

US EPA ARCHIVE DOCUMENT

**TESTIMONY OF  
CHRISTINE TODD WHITMAN  
ADMINISTRATOR  
US ENVIRONMENTAL PROTECTION AGENCY  
BEFORE THE  
COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS  
UNITED STATES SENATE**

July 26, 2001

Thank you, Mr. Chairman and Members of the Committee, for the invitation to appear here today. The Administration and the Environmental Protection Agency (EPA) welcome the opportunity to address you on the need for a new approach to reducing emissions from power generation. The United States should take great pride in the progress we have made reducing pollution at the same time that we have had impressive economic growth. Over the last 30 years, we have reduced emissions of six key air pollutants by over 30%, at the same time that the gross domestic product has increased almost 150%, coal consumption has increased 77% and energy consumption has increased over 40%. This success story was made possible by American ingenuity spurred in large part by legislation that recognized the importance of a clean environment. We now have an opportunity to consolidate and replace several regulatory programs with an innovative, more cost-effective program that will achieve significant public health and environmental benefits. Our goal is to make significant strides towards attaining national air quality standards. Next generation thinking built on the successes of the past.

The Administration proposal to limit emissions from power generation will be the centerpiece of the President's promise to deal with emissions from old power plants. During the campaign, the President said:

“As President, I will be firmly committed to providing a clean and healthy environment so that every American breathes clean air. That's why I believe old power plants should be held to higher emissions standards. The fact that different environmental standards apply to 'old' and 'new' power plants is a good example of how our environmental laws are too complex. The key to reducing emissions from older power plants on the federal level is to cap emissions on a level that makes sense – whether it be national, regional or local. – And harness the power of the market place and provide economic incentives to produce better environmental results. I would want to make sure that any program we pursue does not result in excessive and unnecessary increases in electric bills.”

In concert with this promise, the President's National Energy Plan recognizes that one of our principal energy challenges is increasing our energy supplies in ways that protect and improve the environment. This is a challenge we can meet through a careful blend of conservation, advances in technology, voluntary programs and improved regulatory programs. One of the keys to success will be

new legislation significantly reducing emissions from power generators.

In the near future, I hope I will have the opportunity to discuss with you the details of such a legislative approach. Today, I will describe the approach we will propose -- which builds on the Acid Rain Program -- a successful model for future efforts. I will also discuss the programs to which the utility industry is currently subject -- many of which could be replaced with a bill that provided significant reductions of NO<sub>x</sub>, SO<sub>2</sub> and mercury. Finally, I will describe the types of public health and environmental benefits we can achieve from conserving energy and reducing NO<sub>x</sub>, SO<sub>2</sub> and mercury emissions.

## **I. The President's Approach -- Building on Success**

The President's Energy Plan includes a number of conservation, advanced research and development, and other efforts that will reduce electricity usage. Reducing the amount of electricity we use and the amount of fuel needed to produce it are part of the answers to the challenge of providing energy in an environmentally responsible way.

The President's Energy Plan goes even further. The President has directed me to develop proposed legislation that would significantly reduce and cap NO<sub>x</sub>, SO<sub>2</sub> and mercury emissions from power generation. Such a program (with appropriate measures to address local concerns) would provide significant health benefits even as we increase electricity supplies. The proposed legislation will:

- establish reduction targets for emissions of SO<sub>2</sub>, NO<sub>x</sub> and mercury,
- phase in reductions over a reasonable time period, similar to the successful Acid Rain Program established by the 1990 amendments to the Clean Air Act and to state programs,
- provide regulatory certainty to allow utilities to make modifications to their plants without fear of new litigation, and
- provide market-based incentives, such as emissions trading, to help achieve the required reductions.

Nationwide reductions of the three emissions, SO<sub>2</sub>, NO<sub>x</sub> and mercury, in an integrated approach would result in key benefits including thousands of avoided premature deaths and aggravation of respiratory and cardiovascular illness due to fine particles, reduced hospitalization and emergency room visits due to fine particles and continued exposure to ground-level ozone. It would also address interstate transport issues as they relate to meeting the new particulate matter and ozone air quality standards. Visibility improvement would be anticipated over large areas including national parks and wilderness areas and recovery of many freshwater and coastal ecosystems would be likely. Public health risks associated with mercury, particularly those posed to children and women of child bearing age, may be reduced. This includes risks of neurotoxic effects such as mental retardation, cerebral palsy, difficulty speaking and hearing others, and other learning disabilities. Currently, current forty plus states have fish advisories; that number would be reduced.

