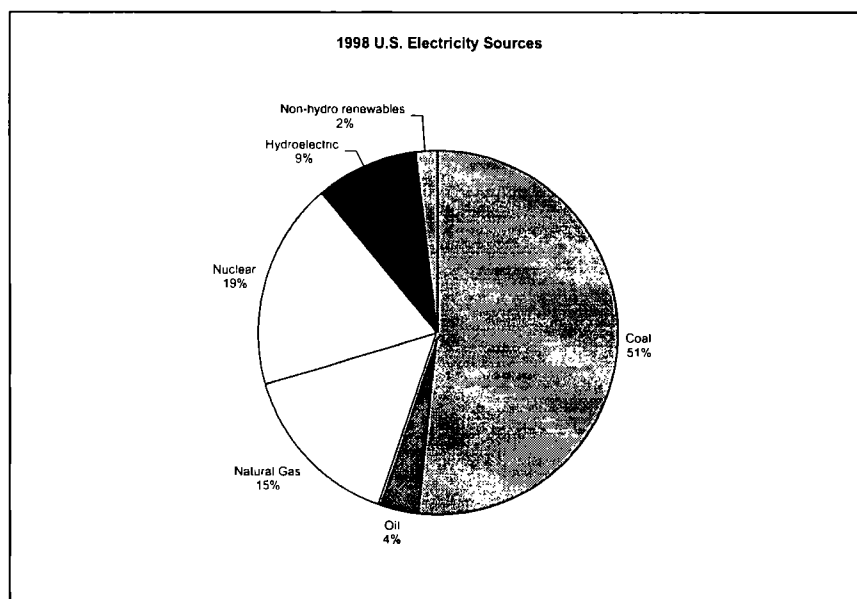
The U.S. Census data has an age breakdown for children under 5, and for children 5-17. These two classifications were added together to get the total number of children. The age category of 65 and older was used to get the number of elderly. The asthma numbers are the total of adult asthma and pediatric asthma from the American Lung Association report. Chronic Obstructive Pulmonary Disease (COPD) is the total of chronic bronchitis and chronic emphysema.

Introduction: Electricity Generation, Public Health and the Environment

The electric power industry in the U.S. is responsible for many of the most pressing public health and environmental crises we face today. Air pollution, including ground-level ozone and particulate matter, are damaging our respiratory systems, and decreasing life expectancy rates; the fish in thousands of U.S. lakes and streams are unsafe for consumption due to mercury poisoning; acid rain continues to wreak havoc on Eastern forest and aquatic ecosystems; the Chesapeake Bay is choking on excess nitrogen pollution; there is now a threat of major ecological upheaval caused by global warming. These are just some of the major impacts attributable to the older, coal-burning power plants operated by our electric utilities.

Over the last three decades, many innovative, new technologies have been developed which could reduce the public health and environmental impacts of generating power. Energy efficient appliances, motors, lighting, heating, cooling and building techniques are available to dramatically cut the amount of power needed for homes, business, and industry. Moreover, renewable energy, including solar, wind, biomass, and geothermal, produce electricity at costs competitive with traditional power plants, and at costs lower than many nuclear plants, while producing little or no pollution at all. Today, even new natural gas-powered power plants can generate electricity while producing only a fraction of the pollution that older power plants create.

Despite advances in efficiency and the increased availability of clean, affordable ways to produce electricity, the electric power industry continues to rely heavily on coal, the most polluting fuel, for more than half (51%) of the electricity it generates. The remaining electricity comes from nuclear (19%), natural gas (15%), hydroelectric (9%) and oil (4%). Non-hydroelectric renewable energy accounted for only 2% of our electricity generation in 1998.⁷



⁷ Energy Information Administration. www.eia.doe.gov/cneaf/electricity/page/at_a_glance/epatab5.html

Throughout its nearly 90-year history as a monopoly provider of electric services, the electric industry has fought for and won a host of state and federal rules that give older generators a competitive advantage. Perverse regulatory incentives, which effectively subsidize existing coal and oil plants have stalled the much-needed shift toward energy efficiency and renewable energy.

One such perverse incentive highlighted in this report has come to be known as the grandfathering of emissions from older power plants. The Clean Air Act of 1970, as amended in 1977 and 1990, exempts coal-burning power plants from new source standards, allowing them to emit between 4 and 10 times the amount of pollution that new plants may emit under the Clean Air Act. In part, this colossal loophole exists because industry lobbyists argued successfully that its older plants would soon retire, and that it would therefore be wasteful to require expensive retrofits to control pollution from these plants. However, more than 30 years later, many of these same plants, built in the 30s, 40s, 50s and 60s, are still operating, largely without modern environmental controls.

This report also shines the spotlight on the failure of federal and state policy makers to regulate CO₂ and mercury emissions from power plants. Despite the body of research documenting the toxic effects of mercury exposure, namely neurological damage causing developmental delays and cognitive deficits, most mercury emissions from power plants currently go unmonitored and unreported, and there are no regulations limiting mercury emissions from power plant smokestacks. The electric industry is the only large remaining unregulated source of mercury in the U.S.

Similarly, there are no regulations limiting emissions of carbon dioxide, the leading cause of global warming. For more than a decade, climate scientists have warned that carbon dioxide emissions, a byproduct of burning fossil fuels such as coal, oil and gas, are causing a global rise in temperature and creating the possibility of catastrophic climate changes, including sea level rise, loss of forests, wetlands, and coastal areas, spread of infectious diseases, and reduced agricultural production. In 1992, in response to these warnings, the Senate ratified and President George Bush signed into law an international treaty committing the U.S. to reducing emissions of pollutants that contribute to global warming back to 1990 levels. Yet today, U.S. greenhouse gas emissions are 15% higher than they were in 1990, according to a draft report released by EPA in February 2000.⁸ Meanwhile, we may be seeing the impacts of global warming already. The Goddard Institute for Space Studies at NASA has reported that each of the ten hottest years on record have occurred since 1980. Outbreaks of malaria in seven states, mass die-off of tropical coral reefs, and billions of dollars of damage from ice storms, drought and other extreme weather events are all consistent with scientists predictions about the impacts of global warming.

Power plants must make deep cuts in emissions of NO_x, SO₂, mercury and CO₂. These are critical steps toward making our air safe to breathe, and protecting the environment. Pollution cuts should be accompanied by incentives for investment in clean renewable energy and energy efficiency.

The first section of this report discusses in greater detail the pollutants emitted by these older, coal-burning power plants, and the adverse health and environmental impacts for which they are responsible. Section two summarizes the major findings of this report with respect to emissions from the dirtiest power plants, ranking the 100 dirtiest power plants, ranking each state and ranking the "Dirty Dozen" electricity holding companies, on the basis of total NO_x, SO₂, mercury and CO₂ emissions. The Appendix contains more detailed information on each of the 594

power plants that in 1999 each emitted more than 20 tons of any air pollutant over and above what would have been permitted by a newer power plant. For each power plant the Appendix includes population information showing the number of vulnerable people, including children under 17, seniors over 65 years of age, people with asthma and people with either chronic bronchitis or chronic emphysema living in counties falling wholly or partly within 50 miles of the plant. Also included in the Appendix is plant-by-plant information listing the plant owner, age and primary fuel use.

Section three specifies a set of policies that would eliminate the polluters' loopholes and create a fair environmental playing field for all electric providers.

^a U.S. EPA, *Inventory of U.S. Greenhouse Gas Emissions and Sinks, 1990-1998*, available at: www.epa.gov/globalwarming/publications/emissions/us2000/index.html.

Section 1: Health and Environmental Impacts of Power Plant Pollution

A. Ground-level Ozone or "Smog"

Power plants are the largest industrial source of the NO_x pollution that causes formation of ground-level ozone, also known as "smog." Ozone is our nation's most prevalent and well-understood air contaminant. Despite reductions in smog levels since the passage of the Clean Air Act in 1970, an estimated 117 million people live in areas where the air is unsafe to breathe due to ozone.⁹ In 1999 the ozone health standard adopted by EPA in 1997 was exceeded 7200 times.¹⁰

Ozone is an invisible, odorless gas, which is formed when nitrogen oxides (NO_x) mix with volatile organic compounds (VOCs) in the presence of sunlight. Thus, public health is most at risk, during "ozone season" from mid-May to mid-September in most places, when there is plenty of sunlight. When inhaled, ozone at certain concentrations can oxidize or "burn through" lung tissue. Breathing ozone at high concentrations can cause airways in the lungs to become swollen and inflamed. Eventually, this causes scarring, and decreases the amount of oxygen that is delivered to the body through each breath. Outdoor exercise on days when ozone concentrations are high increases the impact on the respiratory system. In addition, the corrosive effect of exposure to ozone in the respiratory system increases susceptibility to bacterial infections.

For vulnerable populations, including children, elderly and people with asthma or chronic obstructive pulmonary disorders (COPD – including chronic bronchitis and chronic emphysema), ozone poses a more serious health threat. A number of studies have linked ozone pollution with more frequent emergency room visits, including one study showing a 26% increase in the number of asthma patients admitted to emergency rooms in New Jersey on summer days when ozone concentrations were high.¹¹ Another study of 25 hospitals found that high ozone levels were associated with at least a 21% increase in emergency room visits over the average number of daily ER visits for people aged 64 and older.¹² Ozone has also been linked to increased frequency of asthma attacks. On high-smog days, children with asthma are 40 percent more likely to suffer asthma attacks compared to days with average pollution levels.¹³ A 1999 Abt Associates study estimated that in the eastern United States more than 6 million asthma attacks and more than 159,000 respiratory emergency room visits were triggered by smog during the high-ozone smog season in 1997.¹⁴

⁹ American Lung Association, *Lungs At Risk*, December 1997.

¹⁰ Clean Air Network, U.S. Public Interest Research Group, *Danger In the Air*, January, 2000. Based on data from state air pollution officials.

¹¹ Weisel, CP, Cody, RP, Levy, PJ. "Relationship Between Summertime Ambient Ozone Levels and Emergency Department Visits for Asthma in Central New Jersey." *Environmental Health Perspectives* 1995; 103: 97-102.

¹² "Effects of Air Pollution on Emergency Room Visits for Respiratory Illnesses in Montreal, Quebec." Ralph J. Delfino, et al *Am J Respir Crit Care Med*. 1997; 155:568-576.\

¹³ American Journal of Respiratory and Critical Care Medicine. American Lung Association. February, 2000.

¹⁴ Out of Breath, Health Effects from Ozone in the Eastern United States, Prepared by Abt Associates for Clear the Air, October 1999.

Hiking and Hacking:

While most people think of ozone as an urban problem, one cannot avoid the smog by fleeing the city. In 1999, ozone monitors in the national parks recorded exceedances of EPA's 1997 ozone standard on 209 occasions.¹⁵ Particularly hard hit was the Great Smoky Mountains National Park, which had unhealthy smog levels on 52 days, or on one out of every three summer days.¹⁶

This year is shaping up to be as bad or worse for the Smokies. While the typical smog season begins in early May for most of the nation, on March 8 two air quality monitors in the Great Smoky Mountains National Park (as well as one in Georgia) recorded exceedances of the health standard for smog. The monitors registered smog levels at over 100 parts per billion in contrast with safe air quality standards of 85 parts per billion. Last year's record setting number of ozone alerts in combination with this year's early start continue to threaten the health of plant species, trees, and human respiratory systems.

The Great Smoky Mountains National Park is not the only national park suffering from the smog. Smog levels in the Acadia National Park in 1998 were as bad as those in the urban centers of Boston and Philadelphia.¹⁷ Moreover, in the South, only Atlanta and Charlotte had more high ozone days than the Shenandoah National Park in 1998.¹⁸

In the same way that ozone can damage human lung tissue, it also can damage plant tissues, damaging forests and crops. By eroding plants' stores of carbon, it leaves trees and crops unable to respond to normal demands of growth and development and abnormal demands caused by bad weather, pests, or nutrient deficiencies. Ozone vegetation impact studies have found that at least ninety plant species in the Great Smoky Mountain National Park exhibit ozone injury.¹⁹ In Virginia alone, twenty-three documented plant, wildflower and tree species are sensitive to ozone.²⁰ In the Shenandoah National Park 97% of milkweed plants and 85% of white pine trees already exhibit evidence of ozone damage.²¹

B. Fine Particulate Matter, or "Soot"

Power plants are by far the largest source of sulfur dioxide (SO₂),²² which is in turn the largest component of fine particulate pollution or "soot" in the Eastern U.S.²³ Particulate matter is the type of air pollution that you can see in the air, visible particles of ash, dust or acid aerosols. Scientists have discovered over the years that the most dangerous air pollution particles are the tiny, nearly invisible particles that become deeply imbedded in the lungs when inhaled.

¹⁵ Izaak Walton League of America, *Air Pollution in Our National Parks 1999*, available at www.iwla.org/reports/parkfsac.html.

¹⁶ Jim Renfro, "Great Smoky Mountains Recorded 52 Ozone Days between May 4 and Sept. 27," *National Park Service*, 1999.

¹⁷ Izaak Walton League of America, *Air Pollution in Our National Parks 1999*, available at www.iwla.org/reports/parkfsac.html.

¹⁸ *Id.*

¹⁹ James Renfro, National Park Service, *Air Quality Fact Sheet for Great Smoky Mountains National Park*, 1994.

²⁰ National Parks and Conservation Association, 1999. *Parks In Jeopardy: National Parks and Conservation Association 1999 List of 10 Most Endangered National Parks*. www.npca.org/readaboutit/tt_smokymountains.html

²¹ Preliminary Notice of Adverse Impact on Shenandoah National Park, 55 Fed. Reg. 38,403 (1990).

²² U.S. EPA, *1998 Update of the 1997 Air Quality and Emissions Trends Report, Table A-4 (Sulfur Dioxide Emissions)* Available online at www.epa.gov/oar.

²³ *Natural Resources Defense Council, Breathtaking: Premature Mortality Due to Particulate Air Pollution in 239 American Cities, May 1996.*

Therefore, there are now two particulate air pollution standards, one for coarser particles with a diameter of up to 10 microns, and one for "fine" particles with a diameter of less than 2.5 microns.

As is the case with ozone, fine particulate matter is of most concern to vulnerable populations including young children, the elderly, and those with asthma or other respiratory diseases. These "fine" particles cannot be expelled by coughing, swallowing or sneezing, and as they sit in the lungs they cause varying degrees of irritation which can lead to loss of heart and lung function depending upon their chemical composition. Health consequences range from bronchitis and chronic cough to increased emergency room visits and hospital admissions and death.²⁴ EPA estimates that tens of thousands of lives are cut short each year in the U.S. due to fine particulate pollution. In the U.S. the metropolitan areas most contaminated with particulate air pollution are: Los Angeles, Chicago, New York, New Jersey, Philadelphia and Detroit.²⁵

In addition to threatening respiratory health, particulate air pollution also causes "haze," making it difficult to see in some of the most beautiful vistas in America. For example, over the last 40 years increased particulate pollution has reduced the distance one can see in the Great Smoky Mountain National Park from over 90 miles to 22 miles.²⁶ Similarly, in the Shenandoah National Park average visibility in the summertime has been reduced by 75% from its natural range.²⁷ Studies throughout the southeastern U.S. show a 60% decline in visibility between 1948 and 1983, with an 80% decline during the summer months.²⁸ Of course, the soot you can see in these parks also poses health risks to those who use the parks for recreation. It is a tragedy that in the most natural pristine areas in our nation, hiking and enjoying our national recreational areas have become risky activities for children, the elderly, and people with weakened respiratory systems.

²⁴ See, e.g., Dockery et al. "An Association Between Air Pollution and Mortality in Six U.S. Cities." *N Engl J Med.* 1993; 329: 1753-9.

²⁵ *Natural Resources Defense Council, Breathtaking: Premature Mortality Due to Particulate Air Pollution in 239 American Cities, May 1996.*

²⁶ National Parks and Conservation Association, *Parks In Jeopardy: National Parks and Conservation Association 1999 List of 10 Most Endangered National Parks*, www.npca.org/readaboutit/tt_smokymountains.html.

²⁷ Air Quality Division & Shenandoah National Park, National Park Service, Technical Support Document Regarding Adverse Impact Determination for Shenandoah National Park 8 (1990).

²⁸ *Preliminary Notice of Adverse Impact on Shenandoah National Park, 55 Fed. Reg. 38,403 (1990).*

EPA Works to Cut Power Plant NO_x and SO₂:

Two major EPA initiatives could result in significant reductions in power plant emissions of NO_x and SO₂. First, a rule called the NO_x SIP Call, adopted by EPA in 1998 would cut NO_x emissions from plants and other major sources in 22 states by more than one million tons per ozone season. The rule was adopted in an effort to address the transport of smog across state boundaries in the eastern U.S. Immediately after the rule was adopted, industry representatives and a few resistant states filed suit in federal court to invalidate the program. On March 3, 2000 the Washington DC Federal Court of Appeals upheld the EPA's rule allowing implementation to proceed.

In addition, the EPA has undertaken a landmark enforcement action against power plants which have violated the Clean Air Act's "New Source Review" (NSR) provision. Under the NSR provision, even an older power plant must meet modern pollution standards if it is significantly modified. EPA filed lawsuits on November 3, 1999 against 7 electric utility companies charging that 32 power plants made significant modifications without installing the appropriate accompanying pollution controls.

These enforcement actions were quickly followed by an industry-backed push for legislation shielding them from liability for Clean Air Act violations. Southern Company, in particular, lobbied to introduce legislation as a "rider" to a must-pass appropriation bills that would have thwarted EPA's attempts to enforce the Clean Air Act. Attempts to introduce such legislation during the Fall 1999 appropriations process failed, but lobbying efforts continue.

The first settlement in the lawsuit process came on February 29, 2000 when Tampa Electric Company settled with the EPA. TECO agreed to pay a \$3.5 million civil penalty, install permanent emissions-control equipment to meet modern power plant standards, give up the use of pollution credits, switch from coal to cleaner-burning natural gas at one plant, and invest in environmentally beneficial projects to lessen the impacts of TECO emissions.

C. Acid Rain

Sulfur dioxides and nitrogen oxides do their damage not only in the form of airborne ozone and particulates, but in the form of acid rain, which threatens entire forest and aquatic ecosystems throughout the eastern U.S. and in some parts of the upper midwest. Once emitted into the air, sulfur and nitrogen oxides form sulfates and nitrates, respectively, which are the principle components of acid rain. At risk to fall victim to the impacts of acid rain are such national treasures as the forest of the Shenandoah and Great Smoky Mountains National Parks, New Jersey's Pine Barrens, and the lakes and forests of the Adirondacks and Southeastern Canada.

Acid in rain, clouds and fog damage trees in two primary ways: 1) Directly damaging the needles and foliage, making them more vulnerable to adverse conditions including cold temperatures, and 2) depleting nutrients from the soils in which the trees grow. Acid clouds and fog generally have higher concentrations of damaging sulfates and nitrates than acid rain. Thus, acid deposition is linked to the decline of red spruce growing at high elevation or in coastal areas which are immersed in acid clouds and fog for long time periods.²⁹

Lake and stream ecosystems are also vulnerable to the effects of acid rain. As the acidity of the lakes and streams increases, the number of species that can live therein declines.³⁰ It is not unusual to see episodic acidification of lakes and streams in western Pennsylvania and Virginia with pH levels below 5.0, in which very few species can survive and nearly none can reproduce.

²⁹ A.H. Johnson et al., Synthesis and Conclusions from Epidemiological and Mechanistic Studies of Red Spruce in Decline, *Ecology and Decline of Red Spruce in the Eastern United States* (C. Eater & M.B. Adams eds., 1992).

³⁰ The U.S. National Acid Precipitation Assessment Program, 1990 Integrated Assessment Report 48 (1991).

The Adirondacks are one of the most severely impacted areas in the country to the effects of acid rain, snow and fog. One study noted that of the 264 ponds in the Adirondack Mountains surveyed, 11,518 acres have a pH lower than most fish can tolerate and 63,000 more are very close to reaching this level of acidity.³¹

Virginia's rate of acid deposition is among the highest in the nation. Due to acid deposition, half of the state's native brook trout streams have decreased abilities to host trout populations and 6% are completely unable to support fish populations.³² A study sponsored by Trout Unlimited found that if current acid deposition levels continue, the number of streams incapable of supporting fish populations in Virginia is projected to climb to 35% by 2041.³³

In 1990 Congress amended the Clean Air Act, calling for dramatic reductions in sulfur dioxide emissions to address the acid rain problem. Despite the success of the acid rain program in bringing about significant reductions in SO₂,³⁴ eastern lakes have shown little or no improvement. Of 202 monitored lakes in Southeastern Canada, 67 percent have shown no improvement in acidity status.³⁵ Moreover, forests at high elevations, such as New Hampshire's Mt. Washington, continue to be shrouded in acid clouds, while the stream water "can still pickle the leaves that fall from the trees," in Hanover, N.H.³⁶ The reason for the program's failure to bring about the recovery of these ecosystems is simple: Congress did not require deep enough cuts in SO₂ or NO_x.

D. Nitrogen Loading

Nitrogen oxide emissions from power plants are a major contributing factor to nitrogen loading in water bodies across the United States. Nitrogen oxides released into the air can be carried hundreds of miles by the wind and fall into lakes and rivers. The effects of nitrogen loading can be devastating for the plant and animal life in these water bodies as well as for the public, who depend on these waters for tourism, subsistence living, commercial fishing, and recreational enjoyment.

Atmospheric deposition is threatening the health of the Chesapeake Bay, the Great Lakes, Lake Champlain and other coastal water bodies.³⁷ Too much nitrogen over-fertilizes water and causes algae blooms, which, when it decays, depletes oxygen and kills marine life. Algae blooms also block light that fish, shellfish, and aquatic vegetation need to survive. Studies show that as much as 27% of the nitrogen that enters the Chesapeake Bay can be attributed to air pollution.³⁸

³¹ The U.S. National Acid Precipitation Assessment Program, August 1998.

³² Art Bulger, et. al., *Acid Rain: Current and Projected Status of Coldwater Fish Communities in the Southeastern US in the Context of Continued Acid Deposition*, Trout Unlimited, July 1998.

³³ *Id.*

³⁴ U.S. EPA, "EPA's Acid Rain Program Overview," May 22, 1999.

³⁵ Driscoll, Charles and R. Van Dreaseon. Season and Long-Term Temporal Patterns in the Chemistry of the Adirondacks. *Water, Air and Soil Pollution* 67: 319-344. 1993

³⁶ Marks, Alexandra. "Why N.E. Forests Don't Pass Acid Test," *Christian Science Monitor*, September 25, 1997.

³⁷ U.S. EPA, "Deposition of Air Pollutants to the Great Water: Second Report to Congress," EPA-453/R-97-011 (1997).

³⁸ U.S. EPA, "Deposition of Air Pollutants to the Great Water: Second Report to Congress," EPA-453/R-97-011 (1997).

E. Mercury

Some species of fish in thousands of bodies of water in 40 states contain such high levels of toxic methylmercury that health agencies have warned against eating them.³⁹ As the largest industrial source of mercury emissions, power plants are a significant contributor to this problem.⁴⁰ Mercury is a toxic heavy metal, which, when ingested in its methylated form, can cause serious neurological damage, particularly to developing fetuses, infants and children.⁴¹ The neurotoxic effects of low level exposure to methylmercury are similar to the effects of lead toxicity in children, and include delayed development and deficits in cognition, language, motor function, attention and memory.⁴² People most at risk include women of childbearing age, pregnant women and their fetuses, nursing mothers and children, and subsistence fishers. Large predator fish such as largemouth bass, walleye, shark, tuna and swordfish have higher levels of methylmercury in them than species lower in the food web.⁴³ People who frequently and routinely consume fish (e.g., several servings a week), those who eat fish with higher levels of methylmercury, and those who eat a large amount of fish over a short period of time (e.g. anglers on vacation) are more likely to be exposed to higher levels of mercury.⁴⁴

Mercury's primary entrance into the human diet occurs when mercury is emitted into the air, and undergoes photochemical oxidation forming oxidized mercury. Oxidized mercury is water soluble and is deposited to land, lakes and streams by rain and snow, where it reacts with bacteria to form methylmercury, the form most toxic to humans.⁴⁵ Methylmercury bioaccumulates to the greatest extent in the tissue of fish and other aquatic organisms and persists forever in the environment, magnifying its public health impacts. An expert panel on mercury atmospheric processes concluded that if all mercury releases were stopped today it could still take at least 50 years for the methylmercury levels in fish to return to pre-industrial levels.⁴⁶

Based on national emission estimates for 1994-95, the largest stationary sources of mercury emissions are: coal- and oil- burning electric power plants (32.8%), municipal waste incinerators (18.7%), commercial and industrial boilers powered by coal or oil (17.9%), medical waste incinerators (10.1%), and hazardous waste incinerators (4.4%).⁴⁷

Although power plants are the largest industrial source of mercury, until recently they have escaped effective reporting requirements for mercury emissions. Previous reporting levels allowed a reporting exemption for all facilities releasing less than 25,000 pounds of mercury, 12 times more than the annual emissions of the highest emitting plant in the U.S. Utilities were thus exempt from reporting. The reporting threshold has changed for the 2000 reporting year, the results from which will be released in 2002. The new reporting thresholds require that facilities that release 10 pounds or more of mercury must report their releases.

³⁹ U.S. EPA, Factsheet, "Update: National Listing of Fish and Wildlife Advisories," EPA 823-F-005 (July, 1999), Available online at www.epa.gov/ost.fish/epafish.pdf.

⁴⁰ U.S. EPA, "Mercury Study Report to Congress," 1997.

⁴¹ U.S. EPA, "Mercury Study Report to Congress," 1997.

⁴² U.S. EPA, "Mercury Study, Volume V," December 1997.

⁴³ U.S. EPA, Mercury Study, Volume 1, December 1997.

⁴⁴ U.S. EPA, Mercury Study, Volume VII, December 1997.

⁴⁵ U.S. EPA, "Mercury Study Report to Congress," 1997.

⁴⁶ Mercury Atmospheric Processes. A Synthesis Report. Prepared by: Expert Panel on Mercury Atmospheric Processes. Convened March 16-18, 1994, Tampa, Florida.

⁴⁷ U.S. EPA, "Mercury Study Report to Congress," 1997.

Although over the last five years the EPA has issued mercury limits for municipal and medical waste incinerators, has proposed limits for hazardous waste incinerators, and has started developing regulations to control mercury from small solid waste, it has made no move to limit emissions from the largest industrial source of mercury, power plants. This is because Congress prohibited such action in 1990, at the behest of utility lobbyists, until EPA completed a report to Congress assessing the health and environmental threats posed by power plant mercury emissions. When the study was completed in 1998, Congress again acted to prevent regulation by calling for an additional study by the National Academy of Sciences. As part of a settlement with the Natural Resources Defense Council, EPA is under deadline of December 2000 to make a regulatory determination whether or not to regulate power plant mercury.

F. Carbon Dioxide

The earth's temperature is on the rise, threatening wide-ranging catastrophic climate changes, and the probable cause is the emission of gases from man-made sources. Such was the conclusion of 2500 of the world's leading climate scientists, economists and other experts of the United Nations' Intergovernmental Panel on Climate Change (IPCC) in its fall 1995 report. For years, the IPCC, as well as 104 winners of the Nobel Prize in science, and many highly respected professors from top universities, have warned that if countries and industries do not stabilize greenhouse gases we will see warmer temperatures, loss of coastal regions, the spread of infectious disease and increases in extreme weather events like heat waves, flooding and tornadoes.

The trends are alarming: All 10 of the warmest years on record have occurred since 1980,⁴⁸ and this century has been the warmest of the past 600 years. According to the Goddard Institute of Space Studies, the 1990s were warmer than the 1980's, previously the warmest decade on record. A Midwestern heat wave in 1995 caused more than 500 deaths in Chicago. In the summer of 1998, temperatures over 100 degrees for 15 straight days claimed more than 100 lives in the Dallas, TX region. 1998 was not only the hottest year on record -- it was also a record year for extreme weather damage. In 1998, the Federal Emergency Management Agency declared sixty-three weather-related major disasters in thirty-four states. By comparison, the average number of weather-related major disaster declarations per year in the 1980s was 21.7.⁴⁹

Some of the predicted consequences of global warming may already be occurring. For example, last year the first study was released linking extinction directly to climate change.⁵⁰ The study told the story of the golden toad and twenty frog and toad species in the Monteverde Cloud Forest in Costa Rica. In recent years, warming ocean temperatures led to decreased moisture in the cloud forest. The frog species, dependent on this moisture, moved up the mountain to find cooler, moister habitat. Ultimately the frogs could not find acceptable habitat even at the mountain's peak and became extinct.

⁴⁸ National Climate Data Center, National Oceanic and Atmospheric Administration. "The Annual Global Anomalies," *The Global Historical Climatology Network Database*, <http://www.ncdc.noaa.gov>.

⁴⁹ FEMA data as of April 30, 1999, taken from "Total FEMA Obligations by State of CY 1998 Declarations."

⁵⁰ Still, Christopher J., Prudence N. Foster, and Stephen H. Schneider. 1999, *Nature* 398:608-610; Pounds, J. Alan, Michael P. L. Fogden, and John H. Campbell. 1999, *Nature* 398:611-615.

Section 2: Report Findings

This report documents on a plant-by-plant basis, the amounts of SO₂, NO_x, and CO₂ emitted in 1999 by each of 594 "dirty" power plants. For each plant, an estimated 1998 mercury emission total is also included.

In addition to total emissions, for each plant the report calculates the "excess NO_x" and "excess SO₂" emissions. It is worth an explanation of these terms. Currently, before a new power plant can begin operating, it must install pollution control technology that either achieves the "lowest achievable emission rate" -- in areas where the air quality does not meet federal health-based standards, or the "best available control technology," -- in areas where the air quality is meeting federal health-based standards. Although these terms are interpreted slightly differently by each state regulatory agency, it is generally accepted that the "best available control technology" today for new coal plants is selective catalytic reduction (SCR) which will achieve a NO_x emission rate of 0.15 pounds per mmBTU of coal burned, and scrubbers for SO₂, which can achieve emission rates of less than 0.3 pounds per mmBTU of coal burned. By contrast, older, coal-burning power plants routinely emit well over 0.5 pounds of NO_x per mmBTU of coal burned, and some emit as much as 6 pounds of SO₂ per mmBTU burned. "Excess tons" of NO_x and SO₂ are those tons that would not have been emitted if the plant were meeting a NO_x emission rate of 0.15 pounds per mmBTU and an SO₂ emission rate of 0.30 pounds per mmBTU. Every power plant in this report had at least 20 tons per year of excess NO_x or excess SO₂.

Finally, for each plant, an estimate of the "vulnerable populations," including children under 17, seniors over 65, people with asthma, and people with other chronic respiratory diseases – living within 50 miles of the plant, is provided.

On the basis of total emissions of each of these four pollutants, the report ranks the 100 dirtiest plants, ranks each state, and provides a "Dirty Dozen" list of electric holding companies.

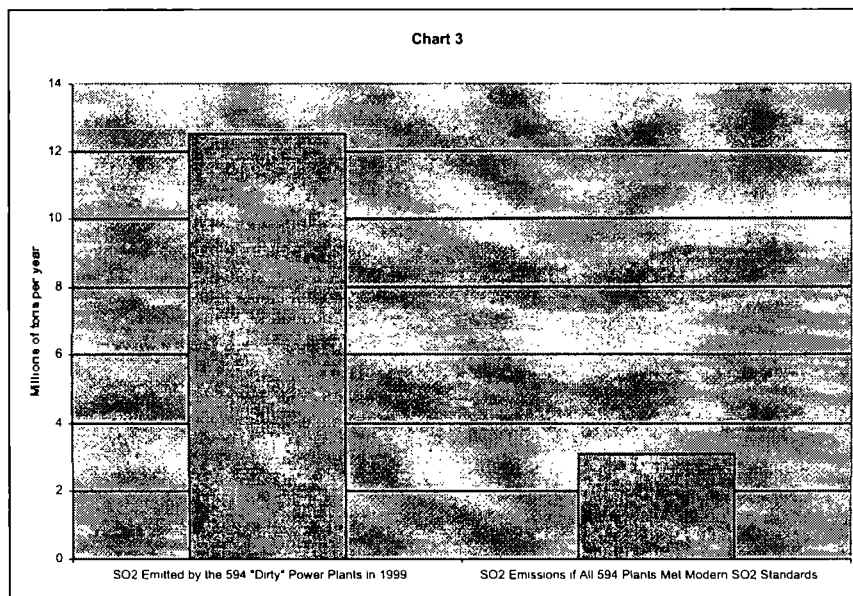
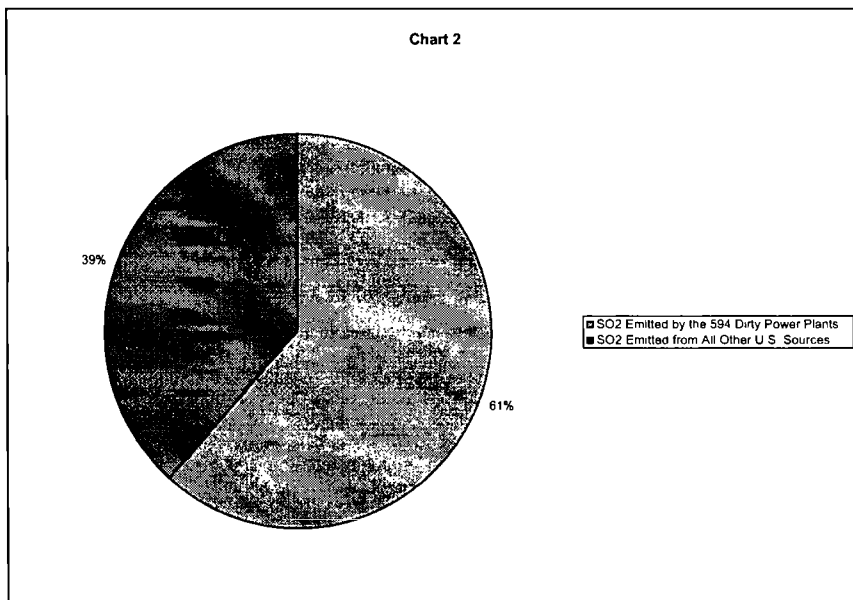
The following summarizes the report findings for each pollutant. The full database is found in Appendix A.

EPA has not yet quality assured the 1999 emissions data, which is why we consider the data to be preliminary. At this time, utility sources are still allowed to resubmit these data. Final quality assured data may be found in the annual emissions scorecards later in the year.

A. Sulfur Dioxide

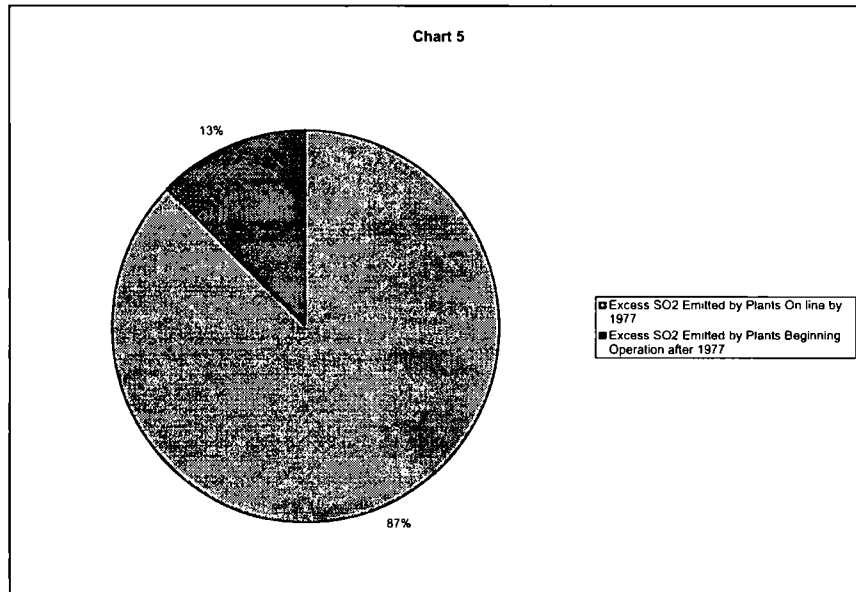
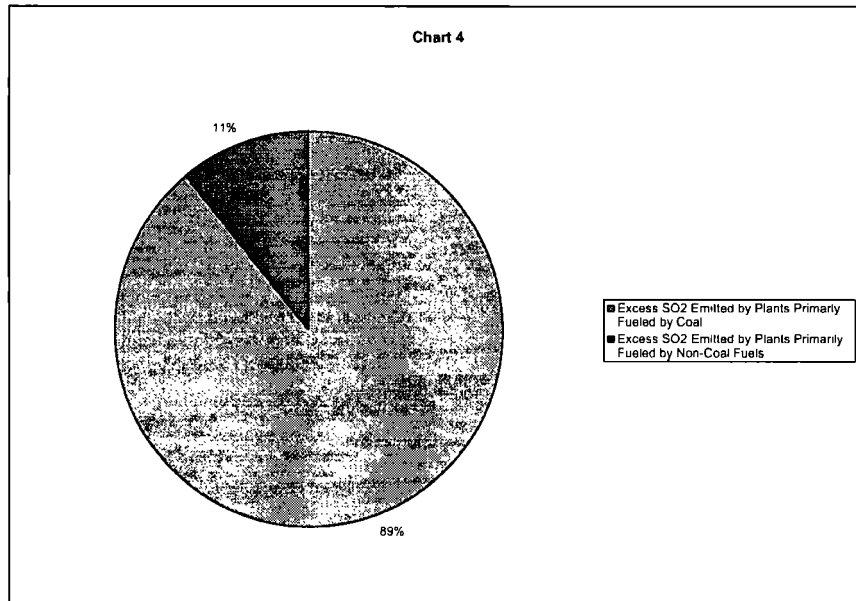
The 594 dirty power plants profiled in this report emitted 12,478,237 tons of SO₂ in 1999. This is approximately 61% of the total U.S. SO₂ emissions from all sources, estimated by EPA to be 20.4 million tons (See Chart 2).⁵¹

Of the nearly 12.5 million tons of SO₂ emitted by these plants, 9,383,221 tons (75%) was "excess SO₂." This means that if each of these plants was required to meet current new source emission standards for SO₂, running at the same capacity as they did in 1999, nearly 9.4 million tons of SO₂ per year would be avoided (See Chart 3).



⁵¹ U.S. EPA, *National Air Quality and Emission Trends Report*, 1998 update, available at www.epa.gov/oar.

There is a clear correlation between the most polluting plants, and those that are primarily fueled by coal. In fact, 89% of the excess SO₂ was emitted by plants primarily fueled by coal. Moreover, there is a high correlation between the most polluting plants and those that had at least one unit operating by 1977, with 87% of the excess SO₂ coming from plants that began operating on or before 1977 (See Charts 4&5).



The following three Tables rank the 100 plants emitting the highest quantity of SO₂ in 1999 (Table 1), the states according to most SO₂ emitted from in-state power plants in 1999 (Table 2), and the 12 holding companies whose plants emitted the most SO₂ in 1999 (Table 3). The dirtiest plant was Illinois Power's Baldwin plant, which emitted 245,243 tons of SO₂. Living in counties falling wholly or partly within a 50 mile radius of this plant are an

estimated 771,259 children under 17 years of age, 397,115 seniors over 65 years of age, 151,250 people with asthma, and 168,848 people with either chronic bronchitis or chronic emphysema. The state with the highest power plant SO₂ pollution in 1999 was Ohio, whose power plants emitted 1.3 million tons of SO₂ in 1999. The Southern Company, based in Atlanta, Georgia, was the holding company with the highest SO₂ emissions in 1999, emitting 1.1 million tons.

Table 1: 100 Power Plants Emitting the Highest Quantities of Sulfur Dioxide Pollution in 1999

	State	Operating Company	Name	County	Primary Fuel	1st Year On-Line	1999 SO ₂ (tons)	Excess SO ₂	VULNERABLE POP: W/ 50 MILES OF PLANT			
									Children	Seniors	Asthma	COPD
1	IL	Illinois Power	Baldwin	Randolph	Coal	70/75	245,243	230,718	771,259	397,115	151,250	168,848
2	KY	TVA	Paradise	Muhlenberg	Coal	63/70	181,065	159,040	278,231	126,292	63,066	70,011
3	PA	Pennsylvania Electric Co.	Homer City	Indiana	Coal	69/77	163,462	144,413	687,635	514,172	170,190	201,547
4	PA	Pennsylvania Electric Co.	Keystone	Armstrong	Coal	67/68	162,290	144,273	784,887	588,610	191,011	226,877
5	IN	PSI Energy	Gibson	Gibson	Coal	75/82	158,901	126,333	224,926	133,319	49,774	57,323
6	OH	Ohio Edison Co	W H Sammis	Jefferson	Coal/Oil	59/72	150,133	127,149	1,128,714	778,421	269,117	316,363
7	OH	Columbus Southern Power Co.	Conesville	Coshocton	Coal	57/78	144,933	130,364	663,595	309,519	152,727	170,282
8	PA	West Penn Power Co	Hatfields Ferry Po	Greene	Coal	69/71	141,872	129,012	703,568	531,980	172,240	204,961
9	GA	Georgia Power	Bowen	Bartow	Coal	71/75	140,154	110,672	925,248	324,772	232,545	250,323
10	OH	Ohio Valley Electric Corp.	Kyger Creek	Gallia	Coal	55	135,558	124,644	313,755	174,628	72,084	82,847
11	TN	TVA	Johnsonville	Humphrey's	Coal/Oil	51/75	119,778	107,023	221,478	117,524	54,144	61,119
12	IN	Southern Indiana Gas and Electric Co.	Warrick	Warrick	Coal	70	119,656	110,596	234,983	130,695	51,687	59,060
13	OH	Cleveland Electric Illum. Co	Eastlake	Lake	Coal	53/72	115,387	106,927	998,558	564,361	226,566	259,335
14	OH	Cardinal Operating Co.	Cardinal	Jefferson	Coal	67/77	115,001	101,413	903,242	652,109	217,372	257,164
15	PA	PP&L Resources, Inc.	Montour	Montour	Coal	72/73	113,787	101,516	586,420	413,784	143,854	168,956
16	TX	Texas Utilities Company	Martin Lake	Rusk	Coal	77/79	111,616	82,434	252,557	135,584	53,824	61,301
17	TN	TVA	Kingston	Roane	Coal	54/55	109,194	93,360	350,031	199,581	88,173	101,034
18	WV	Appalachian Power Co	John E Amos	Putnam	Coal	71/73	108,715	82,375	328,944	184,345	73,800	85,010
19	NC	CP&L (Carolina Power and Light)	Roxboro	Person	Coal	66/80	108,673	85,142	452,075	231,619	121,188	135,928
20	WV	VEPCO	Mt Storm	Grant	Coal	65/73	104,604	89,658	246,318	158,437	58,812	68,775
21	WV	Ohio Power Co	Kammer	Marshall	Coal	58/59	104,231	98,273	678,043	497,778	163,535	193,978
22	OH	DPL Co	J M Stuart	Adams	Coal	70/74	101,987	80,449	614,827	285,623	137,690	153,363
23	FL	FL Power	Crystal River	Citrus	Coal	66/84	101,827	78,143	216,501	267,913	66,100	84,401
24	AL	AL Power	E C Gaston	Shelby	Coal	60/74	101,128	82,106	420,061	216,049	96,592	108,969
25	OH	Ohio Power Co	Muskingum River	Morgan	Coal	53/68	100,639	92,003	284,908	153,090	64,216	73,459
26	TX	Texas Utilities Company	Monticello	Titus	Coal	74/78	100,121	76,966	227,340	129,231	49,695	57,133
27	WV	Monongahela Power	Fort Martin	Monongalia	Coal	67/68	99,101	87,545	645,176	493,084	158,525	188,933
28	GA	Georgia Power	Scherer	Monroe	Coal	82/89	98,275	63,679	555,209	183,567	135,181	144,392
29	AL	AL Power	Gorgas	Walker	Coal	51/72	97,834	84,861	356,351	185,261	82,273	92,943
30	FL	TECO	Big Bend	Hillsborough	Coal/Oil	69/85	95,614	80,968	653,292	726,168	184,769	231,115
31	MI	Detroit Edison Co.	Monroe	Monroe	Coal/Oil	69/74	90,470	68,458	1,457,716	664,853	327,620	364,753
32	WA	PacifiCorp	Centralia	Lewis	Coal	72/73	87,756	72,193	690,526	320,377	171,514	189,948
33	TN	TVA	Gallatin	Sumner	Coal/Oil	56/75	84,841	73,279	402,216	185,980	99,866	110,683
34	NC	Duke Power	Belews Creek	Stokes	Coal	74/75	83,850	62,733	443,839	254,590	115,065	131,736
35	TX	Texas Utilities Company	Big Brown	Freestone	Coal	71/72	83,772	72,596	222,133	125,086	50,220	57,360
36	IN	PSI Energy	Cayuga	Vermilion	Coal/Gas	70/93	83,463	74,057	263,172	140,580	62,387	70,287
37	GA	Georgia Power	Wansley	Heard	Coal	76/78	80,707	66,148	765,253	288,041	188,657	204,335
38	OH	American Municipal Power-Ohio Inc.	Richard Gorsuch	Washington	Coal/Oil	88/98	80,296	77,361	249,677	138,598	56,715	65,159
39	KY	KU Co.	Ghent	Carroll	Coal	74/84	80,058	53,559	852,437	398,520	193,789	215,963
40	OH	Cincinatti Gas & Electric	Miami Fort	Hamilton	Coal/Oil	49/78	78,086	63,824	835,131	384,143	186,113	207,334
41	GA	Georgia Power	Harlee Branch	Putnam	Coal	65/69	77,687	66,565	262,259	108,989	61,143	66,956
42	MD	Potomac Electric Power Co	Morgantown	Charles	Coal/Oil	70/71	75,520	64,961	1,122,670	426,015	284,065	309,291
43	NC	CP&L (Carolina Power and Light)	Marshall	Madison	Water	85	74,539	56,707	612,403	304,215	154,043	173,172
44	AL	AL Power	James H Miller Jr	Jefferson	Coal	78/91	74,069	42,832	407,143	212,092	94,304	106,690
45	IL	Central Illinois Light Co.	E D Edwards	Peoria	Coal	60/72	71,995	65,887	320,490	187,121	72,972	83,356
46	IN	PSI Energy	Wabash River	Vigo	Coal/Oil	53/95	71,381	64,161	263,231	143,669	63,082	71,260
47	PA	PP&L Resources, Inc.	Brunner Island	York	Coal/Oil	61/67	71,188	60,515	968,729	539,940	238,085	270,897
48	AL	TVA	Colbert	Colbert	Gas/Oil	72/72	69,573	58,290	197,835	108,116	45,849	52,537
49	OH	Cincinatti Gas & Electric	Walter C Beckjord	Clermont	Coal/Oil	52/72	68,602	55,936	523,581	253,212	115,411	129,432
50	TX	Houston Lighting and Power Co	W a Parish	Fort Bend	Coal/Gas	58/82	67,583	38,414	1,111,128	290,619	247,462	258,569