The President's approach builds on the Acid Rain Program, which provides a wonderful model for future programs. It has not only met expectations, but exceeded them. Administering the Acid Rain Program has been a cost-effective experience. The program will achieve about 40% of the total emission reductions required under the 1990 Clean Air Act Amendments at a low cost to industry and to the government. The program is administered with a relatively small staff relying on strong and state-of-the-art data tracking and reporting capabilities.

When President George H.W. Bush signed the Clean Air Act Amendments of 1990, it revolutionized clean air policy regarding regional and national air pollution issues and drove environmental protection in new directions. First, the President and Congress designed the Acid Rain Program to focus on reducing the SO<sub>2</sub> emissions that cause acid deposition and translated the emission reduction goal into a nationwide cap on emissions from electric generating sources. Second, Congress provided EPA with a tool to achieve this reduction - - an innovative market-based allowance trading program. This "cap and trade" approach provided greater certainty that the emissions reductions would be achieved and sustained while at the same time allowing industry unprecedented flexibility in how to achieve the needed emission reductions. In return for this flexibility, sources were to provide a full accounting of their emissions through continuous monitoring and reporting, and there would be consequences for failing to comply. The objective was for sources to find the most cost-effective means for limiting SO<sub>2</sub> emissions and to be responsible for achieving those emission reductions. There would be no government second guessing and lengthy permit reviews.

Compliance with the Acid Rain Program began in 1995 and is now in its seventh year. It has been a resounding success, with SO<sub>2</sub> emissions from power generation dropping 4.5 million tons from 1990 levels and NO<sub>x</sub> emissions down 1.5 million tons from 1990 levels (about 3 million tons lower than projected growth). In addition, during the first Phase of the program (1995-1999), SO<sub>2</sub> emissions were between 20 to 30 percent below their allowable levels. Furthermore, environmental monitoring networks tracked important environmental improvements - - acid deposition was reduced by up to 30 percent in certain areas of the country.

And, these environmental improvements cost less than predicted because of the built-in market based incentives. In 1990, EPA projected the cost of full implementation of the SO<sub>2</sub> emissions reduction with trading at \$5.7 billion per year (1997 dollars). In 1994, GAO projected the cost at \$2.3 billion per year (1997 dollars). Recent estimates of annualized cost of compliance are in the range of \$1 to \$1.5 billion per year at full implementation.

President Bush has not only promised to take the SO<sub>2</sub> trading program to the next level but he has experience to lend to the matter. In 1999, then-Governor Bush signed legislation that permanently caps NO<sub>x</sub> and SO<sub>2</sub> emissions from older power plants in Texas starting in 2003 and requires utilities to install a certain quantity of renewable and clean energy capacity by 2009. Environmental Defense hailed this legislation as a model for the country. The Emission Banking and Trading of Allowances Program is expected to achieve substantial reductions when it is fully phased in by 2003. It is estimated that this program will reduce NO<sub>x</sub> by 75,000 tons per year and SO<sub>2</sub> by 35,000 tons per year. It is

designed to give the utilities flexibility in determining how and where to achieve the reductions. Allowances are allocated to each power plant based on 1997 emissions using a formula that does not penalize the "clean" plants that already have a low NO<sub>x</sub> or SO<sub>2</sub> emission rate. Permitted power generating plants may opt into the trading program.

## II. Regulating Emissions from Power Generation

The President's legislative approach stands in sharp contrast to the complex web of existing regulations which currently confront the industry. Over the years, Congress, EPA and the States have responded to specific environmental and public health problems by developing separate regulatory programs for utilities to address the specific problems. Each individual program uses its own approach to serve its own purpose. As I describe the different regulatory programs, I think you will understand why we believe it is time to simplify. If we have a new legislation that significantly reduces emissions of SO<sub>2</sub>, NO<sub>x</sub> and mercury, we can eliminate many of the individual programs that apply to the power generation sector and replace them with a system that will reduce the administrative burden on industry and governments, use market-based incentives to keep compliance costs low, and provide the industry with more certainty about its future regulatory obligations.

There are many regulatory initiatives in place that will lead to reductions in air emissions from electric power generation. These regulations include both federal and State requirements that address a variety of emissions including SO<sub>2</sub>, NO<sub>x</sub>, CO, PM<sub>10</sub>, and a number of hazardous air pollutants. The requirements also vary depending on the characteristics of the generating facility, including its boiler type, size, age and location. These programs include the National Ambient Air Quality Standards for particulate matter and ozone, the section 126 and the NO<sub>x</sub> SIP Call rules, new source review and new source performance standards, the regional haze rule and mercury regulation as a hazardous air pollutant, among others.

EPA has set national ambient air quality standards (NAAQS) for six pollutants: ozone, carbon monoxide (CO); particulate matter (PM); SO<sub>2</sub>; NO<sub>2</sub>; and lead (Pb). The Clean Air Act calls upon States to adopt emissions control requirements in the form of State Implementation Plans ("SIPs") to bring nonattainment areas into compliance with the NAAQS. Historically, most States' strategies to attain the SO<sub>2</sub> and PM NAAQS included power plant controls.

EPA has taken two actions to address the contribution of interstate transport of NO<sub>x</sub> emissions to downwind ozone nonattainment problems, and both of these actions affect the power sector. In 1998, EPA finalized the NO<sub>x</sub> SIP call, which now requires 19 states and the District of Columbia (whose emissions significantly contribute to downwind ozone nonattainment problems) to revise their SIPs to control summertime NO<sub>x</sub> emissions. In response, all of these States are choosing control strategies that focus on reducing power plant emissions. In a separate action aimed at the same interstate NO<sub>x</sub> transport problem, in January 2000, EPA finalized a rule which was issued in response to petitions from several northeastern states under section 126 of the CAA. In this rule, EPA found that emissions from large electric generating units and large industrial boilers and turbines in 12 States and

the District of Columbia are significantly contributing to downwind states' ozone nonattainment problems. The rule requires these sources to control their summertime NO<sub>x</sub> emissions under the Federal NO<sub>x</sub> Budget Trading Program beginning May 1, 2003.

The electric power generation sector is also regulated through a variety of traditional and innovative programs. Consistent with the Clean Air Act, many States have adopted NO<sub>x</sub> reasonably available control technology requirements for combustion facilities. In addition, several States have adopted market-based approaches. The South Coast Air Quality Management District in Southern California, for example, adopted a NO<sub>x</sub> and SO<sub>2</sub> emissions trading program (called RECLAIM). The Northeast and mid-Atlantic States that comprise the Ozone Transport Region have developed a region-wide NO<sub>x</sub> emissions trading program (the Ozone Transport Commission NO<sub>x</sub> Budget Program). The revised ozone NAAQS and new PM<sub>2.5</sub> NAAQS could lead to further regulation of power plant SO<sub>2</sub> emissions (a precursor to ambient PM<sub>2.5</sub>) and NO<sub>x</sub> emissions (both for PM<sub>2.5</sub> and ozone attainment strategies).

The Act also requires State Implementation Plans to include a preconstruction permit program for new or modified major stationary sources, referred to as new source review ("NSR"). This program ensures that when large, new facilities are built -- or major modifications to existing facilities are made that result in a net emissions increase -- they include state-of-the-art air pollution control equipment. It also assures citizens who live near new major sources of air pollution that the facilities will be as clean as possible. The requirements are different for (1) the part of the program called the Prevention of Significant Deterioration program that applies to construction projects in areas where the air is already clean, and (2) the part of the program called the non-attainment NSR program that applies to construction projects in areas where the air is unhealthy to breathe. For attainment areas, to prevent significant deterioration of our nation's air quality, new major sources and major modifications to existing sources must apply the best available control technology and ensure that the new pollution introduced into the environment does not adversely impact the air quality, such as in pristine areas like national parks. For nonattainment areas, in addition to applying control technology that represents the lowest achievable emission rates, new major sources and major modifications must offset their emissions increases. This can be done by getting reductions from other sources in the general area to compensate for the increases resulting from the new air pollution sources.

The Act also requires EPA to establish new source performance standards ("NSPS") that all new or modified sources must meet regardless of their location. The NSPS are technology-based numerical performance standards that apply to all sources in a particular source category, such as electric utility steam generating units or stationary gas turbines. These standards are intended to "level the playing field" so that all new facilities install a minimum amount of air pollution control equipment.