	State Owner	Name	County	Primary Fuel	1st Year On-Line	1999 SO2 (tons)	Excess SO2	Children	Seniors	Asthma	COPD	
51	KY	Kentucky Power Co.	Big Sandy	Lawrence	Coal	63/69	67,368	56,014	305,901	158,335	67,500	76,843
52	WV	Central Operating Co	Phil Sporn	Mason	Coal	50/60	67,138	58,552	288,675	162,028	65,922	75,867
53	IN	Indian Michigan Power Co.	Rockport	Spencer	Coal	84/89	66,845	38,378	247,444	124,296	53,952	60,767
54	AL	AL Power	Barry	Mobile	Coal/Gas	54/71	66,355	48,841	312,667	134,291	69,443	76,648
55	VA	VA Elec. & Power Co.	Chesterfield	Chesterfield	Coal	52/69	65,953	55,143	366,713	168,300	89,816	99,652
56	TN	TVA	John Sevier	Hawkins	Coal	55/57	61,885	53,303	372,916	221,511	93,665	108,174
57	LA	Cajun Electric Power Coop Inc	Big Cajun 2	Pointe Coupee	Coal	81/83	58,404	39,131	379,346	130,840	77,330	83,138
58	KS	KPL Western Resources	Jeffrey Energy Centr	Pottawatomie	Coal	78/83	58,247	34,673	156,417	79,085	35,775	39,743
59	NY	Niagara Mohawk Power Corp	Dunkirk	Chautauqua	Coal/Oil	50/90	57,908	52,196	467,695	286,056	107,166	123,195
60	MD	Potomac Electric Power Co	Chalk Point	Prince George	Coal/Gas/Oil	67/91	57,630	44,828	1,495,496	632,681	372,844	409,694
61	AL	AL Power	Greene County	Greene	Gas/Oil	95/96	56,951	51,549	155,443	72,905	32,491	36,149
62	WV	Ohio Power Co	Mitchell	Marshall	Coal	71	55,046	42,025	679,816	499,027	163,936	194,452
63	FL	TECO	F J Gannon	Hillsborough	Coal/Oil	57/69	54,496	45,587	653,292	726,168	184,769	231,115
64	MD	Baltimore Gas & Electric Co	Brandon Shores	Anne Arundel	Coal	84/91	54,491	39,294	1,936,658	864,943	480,438	531,521
65	FL	Gulf Power	Lansing Smith	Bay	Coal	65/67	53,885	49,836	103,823	50,390	26,264	29,182
66	MI	Detroit Edison Co.	St Clair	St Clair	Coal/Oil	53/69	53,119	39,849	1,084,161	501,460	244,252	272,760
67	IN	Indiana-Kentucky Electric Corp.	Clifty Creek	Jefferson	Coal	55/56	52,676	39,673	690,185	338,123	154,730	173,646
68	MI	Consumers Energy Co.	J H Campbell	Ottawa	Coal/Oil	62/80	52,029	36,570	449,799	184,878	97,061	106,373
69	PA	Pennsylvania Electric Co.	Shawville	Clearfield	Coal/Oil	54/60	51,786	46,450	271,392	178,411	64,432	74,969
70	IN	Indiana Michigan Power	Tanners Creek	Dearborn	Coal	51/64	50,716	41,557	816,138	375,529	182,156	202,869
71	IN	IPALCO Enterprises	Petersburg	Pike	Coal	67/86	50,196	34,258	244,162	139,902	56,531	64,613
72	ND	Basin Electric Power Coop	Leland Olds	Mercer	Coal	66/75	50,107	42,169	5,045	2,269	1,010	1,124
73	IN	PSI Energy	R Gallagher	Floyd	Coal	50/61	49,877	45,232	404,956	195,162	92,007	103,088
74	ND	Coop Power Assn	Coal Creek	Mclean	Coal	79/80	49,743	35,210	53,736	24,125	10,843	12,055
75	OH	Ohio Edison Co	R E Burger	Belmont	Coal/Oil	50/72	49,189	46,324	785,808	574,502	189,569	224,830
76	MA	US Generating Co	Brayton Point	n/a	n/a	n/a	48,909	35,644	1,343,220	811,074	337,252	384,212
77	NY	Niagara Mohawk Power Corp	Huntley Power	n/a	n/a	n/a	48,484	42,825	0	0	0	0
78	IL	Central Illinois Public Service Co.	Coffeen	Montgomery	Coal	65/72	47,611	40,903	740,208	396,188	143,378	161,146
79	MS	MS Power	Jack Watson	Harrison	Gas/Oil	57/73	46,591	38,615	447,691	184,200	94,608	103,692
80	IL	Illinois Power	Hennepin	Putnam	Coal/Gas	53/59	46,342	43,924	411,279	205,207	93,123	103,895
81	AL	TVA	Widows Creek	Jackson	Coal	52/65	45,711	28,997	368,736	185,417	88,386	100,002
82	FL	Gulf Power	Crist	Escambia	Coal/Gas	59/73	45,701	36,324	288,651	130,153	67,031	74,251
83	KY	KU Co.	E W Brown	Mercer	Coal/Gas	57/96	45,567	39,469	424,918	211,503	100,722	113,162
84	KY	LG&E Energy Corporation	Mill Creek	Jefferson	Coal	72/82	45,051	30,571	416,790	203,299	94,863	106,483
85	KY	East Kentucky Power Coop Inc	H L Spurlock	Mason	Coal	77/81	44,986	33,522	679,706	310,631	153,438	170,536
86	WV	Appalachian Power Co	Mountaineer (1301)	Mason	Coal	80	44,676	32,568	288,675	162,028	65,922	75,867
87	IN	IPALCO Enterprises, Inc.	Elmer W Stout	Marion	Oil/Coal/Gas	41/95	44,589	38,282	592,055	275,610	139,375	155,017
88	WV	Monongahela Power	Pleasants	Pleasants	Coal	79/80	44,131	32,213	233,611	139,883	52,862	61,348
89	MO	Union Electric Co	Sioux	St. Charles	Coal	67/68	43,773	35,969	653,575	314,281	146,307	162,944
90	NM	Arizona Public Service Co	Four Corners	San Juan	Coal	63/70	42,521	16,964	113,250	24,785	20,459	20,820
91	IN	NIPSCO Industries, Inc.	R M Schahfer	Jasper	Coal/Gas	76/86	41,669	24,258	1,842,199	882,342	411,319	456,201
92	PA	Duquesne Light Co	Cheswick	Allegheny	Coal	70	41,602	36,703	859,467	640,736	207,753	246,716
93	ND	Minnkota Power Coop Inc	Milton R Young	Oliver	Coal	70/77	41,344	31,936	44,169	20,109	8,727	9,747
94	SC	SC Pub. Serv. Auth	Winyah	Georgetown	Coal	75/81	41,124	28,860	281,971	110,481	60,973	66,845
95	IA	Midamerican Energy Company	George Neal North and South	Coal/Gas	64/79	40,803	23,651	107,968	63,390	22,614	25,932	
96	SC	Duke Power	Wateree	Kershaw	Water	19	39,501	33,115	418,398	156,119	91,183	99,365
97	MO	Union Electric Co	Labadie	Franklin	Coal	70/73	38,781	15,962	634,172	302,066	141,745	157,691
98	NV	Southern California Edison Co.	Mohave	Clark	Coal/Gas	71/71	38,640	23,854	642,157	221,851	155,000	165,734
99	AR	Entergy Arkansas Inc.	White Bluff	Jefferson	Coal	80/81	38,206	21,101	249,719	129,949	56,049	62,823
100	TN	TVA	Bull Run	Anderson	Coal	67	38,179	26,036	284,776	160,042	71,267	81,630

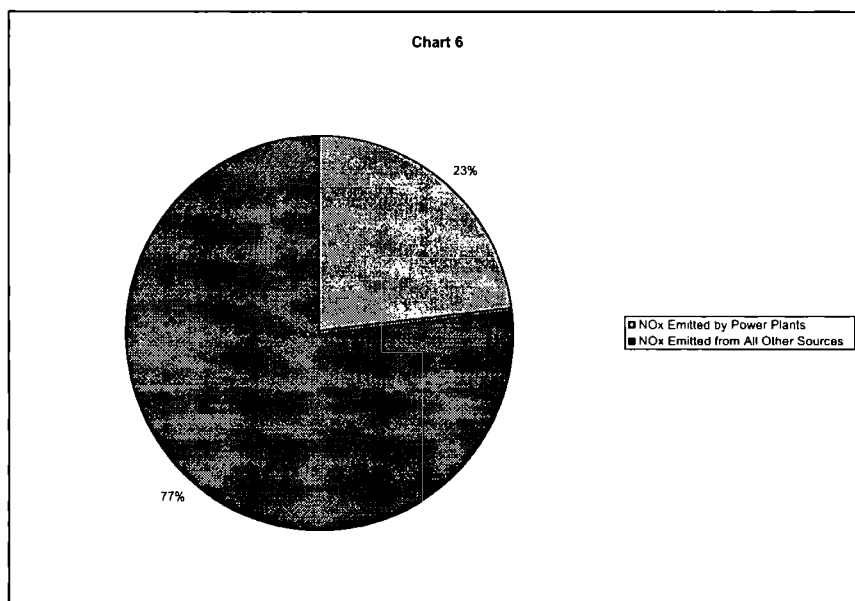
Table 2: Ranking of States by Amount of Sulfur Dioxide Emitted by Power Plants in 1999		
State	1999 SO ₂ (tons)	Excess SO ₂
1 OH Total	1,308,932	1,122,294
2 PA Total	959,564	815,950
3 IN Total	952,703	754,451
4 FL Total	732,516	549,980
5 IL Total	728,510	600,605
6 TX Total	695,129	451,062
7 WV Total	694,516	574,210
8 KY Total	678,790	521,456
9 AL Total	542,581	421,641
10 GA Total	512,142	398,434
11 NC Total	457,929	352,043
12 TN Total	443,478	361,609
13 MI Total	376,543	267,545
14 MD Total	281,771	226,432
15 NY Total	272,686	205,641
16 MO Total	250,581	147,957
17 VA Total	225,738	178,091
18 SC Total	214,637	162,029
19 WI Total	211,287	137,596
20 ND Total	188,742	136,973
21 IA Total	156,069	99,197
22 MA Total	128,618	90,939
23 MS Total	123,177	91,602
24 LA Total	121,758	63,452
25 KS Total	117,968	65,222
26 OK Total	108,987	55,103
27 WY Total	96,317	33,257
28 MN Total	92,749	48,566
29 CO Total	89,162	40,994
30 WA Total	87,756	72,193
31 AR Total	77,397	34,277
32 AZ Total	75,485	32,659
33 NM Total	73,431	26,289
34 NE Total	65,623	31,886
35 NH Total	55,693	46,872
36 NJ Total	49,344	37,037
37 NV Total	48,671	26,870
38 CT Total	41,252	24,576
39 UT Total	30,166	8,544
40 DE Total	29,202	21,034
41 SD Total	25,695	19,433
42 MT Total	21,240	4,379
43 ME Total	17,120	12,594
44 OR Total	16,577	10,248
45 CA Total	6	0

Table 3: Dirty Dozen Holding Companies -- Ranked by Total 1999 SO2 Emissions		
Holding Companies	SO2 (tons)	Excess SO2 (tons)
1 Southern Company	1,143,160	892,493
2 American Electric Power Co, Inc	848,727	691,551
3 TVA	775,701	629,146
4 Cinergy Corp.	574,808	470,663
5 Allegheny Power System, Inc Total	562,121	471,473
6 GPU, Inc	439,710	382,896
7 Texas Utilities Company	432,173	252,712
8 Illinova Corp.	326,545	301,035
9 Dominion Resources	318,696	257,106
10 Carolina Power & Light	297,111	231,641
11 Ohio Edison Company	248,628	200,465
12 Duke Power Company	220,556	170,299

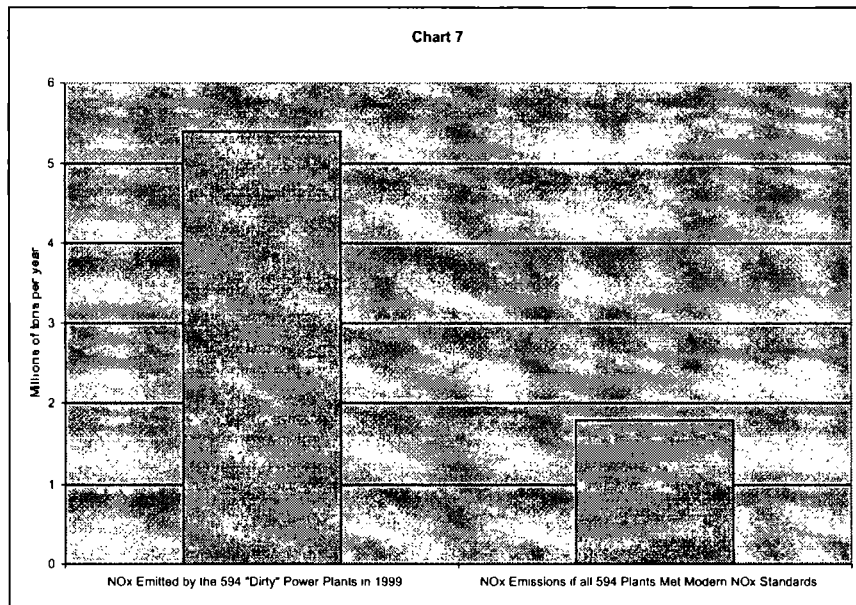
B. Nitrogen Oxides:

The 594 dirtiest plants profiled by this report emitted 5,365,246 tons of NOx in 1999. This is 23% of all NOx emitted in the United States from all sources, as reported by U.S. EPA (See Chart 6).⁵²

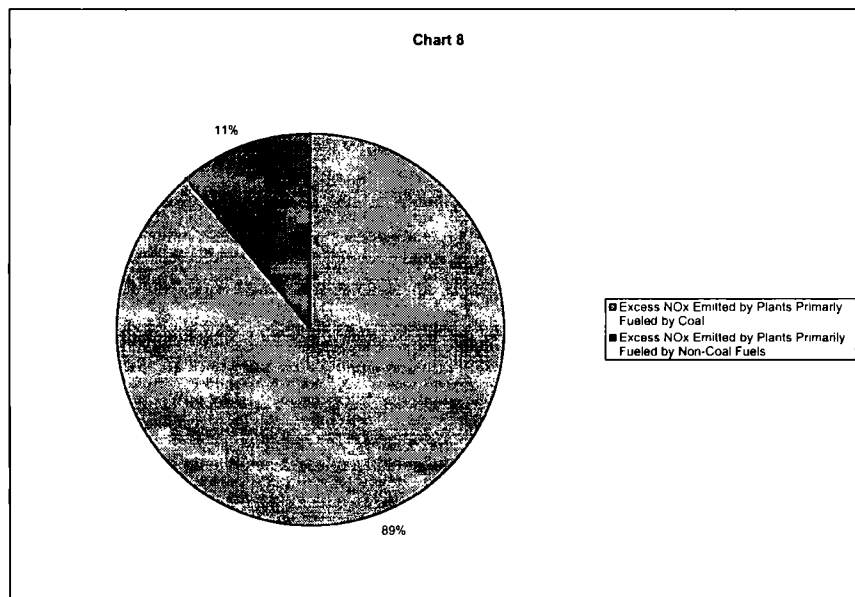
Of the nearly 5.4 million tons of NOx emitted by these plants, 3,576,979 tons (66%) was "excess NOx." This means that if each of these plants was required to meet current new source emission standards for NOx, running at the same capacity as they did in 1999, nearly 3.6 million tons of NOx per year would be avoided (See Chart 7).

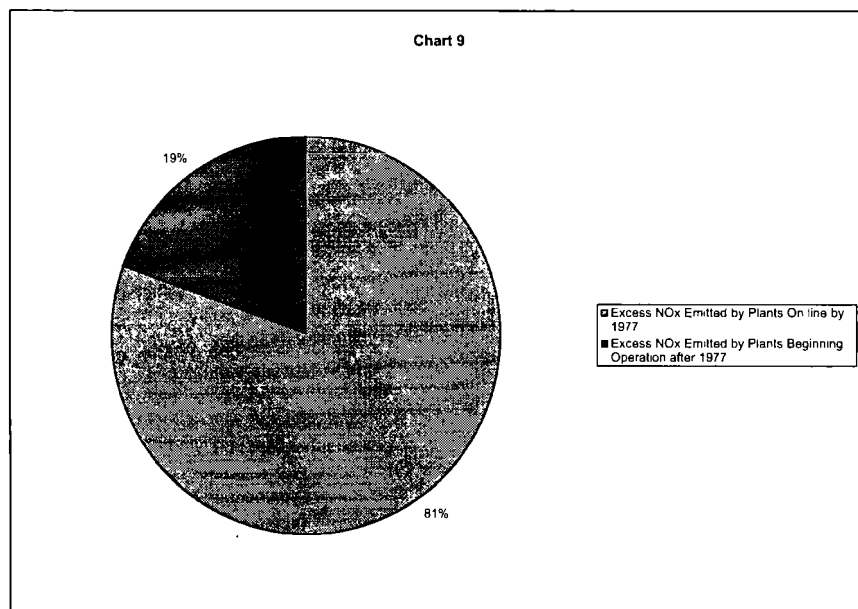


⁵² U.S. EPA, National Air Quality and Emission Trends Report, 1998 update, available at www.epa.gov/oar.



As with SO₂, there was a clear correlation between the most polluting plants, and those that are primarily fueled by coal. In the case of NO_x, 89% of the excess tons were emitted by plants primarily fueled by coal. Again, there was also a high correlation between the most polluting plants and those that had at least one unit operating by 1977, with 81% of the excess NO_x coming from plants that began operating on or before 1977 (See Charts 8&9).





The following three tables rank the 100 plants emitting the highest quantity of NOx in 1999 (Table 4), the states according to most NOx emitted from in-state power plants in 1999 (Table 5), and the 12 holding companies whose plants emitted the most NOx in 1999 (Table 6). The dirtiest plant in the nation was Tennessee Valley Authority's Paradise plant in Kentucky, which emitted 102,412 tons of NOx. Living in counties falling wholly or partly within a 50 mile radius of this plant are an estimated 278,231 children under 17 years of age, 126,292 seniors over 65 years of age, 63,066 people with asthma, and 21,783 people with either chronic bronchitis or chronic emphysema. The state with the highest power plant NOx pollution in 1999 was Ohio, whose power plants emitted 419,312 tons of NOx in 1999. Again, Southern Company, based in Atlanta, Georgia, was the holding company with the highest NOx emissions in 1999, emitting 369,826 tons.

Table 4: 100 Power Plants Emitting the Highest Quantities of Nitrogen Oxide Pollution in 1999

ST	Operating Company	Name	County	Primary Fuel	1st Year On-Line	1999 NOx (tons)	Excess NOx	VULNERABLE POP. W/IN 50 MILES OF PLANT				
								Children	Seniors	Asthma	COPD	
1	KY	TVA	Paradise	Muhlenberg	Coal	63/70	102,412	91,399	278,231	126,292	63,066	70,011
2	TN	TVA	Cumberland	Stewart	Coal	73	81,025	67,565	348,919	175,890	86,218	96,524
3	NC	Duke Power	Belews Creek	Stokes	Coal	74/75	67,626	57,068	443,839	254,590	115,065	131,736
4	WV	VEPCO	Mt Storm	Grant	Coal	65/73	60,965	46,546	246,318	158,437	58,812	68,775
5	OH	Ohio Edison Co	W H Sammis	Jefferson	Coal/Oil	59/72	57,426	45,934	1,128,714	778,421	269,117	316,363
6	WV	Appalachian Power Co	John E Amos	Putnam	Coal	71/73	54,249	41,079	328,944	184,345	73,800	85,010
7	IL	Illinois Power	Baldwin	Randolph	Coal	70/75	53,285	46,022	771,259	397,115	151,250	168,848
8	MO	Associated Electric Coop Inc	New Madrid	New Madrid	Coal	72/77	51,220	45,238	176,041	108,886	38,327	44,282
9	OH	Ohio Power Co	Gen J M Gavin	Gallia	Coal	74/75	50,187	38,550	313,755	174,628	72,084	82,847
10	IN	PSI Energy	Gibson	Gibson	Coal	75/82	49,041	32,758	224,926	133,319	49,774	57,323
11	OH	DPL Co	J M Stuart	Adams	Coal	70/74	48,736	37,967	614,827	285,623	137,690	153,363
12	NM	Arizona Public Service Co	Four Corners	San Juan	Coal	63/70	45,327	32,548	113,250	24,785	20,459	20,820
13	GA	Georgia Power	Scherer	Monroe	Coal	82/89	43,075	25,777	555,209	183,567	135,181	144,392
14	MI	Detroit Edison Co.	Monroe	Monroe	Coal/Oil	69/74	41,930	30,924	1,457,716	664,853	327,620	364,753
15	GA	Georgia Power	Bowen	Bartow	Coal	71/75	41,513	26,772	925,248	324,772	232,545	250,323
16	KY	KU Co.	Ghent	Caroll	Coal	74/84	39,183	25,933	852,437	398,520	193,789	215,963
17	IL	Commonwealth Edison	Powerton	Tazewille	Coal	72/75	38,390	32,062	329,359	192,872	74,988	85,694
18	MT	Montana Power Co	Colstrip	Rosebud	Coal	75/86	38,088	24,633	42,898	18,208	9,251	10,244
19	FL	FL Power	Crystal River	Citrus	Coal	66/84	37,835	25,993	216,501	267,913	66,100	84,401
20	WY	PacifiCorp	Jim Bridger	Sweetwater	Coal	74/79	37,644	23,197	30,099	8,952	5,655	6,077
21	IN	Indian Michigan Power Co.	Rockport	Spencer	Coal	84/89	37,006	22,773	247,444	124,296	53,952	60,767
22	NC	CP&L (Carolina Power and Light)	Roxboro	Person	Coal	66/80	34,417	22,652	452,075	231,619	121,188	135,928
23	AZ	Salt River Proj Ag I & P Dist	Navajo	Coconino	Coal	74/76	34,389	20,136	68,534	14,078	13,252	13,400
24	WV	Monongahela Power	Harrison	Harrison	Coal	72/74	34,260	23,406	283,134	192,851	66,316	78,185
25	KS	KCP&L	La Cygne	Linn	Coal	73/77	33,859	26,349	438,437	213,615	100,106	111,230
26	MI	Consumers Energy Co.	J H Campbell	Ottawa	Coal/Oil	62/80	33,799	26,070	449,799	184,878	97,061	106,373
27	IN	Indiana Michigan Power	Tanners Creek	Dearborn	Coal	51/64	33,233	28,654	816,138	375,529	182,156	202,869
28	TX	Houston Lighting and Power Co	W a Parish	Fort Bend	Coal/Gas	58/82	33,189	15,728	1,111,128	290,619	247,462	258,569
29	IN	Indiana-Kentucky Electric Corp.	Clifty Creek	Jefferson	Coal	55/56	32,899	26,398	690,185	338,123	154,730	173,646
30	OH	Cardinal Operating Co.	Cardinal	Jefferson	Coal	67/77	32,610	25,816	903,242	652,109	217,372	257,164
31	AL	AL Power	James H Miller Jr	Jefferson	Coal	78/91	32,008	16,390	407,143	212,092	94,304	106,690
32	MO	Associated Electric Coop Inc	Thomas Hill	Randolph	Coal	66/82	31,047	23,543	121,527	77,268	28,343	32,500
33	OH	Ohio Valley Electric Corp.	Kyger Creek	Gallia	Coal	55	30,196	24,739	313,755	174,628	72,084	82,847
34	FL	TECO	Big Bend	Hillsborough	Coal/Oil	69/85	30,178	22,576	653,292	726,168	184,769	231,115
35	GA	Georgia Power	Harlee Branch	Putnam	Coal	65/69	29,896	24,335	262,259	108,989	61,143	66,956
36	WV	Monongahela Power	Fort Martin	Monongolia	Coal	67/68	29,893	24,115	645,176	493,084	158,525	188,933
37	NM	Public Service Co of NM	San Juan	San Juan	Coal	73/82	29,178	19,129	89,694	20,912	16,446	16,888
38	AL	TVA	Widows Creek	Jackson	Coal	52/65	28,990	20,633	368,736	185,417	88,386	100,002
39	AL	AL Power	Gorgas	Walker	Coal	51/72	28,981	22,494	356,351	185,261	82,273	92,943
40	IN	NIPSCO Industries, Inc.	R M Schahfer	Jasper	Coal/Gas	76/86	28,783	20,078	1,842,199	882,342	411,319	456,201
41	TX	Texas Utilities Company	Martin Lake	Rusk	Coal	77/79	28,511	13,920	252,557	135,584	53,824	61,301
42	AL	AL Power	E C Gaston	Shelby	Coal	60/74	28,394	18,884	420,061	216,049	96,592	108,969
43	UT	Los Angeles City of	Intermountain	Millard	Coal	86/87	28,142	17,292	128,511	27,139	23,417	23,502
44	FL	TECO	F J Gannon	Hillsborough	Coal/Oil	57/69	27,772	23,317	653,292	726,168	184,769	231,115
45	IL	Central Illinois Public Service Co.	Coffeen	Montgomery	Coal	65/72	26,609	23,255	740,208	396,188	143,378	161,146
46	ND	Minnkota Power Coop Inc	Milton R Young	Oliver	Coal	70/77	26,341	21,637	44,169	20,109	8,727	9,747
47	TN	TVA	Kingston	Roane	Coal	54/55	26,233	18,317	350,031	199,581	88,173	101,034
48	OH	Cincinnati Gas & Electric	Miami Fort	Hamilton	Coal/Oil	49/78	26,145	19,014	835,131	384,143	186,113	207,334
49	NC	CP&L (Carolina Power and Light)	Marshall	Madison	Water	85	25,970	17,053	612,403	304,215	154,043	173,172
50	AL	AL Power	Barry	Mobile	Coal/Gas	54/71	25,913	17,156	312,667	134,291	69,443	76,648

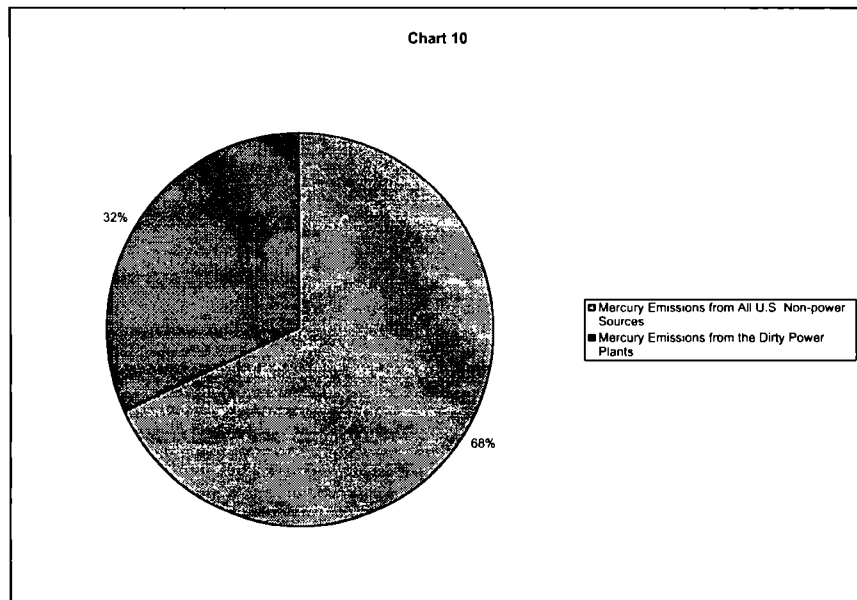
	ST	Owner	Name	County	Primary Fuel	1st Year On-Line	1999 NOx (tons)	Excess NOx	Children	Seniors	Asthma	COPD
51	IA	Midamerican Energy Company	George Neal North and South		Coal/Gas	64/79	25,910	17,334	107,968	63,390	22,614	25,932
52	PA	Pennsylvania Electric Co.	Homer City	Indiana	Coal	69/77	25,872	16,347	687,635	514,172	170,190	201,547
53	IL	Dominion Energy	Kincaid	n/a	n/a	n/a	25,675	21,534	305,229	173,136	69,599	79,286
54	FL	JEA	St Johns River Power	Duval	Coal/Oil	87/88	25,301	17,556	306,530	133,231	72,673	79,430
55	TX	Houston Lighting and Power Co	Limestone	Limestone	Coal	85/86	25,138	16,369	169,231	96,736	41,113	46,552
56	IN	NIPSCO Industries, Inc.	Bailly	Porter	Coal/Gas	62/68	24,494	21,922	2,123,731	961,990	476,997	525,605
57	KS	KPL Western Resources	Jeffrey Energy Centr	Pottawatomie	Coal	78/83	24,451	12,664	156,417	79,085	35,775	39,743
58	MD	Potomac Electric Power Co	Chalk Point	Prince George	Coal/Gas/Oil	67/91	24,062	17,661	1,495,496	632,681	372,844	409,694
59	WV	Ohio Power Co	Mitchell	Marshall	Coal	71	23,872	17,361	679,816	499,027	163,936	194,452
60	WI	Wisconsin Energy Corporation	Pleasant Prairie	Kenosha	Coal/Oil	80/85	23,862	15,727	2,334,523	1,056,005	527,750	580,792
61	MO	Union Electric Co	Sioux	St. Charles	Coal	67/68	23,780	19,879	653,575	314,281	146,307	162,944
62	MI	Detroit Edison Co.	St Clair	St Clair	Coal/Oil	53/69	23,742	16,951	1,084,161	501,460	244,252	272,760
63	KY	TVA	Shawnee	McCracken	Coal	53/56	23,548	16,216	179,389	123,736	42,806	50,151
64	OH	Columbus Southern Power Co.	Conesville	Coshocton	Coal	57/78	23,435	16,151	663,595	309,519	152,727	170,282
65	SD	Otter Tail Power Co	Big Stone	Grant	Coal/Oil	75	23,378	20,247	57,556	41,694	11,846	14,108
66	PA	Penn. Power	Bruce Mansfield	Beaver	Coal	76/80	22,767	12,843	1,013,536	713,673	242,160	285,547
67	OH	Cincinatti Gas & Electric	W H Zimmer	Clermont	Coal	91	22,512	15,327	828,136	380,116	186,593	207,583
68	SC	SC Pub. Serv. Auth	Winyah	Georgetown	Coal	75/81	22,504	16,372	281,971	110,481	60,973	66,845
69	TX	SWEPCO	Welsh	Titus	Coal	77/82	22,335	13,055	298,300	162,131	63,430	72,429
70	MD	Baltimore Gas & Electric Co	Brandon Shores	Anne Arundel	Coal	84/91	22,315	14,716	1,936,658	864,943	480,438	531,521
71	FL	Seminole Electric Coop Inc	Seminole	Putnam	Coal	84/85	22,266	14,586	463,282	314,242	122,482	141,759
72	OH	Cincinatti Gas & Electric	Walter C Beckjord	Clermont	Coal/Oil	52/72	22,233	15,900	523,581	253,212	115,411	129,432
73	MN	Northern States Power Co.	Sherburne County	Sherburne	Coal	76/87	22,003	10,407	754,727	294,671	172,800	186,922
74	MD	Potomac Electric Power Co	Morgantown	Charles	Coal/Oil	70/71	21,849	16,569	1,122,670	426,015	284,065	309,291
75	WA	PacifiCorp	Centralia	Lewis	Coal	72/73	21,531	13,750	690,526	320,377	171,514	189,948
76	OH	Ohio Power Co	Muskingum River	Morgan	Coal	53/68	20,823	16,505	284,908	153,090	64,216	73,459
77	PA	Pennsylvania Electric Co.	Conemaugh	Indiana	Coal	70/70	20,758	11,353	725,713	539,666	179,211	212,162
78	KY	LG&E Energy Corporation	Mill Creek	Jefferson	Coal	72/82	20,475	13,235	416,790	203,299	94,863	106,483
79	KY	Kentucky Power Co.	Big Sandy	Lawrence	Coal	63/69	20,437	14,760	305,901	158,335	67,500	76,843
80	PA	Pennsylvania Electric Co.	Keystone	Armstrong	Coal	67/68	20,420	11,411	784,887	588,610	191,011	226,877
81	TN	TVA	Johnsonville	Humphrey's	Coal/Oil	51/75	20,408	14,030	221,478	117,524	54,144	61,119
82	LA	Cajun Electric Power Coop Inc	Big Cajun 2	Pointe Coupee	Coal	81/83	20,381	10,745	379,346	130,840	77,330	83,138
83	TX	Texas Utilities Company	Monticello	Titus	Coal	74/78	20,370	8,792	227,340	129,231	49,695	57,133
84	TX	Texas Utilities Company	Handley	Tarrant	Gas/Oil	48/77	122,492	885	1,116,375	347,807	259,019	274,906
85	WV	Appalachian Power Co	Mountaineer (1301)	Mason	Coal	80	20,179	14,126	288,675	162,028	65,922	75,867
86	UT	PacifiCorp	Hunter (Emery)	Emery	Coal	78/83	20,114	12,153	133,822	29,225	24,200	24,361
87	IN	IPALCO Enterprises	Petersburg	Pike	Coal	67/86	19,979	10,573	244,162	139,902	56,531	64,613
88	GA	Georgia Power	Wansley	Heard	Coal	76/78	19,897	12,618	765,253	288,041	188,657	204,335
89	NV	Southern California Edison Co.	Mohave	Clark	Coal/Gas	71/71	19,714	12,321	642,157	221,851	155,000	165,734
90	AR	Entergy Arkansas Inc.	White Bluff	Jefferson	Coal	80/81	19,695	11,143	249,719	129,949	56,049	62,823
91	WV	Ohio Power Co	Kammer	Marshall	Coal	58/59	19,662	16,683	678,043	497,778	163,535	193,978
92	WV	Central Operating Co	Phil Sporn	Mason	Coal	50/60	19,575	15,282	288,675	162,028	65,922	75,867
93	PA	West Penn Power Co	Hatfields Ferry Po	Greene	Coal	69/71	19,509	13,079	703,568	531,980	172,240	204,961
94	TX	Lower Colorado River Authority	Sam Seymour	n/a	n/a	n/a	19,215	9,915	1,183,042	327,959	271,891	284,482
95	VA	Appalachian Power	Clinch River	Russel	Coal	58/61	19,214	16,032	303,680	164,463	70,219	80,474
96	MO	UtiliCorp United Inc	Sibley	Jackson	Coal	60/69	18,697	16,237	508,226	238,024	116,223	128,583
97	OH	Cleveland Electric Illum. Co	Avon Lake-total	Lorain	Coal/Oil	49/73	18,578	15,634	946,096	517,499	213,924	243,802
98	MN	Northern States Power Co.	Allen S King	n/a	n/a	n/a	18,241	15,707	744,618	291,741	171,782	185,947
99	IN	Southern Indiana Gas and Electric Co.	Warrick	Warrick	Coal	70	18,207	13,677	234,983	130,695	51,687	59,060
100	OH	Cleveland Electric Illum. Co	Eastlake	Lake	Coal	53/72	17,850	13,620	998,558	564,361	226,566	259,335

Table 5: Ranking of States by Amount of Nitrogen Oxide Emitted by Power Plants in 1999			
	State	1999 NOx (tons)	Excess NOx
1	OH Total	419,312	321,912
2	TX Total	396,869	183,702
3	IN Total	342,388	241,094
4	KY Total	311,881	232,845
5	WV Total	302,259	227,723
6	FL Total	282,835	186,860
7	IL Total	265,831	201,358
8	NC Total	197,607	144,636
9	PA Total	192,323	114,268
10	MO Total	183,181	132,020
11	AL Total	182,664	121,902
12	TN Total	181,782	135,349
13	MI Total	174,771	119,468
14	GA Total	172,201	114,590
15	WI Total	106,496	69,490
16	MD Total	102,686	74,854
17	LA Total	98,947	53,806
18	WY Total	92,073	53,614
19	OK Total	91,421	53,287
20	VA Total	91,335	62,623
21	SC Total	86,147	58,355
22	KS Total	84,440	54,717
23	AZ Total	83,678	49,788
24	ND Total	83,463	57,569
25	NM Total	82,342	55,507
26	MN Total	79,849	54,876
27	IA Total	79,300	50,214
28	NY Total	72,824	32,137
29	UT Total	71,539	43,444
30	CO Total	68,032	40,189
31	MS Total	56,966	38,704
32	AR Total	48,257	23,602
33	NE Total	47,460	30,488
34	NV Total	40,606	24,700
35	MT Total	40,213	25,615
36	MA Total	34,998	15,988
37	NJ Total	25,312	18,781
38	SD Total	23,378	20,247
39	WA Total	21,531	13,750
40	NH Total	12,154	7,743
41	CT Total	11,286	2,835
42	DE Total	8,957	4,873
43	OR Total	8,650	5,485
44	ME Total	4,051	1,787
45	CA Total	950	182

Table 6: Dirty Dozen Holding Companies Ranked by Total 1999 NOx Emissions		
Holding Company	NOx (tons)	Excess NOx (tons)
Southern Company	369,826	242,976
TVA	352,759	273,982
American Electric Power Co, Inc	334,398	251,797
Allegheny Power System, Inc	200,132	146,584
Texas Utilities Company	172,102	72,363
Cinergy Corp.	161,473	109,519
Dominion Resources	152,787	110,157
PacifiCorp	133,498	83,765
Entergy	131,679	68,096
Duke Power Company	110,319	85,192
Carolina Power & Light	104,245	71,478
Central and Southwest Corporation	102,618	52,500

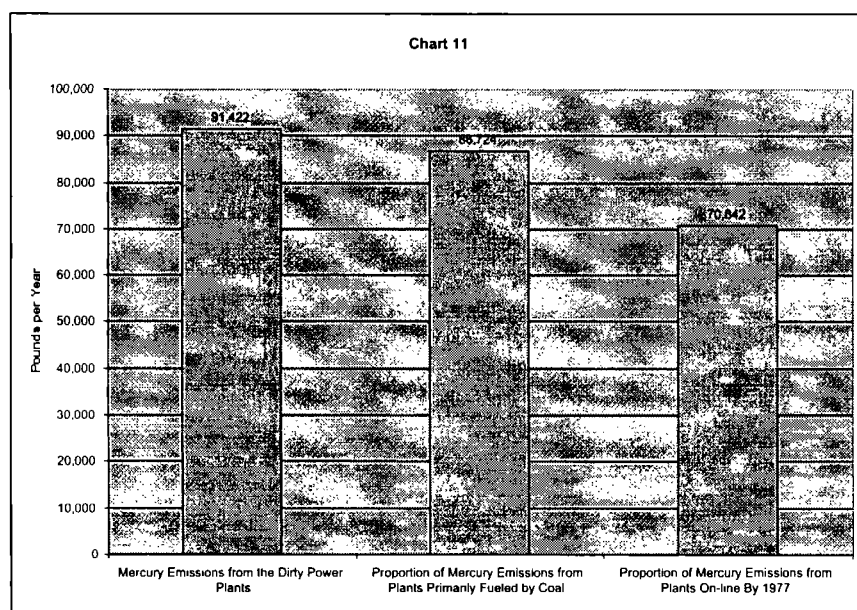
C. Mercury

The 594 dirtiest plants profiled by this report emitted an estimated 91,422 pounds of mercury in 1998, or 32% of all mercury emitted in the United States from all sources, based on EPA's emissions estimates for 1994-95, which is the most recent estimate available (See Chart 10).⁵³



As with NOx and SO₂, there was a clear correlation between the highest emitting plants for mercury, and those that are primarily fueled by coal. In the case of mercury, 95% of emissions were from plants primarily fueled by coal. Again, there was also a high correlation between the most polluting plants and those that had at least one unit operating by 1977, with 77% of the mercury coming from plants that began operating on or before 1977 (See Chart 11).

⁵³ U.S. EPA, "Mercury Study Report to Congress," 1997.



The following three tables rank the 100 plants emitting the highest quantity of mercury in 1998 (Table 7), the states according to most mercury emitted from in-state power plants in 1998 (Table 8), and the 12 holding companies whose plants emitted the most mercury in 1998 (Table 9). The dirtiest plant in the nation for mercury was the Keystone Plant in Armstrong County Pennsylvania, owned by PECO, which emitted 1,911 pounds of mercury in 1998. The state with the highest power plant mercury pollution in 1998 was Pennsylvania, whose power plants emitted 9,161 pounds. Southern Company was the holding company with the highest mercury emissions in 1998, emitting 7,165 pounds of mercury that year.

Table 7: 100 Power Plants Emitting the Highest Quantities of Mercury Pollution in 1999

	State	Operating Company	Name	County	Primary Fuel	1st Year On-Line	1998 Hg (lbs)
1	PA	Pennsylvania Electric Co.	Keystone	Armstrong	Coal	67/68	1,911
2	PA	Pennsylvania Electric Co.	Homer City	Indiana	Coal	69/77	1,633
3	TX	Texas Utilities Company	Monticello	Titus	Coal	74/78	1,396
4	AL	AL Power	James H Miller Jr	Jefferson	Coal	78/91	1,375
5	TX	Houston Lighting and Power Co	W a Parish	Fort Bend	Coal/Gas	58/82	1,326
6	WV	VEPCO	Mt Storm	Grant	Coal	65/73	1,303
7	PA	PP&L Resources, Inc.	Montour	Montour	Coal	72/73	1,267
8	TX	Texas Utilities Company	Martin Lake	Rusk	Coal	77/79	1,216
9	OH	Ohio Power Co	Gen J M Gavin	Gallia	Coal	74/75	1,141
10	IN	Indian Michigan Power Co.	Rockport	Spencer	Coal	84/89	1,092
11	AL	AL Power	E C Gaston	Shelby	Coal	60/74	1,080
12	OH	Columbus Southern Power Co.	Conesville	Coshocton	Coal	57/78	1,048
13	TX	Houston Lighting and Power Co	Limestone	Limestone	Coal	85/86	909
14	PA	Pennsylvania Electric Co.	Shawville	Clearfield	Coal/Oil	54/60	906
15	IL	Commonwealth Edison	Joliet 29	Will	Coal/Gas	65/66	865
16	IL	Commonwealth Edison	Powerton	Tazewille	Coal	72/75	837
17	IL	Commonwealth Edison	Waukegan	Lake	Coal	58/62	830
18	TX	SWEPCO	Pirkey	Harrison	Coal	85	821
19	IL	Commonwealth Edison	Will County	Will	Coal	55/63	814
20	AL	AL Power	Gorgas	Walker	Coal	51/72	812
21	NM	Public Service Co of NM	San Juan	San Juan	Coal	73/82	759
22	WV	Appalachian Power Co	John E Amos	Putnam	Coal	71/73	747
23	MI	Detroit Edison Co.	Monroe	Monroe	Coal/Oil	69/74	725
24	GA	Georgia Power	Scherer	Monroe	Coal	82/89	711
25	KY	TVA	Paradise	Muhlenberg	Coal	63/70	700
26	NC	CP&L (Carolina Power and Light)	Roxboro	Person	Coal	66/80	700
27	FL	FL Power	Crystal River	Citrus	Coal	66/84	660
28	PA	Pennsylvania Electric Co.	Conemaugh	Indiana	Coal	70/70	660
29	OH	Cleveland Electric Illum. Co	Eastlake	Lake	Coal	53/72	647
30	OH	DPL Co	J M Stuart	Adams	Coal	70/74	640
31	IN	PSI Energy	Gibson	Gibson	Coal	75/82	628
32	OH	Ohio Edison Co	W H Sammis	Jefferson	Coal/Oil	59/72	614
33	MT	Montana Power Co	Colstrip	Rosebud	Coal	75/86	613
34	GA	Georgia Power	Bowen	Bartow	Coal	71/75	603
35	IA	Midamerican Energy Company	George Neal North and South		Coal/Gas	64/79	603
36	MO	Union Electric Co	Labadie	Franklin	Coal	70/73	589
37	ND	Coop Power Assn	Coal Creek	McLean	Coal	79/80	586
38	KS	KPL Western Resources	Jeffrey Energy Centr	Pottawatomie	Coal	78/83	581
39	IN	Indiana-Kentucky Electric Corp.	Clifty Creek	Jefferson	Coal	55/56	580
40	IN	IPALCO Enterprises	Petersburg	Pike	Coal	67/86	565
41	IL	Electric Energy Inc.	Joppa Steam	Masaac	Coal/Gas	53/55	555
42	WV	Central Operating Co	Phil Sporn	Mason	Coal	50/60	536
43	PA	PP&L Resources, Inc.	Brunner Island	York	Coal/Oil	61/67	533
44	NM	Arizona Public Service Co	Four Corners	San Juan	Coal	63/70	528
45	OH	Cardinal Operating Co.	Cardinal	Jefferson	Coal	67/77	526
46	TN	TVA	Kingston	Roane	Coal	54/55	526
47	ND	Minnkota Power Coop Inc	Milton R Young	Oliver	Coal	70/77	510
48	WI	Wisconsin Energy Corporation	Pleasant Prairie	Kenosha	Coal/Oil	80/85	508
49	TN	TVA	Johnsonville	Humphrey's	Coal/Oil	51/75	506
50	TX	SWEPCO	Welsh	Titus	Coal	77/82	500

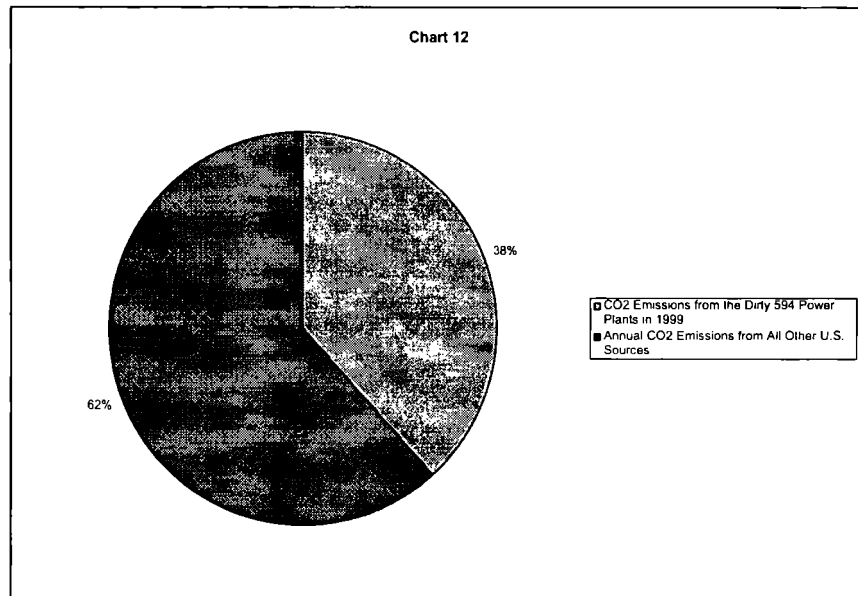
	State	Owner	Name	County	Primary Fuel	1st Year On-Line	1998 Hg.(lbs)
51	TN	TVA	Cumberland	Stewart	Coal	73	492
52	MD	Baltimore Gas & Electric Co	Brandon Shores	Anne Arundel	Coal	84/91	489
53	NC	Duke Power	Belews Creek	Stokes	Coal	74/75	477
54	OH	Ohio Valley Electric Corp.	Kyger Creek	Gallia	Coal	55	466
55	NC	CP&L (Carolina Power and Light)	Marshall	Madison	Water	85	459
56	TX	Lower Colorado River Authority	Sam Seymour	n/a	n/a	n/a	459
57	TX	Texas Utilities Company	Big Brown	Freestone	Coal	71/72	458
58	KY	Kentucky Power Co.	Big Sandy	Lawerence	Coal	63/69	453
59	AR	Entergy Arkansas Inc.	White Bluff	Jefferson	Coal	80/81	451
60	AL	AL Power	Barry	Mobile	Coal/Gas	54/71	450
61	WY	PacifiCorp	Jim Bridger	Sweetwater	Coal	74/79	449
62	MO	Union Electric Co	Rush Island	Jefferson	Coal	76/77	445
63	WV	Monongahela Power	Harrison	Harrison	Coal	72/74	438
64	AZ	Salt River Proj Ag I & P Dist	Navajo	Coconino	Coal	74/76	431
65	WA	PacifiCorp	Centralia	Lewis	Coal	72/73	421
66	MD	Potomac Electric Power Co	Morgantown	Charles	Coal/Oil	70/71	404
67	LA	Cajun Electric Power Coop Inc	Big Cajun 2	Pointe Coupee	Coal	81/83	403
68	NE	NPPD	Gentleman Sta	Lincoln	Coal	79/82	402
69	TN	TVA	Gallatin	Sumner	Coal/Oil	56/75	397
70	WI	WPL Co	Columbia	Columbia	Coal	75/78	396
71	KY	KU Co.	Ghent	Carroll	Coal	74/84	391
72	TX	San Antonio City of	J T Deely	Bexar	Coal	77/78	381
73	WV	Ohio Power Co	Mitchell	Marshall	Coal	71	380
74	OH	Cleveland Electric Illum. Co	Avon Lake-total	Lorain	Coal/Oil	49/73	375
75	MI	Consumers Energy Co.	J H Campbell	Ottawa	Coal/Oil	62/80	373
76	LA	Central Louisiana Elec Co Inc	Dolet Hills	De Soto	Coal/Gas	86	372
77	AL	TVA	Widows Creek	Jackson	Coal	52/65	371
78	OH	Cincinatti Gas & Electric	Walter C Beckjord	Clermont	Coal/Oil	52/72	371
79	TX	Southwestern Public Service Co	Tolk Station	Lamb	Coal/Gas	82/85	371
80	VA	VA Elec. & Power Co.	Chesterfield	Chesterfield	Coal	52/69	360
81	ND	Basin Electric Power Coop	Leland Olds	Mercer	Coal	66/75	359
82	OH	Cincinatti Gas & Electric	W H Zimmer	Clermont	Coal	91	357
83	KS	KCP&L	La Cygne	Linn	Coal	73/77	356
84	IL	Illinois Power	Baldwin	Randolph	Coal	70/75	349
85	PA	PP&L Resources, Inc.	Sunbury	Snyder	Coal/Oil	49/67	345
86	IN	NIPSCO Industries, Inc.	R M Schahfer	Jasper	Coal/Gas	76/86	341
87	OH	Cincinatti Gas & Electric	Miami Fort	Hamilton	Coal/Oil	49/78	334
88	AZ	Arizona Public Service Co.	Cholla	Navajo	Coal	62/81	332
89	PA	West Penn Power Co	Hatfields Ferry Po	Greene	Coal	69/71	324
90	KY	East Kentucky Power Coop Inc	H L Spurlock	Mason	Coal	77/81	323
91	PA	Pennsylvania Electric Co.	Seward	Indiana	Coal	50/57	318
92	AR	Entergy Arkansas Inc.	Independence	Independence	Coal	83/84	316
93	WV	Appalachian Power Co	Mountaineer (1301)	Mason	Coal	80	313
94	IL	Commonwealth Edison	Crawford	Cook	Coal/Gas	58/61	312
95	OH	Ohio Power Co	Muskingum River	Morgan	Coal	53/68	311
96	TN	TVA	Bull Run	Anderson	Coal	67	310
97	IA	Midamerican Energy Company	Louisa	Louisa	Coal	83	307
98	MN	Minnesota Power	Clay Boswell	Itasca	Coal/Oil	58/80	307
99	MD	Potomac Electric Power Co	Chalk Point	Prince Georges	Coal/Gas/Oil	67/91	302
100	MN	Northern States Power Co.	Sherburne County	Sherburne	Coal	76/87	301