The recently finalized regional haze rule will also require power generators to reduce SO<sub>2</sub> and NO<sub>x</sub> emissions either through the implementation of best available retrofit technology (BART) or a trading program yet to be developed. States must show "reasonable progress" in their state implementation plans toward the congressionally mandated goal of returning to natural conditions in

national parks and wilderness areas.

EPA is developing a rule to limit mercury emissions from utilities. The 1990 CAA Amendments required EPA to study and prepare a report to Congress on the hazards to human health that can reasonably be expected to occur as a result of emissions of hazardous air pollutants (air toxics or HAPs) from fossil fuel-fired electric power plants. Based on the Report to Congress and on other available information, EPA found in December 2000 that air toxics control is appropriate for coal-fired and oil-fired utility boilers. As a result of that regulatory determination, EPA is scheduled to propose “Maximum Achievable Control Technology” (MACT) standards for these source categories by 2003. Given the conclusions of the Report, the regulation is likely to focus on mercury emissions.

The utility industry is also required to reduce SO<sub>2</sub> emissions through the Acid Rain Trading Program described above. In addition, to address acid rain, the Clean Air Act requires utilities to reduce their emissions through emissions limits, which EPA established based on unit type.

### **III. Health and Environmental Benefits of the President’s Energy Plan**

The President’s Energy Plan recognizes that by conserving energy and limiting NO<sub>x</sub>, SO<sub>2</sub> and mercury emissions, we can provide the country with significant public health and environmental benefits. The problems we would address include: fine particle pollution, visibility degradation, ozone pollution, mercury deposition, acid rain, nitrate deposition and climate change. In turn, this will avoid incidences of premature mortality, aggravation of respiratory and cardiopulmonary illnesses, and diminished lung function which results in lost work days, school absences and increased hospitalizations and emergency room visits, and will also avoid damage to eco-systems, fish and other wildlife. To understand the tremendous benefits of the President’s plan, we need to understand the public health and environmental issues.

#### **Emissions from Power Generation**

Power generators are a significant source of three key emissions: sulfur dioxide (SO<sub>2</sub>), nitrogen oxide (NO<sub>x</sub>), and mercury (Hg). The Clean Air Act has been, and will continue to be, a successful tool in reducing these emissions. However, while we are observing significant environmental improvement, power generation still contributes 67% of SO<sub>2</sub>, 25% of NO<sub>x</sub>, and 37% of man-made mercury. (Power generation has other emissions, such as carbon monoxide and coarse particles, but the level of these emissions poses smaller risks for public health and the environment.)

One of the reasons power generation accounts for such a large share of these key emissions is that significant emissions reductions have already been required from other sources. For example, a new car today is more than 90% cleaner than it was before federal laws limiting emissions of CO, NO<sub>x</sub> and volatile organic compounds – and they are subject to further reductions starting in 2004, as are heavy duty trucks in 2007. In contrast, some older power plants, built before certain Federal performance standards were put into place, are still operating without modern pollution control

equipment for some emissions.

## Air Quality Effects

### C FINE PARTICLE POLLUTION:

The President's Energy Plan will reduce fine particle pollution. SO<sub>2</sub> and NO<sub>x</sub> emissions from power generation react in the atmosphere to form nitrates and sulfates, which are a substantial fraction of fine particle (PM<sub>2.5</sub>) pollution. (Some PM<sub>2.5</sub> comes from direct emissions from a variety of sources.) A source emitting NO<sub>x</sub> and SO<sub>2</sub> can cause PM<sub>2.5</sub> many miles away. A substantial body of published scientific literature recognizes a correlation between elevated fine particulate matter and increased incidence of illness and premature mortality. The health impacts include aggravation of chronic bronchitis, hospitalizations due to cardio-respiratory symptoms, emergency room visits due to aggravated asthma symptoms, and acute respiratory symptoms. Based on these findings, EPA and others estimate that attaining the fine particle standards would avoid thousands, and up to tens of thousands, of premature deaths annually.

The significant expansion in scientific research in recent years has enhanced our understanding of the effects of particles on health. EPA is summarizing all new information in the ongoing review of the particulate matter standard in a "criteria document" that will undergo extensive peer and public review.