Table 8: Ranking of States		
by Amount of Mercury (Hg)		
Emitted by Power Plants in 1998		
	State	Hg (lbs)
1	PA Total	9,161
2	TX Total	9,073
3	OH Total	7,770
4	IL Total	6,077
5	AL Total	4,875
6	IN Total	4,870
7	WV Total	4,750
8	KY Total	3,611
9	NC Total	2,871
10	MI Total	2,764
11	MO Total	2,563
12	TN Total	2,548
13	FL Total	2,429
14	GA Total	2,239
15	ND Total	2,039
16	WI Total	1,953
17	IA Total	1,926
18	MD Total	1,781
19	VA Total	1,375
20	NM Total	1,324
21	WY Total	1,269
22	KS Total	1,193
23	SC Total	1,182
24	LA Total	1,104
25	NY Total	1,064
26	AZ Total	1,035
27	OK Total	1,030
28	AR Total	939
29	MN Total	910
30	NE Total	799
31	CO Total	751
32	MT Total	678
33	MS Total	671
34	UT Total	660
35	WA Total	421
36	NV Total	416
37	NJ Total	411
38	DE Total	310
39	MA Total	242
40	OR Total	140
41	NH Total	135
42	SD Total	63
43	CT Total	0
44	ME Total	0
45	CA Total	0

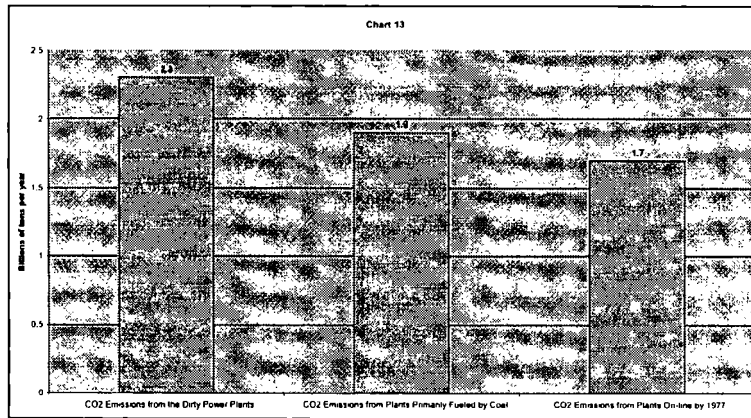
Table 9: Dirty Dozen Holding Companies -- Ranked by Estimated 1998 Mercury (Hg) Emissions		
	Holding Company	Mercury (lbs)
1	Southern Company	7,165
2	American Electric Power Co, Inc	6,660
3	GPU, Inc	5,581
4	Commonwealth Edison	4,111
5	TVA	4,108
6	Texas Utilities Company	3,288
7	Allegheny Power System, Inc	2,970
8	Dominion Resources	2,547
9	Cinergy Corp.	2,437
10	Central and Southwest Corporation	1,986
11	Carolina Power & Light	1,969
12	PacifiCorp	1,838

D. Carbon Dioxide (CO₂)

The 594 dirtiest plants profiled by this report emitted 2.3 billion tons of CO₂ in 1999, 38 percent of all U.S. CO₂ emissions (See Chart 12 below).⁵⁴ As with the other three pollutants, there was a clear correlation between the most polluting plants, and those that are primarily fueled by coal. In the case of CO₂, 85% was emitted by plants primarily fueled by coal. There was also a high correlation between the most polluting plants and those that had at least one unit that began operating on or before 1977, with 74% of the CO₂ coming from plants operating by 1977 (See Chart 13).



⁵⁴ U.S. EPA, U.S. Department of Energy, "Carbon Dioxide Emissions from the Generation of Electric Power in the U.S., October 15, 1999.



The following three tables rank the 100 plants emitting the highest quantity of CO₂ in 1999 (Table 10), the states according to most CO₂ emitted from in-state power plants in 1999 (Table 11), and the 12 holding companies whose plants emitted the most CO₂ in 1999 (Table 12). The dirtiest plant in the nation was Southern Company's Scherer plant in Georgia, which emitted 23.6 million tons of CO₂. The state with the highest power plant CO₂ pollution in 1999 was Texas, whose power plants emitted 235 million tons of CO₂ in 1999. As with all of the other pollutants, Southern Company, based in Atlanta, Georgia, was the holding company with the highest CO₂ emissions in 1999, emitting 171 million tons of CO₂.

Table 10: 100 Power Plants Emitting the Highest Quantities of Carbon Dioxide Pollution in 1999

	ST	Operating Company	Name	County	Primary Fuel	1st Year On-Line	1999 CO2 (tons)
1	GA	Georgia Power	Scherer	Monroe	Coal	82/89	23,664,019
2	TX	Houston Lighting and Power Co	W a Parish	Fort Bend	Coal/Gas	58/82	23,028,926
3	IN	PSI Energy	Gibson	Gibson	Coal	75/82	22,276,074
4	AL	AL Power	James H Miller Jr	Jefferson	Coal	78/91	21,365,768
5	TX	Texas Utilities Company	Martin Lake	Rusk	Coal	77/79	20,486,049
6	GA	Georgia Power	Bowen	Bartow	Coal	71/75	20,165,773
7	WY	PacifiCorp	Jim Bridger	Sweetwater	Coal	74/79	19,764,403
8	AZ	Salt River Proj Ag I & P Dist	Navajo	Coconino	Coal	74/76	19,499,180
9	IN	Indian Michigan Power Co.	Rockport	Spencer	Coal	84/89	19,470,821
10	MT	Montana Power Co	Colstrip	Rosebud	Coal	75/86	18,619,409
11	TN	TVA	Cumberland	Stewart	Coal	73	18,413,027
12	KY	KU Co.	Ghent	Carroll	Coal	74/84	18,125,227
13	WV	Appalachian Power Co	John E Amos	Putnam	Coal	71/73	18,017,179
14	NM	Arizona Public Service Co	Four Corners	San Juan	Coal	63/70	17,483,077
15	FL	FL Power	Crystal River	Citrus	Coal	66/84	16,199,684
16	TX	Texas Utilities Company	Monticello	Titus	Coal	74/78	16,184,141
17	KS	KPL Western Resources	Jeffrey Energy Centr	Pottawatomie	Coal	78/83	16,124,844
18	NC	CP&L (Carolina Power and Light)	Roxboro	Person	Coal	66/80	16,092,703
19	OH	Ohio Power Co	Gen J M Gavin	Gallia	Coal	74/75	15,919,260
20	MN	Northern States Power Co.	Sherburne County	Sherburne	Coal	76/87	15,864,260
21	OH	Ohio Edison Co	W H Sammis	Jefferson	Coal/Oil	59/72	15,720,891
22	MO	Union Electric Co	Labadie	Franklin	Coal	70/73	15,608,008
23	KY	TVA	Paradise	Muhlenberg	Coal	63/70	15,065,232
24	MI	Detroit Edison Co.	Monroe	Monroe	Coal/Oil	69/74	15,042,097
25	WV	Monongahela Power	Harrison	Harrison	Coal	72/74	14,848,945
26	UT	Los Angeles City of	Intermountain	Millard	Coal	86/87	14,842,400
27	OH	DPL Co	J M Stuart	Adams	Coal	70/74	14,731,941
28	NC	Duke Power	Belews Creek	Stokes	Coal	74/75	14,444,191
29	WY	Basin Electric Power Coop	Laramie River	Platte	Coal	81/82	14,267,970
30	NM	Public Service Co of NM	San Juan	San Juan	Coal	73/82	13,748,364
31	PA	Penn. Power	Bruce Mansfield	Beaver	Coal	76/80	13,576,930
32	AR	Entergy Arkansas Inc.	Independence	Independence	Coal	83/84	13,282,750
33	LA	Cajun Electric Power Coop Inc	Big Cajun 2	Pointe Coupee	Coal	81/83	13,183,144
34	PA	Pennsylvania Electric Co.	Homer City	Indiana	Coal	69/77	13,029,807
35	AL	AL Power	E C Gaston	Shelby	Coal	60/74	13,010,925
36	IN	IPALCO Enterprises	Petersburg	Pike	Coal	67/86	12,867,750
37	PA	Pennsylvania Electric Co.	Conemaugh	Indiana	Coal	70/70	12,861,237
38	TX	Houston Lighting and Power Co	Limestone	Limestone	Coal	85/86	12,728,992
39	TX	Lower Colorado River Authority	Sam Seymour	n/a	n/a	n/a	12,723,703
40	TX	SWECO	Welsh	Titus	Coal	77/82	12,695,086
41	PA	Pennsylvania Electric Co.	Keystone	Armstrong	Coal	67/68	12,323,856
42	NC	CP&L (Carolina Power and Light)	Marshall	Madison	Water	85	12,196,762
43	AL	AL Power	Barry	Mobile	Coal/Gas	54/71	11,969,557
44	IN	NIPSCO Industries, Inc.	R M Schahfer	Jasper	Coal/Gas	76/86	11,909,084
45	WV	VEPCO	Mt Storm	Grant	Coal	65/73	11,886,664
46	IA	Midamerican Energy Company	George Neal North and South		Coal/Gas	64/79	11,721,144
47	AR	Entergy Arkansas Inc.	White Bluff	Jefferson	Coal	80/81	11,690,979
48	AL	TVA	Widows Creek	Jackson	Coal	52/65	11,432,515
49	WI	Wisconsin Energy Corporation	Pleasant Prairie	Kenosha	Coal/Oil	80/85	11,128,237
50	UT	PacifiCorp	Hunter (Emery)	Emery	Coal	78/83	10,891,090

	ST	Owner	Name	County	Primary Fuel	1st Year On-Line	1999 CO2 (tons)
51	TN	TVA	Kingston	Roane	Coal	54/55	10,830,003
52	WA	PacifiCorp	Centralia	Lewis	Coal	72/73	10,645,221
53	FL	JEA	St Johns River Power	Duval	Coal/Oil	87/88	10,595,267
54	MI	Consumers Energy Co.	J H Campbell	Ottawa	Coal/Oil	62/80	10,573,777
55	ND	Coop Power Assn	Coal Creek	McLean	Coal	79/80	10,549,158
56	FL	TECO	Big Bend	Hillsborough	Coal/Oil	69/85	10,398,081
57	MD	Baltimore Gas & Electric Co	Brandon Shores	Anne Arundel	Coal	84/91	10,395,000
58	OK	Oklahoma Gas & Electric Co	Muskogee	Muskogee	Coal/Gas	56/84	10,293,402
59	KS	KCP&L	La Cygne	Linn	Coal	73/77	10,273,828
60	MO	Associated Electric Coop Inc	Thomas Hill	Randolph	Coal	66/82	10,265,456
61	NV	Southern California Edison Co.	Mohave	Clark	Coal/Gas	71/71	10,107,992
62	MI	Detroit Edison Co.	Belle River	St. Clair	Coal/Oil	81/85	10,079,789
63	KY	TVA	Shawnee	McCracken	Coal	53/56	10,030,198
64	OH	Columbus Southern Power Co.	Conesville	Coshocton	Coal	57/78	9,962,005
65	GA	Georgia Power	Wansley	Heard	Coal	76/78	9,958,403
66	IL	Illinois Power	Baldwin	Randolph	Coal	70/75	9,943,296
67	KY	LG&E Energy Corporation	Mill Creek	Jefferson	Coal	72/82	9,904,727
68	OH	Cincinatti Gas & Electric	W H Zimmer	Clermont	Coal	91	9,828,655
69	FL	Seminole Electric Coop Inc	Seminole	Putnam	Coal	84/85	9,782,239
70	OH	Cincinatti Gas & Electric	Miami Fort	Hamilton	Coal/Oil	49/78	9,755,553
71	CO	Tri-State G & T Assn Inc	Craig	Moffat	Coal	79/84	9,715,232
72	IL	Electric Energy Inc.	Joppa Steam	Masaac	Coal/Gas	53/55	9,673,917
73	NE	NPPD	Gentleman Sta	Lincoln	Coal	79/82	9,434,513
74	MI	Detroit Edison Co.	St Clair	St Clair	Coal/Oil	53/69	9,299,565
75	OH	Cardinal Operating Co.	Cardinal	Jefferson	Coal	67/77	9,294,345
76	WV	Ohio Power Co	Mitchell	Marshall	Coal	71	8,906,422
77	IN	Indiana-Kentucky Electric Corp.	Clifty Creek	Jefferson	Coal	55/56	8,893,724
78	AL	AL Power	Gorgas	Walker	Coal	51/72	8,874,049
79	TX	Southwestern Public Service Co	Tolk Station	Lamb	Coal/Gas	82/85	8,860,632
80	MA	US Generating Co	Brayton Point	n/a	n/a	n/a	8,808,361
81	PA	West Penn Power Co	Hatfields Ferry	Greene	Coal	69/71	8,796,357
82	TX	Texas Utilities Company	Handley	Tarrant	Gas/Oil	48/77	8,788,760
83	TN	TVA	Johnsonville	Humphrey's	Coal/Oil	51/75	8,724,362
84	OH	Cincinatti Gas & Electric	Walter C Beckjord	Clermont	Coal/Oil	52/72	8,663,538
85	IL	Commonwealth Edison	Powerton	Tazewille	Coal	72/75	8,656,753
86	TX	Southwestern Public Service Co	Harrington Station	Potter	Coal/Gas	76/80	8,653,391
87	IN	Hoosier Energy R E C, Inc.	Merom	Sullivan	Coal	82/83	8,474,637
88	PA	PP&L Resources, Inc.	Montour	Montour	Coal	72/73	8,392,818
89	SC	SC Pub. Serv. Auth	Winyah	Georgetown	Coal	75/81	8,389,202
90	WV	Appalachian Power Co	Mountaineer (1301)	Mason	Coal	80	8,281,637
91	OK	Public Service Co of OK	Northeastern	Rogers	Coal/Gas/Oil	61/80	8,271,725
92	ND	Basin Electric Power Coop	Antelope Valley	Mercer	Coal	84/86	8,226,314
93	WI	WPL Co	Columbia	Columbia	Coal	75/78	8,216,765
94	MO	Associated Electric Coop Inc	New Madrid	New Madrid	Coal	72/77	8,183,447
95	WV	Monongahela Power	Pleasants	Pleasants	Coal	79/80	8,151,589
96	MO	Union Electric Co	Rush Island	Jefferson	Coal	76/77	8,021,847
97	AZ	Arizona Public Service Co.	Cholla	Navajo	Coal	62/81	8,017,733
98	TN	TVA	Gallatin	Sumner	Coal/Oil	56/75	7,908,462
99	WV	Monongahela Power	Fort Martin	Monongolia	Coal	67/68	7,904,276
100	VA	VA Elec. & Power Co.	Chesterfield	Chesterfield	Coal	52/69	7,883,971

Table 11: Ranking of States by Amount of Carbon Dioxide Emitted by Power Plants in 1999		
	State	1999 CO2 (tons)
1	TX Total	235,258,090
2	IN Total	139,270,207
3	OH Total	133,338,474
4	FL Total	115,460,931
5	KY Total	108,030,890
6	PA Total	105,892,022
7	WV Total	94,126,998
8	IL Total	87,500,389
9	AL Total	83,126,048
10	GA Total	78,575,066
11	MI Total	74,743,778
12	NC Total	72,500,799
13	MO Total	69,787,245
14	TN Total	59,387,882
15	WY Total	52,602,659
16	WI Total	50,580,529
17	NY Total	48,738,689
18	LA Total	47,514,795
19	OK Total	45,271,299
20	AZ Total	45,266,406
21	IA Total	39,760,695
22	KS Total	39,388,316
23	UT Total	38,434,048
24	VA Total	38,225,646
25	SC Total	37,985,078
26	CO Total	37,949,172
27	ND Total	37,574,081
28	MD Total	36,556,892
29	NM Total	35,413,668
30	MN Total	35,042,025
31	AR Total	31,762,752
32	MS Total	23,982,997
33	NE Total	23,150,252
34	MA Total	23,115,134
35	NV Total	20,738,392
36	MT Total	20,242,945
37	WA Total	10,645,221
38	NJ Total	9,563,429
39	CT Total	8,901,330
40	NH Total	5,578,224
41	DE Total	5,005,945
42	OR Total	4,329,202
43	SD Total	4,299,876
44	ME Total	2,441,376
45	CA Total	1,234,541

Table 12: Dirty Dozen Holding Companies,		
Ranked by 1999 CO2 Emissions		
	Holding Company	CO2 (tons)
1	Southern Company	170,912,999
2	American Electric Power Co, Inc	112,996,031
3	TVA	103,633,835
4	Texas Utilities Company	91,275,600
5	Allegheny Power System, Inc	72,241,032
6	Cinergy Corp.	71,870,932
7	Entergy	68,090,395
8	PacifiCorp	68,022,019
9	Central and Southwest Corporation	57,371,810
10	Dominion Resources	49,426,920
11	GPU, Inc	46,349,094
12	Carolina Power & Light	44,855,810

Section 3: Policy Recommendations

A. Closing the Lethal Loophole

Nitrogen oxide and sulfur dioxide emissions are resulting in illness and premature death for tens of thousands of Americans, the loss of forest and aquatic ecosystems and loss of visibility in American's national parks. This report demonstrates that requiring old power plants to meet emission limits currently imposed only upon newer plants would reduce total nationwide SO₂ and NO_x emissions by 9.4 million tons and 3.6 million tons respectively. Compared to EPA's estimate of total nationwide SO₂ and NO_x emission of 20.4 million tons of SO₂ and 23.6 million tons of NO_x, closing the loophole will eliminate 46% of total SO₂ emissions, and 15% of all NO_x emissions from all sources. Congress should close the lethal loophole, requiring all power plants to meet modern pollution standards no later than 2005.

B. Standards for Power Plant Mercury Emissions

Mercury has poisoned the fish in thousands of U.S. lakes and streams, putting people who eat these fish at risk for neurological damage, including delayed development in young children.

Mercury emissions from power plant smokestacks are uncontrolled, while other major sources, including medical and municipal waste incinerators are being required to reduce their mercury emissions. Coal-burning power plants are the largest source of this dangerous toxic metal. Congress must set strict emission limits for mercury from power plants designed to protect the public's health, reducing power plant mercury emissions by at least 90% by 2005.

C. Standards for Power Plant CO₂ Emissions

Global warming threatens to radically alter the Earth's climate. The warming of the earth has potentially disastrous results such as the increase in extreme weather events, the spread of infectious disease, loss of habitat and species, and sea level rise.

Despite the fact that power plants are the largest industrial source of CO₂ that causes global warming, there are currently no limits on the amount of CO₂ that power plants can emit. Congress must set emission standards for CO₂ consistent with attainment of targets agreed to by 38 industrialized nations in Kyoto, Japan in 1997, which commits the U.S. to reduce overall emissions of greenhouse gases to levels 7% below levels emitted in 1990. At a minimum, power plant carbon dioxide levels should be reduced to 1990 levels by 2005.

The pollution reduction goals would be achieved in part or in full by measures contained in several bills introduced in the current Congress. Most notably, the Clean Smokestacks Act (H.R. 2900), the Clean Power Plants Act (H.R. 2980) and the Clean Energy Act (S. 1369) are among the bills that would, if enacted, achieve deep cuts in all four of the major power plant pollutants.

D. Energy Efficiency and Renewable Energy

While in the short term, burning cleaner fuels such as natural gas and installing pollution controls can significantly reduce air pollution from the nation's dirty power plants, any sound energy policy must ultimately seek to replace fossil fuel and nuclear power plants with energy efficiency and renewable energy alternatives.

This decade has witnessed great advances in energy saving technology, bringing to the market household appliances, motors, lighting, heating and cooling systems that use 50-70% less energy than average models currently in use. However, even the most efficient appliances in the marketplace consume much more than is technologically achievable. Moreover, energy efficiency has the added benefit of saving consumers money. Since 1973, modest investments in energy efficiency have cut the national energy bill by at least \$150 billion per year.⁵⁵

Likewise, the use of non-polluting renewable energy sources have significant potential to displace fossil and nuclear generation. Solar, wind, biomass, geothermal and fuel cell technologies are readily available, and can produce power with little or no pollution. Moreover, the cost of generating electricity using renewable technologies is falling dramatically, as the demand for renewable energy systems increases. Today, however, just two percent of America's power is generated from non-hydro renewable energy sources.

Incentives for investment in energy efficiency and renewable energy are critical to making them available to consumers in the marketplace. A renewable portfolio standard (RPS) setting a minimum renewable content requirement for all electricity providers would go a long way toward commercializing renewable power technologies. Moreover, a public benefits trust (PBT) creating a national fund for investment in energy efficiency would allow consumers to take advantage of cost effective energy saving technologies. Both of these policies are contained in bills proposed by Representative Frank Pallone of New Jersey (H.R. 2569) and Senator James Jeffords of Vermont (S. 1369).

E. Electric Industry Restructuring and the Environment

Across the nation states are considering, or passing legislation to deregulate, or "restructure" their electric utilities. To date, 25 states have passed restructuring legislation, allowing competition among electricity providers. Meanwhile, at the federal level, several bills are being debated within the House Commerce Committee in an effort to pass national retail restructuring legislation. Due in part to competitive pressures in the industry, coal-burning power plants have steadily expanded their output in the last decade – nearly 16% in the last seven years alone. Much of this expanded output has been made possible by weaker emission standards for these plants that confer a clear economic

⁵⁵ American Council for an Energy Efficient Economy.

advantage. Moreover, some studies have suggested that retail deregulation by Congress or the states could accelerate this trend in utilization of exempted older power plants, thus increasing emissions and associated sickness and environmental damage.

Restructuring makes it more important than ever before to create a level playing field for all power plants, old and new. Any federal bill to deregulate the electric utilities should contain adequate protections against further degradation of public health and the environment, including the pollution reduction policies and clean energy policies described above.

Note to Linda Lance, David Gardiner
From David Doniger
April 12, 2000

Attached is the latest version of the analysis of the health and environmental benefits of reducing SO₂ and NO_x emissions from power plants. The attached is pp. 35-42 of a report draft EPA has prepared the Moynihan bill ("Analysis of the Acid Deposition and Ozone Control Act (S.172)"). The document is still in OMB review.

The bill would reduce SO₂ allowances to 4.5 million tons (50% below the current Acid Rain Program cap) by 2005. It would reduce NO_x to 2.2 million tons by 2005.

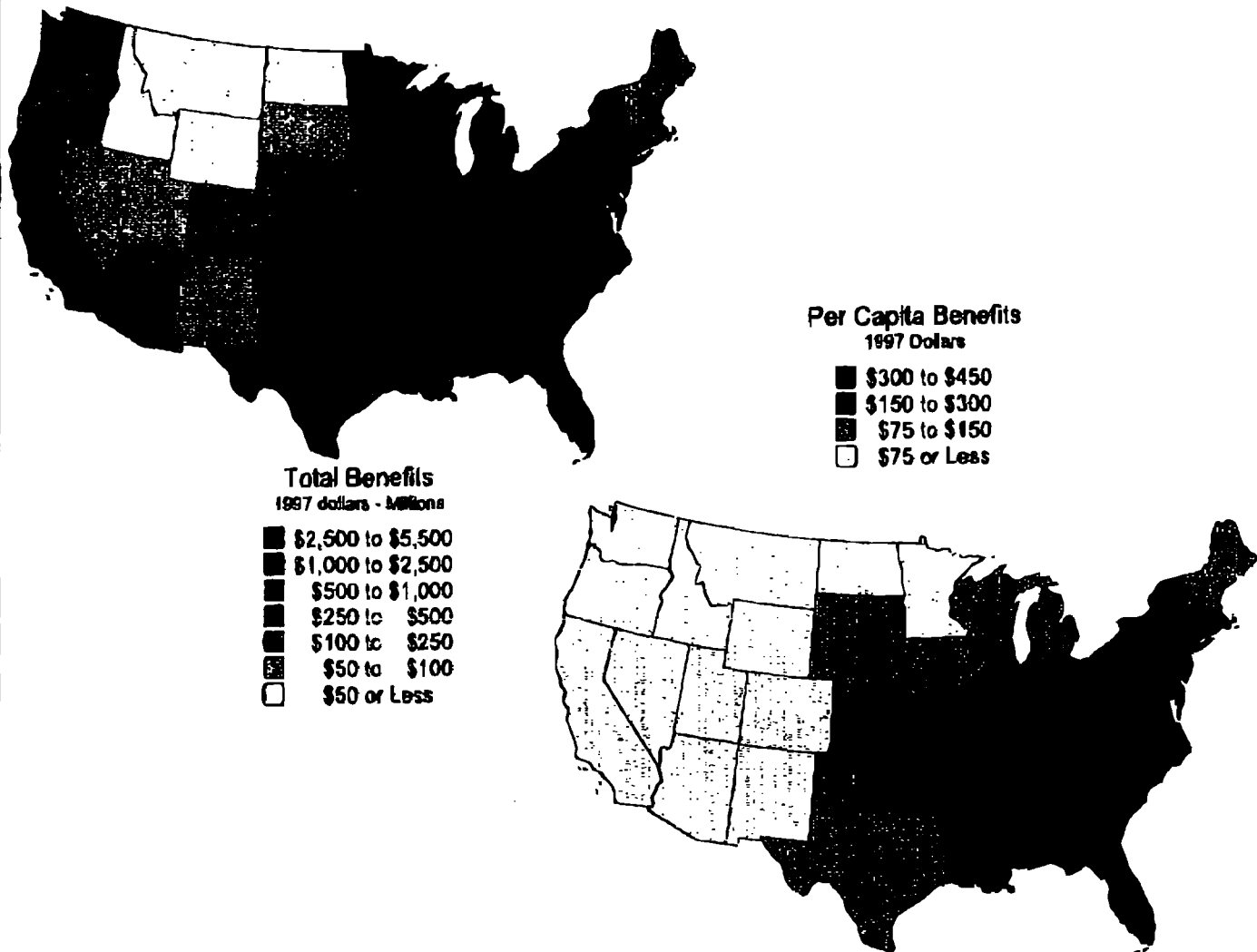
- Benefits in 2010 associated with the SO₂/NO_x reductions required by the bill: \$59.5 billion in health benefits, \$1.2 billion in visibility benefits.
- Health benefits include more than 10,000 fewer deaths, more than 5,000 fewer new cases of chronic bronchitis, etc, from reductions in fine particles formed from SO₂ and NO_x. See Ex. 20, p.37. (Most of the benefit is associated with the SO₂ reductions.)

These numbers probably will be challenged by OMB, although they have not yet said specifically what part of the methodology they are questioning. The methodology used here is consistent with that cleared for the Tier II/gasoline sulfur rules.

The analysis shows that *the health and visibility benefits from reducing SO₂ and NO_x are more than sufficient by themselves to outweigh the total cost of a strong integrated package that covers all four pollutants, including carbon dioxide and mercury.* This remains true even if estimated benefits are sharply reduced (economic agencies have suggested cutting these numbers in half).

Contact me if you have any questions.

Exhibit 19: PM_{2.5} - Related Health Benefits of S172 in 2010



Draft—Do Not Cite or Quote

Georgia, where large populations combine with substantial changes in air quality. Nine other states would have benefits greater than \$2 billion per year—Alabama, Illinois, Maryland, New Jersey, North Carolina, Ohio, Tennessee, Texas, and Virginia. These state-level estimates should be interpreted cautiously because they are based on the assumption that changes in PM concentrations have the same effects on human health in all locations. They are, however, indicative of the expected geographic distribution of the health benefits of S. 172. The other panel of Exhibit 19 presents per capita health benefits, which are directly related to the improvements in PM_{2.5} concentrations shown in Exhibit 15. The breakdown of health benefits,

Exhibit 20
Estimated Mean Annual Health Benefits from PM_{2.5} Reductions in 2010 with Full Implementation of S. 172

Health Effect	Cases Avoided (1,000s)	Value (million of 1997\$)
Mortality	10.6	\$57,166
New Onset of Chronic Bronchitis	5.4	\$1,711
Respiratory Hospital Admissions	1.9	\$318
Cardiovascular Hospital Admissions	1.4	\$20
Asthma Emergency Visits	2.0	\$9.6
Acute Bronchitis	77.6	\$1.0
Upper Respiratory Symptom Days	286.8	\$7
Lower Respiratory Symptom Days	188.1	\$2.8
Shortness of Breath	86.6	\$0.3
Work Loss Days	1,508.0	\$154
Minor Respiratory Symptom Days	8,085.0	\$380
Total		\$59,458

Source: U.S. EPA analysis.

Exhibit 21
Geographic Distribution of PM_{2.5} Health Benefits from S. 172

Geographic Area	Health Benefits
Eastern United States	\$53,187
Western United States	\$6,251
Total United States	\$59,438

Source: U.S. EPA analysis.

by category and region, is presented in Exhibits 20 and 21.

Alternative Estimates of Mortality Benefits

The human health benefits estimates presented in this section were computed using a methodology based on a fixed value per avoided death (i.e., value of statistical life, or VSL) and a concentration-response function based on research by Pope et al. (1995). These are the bases for the primary PM mortality benefits estimates in recent EPA analyses (U.S. EPA 1999b), but EPA also has considered other plausible interpretations of available literature. One alternative is to calculate the benefits based on the expected life years saved (VSLY), and another is to use a different source for the concentration-response function (Dockery et al. 1993). Comparisons of the estimated mortality-related benefits using these alternative approaches are presented in Exhibit 22. The differences between these alternative approaches and the approach used for the primary estimates are discussed in detail in Appendix 3.

These alternative estimates highlight the considerable uncertainty in any attempt to quantify the benefits of a reduction in pollution. EPA has listed the primary sources of uncertainty in these kinds of estimates (U.S. EPA 1999b, Table VII-8). In addition, there are many effects that are known to exist but cannot be quantified with available information. Quantified and unquantified benefits are listed in Appendix 3.

Exhibit 22
Alternative Estimates of Premature Mortality

Quantification Approach	Deaths Avoided (1,000s)	Value (millions of 1997\$)
Primary Estimate		
Pope et al. Mortality Effect and VSL Valuation	10.6	\$57,166
Alternative 1: Pope et al. Mortality Effect and VSL Valuation	10.6	\$84,936
Alternative 2: Dockery et al. Mortality Effect and VSL Valuation	22.9	\$123,479

Source: U.S. EPA analysis.

Visibility Benefits

The following discussion is limited to those visibility benefits that are due to reductions in pollution-related visibility impairment at national parks in the eastern United States (resulting from regional air pollution controls). Some improvements in visibility are predicted throughout the United States, but the improvements expected in the East are the most significant. Improvements are measured in deciviews. Valuations are based on studies of households' willingness-to-pay for visibility improvements at Class I national parks, but probably also reflect values for other recreational and scenic areas in the same regions. Households are willing to pay more for visibility improvements at parks near where they live, but study results show that households also value visibility at parks throughout the country (Chestnut and Rowe 1990a). As shown in Exhibit 23, the emission controls included in S. 172 will reduce atmospheric concentrations of the sulfate and nitrate particles that impair visibility, resulting in annual visibility improvements of \$1.22 billion at eastern national parks in 2010.

The expected visibility improvements are substantially greater in the East because of the

Exhibit 23
Estimated Mean Annual Visibility Benefits at Eastern Class I National Parks in 2010 with Full Implementation of S. 172

Geographic Area of Visibility Improvement	Average Annual Deciview Improvement	Annual Visibility Benefit to All U.S. Households (millions of 1997\$)
Class I National Parks in the Southeast	1.5	\$3,108
Class I National Parks in the Northeast	0.8	\$1,169
Total		\$4,277

Source: U.S. EPA analysis.

Deciview is a measure of visibility. The mean is weighted by park visitation.

greater reduction in SO₂ emissions that would be achieved. SO₂ emissions also are a significant source of visibility impairment in the central and western states, but SO₂ emissions are much lower to begin with than in the East, so a 50 percent national reduction does not have as large an impact. However, because there are so many Class I national parks in the West, even small improvements in visibility could have significant value.

Surface Water/Watersheds

At this time, analysis of the effects of S. 172 on surface water and watersheds is limited, though modeling of the acidification of additional watersheds in response to various emission scenarios is underway.

The modeling for this analysis used the biogeochemical model PnET-BGC to evaluate the response of stream chemistry in an acid-sensitive forest watershed to changes in atmospheric deposition that are expected to occur in response to decreases in NO_x and SO₂ emissions projected to result from Title IV and S. 172.

UTILITY EMISSIONS CONTROL BILLS - 106TH CONGRESS
WORKING DRAFT - Updated Nov. 30, 1999

	Annual Emissions from Utilities (tons) (1990/1997)	S.172/H.R.25/657	S.1369	H.R.2569	H.R.2645	H.R.2900	H.R.2980	S.1949
Title		Acid Deposition and Ozone Control Act	Clean Energy Act of 1999	Fair Energy Competition Act of 1999	Electricity Consumer, Worker, and Env'tl. Protection Act of 1999	Clean Smokestacks Act of 1999	Clean Power Plant Act of 1999	Clean Power Plant and Modernization Act of 1999
Sponsor		Moynihan/Boehlert/Sweeney	Jeffords	Pallone	Kucinich	Waxman	Allen	Leahy
Sulfur Dioxide (SO₂)	1990: 15.9 m 1997: 13.1 m (9.0 m by 2010 under phase II, Title IV)	4.5 m tons 50% reduction below Title IV cap (reduces allocation in 2005)	3.58 m tons by 2005	4.0 m tons by 2004	3.58 m tons 77% reduction from 1990 baseline by 2005.	3.12 m tons** 75% reduction from 1997 baseline by 2005.	2.9 m tons By 2005, emit not more than 3.0 lbs NOx/Mwe, with annual emission less than 3.0 lbs/Mwe times average Mw using 1996-'98.	2.9 m tons By 10 years after enactment, 95% reduction, and not more than 0.3 lbs/mmBtu
Nitrogen Oxides (NO_x)	1990: 6.7 m 1997: 6.2 m (5.2 m by 2000 under phase II, Title IV limits)	2.2 m tons 67% reduction from 1990 baseline by 2005. 3.7 m tons between 2002-04	1.66 m tons by 2005	1.66 m tons 79% reduction from 1990 baseline by 2005. (0.54 m tons/season (May - Sept) 2003-'04 - for 22 State SIP call region)	1.66 m tons 79% reduction from 1990 baseline by 2005.	1.4 m tons 75% reduction from 1997 baseline by 2005.	1.4 m tons By 2005, emit not more than 1.5 lbs NOx/Mwe, with annual emission less than 1.5 lbs/Mwe times average Mw using 1996-'98.	1.4 m tons By 10 years after enactment, 90% reduction, and not more than 0.15 lbs/mmBtu
Carbon Dioxide (CO₂)	1990: 1.914 bn 1997: 2.142 bn	Not covered	1.914 bn tons Reduction to 1990 levels by 2005.	1.914 bn tons Reduction to 1990 levels by 2005.	1.710 bn tons 10% reduction from 1990 baseline by 2005, with further reductions to 1.440 bn tons by 2010	1.914 bn tons Reduction to 1990 levels by 2005.	1.914 bn tons Reduction to 1990 levels by 2005.	1 - 1.35 bn tons By 10 years after enactment
Mercury (Hg)	1990: 52 tons	Study, but no target specified.	5 tons by 2005	50% reduction from 1990 levels by 2005, followed by 90% reduction by 2010.	0 tons Elimination by 2010	5 tons 90% reduction from 1997 baseline by 2005.	15 tons 70% reduction from 1997 baseline	5 tons By 10 years after enactment, 90% reduction from 1997 baseline

		S.172/H.R.25/657 Moynihan	S.1369 Jeffords	H.R.2569 Pallone	H.R.2645 Kucinich	H.R.2900 Waxman	H.R.2980 Allen	S.1949 Leahy
Trading Program		Cap-and-trade SO ₂ : same as Title IV NO _x : cap and trade with 2:1 summer: winter ratio	Generation Performance Standard (GPS) For NO _x , SO ₂ , CO ₂	GPS For NO _x , SO ₂ , CO ₂	GPS For NO _x , SO ₂ , CO ₂ , and mercury	Agency must promulgate regulations, and may choose a market-based program. Prohibits mercury trading.	GPS for CO ₂ No trading for NO _x , SO ₂ , and mercury	No trading. Encourages replacement of inefficient units with new units.
Affected States		48 + DC	Nationwide	Seasonal program for 22 Eastern States, beginning in 2003. Annual program for 48 + DC, beginning in 2005.	Nationwide	Nationwide	Nationwide	Nationwide
Applicability		Facilities with one or more unit(s) serving at least one generator ≥ 25 Mwe.	Non-nuclear facilities with a nameplate capacity ≥ 15 Mwe, using a combustion device to generate energy for sale.	Non-nuclear facilities with a nameplate capacity ≥ 15 Mwe, using a combustion device to generate energy for sale.	Electric generating facilities with a nameplate capacity ≥ 15 Mwe, that use a combustion device or nuclear reactor to generate electricity for sale.	Existing and new fossil fuel-fired electric generating units with a nameplate capacity ≥ 15 Mwe, using a combustion device to generate electricity for sale.	Existing and new fossil fuel-fired electric generating units with a nameplate capacity ≥ 15 Mwe, using a combustion device to generate electricity for sale.	All fossil fuel-fired generating units.
Allocation Methodology		SO ₂ : half of Title IV allocations beginning in 2005 NO _x (Allocations to the State): in proportion to that State's share of total generation in all States. NO _x (Allocations to the Source): based on the facility's proportion of the total generation in the State, averaged over a moving time frame.	GPS: determined by dividing the annual nation-wide aggregate emissions limit by the estimate of nationwide electricity generation (by all covered facilities) for the next calendar year. Allocated to the Source: GPS times the facilities' annual generation	GPS: determined by dividing the aggregate limits for the covered period by the estimate of total electricity generation from covered units in the applicable region during the next calendar year. Allocated to the Source: GPS times the facilities' annual generation	GPS: determined by dividing the aggregate limits for the covered period by the Administrator's estimate of total electricity generation from covered sources during the next calendar year.	Not Specified	GPS: determined by dividing the aggregate limits for the covered period by the Administrator's estimate of total electricity generation from covered sources during the next calendar year.	Not pertinent

		S.172/H.R.25/657 Moynihan	S.1369 Jeffords	H.R.2569 Pallone	H.R.2645 Kucinich	H.R.2900 Waxman	H.R.2980 Allen	S.1949 Leahy
Renewable Energy Provisions and Efficiency Standards		-	Renewable energy portfolio standards: Of the total amount of electricity sold by covered generation facilities, the amount generated by renewable energy sources must exceed an annually increasing amount. (2.5% in 2000, incrementally rising to 20% in 2020). Renewable energy credits issued for each MW sold by a covered generation facility in the preceding year that was generated by a renewable source.	Renewable energy portfolio standards: 2.5% in 2000, rising to 7.5% in all years after 2010. Renewable energy credits issued for each MW sold by a covered generation facility in the preceding year that was generated by a renewable source. Allowances allocated for projects demonstrating a reduction in gross energy demand. Alloc. determined by multiplying GPS by the reduction in energy use	Renewable energy portfolio standards: 1997 renewable baseline + 0.5% by 2001, rising to 1997 + 8.0% by 2010, with a 1% incremental rise each following year. Renewable energy credits issued for each MW sold by a covered generation facility in the preceding year that was generated by a renewable source.	-	-	Requires that all fossil fuel-fired units achieve 45% combustion heat rate efficiency by not later than ten years after enactment. Units commencing operation more than ten year after enactment must achieve 50% efficiency.
Funding Mechanisms		Grant program to fund research related to the effects of nitrogen deposition on watersheds and coastal estuaries in the Eastern US.	-	-	-	-	\$15,000,000 to conduct research in support of development of a carbon sequestration strategy that is designed to offset all growth in carbon dioxide emissions in the United States after 2010.	Clean Air Trust Fund: funding for renewable and energy-efficient projects.

Additional Contents		S.172/H.R.25/657 Moynihan	S.1369 Jeffords	H.R.2569 Pallone	H.R.2645 Kucinich	H.R.2900 Waxman	H.R.2980 Allen	S.1949 Leahy
		Penalty provisions for excess emissions. Requirement for Hg emissions monitoring and reporting from units > 250 mmBtu's per hour.	Penalty provisions for excess emissions.	Penalty provisions for excess emissions.	Bill primarily provides for the restructuring of the electric power industry.	On the later of the date that is 30 years after the power plant commenced operation or 5 years after the enactment of this bill, every outdated power plant shall comply with the most recent NSPS promulgated under section 111	Replacement of old generating units by new generating units, or replacement of with renewable power, will be credited in any climate change implementation program enacted by Congress.	Mandates that all fossil fuel-fired generating units, regardless of date of construction or commencement of operation, will be subject to NSR. New tax code depreciation treatment for efficient combustion technologies. Replacement of old generating units by new generating units, or replacement of with renewable power, will be credited in any climate change implementation program enacted by Congress.

Notes: ** Numbers appearing in italics were taken from a summary produced by Senator Leahy's office, and do not appear in the bills.

- Generation Performance Standards (GPS), which appear in S.1369, H.R.2569, and H.R.2645, and H.R.2980, are incompatible with existing Clean Air Act Title IV SO₂ market system.
- 1990 carbon dioxide baseline of 1.914 bn tons.
- Bills are listed chronologically by date of introduction.
- Additional utility emissions control bills, which do not appear in the table, include the following:
 - S.1047 and H.R.1828 (The Comprehensive Electricity Competition Act) are identical bills, introduced on behalf of the Administration by Murkowski/Bliley. The bill mirrors the NO_x SIP call.
 - S.673 (Omnibus Mercury Emissions Act of 1999), introduced by Leahy, regulates only mercury emissions.

Bill Summary & Status for the 106th Congress

NEW SEARCH | HOME | HELP | ABOUT COSPONSORS

S.673

Sponsor: Sen Leahy, Patrick J. (introduced 3/19/1999)

Related Bills: H.R.2667~~Latest Major Action:~~ 3/19/1999 Referred to Senate committee

Title: A bill to amend the Clean Air Act to establish requirements concerning the operation of fossil fuel-fired electric utility steam generating units, commercial and industrial boiler units, solid waste incineration units, medical waste incinerators, hazardous waste combustors, chlor-alkali plants, and Portland cement plants to reduce emissions of mercury to the environment, and for other purposes.

COSPONSORS(1), ALPHABETICAL [followed by Cosponsors withdrawn]: (Sort: by date)Sen Snowe, Olympia J. - 3/19/1999

Melody Burkum

Bill Summary & Status for the 106th Congress**NEW SEARCH | HOME | HELP****S.1949**

Sponsor: Sen Leahy, Patrick J. (introduced 11/17/1999)

Related Bills: H.R.2980

Latest Major Action: 11/17/1999 Referred to Senate committee

Title: A bill to promote economically sound modernization of electric power generation capacity in the United States, to establish requirements to improve the combustion heat rate efficiency of fossil fuel-fired electric utility generating units, to reduce emissions of mercury, carbon dioxide, nitrogen oxides, and sulfur dioxide, to require that all fossil fuel-fired electric utility generating units operating in the United States meet new source review requirements, to promote the use of clean coal technologies, and to promote alternative energy and clean energy sources such as solar, wind, biomass, and fuel cells.

PP clean & promote all clean sources

Jump to: Titles, Status, Committees, Related Bill Details, Amendments, Cosponsors, Summary**TITLE(S):** (*italics indicate a title for a portion of a bill*)

- **SHORT TITLE(S) AS INTRODUCED:**
Clean Power Plant and Modernization Act of 1999
- **OFFICIAL TITLE AS INTRODUCED:**
A bill to promote economically sound modernization of electric power generation capacity in the United States, to establish requirements to improve the combustion heat rate efficiency of fossil fuel-fired electric utility generating units, to reduce emissions of mercury, carbon dioxide, nitrogen oxides, and sulfur dioxide, to require that all fossil fuel-fired electric utility generating units operating in the United States meet new source review requirements, to promote the use of clean coal technologies, and to promote alternative energy and clean energy sources such as solar, wind, biomass, and fuel cells.

STATUS: (*color indicates Senate actions*) (Floor Actions/Congressional Record Page References)**11/17/1999:**

Read twice and referred to the Committee on Finance.

COMMITTEE(S):**Committee/Subcommittee:**Senate Finance**Activity:**

Referral

RELATED BILL DETAILS: (additional related bills may be identified in Status)**Bill:**H.R.2980**Relationship:**

Related bill as identified by House committee

AMENDMENT(S):

NONE

COSPONSOR(S):

NONE

MOST RECENT SUMMARY:

11/17/1999--Introduced.