- VISIBILITY AND REGIONAL HAZE IMPACTS:

The President's Energy Plan will improve visibility by reducing SO<sub>2</sub> and NO<sub>x</sub> emissions. Sulfates and nitrates that form in the atmosphere from SO<sub>2</sub> and NO<sub>x</sub> emissions are significant contributors to visibility impairment in many national parks and wilderness areas, as well as urban areas across the country. Sulfates are a key factor in all areas of the United States, particularly in the East, where high humidity increases the light extinction efficiency of sulfates. Sulfates are responsible for 60-80% of total light extinction in the East, based on data collected during the 1990's in eastern national parks such as Acadia, Everglades, Great Smoky Mountains, Shenandoah, and in Washington, DC.

In the West, sulfates account for approximately 25-50% of visibility impairment. Nitrates can play a larger role in visibility problems in some portions of the West than in the East. For example, nitrates account for 20-40% of visibility impairment in national parks and wilderness areas in Southern California. In many urban areas, NO<sub>x</sub> emissions from cars, trucks, and power plants contribute to winter time "brown cloud" situations.

## C OZONE:

The President's Energy Plan will reduce ozone by reducing NO<sub>x</sub>, a key contributor to the formation of ground-level ozone. In the presence of sunlight, NO<sub>x</sub> and volatile organic compounds react photochemically to produce ozone. NO<sub>x</sub> can be transported long distances and contribute to ozone many hundreds of miles from its source. More than 97 million people live in areas that do not yet meet the health-based 1-hour ozone standard (based on 1997-1999 data). The number would be even higher for the new 8-hour ozone standard. Reducing ozone levels will result in fewer hospitalizations, emergency room and doctors visits for asthmatics, significantly fewer incidents of lung inflammation for at-risk populations, and significantly fewer incidents of moderate to severe respiratory symptoms in children.

Not only will reducing ozone provide public health benefits, but it will avoid damage to ecosystems and vegetation. Ozone causes decreased agricultural and commercial forest yields, increased mortality and reduced growth of tree seedlings, and increased plant susceptibility to disease, pests, and environmental stresses (e.g., harsh weather). Since NO<sub>x</sub> emissions result in formation of ground-level ozone, reducing NO<sub>x</sub> emissions will reduce ozone levels and thus reduce the deleterious effects of ozone on human health and ecosystems.

### Deposition Effects

## C MERCURY:

The President's Energy Plan will benefit public health by reducing mercury air emissions. Mercury is highly toxic in small quantities and Americans with diets with high levels of mercury are at risk for adverse health effects. Mercury is a naturally occurring element, but human activity mobilizes mercury in the environment, making it more bioavailable. After mercury is emitted to the air, it can be transported through the atmosphere for days to years before being deposited into water bodies.

Once mercury is deposited in lakes, rivers, and oceans, it bioaccumulates in the food chain, resulting in high concentrations in predatory fish. In the U.S., most human exposure to mercury is the result of consumption of fish contaminated with methylmercury. A recent report of the National Academy of Sciences (NAS) concluded that while most Americans face a very low risk from methylmercury, children of women who consume large amounts of fish during pregnancy face a much higher risk. Fetuses are particularly vulnerable to methylmercury because of their rapidly developing nervous systems. These effects include cognitive, sensory, and motor deficits. The NAS study estimates as many as 60,000 children annually may develop neurological problems because of low-level methylmercury exposure through their mother prior to birth. Forty-one states have advisories warning the public to restrict eating fish from local waters due to methylmercury. EPA estimates that 5.6 million acres of lakes, estuaries and wetlands and 43,500 miles of streams, rivers and coasts are impaired by mercury emissions.

## C ACID RAIN:

The President's Energy Plan will reduce acid rain by reducing SO<sub>2</sub> and NO<sub>x</sub>. Acidic deposition or "acid rain" occurs when SO<sub>2</sub> and NO<sub>x</sub> in the atmosphere react with water, oxygen, and oxidants to form acidic compounds. These compounds fall to the Earth in either dry form (gas and particles) or wet form (rain, snow, and fog). Some are carried by the wind, sometimes hundreds of miles, across state and national borders. In the United States, about 67 percent of annual SO<sub>2</sub> emissions and 25 percent of NO<sub>x</sub> emissions are produced by electric utility plants that burn fossil fuels.