Clean Power Plant and Modernization Act of 1999 - Requires fossil fuel-fired generating units (units) that commence operation on or before ten years after this Act's enactment date to achieve and maintain a combustion heat rate efficiency of at least 45 percent (based on the higher heating value of the fuel). Sets such percentage at 50 percent for units commencing operation more than ten years after such date, unless granted a waiver.

Authorizes units that commence operation more than ten years after this Act's enactment to apply to the Administrator of the Environmental Protection Agency for waivers of the heat rate efficiency standard. Grants such a waiver only if the unit owner or operator: (1) demonstrates that the technology to meet such standard is not commercially available or, despite best technical efforts and willingness to make the financial commitment, the standard is not achievable; and (2) enters into an agreement with the Administrator to offset by a factor of 1.5 to 1, the emission reductions that the unit does not achieve because of the failure to achieve such standard. Requires units receiving waivers to achieve the 45 percent standard.

(Sec. 5) Requires units, not later than ten years after this Act's enactment and regardless of the date of construction or commencement of operation, to operate in compliance with new source review requirements under the Clean Air Act (the Act).

Establishes specified emission limitations for mercury, carbon dioxide, sulfur dioxide, and nitrogen oxides from units based on the respective efficiency standards.

Requires units to obtain permits under the Act that require compliance with such standards and limitations.

Directs the Administrator to promulgate fuel sampling and emission monitoring techniques for use by units in calculating mercury emission reductions. Provides for the submission of pollutant-specific reports by owners or operators. Makes facility-specific emission data available to the public.

Directs the Administrator to promulgate regulations requiring owners or operators of generating units to disclose to residential consumers of electricity generated by such units data concerning emissions levels.

Requires the Administrator to promulgate regulations to ensure that mercury that is captured or recovered is disposed of in a manner that ensures that hazards are not transferred from one environmental medium to another and that there is no release of mercury into the environment.

(Sec. 6) Makes certain facilities that use solar power to produce electricity eligible for the renewable energy tax credit.

(Sec. 7) Amends Internal Revenue Code provisions relating to excise taxes to impose on covered fossil fuel-fired generating units a tax equal to 30 cents per megawatt hour of electricity produced. Provides for increases in such tax rate as necessary to ensure that the Clean Air Trust Fund established by this Act has sufficient amounts to fully fund authorized activities. Defines a "covered fossil fuel-fired generating unit" as one powered by fossil fuels with a generating capacity of at least five megawatts which is not subject to all regulations under the Act governing new stationary source performance standards because of the date on which it commenced commercial operation.

(Sec. 8) Establishes the Clean Air Trust Fund in the Treasury. Appropriates megawatt hour generation taxes (established by this Act) to the Fund. Makes the Fund available for specified activities under this Act.

(Sec. 9) Provides for accelerated depreciation and cost recovery for certain investor-owned units.

(Sec. 10) Provides for annual grants for capital expenditures for new publicly owned units in compliance with this Act in amounts equal to the depreciation deduction that would be realized by similarly-situated investor-owned units over the applicable time period.

(Sec. 11) Expresses the sense of Congress with respect to crediting permanent reductions in carbon dioxide and nitrogen oxide emissions to the utility sector and owners or operators and passing on monetary value accruing from such credits to utility customers in any climate change implementation program enacted by Congress.

(Sec. 12) Directs the Secretary of Energy to fund research and development programs and commercial demonstration projects and partnerships to demonstrate the commercial viability and environmental benefits of electric power generation from biomass (excluding unseparated municipal solid waste), geothermal, solar, and wind technologies and from fuel cells. Authorizes appropriations.

(Sec. 13) Requires the Secretary, under the Energy Policy Act of 1992, to establish a program to fund projects and partnerships designed to demonstrate the efficiency and environmental benefits of electric power generation from clean coal, advanced gas turbine, and combined heat and power technologies. Authorizes appropriations.

(Sec. 14) Requires the Secretary to report to Congress on the implementation of this Act and on provisions of certain energy statutes that conflict with this Act. Provides for recommendations from the Secretary, the Chairman of the Federal Energy Regulatory Commission, and the Administrator for legislative or administrative measures to harmonize and streamline such statutes.

(Sec. 15) Authorizes appropriations for: (1) assistance to coal industry workers terminated from employment, and to communities adversely affected, as a result of reduced coal consumption by the electric power generation industry; and (2) development of a carbon sequestration strategy to offset growth in U.S. carbon dioxide emissions and for carrying out methods of biologically sequestering carbon dioxide.



NATIONAL WILDLIFE FEDERATION®
People and Nature: Our Future Is in the Balance™

For Immediate Release:
 April 12, 2000

Contact:
 Patty Glick, 202/797-6898 or
 Linda Shotwell, 703/790-4083

Pollution from U.S. Coal-Burning Power Plants Looms Large as Toll on People and Wildlife Continues to Climb

Washington, D.C. – Some of the world's most pressing environmental problems are emanating from unnecessary power plant pollution right in our own backyards, according to a report released today. The National Wildlife Federation's (NWF) report, *The Toll from Coal*, identifies pollution from power plants in eleven states as making the greatest contribution to broad-scale environmental problems, including acid rain, mercury and nitrogen deposition, ozone pollution, and global climate change. The study also found that these serious effects could well be pushing already-weakened wildlife species to the brink of extinction.

"This report reveals that coal-burning power plants are a gigantic source of the pollution behind acid rain, global climate change and other environmental problems that jeopardize both people and wildlife," said Patty Glick, NWF's Climate Change and Wildlife Program coordinator. "The global-scale damage from this pollution could be the nail in the coffin for some of our world's most treasured wildlife and ecosystems."

The Toll from Coal highlights nine North American wildlife species and one ecosystem that are particularly vulnerable to power plant pollution because they are affected by a range of problems linked to that single source. The unranked listing features:

American Black Duck
 Brook Trout
 Common Loon
 Coral Reefs
 Florida Panther

Jefferson Salamander
 Kirtland's Warbler
 River Otter
 Smallmouth Bass
 Sugar Maple

"Despite the availability of cleaner, renewable energy sources, more than one-half of this country's power still comes from coal-burning power plants," continued Glick. "The dangerous levels of carbon dioxide, sulfur dioxide, nitrogen oxides and mercury they emit are huge contributors to serious environmental problems facing these and other species, both here in the United States and around the globe."

These utilities often use antiquated technology and do not meet modern air and water pollution standards. For example, coal-fired power plants are responsible for:

- more that 60 percent of the nation's sulfur dioxide and 23 percent of its nitrogen oxides, which contribute to the acid rain, smog, and nitrogen pollution that damages forest and aquatic ecosystems;

– more –

NEWS

Toll From Coal/Page Two

- more than 32 percent of mercury, much of which ends up in our waters to poison wildlife throughout the food chain and imperil human health;
- more than 31 percent of the nation's carbon dioxide, the gas chiefly responsible for the global warming that threatens wildlife, entire ecosystems, and human communities around the world.

"In order to begin to solve problems like global climate change, we must change the way our nation's coal-burning power plants do business," said Glick. "Everyone concerned can get involved by reducing their dependence on fossil fuels. In these times of high gas prices, boosting energy-efficiency makes even more sense."

The ten U.S. states with the greatest amount of coal-fired power plant emissions are ranked:

- | | |
|-----------------|----------------------------------|
| 1) Ohio | 6) West Virginia |
| 2) Texas | 7) Kentucky |
| 3) Pennsylvania | 8) Alabama |
| 4) Indiana | 9) Michigan |
| 5) Illinois | 10) Georgia/North Carolina (tie) |

"The toll from coal-burning power plants is being felt all across this country and jeopardizes wildlife species from the tiniest invertebrates to the largest mammals," continued Glick. "The good news is that there's one central source for much of this pollution, and reducing our reliance on coal to generate electricity will be a giant step forward in making our air and water healthier for people and wildlife."

The report features a series of recommendations for reducing the toll from coal, including closing the loophole in the Clean Air Act that allows older power plants to emit significantly more pollution than newer, more efficient ones; toughening restrictions on sulfur dioxide and nitrogen oxides from power plants that affect regions with the greatest amount of environmental damage; creating meaningful mercury and carbon dioxide emissions caps; promoting energy efficiency and renewable energy resources; and making environmental protection part of utility restructuring.

The National Wildlife Federation's report, *The Toll from Coal*, is available on the web at www.nwf.org.

The nation's largest member-supported conservation advocacy and education group, the National Wildlife Federation unites people from all walks of life to protect nature, wildlife, and the world we all share. The Federation has educated and inspired families to uphold America's conservation tradition since 1936. Its common-sense approach to environmental protection brings individuals, organizations, and governments together to ensure a brighter future for people and wildlife.

###

West Nile report - Cab. aff.
USA Today article.



Janet Anderson

04/10/2000 05:52:07 PM

Record Type: Record

To: Roger S. Ballentine/WHO/EOP@EOP

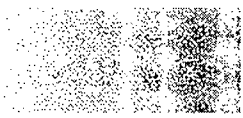
cc: Angela C. Mizeur/WHO/EOP@EOP

Subject: power plants

As I write this, I realize I'm uncertain as to the assignment, but will make a stab.

- Coal generates just under 60% of the electricity in the US.
- 54% of electricity is generated at coal plants more than 25 years old (i.e. prior to the 1977 Cln Air Act new source performance standards - NSPS); this translates to 908 units; there are about 1250 units in the US (at 455 plant sites)
- The top 15 states for CO2 emissions (reasonably good proxy for # of coal plants) are: TX, OH, IN, PA, KY, WV, IL, AL, FL, MI, GA, NC, MO, TN, WI. (Top 10 states produce 50% of the CO2 emissions from electricity.)
- CO2 emission rates do not vary much with the age of the unit; NOx rates are dependent on age, but very few are at NSPS levels (less than 10%); NOx emission rates will drop substantially (by ~1/3) this year as phase II requirements of the 1990 CAA Amend. come into force; SO2 emissions are lower for newer units, but vary substantially as the control program is cap and trade.

Texas
Utilities



Janet Anderson

05/11/2000 08:47:20 AM

Record Type: Record

To: Roger S. Ballentine/WHO/EOP@EOP

cc: Angela C. Mizeur/WHO/EOP@EOP

Subject: TX

The TX restructuring bill has mandatory requirements for a relatively small number of power plants to make reductions in SO₂ and NO_x. The "voluntary" program is broadly aimed at all industry to make reductions in emissions (air toxics as well as NO_x, VOCs - volatile organic compounds, and SO₂). Let me know if you want more.

J.



David Gardiner
01/14/2000 02:29:52 PM

Record Type: Record

To: Roger S. Ballentine/WHO/EOP@EOP
cc: janet anderson/whcctf/eop@eop
Subject: Re: power 

According to EPA, the power generation sector is responsible for 29% of national nitrogen oxide emissions, 67% of sulfur dioxide emissions, and 39% of carbon dioxide emissions. 33% of mercury emissions come from electric utilities, although this number will change as new EPA rules applying to the largest current source, incinerators, come on line in the next few years.

In Texas, utilities are responsible for 23% of annual emissions of NOx, and 26% of NOx emissions during the ozone season.

In the Houston-Galveston non-attainment area, utilities are responsible for 15% of annual NOx emissions and 19% of ozone season NOx emissions. In the Houston-Galveston area, other stationary sources, e.g. refineries, are responsible for 39% of annual emissions and 35% of ozone season emissions. This is nearly twice the Texas average of 20% for annual emissions and 19% for ozone season.

Policy Brief: Understanding environmental requirements in the Texas Energy Deregulation Bill

The ^{Law} ~~SB7 Bill~~ deregulates the second largest (a \$20 billion/year) electricity market in the nation. As of January 1, 2002, consumers in Texas will be able to choose from a more diverse and cleaner group of suppliers. The bill requires emission reductions at older grandfathered power plants, but not as substantial as they first appear. The reductions in SO₂ are minimal over existing scheduled federal reductions. The NO_x reductions will cut utility emissions by ~18% - a modest improvement. Also, utilities are guaranteed recovery for these pollution control expenditures from a stranded cost account.

- 1997 will serve as the baseline year for the emission reductions in the SB7 Bill. In 1997, Texas utilities emitted over 400,000 tons of nitrogen oxides and over 675,000 tons of sulfur dioxides. The reduction program will be in place by May 1, 2003.
- Mr. Jim Marston, Director of the Austin office of the Environmental Defense Fund, reports that EDF was “intimately involved” in the writing of the environmental sections of the bill at the request of the Texas House author. The SB7 Bill includes: renewable energy language mandating at least 2000 new MWs (current installed capacity is 79,250 MW) over the next 10 years; a 50% NO_x and 25% SO₂ reductions at grandfathered power plants. The SO₂ reductions are primarily for visibility improvements at Big Bend National Park and are about 7,000 tons beyond what is required under phase 2 of the Acid Rain Program in 2000 (Marston, 5/26/99).
- According to Mr. David Schanbacher, the Clean Air Director for the Texas Natural Resources Conservation Council, this bill will cut approximately 72,000 tons of nitrogen oxide and 37,000 tons of sulfur dioxide made in specific power plants in the first year (Schanbacher, 6/23/99).
- These measures primarily affect the four large coal and about 130 natural gas grandfathered units in the state. (The SO₂ reductions are required only of the grandfathered coal-fired units.) For trading and credit purposes the state will be divided into three regions: the East, the West, and the greater El Paso area. Electric utilities will only be able to trade within their own region to allow specific reductions to be achieved in each area.
- The pollution control equipment to achieve these reductions will be paid for using “stranded cost” accounts. The law allows utilities to sell ratepayer-backed bonds to recover stranded costs. This account can then be accessed by the utilities to pay for plant retrofitting in order to meet both state and federal air quality standards. Ratepayers will fund these emission reductions.

Policy Brief: Understanding environmental requirements in the Texas Energy Deregulation Bill

The SB7 Bill deregulates the second largest (a \$20 billion/year) electricity market in the nation. As of January 1, 2002, consumers in Texas will be able to choose from a more diverse and cleaner group of suppliers. The bill requires emission reductions at older grandfathered power plants, but not as substantial as they first appear. The reductions in SO₂ are minimal over existing scheduled federal reductions. The NO_x reductions will cut utility emissions by ~18% - a modest improvement. Also, utilities are guaranteed recovery for these pollution control expenditures from a stranded cost account.

- The SB7 Bill includes: renewable energy language mandating at least 2000 new MWs (current installed electric generation capacity is 79,250 MW) over the next 10 years; a 50% NO_x and 25% SO₂ reductions at grandfathered power plants. The SO₂ reductions are primarily for visibility improvements at Big Bend National Park and are about 7,000 tons beyond what is required under phase 2 of the Acid Rain Program in 2000 (Marston, 5/26/99).
- These measures primarily affect the four large coal and about 130 natural gas grandfathered units in the state. (The SO₂ reductions are required only of the grandfathered coal-fired units.) For trading and credit purposes the state will be divided into three regions: the East, the West, and the greater El Paso area. Electric utilities will only be able to trade within their own region to allow specific reductions to be achieved in each area.
- The pollution control equipment to achieve these reductions will be paid for using “stranded cost” accounts. The law allows utilities to sell ratepayer-backed bonds to recover stranded costs. This account can then be accessed by the utilities to pay for plant retrofitting in order to meet both state and federal air quality standards. Ratepayers will fund these emission reductions.



Paul Bledsoe
05/11/2000 12:51:44 PM

Record Type: Record

To: Roger S. Ballentine/WHO/EOP@EOP, Janet Anderson/WHCCTF/EOP@EOP

cc:

Subject: Ny Times Op-ed

See Greenwire Comment

Enviros Not Giving Bush Credit -- Adviser

Lynn Scarlett, a Bush environmental adviser and executive director of the Reason Public Policy Institute, in a New York Times op-ed, writes Bush's environmental record "is far better than activists allow." Scarlett: "Some environmental groups don't like Mr. Bush's approach, which emphasizes incentives and voluntary agreements. But what matters are results. Are pollutants being reduced? Is habitat being protected? Are old hazardous-waste sites getting clean up? On this score, Governor Bush's performance looks surprisingly good." The New York Times did not identify Scarlett as a Bush adviser (May 9). -- MB

The New York Times

May 9, 2000

Bush's Friendlier Path to Clean Air
By LYNN SCARLETT

LOS ANGELES -- The latest presidential polls show George W. Bush just a whisker ahead of Al Gore in overall voter approval ratings. But when asked about environmental protection, voters give Mr. Gore a double-digit advantage over Mr. Bush. Mr. Gore has begun to exploit this edge; he told the American Society of Newspaper Editors last month that Mr. Bush was only "pretending to care" about the environment.

Other critics have attacked Mr. Bush's record, too, brandishing air quality statistics, which show that Texas ranks worst among states in total tons of air pollution.

But as it turns out, the Texas governor's record is far better than activists allow. Governor Bush has tackled environmental problems creatively, with a new approach that emphasizes cooperation over conflict. Let's look at air quality. There are two reason why air emissions in Texas are high. First, the state is large and produces much of the nation's oil and oil-based chemicals. The rest of the country enjoys the goods made possible by this production; Texas shoulders the burdens. Second, Governor Bush's predecessors paid relatively little attention to air

quality. Mr. Bush led an initiative that made Texas only the third state in the nation to require pollution reductions from older power plants that had been exempted from the standards set for more modern ones. By 2003, the Bush plan aims to cut nitrogen oxide emissions, a component of smog, in half. The program included some voluntary commitments by companies, as well as requirements.

This program represents a new environmentalism, which recognizes that most people and most companies want to do the right thing, and encourages them to do so through incentives.

Governor Bush also expanded the Clean Industries 2000 program, which was started in 1992 by Gov. Ann Richards. To participate, companies committed to cutting their toxic or hazardous waste in half by this year; in exchange, they may display a special environmental logo. Under this program, more than 200 companies have together eliminated more than 43 million tons of hazardous waste and reduced energy consumption by 11.3 million kilowatt hours.

Through this and other programs, Texas actually led the nation in reducing toxic releases in 1997, the most recent year for which figures have been reported.

During the governor's tenure, Texas also began programs to encourage voluntary conservation efforts. Starting with a budget of \$100,000 -- and climbing this year to \$2.5 million -- the landowner incentive program is the first government program in the country to pay qualified landowners up to \$10,000 to help conserve rare species on their property. By using incentives, it has managed to do what the federal Endangered Species Act has not done -- inspire landowners to voluntarily make their land attractive to threatened animal species.

Another conservation effort, the private lands enhancement program, has helped farmers and ranchers develop plans for helping wildlife survive on some 10 million acres. On state lands, Mr. Bush led in the creation of a privately financed endowment, bolstered by state appropriations, to restore and maintain every state park, wildlife area and fish hatchery.

Some environmental groups don't like Governor Bush's approach, which emphasizes incentives and voluntary agreements. But what matters are results. Are pollutants being reduced? Is habitat being protected? Are old hazardous-waste sites getting cleaned up? On this score, Governor Bush's performance looks surprisingly good.

Lynn Scarlett is executive director of Reason Public Policy Institute.

|



Janet Anderson

05/12/2000 01:08:36 PM

Record Type: Record

To: Roger S. Ballentine/WHO/EOP@EOP

cc:

Subject: Re: utility deal 

Roger,

No new info, but reading the article, there are several ideas that should/could be refuted.

1. Older power plants are not exempted from standards (CAA amend. '90 captured all units). Cutting NOx emissions by 50% from these plants by 2003 from a 1997 baseline is misleading -- some of these plants were required by federal law to make reductions in NOx emissions this year (and the SIP call for other states is an 85% reduction).

2. The voluntary emissions cuts in toxic or hazardous wastes is also **very** common in other states (in fact, as soon as industry began reporting, emissions went down substantially -- EPA has a voluntary program that deals with these voluntary declines).

3. By the author's own statement that TX has high emissions because it produces chemicals and refined oil products for the nation, I would hope they would lead the nation in reducing toxic releases. EPA should have good data here.

4. Paying \$10k to landowners to conserve rare species doesn't sound voluntary to me. What happens if funding disappears? Is there a covenant?

If you want to dig into this, it would take some time, but could provide good info. EPA would need to be involved.

— per (2010)
PL's - \$8.5 billion - cost of
- Integrated emissions cap
SOx 50%↓, NOx .15, Hg 70%↓, 1990
Carbon (2007-2008 target)
- w/ offsets

- Restructuring saves us \$20 billion

- SOx 60%↓, NOx Hg 70% 1990 carbon
no offsets \$10.5 billion.

- EPA said \$50 billion healthcare
cost savings.

- 1990 Clean air act amendment
proposal - Bush said wouldn't
cost more than \$25 billion

- Jeffords \$29 billion EIA
(but by 2005).

DRAFT

Overview of issues surrounding utility industry negotiated air emission reductions

Background:

- Under the Clean Air Act, power plants built before 1977 are exempt from new source performance standards and other requirements; these plants are referred to as grandfathered. However, they are part of the program controlling acid rain emissions (title IV – covering SO₂ and NO_x) and these plants are bound by the Act's new source review (NSR) requirements. Under NSR rules, a power plant must install state-of-the-art emissions control equipment if changes to it will increase emissions. The Act does exempt routine maintenance from NSR rules. Both industry and the EPA agree that NSR is not an efficient method to achieve major environmental improvements.
- EPA is undertaking a major enforcement effort with utilities on whether NSR rules have been violated. At issue is the definition of routine maintenance and how to determine whether there has been an emission increase caused by the change. Industry believes EPA has adopted new definitions to interpret NSR and that there have been no large-scale violations. No notices of violations (NOVs) have yet been issued.
- EPA has an agenda for reductions of SO₂ and NO_x over the next ten years for improvements in ozone, fine particulate, and acid rain. Rulemaking on these efforts have not yet begun and the earliest these reductions could take place would be around 2008-09. EPA would also like reductions in CO₂ emissions, but does not yet have authority to regulate these emissions. Recent EPA regulations covering SO₂ and NO_x have been held up due to recent Court rulings: the NO_x State Implementation Plan (SIP) call and the new standards for ozone and fine particulate.

Goal:

- Negotiate a package of guaranteed reductions (SO₂, NO_x, and CO₂) to reach desired levels by 2008-10. Reductions of SO₂ and NO_x would be legally enforceable. Several large utilities (representing over 25% of US emissions) have approached the Administration with interest in a certain, planned program to make such reductions in exchange for operating their systems exempt from NSR (except for new and reconstructed units). This would allow the Administration to achieve its air emission goals without the legal wrangling that will occur as regulations are introduced piecemeal over the next six years. Also, the certainty will allow companies to make reductions where they are most economically efficient (achieved at lowest cost per ton) and to balance how carbon dioxide reductions will fit in the mix. Current technologies for reducing NO_x and SO₂ increase CO₂ emissions (decrease the efficiency of a plant) while technologies to reduce CO₂ (improved efficiency, new generation technologies, and use of fuels other than coal) also reduce NO_x and SO₂.

Conflict:

- Some of the utilities interested in a negotiated package of reductions have plants that are subjects

only investigated

*I thought
the enforcement
actions were not yet
started?*

in the enforcement effort. While it is not a problem for the government to discuss prospective emission reductions on the utilities' systems in the context of NSR reform, if a NOV is issued for a specific plant (and the government prevails), its resolution would also be a prospective emissions reduction at that plant. A negotiated package of emission reductions would provide far more environmental benefit than a case-by-case approach thru NSR and far more quickly than thru the traditional rulemaking process. It also is more economically efficient than both.

- Companies want negotiations to occur before any NOVs are issued. Articles in the press imply there is a current conflict between EPA's Air and Enforcement Offices on who will work out the policy of reductions with the utility sector.

Need:

- A mechanism to negotiate a package of emission reductions with utilities that would not conflict with the necessary wall between policy and enforcement or an option to consider the negotiations part of a settlement of the enforcement effort.

Current Status of Air/Climate Issues

I. Background/Overview

The recent court decisions regarding the National Ambient Air Quality Standards (NAAQS) for fine particulate matter (PM) and ozone and NOx Sip call have injected major uncertainty over the future of clean air regulation. Lawyers on both sides will predict victory in the courts supporting their legal theories. However, it is not difficult to imagine that it could take several years to resolve these matters through litigation. The effect of these competing strategies is no progress on achieving cleaner air in the foreseeable future.