Although we have made progress as a result of the 1990 Acid Rain Program, we have not fully addressed the problem. Indicators of recovery of lakes and streams do not show consistent change in response to reduced SO<sub>2</sub> emissions. In sensitive areas such as the Adirondacks, for example, the majority of lakes have remained fairly constant in terms of acidification levels, while the most sensitive lakes continue to acidify. Overall, acid deposition continues to impair the water quality of lakes and streams in the Northeast: 41 percent of lakes in the Adirondack region of New York and 15 percent of lakes in New England exhibit signs of chronic and/or episodic acidification. Although sulfur deposition has declined, nitrogen emissions have not changed substantially region-wide. Moreover, recent findings also suggest that nitrogen is quantitatively as important or, in some areas, possibly more important than sulfur as a cause of episodic acidification because of short-term acidic pulses occurring during the most biologically sensitive time of the year, when fish reproduce. Reductions of NO<sub>x</sub>, particularly during winter and spring, are critical for addressing these concerns.

## NITROGEN DEPOSITION:

The President's Energy Plan will improve eco-systems and water bodies by reducing NO<sub>x</sub> emissions. Some air emissions of NO<sub>x</sub> from power generation result in deposition of nitrogen in soils and water. While nitrogen is an essential nutrient, its availability is naturally limited, making it an important factor in regulating the structure and functioning of both terrestrial and aquatic ecological systems. Human activity has greatly altered the terrestrial and atmospheric nitrogen cycle, doubling the annual amount of nitrogen available in forms that are useful to living organisms. Nitrogen saturation of watersheds contributes to environmental problems such as reduced drinking water quality, nitrate-induced toxic effects on freshwater organisms, increased soil acidification and aluminum mobility, increased emissions from soil of nitrogenous greenhouse trace gases, reduction of methane consumption in soil, and forest decline and reduced productivity.

Coastal water and marine environment are also impacted by atmospheric deposition of nitrogen. Depending upon the location, from 10 to more than 40 percent of new nitrogen inputs to coastal waters along the East Coast and Gulf Coast of the United States come from air pollution. One of the best documented and understood impacts of increased nitrogen is the eutrophication of estuaries and coastal waters. Eutrophication refers to the increase in the rate of supply of organic matter to an ecosystem and its many undesirable consequences. Symptoms of eutrophication are found in many of our nation's coastal ecosystems. They include algal blooms that are potentially hazardous to human

health, low dissolved oxygen concentrations, declines in the health of fish and shellfish populations, loss of seagrass beds and coral reefs, and ecological changes in food webs.

### **Summary of Health and Environmental Effects**

Adopting a unified approach to reduce SO<sub>2</sub>, NO<sub>x</sub> and mercury is better than looking at each pollutant separately because of synergistic effects. Beyond their impacts as separate emissions, SO<sub>2</sub>, NO<sub>x</sub>, and mercury together contribute to many air pollution-related problems affecting human health and the environment. In certain cases, synergies exist between emissions and among the various reduction approaches available, making it imperative that efforts to reduce risk address all three emissions accommodate these synergies. In the case of fine particles, atmospheric chemical relationships suggest that when only reducing sulfate for example, it is replaced in the atmosphere by nitrate. Thus, simultaneous NO<sub>x</sub> and SO<sub>2</sub> emission reductions are critical. In the case of acid rain, significant reductions in sulfur dioxide have not corresponded to ecological changes due to continuing high levels of nitrogen. Continuing levels of sulfur deposition, albeit smaller than before, also work to prevent recovery due to extremely large sulfur loadings over the years. Both emissions count in achieving the goal of recovery. Additionally, some synergies have been observed between methylmercury and lake acidity - the more acidic, the greater the mercury concentration.

As more environmental data become available and science improves, we are observing some environmental improvement accompanying the downward trend in emissions. However, there are persistent and growing concerns regarding recovery of ecosystems and the risks that air pollution pose to human health. For instance, nitrate levels in surface waters are not significantly improving, and at best are constant. Logically, if emissions continue at the same level, or increase, pollution problems will mirror that trend. Visibility impairment in national parks, wilderness areas and urban areas also continues to be a problem. Many people continue to be exposed to unacceptable levels of smog. Of particular significance -- the American public has become acutely aware of the hazards to their health, including the risk of mortality, posed by inhalation of fine particles and exposure to mercury through fish consumption.

## **IV Climate Change**

The President's Energy Plan, and the climate change strategy that is under development, will provide benefits by addressing climate change. Energy-related activities are the primary source of U.S. man-made greenhouse gas emissions. Power generators, which emit CO<sub>2</sub>, contribute about 29% of the total emissions of all U.S. man-made greenhouse gases. Scientists continue to learn more about global climate change, its causes, potential impacts, and possible solution. We recently held Cabinet-level working group meetings to review the most recent, most accurate and most comprehensive science. During those meetings, we heard from scientists offering a wide spectrum of views. We have reviewed the facts and listened to many theories and suppositions. The working group asked the highly respected National Academy of Sciences to provide us the most up-to-date information about what is known and about what is not known on the science of climate change.

We know the surface temperature of the Earth is warming. It has risen by .6 degrees Celsius

over the past 100 years. There was a warming trend from the 1890s to the 1940s, cooling from the 1940s to the 1970s, and then sharply rising temperatures from the 1970s to today. There is a natural greenhouse effect that contributes to warming. Greenhouse gases trap heat and thus warm the Earth because they prevent a significant portion of infrared radiation from escaping into space. Concentration of greenhouse gases, especially CO<sub>2</sub>, have increased substantially since the beginning of the industrial revolution. And the National Academy of Sciences indicates that the increase is due in large part to human activity. The Academy's report also tells us that there are many unanswered questions about climate change, which makes it difficult to determine what levels of greenhouse gas emissions need to be avoided.

To address global climate change and greenhouse gas emissions, we are pursuing a broad array of conservation and energy efficiency goals under the Administration's National Energy Policy as well as the development of a comprehensive policy under the ongoing cabinet-level review for this issue. On June 11, President Bush announced the establishment of two major initiatives to address the major scientific and technological challenges presented by this serious, long-term issue: the U.S. Climate Research Initiative and the National Climate Change Technology Initiative. In addition, he committed the United States to increasing cooperative efforts in the Western Hemisphere, and with our allies globally, to aggressively pursue joint research and actions. These efforts have recently borne fruit, particularly recent agreements with Japan and Italy to collaborate on climate modeling efforts and with El Salvador in a "forest for debt" swap that will preserve tropical forests there that sequester carbon. The complex challenge of global climate change requires a global response that will draw on the power of global markets and the promise of technology to achieve emissions reductions most flexibly and cost-effectively in the coming century. The Administration intends to address this challenge in that context, and will leverage our national resources to enhance our scientific understanding of global climate change, and develop the advanced energy technologies that the world will need in coming decades to meet its energy and environmental needs.

## V. Conclusion

Our country has made great progress in reducing air pollution over the last several decades, but pollution from power generation needs to be further controlled. We can draw no other conclusion given the significant contribution that power generation makes to the emissions that cause such serious public health and environmental problems.

But our current regulatory programs are not the most efficient way to achieve the goal of ensuring a reliable energy supply in an environmentally responsible manner. Rather than take a pollutant-by-pollutant, problem-by-problem approach, we have the opportunity to examine the sector as a whole. Doing so provides us with the opportunity for cost-effective reductions and significant public health and environmental gains. That is why this Administration supports the development of new legislation that builds on the success of the market-based Acid Rain Program to reduce significantly the SO<sub>2</sub>, NO<sub>x</sub> and mercury emissions from power generation. Mandatory controls are not the only way to solve public health and environmental problems. President Bush's National Energy Plan also includes measures to increase conservation of energy, increase energy efficiency, and encourage technological advances such as clean coal technology, fuel cells, and combined heat and power facilities -- all of which will contribute to addressing the energy and environmental challenges of

this industry.

I have already spent time with representatives of the power generation sector and have heard from a number of them who are interested in legislation that will provide the public health and environmental benefits we discussed today. I applaud their concern and their willingness to help craft a workable solution. I have also heard from environmentalists who are interested in these same issues. I know that many of you are interested in addressing these issues through legislation. I hope that our common interests will lead us to a consensus – one that will provide the country with significant benefits. I look forward to working with you on these issues.