The polarization of clean air policy is consistent with the climate change dialogue. The Kyoto Protocol is languishing and the debate is extremely polarized. At the same time, national emissions continue to increase rapidly. Independent scenarios estimate that emissions will increase approximately 30% above 1990 levels by 2010 with minimal potential for progress.

This paper presupposes that it is possible to achieve the Administration's objectives of achieving reductions of conventional pollutants from the electric power industry important to protect the public health and improve air quality through a dialogue with industry. The court cases combined with EPA's proposed new source reform (NSR) rule and ongoing electric industry restructuring could provide an incentive for some in the utility sector to put forward proposals that achieve emissions reductions. This could have the effect of achieving a workable NSR rule for industry and provide some certainty with respect to the costs of clean air compliance. This is important in order to determine the value of assets as restructuring continues.

In absence of this or a similar approach, it is likely that polarization will continue and status quo on clean air policy will continue with little or no progress for the next several years. What follows is a summary of clean air regulation and status of various initiatives.

II. Current Air Regulation and EPA's Objectives

a) Sulfur Dioxide (SO₂)

Sulfur dioxide is currently regulated under the acid rain provisions of the Clean Air Act. A national tonnage cap of SO₂ will take effect in 2000 with the Phase 2 implementation of the acid rain program. The acid rain SO₂ cap applies to all (existing and new) electric utilities. EPA believes additional SO₂ reductions will be necessary to assure attainment with the new PM standard for most regions of the country. The recently promulgated regional haze rule will also require reductions of

7/26/99 3:01p

Title IV: Acid Rain - sets emission standards; EPA has no auth. to change rates.
Title I: Human health/NAAQS - Gives EPA auth. to set standards for air quality and to issue implementing regs.

VANDS01/SCF/65437-1

Case 1: threw out new standard for ozone (8hr, .08)
and new standard for PM (not actually set yet)

Case 2: NO_x SIP call (nothing to do with new standard, only requirements as to how existing ozone standards - if states cut utility emissions of NO_x by 85% we'll consider you in compliance) since states swing over this, states do not need to meet 9/99 SIP call submission requirement until those cases resolved.

SO2. EPA has estimated that compliance with the new standard and the haze rule will be to require annual SO2 reductions of 50 to 65 percent in addition to the cap imposed by the acid rain program by the year 2010.

7
9

The implementation of these rules is highly uncertain given the court decision regarding the new fine PM standard. Additionally, some question when the haze rule will take effect given language included in the ISTEA law requiring coordination of the haze rule with the NAAQS standard for PM.

Bottom line on SO2: The timing and levels of reductions beyond existing law are highly uncertain. Some in the industry may be prepared to propose SO2 reductions in the context of resolving these issues and several other related regulatory initiatives pending before the EPA. Additionally, it puts some rationality into their asset valuation process.

b) *Nitrogen Oxide (NOx)*

The acid rain program is the primary program requiring NOx reductions from coal-fired power plants nationwide. The program requires rate limitations on NOx emissions from several types of utility boilers. Note that this is not a tonnage cap and emissions continue to increase. In contrast, Title I of the Act provides EPA with the authority to impose additional NOx reductions beyond those required by the acid rain program. With the promulgation of the new 8-hour NAAQS standard for ozone (which the court recently stayed), the geographic region of the country potentially being required to achieve reductions was dramatically expanded. This was especially the case with regard to the eastern half of the United States where much of the existing (i.e., older) coal-fired generation is located.

Among other things, Title I gives EPA authority to seek additional NOx reductions in situations where sources of NOx emissions contribute significantly to local or interstate ozone pollution problems. In September 1998, EPA exercised its Title I authority to require further NOx reductions through issuance of the final NOx SIP-Call rule. The purpose of the NOx SIP-Call rule was to address ozone transport contributing to downwind ozone nonattainment problems respecting both the 1-hour and 8-hour standards. To that end, EPA required 23 eastern states to achieve 85 percent seasonal reductions of NOx by 2003 from the power generation sector. (The ozone season is 5 months of the year from May through September.) The Agency argued that such reductions were necessary to limit ozone transport and thus to ensure compliance with the 8-hour as well as 1-hour ozone standards. With the recent court decision overturning the 8-hour standard, EPA has encountered significant legal difficulties in moving forward with the implementation of the NOx SIP call. In particular, industry and some states were successful in persuading the court to put indefinitely on hold State implementation of this NOx

reduction program until key legal issues with the 8-hour standard and the SIP call are resolved.

As an alternate NOx reduction pathway, several northeastern states have filed petitions under section 126 of the Clean Air Act arguing they are not in attainment with the one hour ozone standard because of NOx that is transported from Midwestern sources. EPA has accepted most of these petitions and may be able to require reductions from these sources. However, this to will likely result in litigation.

The effect of these legal developments is to limit dramatically EPA's ability to implement additional NOx reductions in the foreseeable future. Specifically, the only clear path for NOx power plant controls is through the acid rain program. Additional NOx reductions from certain Midwest states might be possible through the implementation of the 1-hour standard in connection with either the ozone transport SIP call or pending section 126 petitions from certain Northeast States.

During the debate on the SIP call a large segment of the utility industry proposed a phased NOx reduction program that would have achieved 55% reductions by 2002, 65% by 2004 and further reductions after a modeling process determined the level of reductions necessary to comply with the 8 hour standard. This process would have brought these entities into compliance with the 8 hour standard one year prior to EPA's proposals. Importantly, the industry program included an overall cap on emissions and a trading program. Overall 16 of the 22 states targeted by the SIP call proposed alternatives to it.

Currently, there are ongoing discussions between the states and EPA to determine if agreement can be reached on how to move forward on the SIP call. However, it will be extremely difficult to get agreement between the Midwestern and Northeastern states on the NOx issue.

Bottom line on NOx: It is not clear when there will be further NOx reductions because of the court decisions on the NAAQS ozone standard and SIP call. Some companies may be interested in proposing further reductions than required by law in order to put the issue behind them. There are potential NOx reduction strategies that could be compatible with greenhouse gas reductions.

c) Greenhouse Gases

A program that allowed for appropriate levels and timing of reductions of conventional pollutants could have greenhouse gas benefits. It is likely that utilities would seek to implement an investment strategy that allowed for fuel switching to gas in anticipation of an emissions limitation at a time in the future. This would be the natural result of the program.



**U.S. ENVIRONMENTAL PROTECTION AGENCY
OFFICE OF GENERAL COUNSEL**

**401 M STREET, SW
WASHINGTON, DC 20460
FAX: 202/260-8046**

FAX TRANSMITTAL SHEET

DATE: 7/26

TO: Roger Ballentine and Steven Reich

DEPT/AGENCY: _____

OFFICE #: _____ **FAX #:** _____

FROM: Gary Guzy

PAGES (INCLUDING COVER): 3

COMMENTS: _____

If all pages are not received, please call 202/260-8040 or 202/260-8064.

U.S. ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

Office of General Counsel

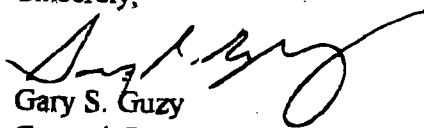
July 26, 1999

NOTE TO: Roger Ballentine
Deputy Assistant to the President
for Environmental Initiatives

Steven Reich
Senior Associate Counsel
to the President

Attached is a short paper prepared by my office on Advisory Committee issues you inquired about. Please note paragraphs 4 and 5 on page 2, which may provide a basis -- depending on the structure of any discussions -- for finding that FACA does not apply.

Sincerely,



Gary S. Guzy
General Counsel

Internet Address (URL) • <http://www.epa.gov>

Recycled/Recyclable • Printed with Vegetable Oil Based Inks on Recycled Paper
(50% Postconsumer)

FACA REQUIREMENTS:

An "advisory committee" is any committee or other group "established or utilized" by the President or a federal agency to obtain **advice or recommendations** which does not consist solely of full-time federal employees. Any group established by the Federal Government (or subject to strict managerial controls by the Federal Government) to meet recurrently and provide the Administration with advice as a group (whether or not consensus is reached) would be subject to the Act's requirements, including:

1. **The Charter.** Approved by the General Services Administration and Office of Management and Budget, must contain the committee's objectives and the scope of its activities; the period of time necessary for the committee to carry out its objectives; the agency responsible for providing the necessary support for the committee; and, a description of the duties for which the committee is responsible. The Charter must be renewed every two years.
2. **The Establishment *Federal Register* Notice.** At least 15 days before the charter is filed for a new committee, EPA is required to publish an establishment notice in the *Federal Register*. Notice describes the nature and purpose of the committee, the agency's plan to attain fairly balanced membership, and a statement that the committee is necessary and in the public interest.
3. **Balanced Membership.** Committee must be "fairly balanced" in points of view represented.
4. **The Meeting *Federal Register* Notice.** Each advisory committee meeting must be noticed in the *Federal Register* 15 days prior to the meeting.
5. **Closed Meeting Approval.** Must be approved by the Head of the Agency or, in the case of a Presidential Committee, the Committee Chair.
6. **Minutes.** Must be kept of all advisory committee meetings.
7. **Open Meetings.** Interested persons may file written statements with any advisory committee, attend any advisory committee meeting (unless closed), and appear before any advisory committee.
8. **DFO Attendance.** Each meeting is attended by a Designated Federal Official (DFO), a full-time federal employee authorized to adjourn the meeting and approve the agenda.
9. **Documents Available to the Public.** All advisory committee documents (including drafts) shall be available to the public upon request.

In the case of a Presidential Advisory Committee (1) the President can give the committee non-advisory functions, (2) the charter is filed with OMB and Congress rather than the Administrator and Congress, and, (3) the responsibilities of the Agency head would be carried

out by the chairperson of an independent Presidential Advisory Committee (e.g. closing meetings, establishing compliance with FACA requirements, etc.)

TYPES OF MEETINGS NOT SUBJECT TO FACA:

1. Committees Composed Entirely of Full-time Federal Employees.

Federal officials may hold committee meetings with other full-time federal employees. This exemption may also extend to State or local employees who are appointed in the federal service through the Intergovernmental Personnel Act (IPA), 5 U.S.C. §3374 (1988).

2. Primarily Operational Committees. Since FACA expressly applies to groups that are "solely advisory," GSA regulations provide that committees performing functions that are "primarily operational" are exempt from the Act. GSA defines "operational functions" as "those specifically provided by law, such as making or implementing Government policy."

3. Committees Composed of Governmental Officials. The Unfunded Mandates Reform Act of 1995, Section 204, also provides that FACA will not apply to intergovernmental communications between federal officials and elected officials of State, local, and tribal governments (or their designated authorized employees) relating to the management or implementation of federal programs established pursuant to public law that explicitly or inherently share intergovernmental responsibilities or administration.

④ Committees Established and Controlled by Outside Groups. An outside group that meets with federal officials to provide advice is generally not subject to FACA. However, if the group becomes "subject to strict managerial controls" by the agency (through (1) paying for the advice; (2) setting the group's agenda; (3) selecting the group's members, or (4) controlling the meetings) the group could then be subject to FACA.

⑤ Meetings to Obtain Individual, Rather than Group, Advice. When an agency obtains advice from one individual, FACA does not apply. Further, when an agency meets with more than one individual at a time, and receives individual opinions rather than looking for a group recommendation, FACA does not apply.

6. Meetings to Exchange Facts and Information. When a meeting is called for the purpose of exchanging information, not receiving advice, the meeting is not covered by FACA.

7. Meetings of Fact-finding Workgroups of Advisory Committees. Exempt from FACA requirements are working group meetings of two or more advisory committee members for the purpose of analyzing relevant issues and facts, drafting proposed position papers, or conducting research for a chartered advisory committee or subcommittee.

Agencies are routinely challenged for alleged failure to comply with FACA requirements. Such litigation is often mitigated by opening meetings to the public and attempting to assure balanced participation by interested stakeholders even if other FACA requirements are not met.

mtg

TVA

Synergy

WISC. Elec. Power (progressive)

Southern Co.

[Amer. Elec. Power (Susan is exec.)

↳ can't be at mtg
(Van Ness Feldman will be)

Recognize that there are restrictions,
understand they need
certainty during this trans-
ition, we want greenhouse
gas reductions, want to
bring all this together.

Potential Integrated Approach to Emission Reductions From the Electric Power Industry

Objectives and Principles:

- Respond effectively to the problems from sulfur dioxide (SO₂), nitrogen oxide (NO_x), mercury, and carbon dioxide (carbon) by controlling emissions from the electric power industry. (Other sources of these pollutants will also face future controls.)
- Provide the electric power industry with regulatory certainty and stability for 10 to 15 years.
- Allow flexibility in emissions control programs to minimize costs and disruption of power industry activities – use market-based tools (e.g., cap-and-trade) and appropriate administrative actions (e.g. phasing of controls), wherever possible, consistent with the prevention of local problems.
- Pursue broad stakeholder support for approach to controls.

Approach:

- Replace the current process of addressing pollutants and environmental objectives one-after-the-other with one coordinated national approach. The full set of control requirements would be known early, but go into effect over time.
- Replace diverse program structures with a consistent and flexible cap-and-trade architecture wherever possible. Allow banking of emissions for SO₂, NO_x, and carbon emissions in a manner suitable to these pollutants.
- Revise NSR process, where appropriate, to complement this coordinated approach.
- Use international market mechanisms and carbon sequestration credits for carbon.
- Commit to making no changes to the coordinated approach that would require additional control actions over the next 10 to 15 years.

Proposal Outline:

- **Baseline requirements:** Existing requirements including NO_x SIP call.
- **Initiation:** Determine and announce key elements of the coordinated approach as soon as possible. Key elements cover aspects of the program necessary to allow future planning by industry.

- **Cap-and-trade programs:**
 - **SO₂:** Lower Title IV SO₂ allowance cap between 2005 and 2007. Maintain existing trading program structure.
 - **NO_x:** In 2005, begin phasing in a winter season emissions cap for all generation units using fossil fuels in States covered by the NO_x SIP call. Begin phase-in during 2005 separate winter and summer season controls for the rest of the country for the same type of units. Allow trading within region and season.
 - Build off the NO_x SIP call's requirements to avoid disruption of control efforts.
 - Consider future merger of the two seasonal programs by 2010.
 - **Carbon:** Initiate a cap-and-trade program for carbon reduction for years 2008-2012 that operates under a 5-year emissions budget. A binding program could be based on voluntary agreements, or new legislation.
- **Traditional Controls:** Establish MACT for mercury that goes into effect before 2008 (since mercury does not lend itself to a cap-and-trade approach).
- **Emissions Levels of Programs by 2010:** The programs will lower emissions to the following levels:
 - **SO₂:** ___% below Title IV emission levels. Due to the large number of banked emissions allowances that can be used in the future, the Title IV emissions cap would need to be set between 2005 to 2007 to a level that would be lower than the emissions objective set for 2010. The actual cap level depends on which year it is put in place.
 - **NO_x:** ___% below the levels of Title IV.
 - **Carbon:** ___% below 1990 emission levels from electric power generation.
 - Compliance options to include purchase of carbon allowances internationally and credit for investments in sink enhancement and early action.
 - Proposed cap level premised on proportional sectoral effort. Sectoral efforts could be differentiated.
 - Cap level could change based on resolution of pending carbon sink policy issues.
 - **Mercury:** Set performance-based standards that require coal-fired units to lower mercury emissions exiting from their boilers by ___% depending on the type of pollution control equipment and type of coal that they burn. These MACT standards are based on activated carbon injection technology, but would allow alternative technologies that meet the performance levels that are set.
- **Allocation of Allowances:** Consider the range of ways to allocate allowances for each trading program based on consideration of fairness, practicality, incentives for efficiency and cleaner power generation, and other factors. Consider an early action credit program for at least carbon emissions.

Noted: We pulled together industry ideas for a draft to focus the meeting process

December 18, 1997

CHARTER FOR

AIR QUALITY INTEGRATION DIALOG

SN Noted: We Are Not Prematurely Implementing Kyoto

1. Broad Objective: To examine ways of minimizing the potential for stranded investments and other problems (e.g., scheduling) when EPA undertakes new regulatory initiatives to implement the Clean Air Act and if the U.S. undertakes a carbon reduction program. The focus will be on major air regulatory actions (e.g., regional haze, particulate matter, 8-hour ozone, mercury) that are currently underway or could occur in the future). The aim of the discussion is to identify major implementation concerns, characterize them, provide options on how to mitigate concerns, and assess how effective these options could be.

2. Product: Joint presentation by EPA and industry representatives to government officials from EPA, the White House and other departments (e.g., DOE) on the potential for stranded investments and other problems; their environmental, administrative and economic implications; and ways to address the issues.

3. Industry Participants: Broad industry representation to ensure a wide range of views, including: primarily coal-fired investor-owned utilities (IOU's) in the Eastern U.S., IOU's with a broader mix of fossil fuels, IOU's with nuclear capacity, independent power producers, publicly-owned utilities, cooperatives, a member of the Clean Energy Group, and western utilities.

4. Administration Participants: Staff from the EPA Office of Air Quality Planning and Standards, Office of Atmospheric Programs, and the Office of Policy Analysis and Review. EPA's Office of the Administrator and the White House Climate Change Task Force will have an open invitation to participate. Although the Assistant Administrator, Air and Radiation and the Chairman of the Climate Change Task Force are not expected to attend all meetings, their participation in special meetings may be vital. EPA or industry may invite participation by representatives of other government agencies to serve as technical resources.

5. Two Ground Rules: First, there initially will be free exchange of ideas and analysis at the staff level in a series of meetings, with participants not bound to pre-existing positions, followed by identifying areas of agreement or disagreement if possible. Second, it is recognized that neither EPA nor industry staff have been granted negotiating or decision-making authority.

6. Time Frame: There will be a goal to develop the "product" within 6 months, starting at the beginning of 1999.

7. Topics to be Covered:

- a. EPA's current plans on major Clean Air Act rules and other Administration activities.
- b. Analyses of utility controls by industry and government sources (e.g., EEI, EPRI, EPA, DOE, EIA, CEA).
- c. Options to minimize potential stranded investments and other major problems (e.g., schedule) related to a possible program to reduce carbon before 2010.
- d. Examination of the implications of options in c.

8. Logistics: Industry will host meetings.

9. Public Communications: Representatives of industry and EPA will discuss communications with the public regarding these meetings.

10. Documentation: Decisions and action items will be documented cooperatively by industry and EPA participants.

THE WHITE HOUSE
WASHINGTON

May 25, 1999

MEMORANDUM FOR ROGER BALLENTINE

FROM: Meagan Earley

RE: 2:30pm Meeting, Wednesday, May 26

PURPOSE

Rich Rosenzweig, public policy specialist from Van Ness Feldman, is bringing Paul Bailey, VP for Environmental Affairs, Edison Electric, to pre-brief you on a report that will be included in a Thursday press release. The report is a package of incentives to encourage voluntary reduction of Greenhouse Gases from electric utilities. This briefing is a courtesy to the Administration.

BACKGROUND

David Doniger and Sam Napolitano from EPA will answer any questions/concerns you may have at your 10:00 am meeting.

ATTENDEES

Paul Bailey, VP Environmental Affairs, Edison Electric
John Novak, Edison Electric
Rich Rosenzweig, Van Ness Feldman
David Doniger, EPA (if needed)

EEI: Background

Give them credit for their actions to date; this is their pet peeve: there has been no high level recognition of the climate challenge program. Their industry has definitely done more than any other sector.

In 1994, Climate Challenge framework was signed. DOE has no record of a goal for the program, but is willing to let the 4x statement slide. I think we really wanted participation and didn't/couldn't have real goals.

Climate Challenge will reduce 174 MmtCO₂e in 2000 (47 MmtCe)

Utility emissions in 1990: 478 MmtCe
 1997: 532
 2000: 589
 2010: 655

Utilities' emissions are 36% of CO₂ emissions (532 / 1480 MmtCe)

Reductions pledged for 2000 amount to 7.9% of emissions (if all actions are counted; the largest share is improvements to nuclear plants – 57 MmtCO₂e of the 174). Even with Climate Challenge, emissions will increase by 23% over 1990.

CEA models indicate that with a flexible international trading system, the US utility sector would need to reduce emissions 10-15% below business as usual.

Talking Points

- The overview title is great: Positive progress and continued commitment
- The initiatives put forward by EEI are a welcome addition to the debate on policy responses to the challenge of global climate change. Many of the goals are part of the Administration's Climate Change Technology Initiative: increased R & D on new generating technologies and renewables (pv, wind, biomass), tax incentives for renewables, removing regulatory barriers for efficiency improvements, and better depreciation schedules for certain types of efficient equipment. *(and improving utilization of the existing hydro and nuclear units)*. We also share their goal of enacting a credit for early action system. Their ideas for other incentives, such as for early retirement of units, also warrant serious consideration.
- The Administration is encouraged that EEI seeks to continue its commitment to greenhouse gas reductions, *(however their portfolio makes no mention of goals or timeframes for future reductions so its impact on future emissions cannot be assessed)*. The President's plan for climate change is for serious domestic actions as well as broad flexibility mechanisms. We look forward to continuing to engage the industry in a positive dialogue on measures to

address climate change.



News

EDISON ELECTRIC INSTITUTE

The Association of Investor-Owned Electric Companies

701 Pennsylvania Avenue, N.W. ▲ Washington, D.C. 20004-2696

Post-it® Fax Note 7671		Date 5-27	# of pages ▶
To Roger Bullentine	From Paul Bailey		
Co./Dept. White House	Co. EEI		
Phone #	Phone # 202-508-5640		
Fax # 202-456-6468	Fax #		

**FOR IMMEDIATE RELEASE
FOR MORE INFORMATION:
JIM OWEN, 202-508-5659
Pager: 202-256-8447
<http://www.eei.org>**

EEI PROPOSES DIALOGUE OVER OPTIONS TO SPUR ADDITIONAL, VOLUNTARY GREENHOUSE GAS CUTS

WASHINGTON (May 27, 1999) — Seeking to build upon the electric utility industry's already substantial reduction of greenhouse gas emissions, the Edison Electric Institute today sought to open a discussion about possible public policy changes that could help spur additional, voluntary cuts in greenhouse gases.

The electric utility industry already is a world leader in taking voluntary actions to curb greenhouse gas emissions. Under the Climate Challenge, a joint partnership between electric utilities and DOE, 650 utilities have committed to reduce, avoid, or sequester more than 174 million metric tons of carbon dioxide-equivalent emissions in the year 2000.

"We've worked to identify possible changes to regulatory, tax, and research and development policies that could lead to additional, voluntary actions," said Paul Bailey, EEI vice president, environment.

— MORE —

These initiatives, outlined in a working paper entitled *A Portfolio of Voluntary Climate Change Actions*, are intended to facilitate discussions among utilities, the administration, Congress, and interested stakeholders. Bailey said that EEI will confer and evaluate these ideas with other groups, with the goal of advancing those initiatives for which there is support.

"These proposals are not intended to achieve a specified target or timetable for greenhouse gas reductions," he noted. "But, if implemented, they would result in further cost-effective cuts in greenhouse gases."

EEI's new portfolio of flexible incentive and policy options would build upon utilities' past achievements. The proposals would:

- Encourage investments in clean renewable energy resources and cleaner fossil-fueled power plants.
- Maintain existing emissions-free hydropower and nuclear power projects.
- Reduce greenhouse gas emissions and enhance energy efficiency in the four major end-use sectors of the economy — transportation, industrial, commercial and industrial.
- Preserve the existing "WEPCO rule," which makes it easier for power plants to make many efficiency improvements that cut emissions.
- Promote more advanced transmission and distribution technology, and expansion of federal programs and voluntary industry efforts designed to decrease T&D losses.

"Through our past actions and these new options, we've proven that we're committed to voluntary, cost-effective actions to reduce greenhouse gas emissions," Bailey said. "We look forward to refining these proposals after we have discussed them with other stakeholders."

#

Edison Electric Institute is the association of shareholder-owned electric utilities, international affiliates and associates, whose domestic members produce more than three-quarters of the nation's electricity.