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PATH [Partnership for Advancing Technology in Housing]

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THE PRESIDENT'S NEW PARTNERSHIP FOR HOUSING:
HELPING HOMEOWNERS CUT ENERGY COSTS AND FIGHT GLOBAL WARMING

Today, President Clinton launches a new partnership with America's building industry to dramatically improve the energy efficiency of our homes -- cutting consumers' energy bills by 30-50 percent, while reducing the greenhouse gases that cause global warming. At a Los Angeles construction site, where building will soon commence on 186 energy-efficient homes, the President will tour a model home with advanced energy-saving features that will cut homeowners' utility bills by $230 a year. By promoting the use of these and other advances in new and existing homes, ***the new Partnership for Advancing Technology in Housing (PATH) could save consumers $11 billion a year in energy costs by 2010 and reduce annual carbon emissions in 2010 by nearly 24 million tons -- the amount produced by some 20 million cars.***

Advanced Housing for the 21st Century. PATH brings together federal agencies, state and local governments, and the building, finance and insurance industries to spur design and construction innovations for the next generation of American housing. The goal is homes that are stronger, more affordable, more comfortable and far more energy-efficient.

> ***Over the next decade, PATH aims to cut energy use by 50 percent in new homes, and by 30 percent in 15 million existing homes, while reducing the monthly cost of new housing by 20%.***

Meeting the Challenge of Climate Change. Rising emissions of greenhouse gases, primarily from the burning of fossil fuels, threaten to warm the planet 2-6 degrees over the next century. Likely results include rising sea levels, the spread of infectious disease, increased flooding and drought, and extreme weather like that caused by this winter's El Nino. ***Energy use at home accounts for about 20 percent of U.S. emissions of greenhouse gases.*** PATH is part of a comprehensive Administration strategy to fight climate change through cost-effective steps that cut emissions while creating opportunities for economic growth.

A Commitment to Work Together. PATH joins government and industry in a coordinated strategy to identify promising housing technologies and swiftly move them to market.

> ***Federal partners,*** led by the Department of Housing and Urban Development and the Department of Energy, commit to support research, facilitate removal of barriers to new technology, and provide technical assistance.
>
> ***Industry partners*** commit to fund research, bring advanced products to market, share information and work with government to demonstrate new technologies.
>
> ***State and Local Government*** partners commit to streamline approval processes so new technologies are rapidly deployed and devote resources to local pilot projects.

PATH Projects Around the Country. The 186-home Village Green development in Los Angeles is one of several PATH pilot projects under way. Others include a Tucson project that is the largest "sustainable" master-planned development in the United States and a "new traditional" neighborhood being built on a decontaminated "brownfields" site in Pittsburgh.

Tax Incentives for Energy Efficiency. To further promote energy efficiency and clean energy technologies, the President's Fiscal Year 1999 budget proposes a five-year $6.3 billion package of tax incentives and research investments. Included are $200 million in tax credits for the purchase of ultra-energy-efficient homes and $1.4 billion in tax credits for the purchase of energy-saving systems and appliances for buildings and homes. The budget also proposes $200 million next year to accelerate R&D for appliances and construction. ***The President calls on Congress to approve this common-sense package of tax and research incentives to build a stronger economy and a stronger environment.***

GLOBAL CLIMATE CHANGE AND ENERGY USE

"...Climate change can bring us together around what America does best -- we innovate, we compete, we find solutions to problems, and we do it in a way that promotes entrepreneurship and strengthens the American economy. If we do it right, protecting the climate will yield not costs, but profits; not burdens, but benefits; not sacrifice, but a higher standard of living."

President Clinton, October 22, 1997

Global climate change is one of our greatest environmental challenges. Scientists warn that the steady buildup of greenhouses gases in the atmosphere will warm the planet and may cause serious disruptions. Global warming is caused by rising greenhouse gas emissions. The principal source of greenhouse gas emissions is the burning of fossil fuels to power buildings and homes, transportation, and industry. ***When we use energy at home – to turn on the lights, heat or cool the house, or use an appliance – we are causing fossil fuel to be burned just as we do when we drive a car. Energy use at home accounts for nearly 20 percent of all U.S. emissions of greenhouse gases.***

Increased energy efficiency makes environmental and economic sense for the nation. Over the next decade, Americans will waste $400 billion as a result of inefficient technology, buildings and appliances. Simple, cost-effective steps to improve energy efficiency can save money, strengthen our economy, make our businesses more competitive, and significantly reduce the greenhouse gases that contribute to global warming.

The Partnership for Advancing Technology in Housing (PATH) is a voluntary program that is part of President Clinton's comprehensive strategy to combat global warming through cost-effective steps that curb emissions while creating new opportunities for economic growth. PATH's goals over the next decade include dramatically improving energy efficiency -- cutting energy use by 50 percent in new homes, and by 30 percent in 15 million existing homes.

EVIDENCE OF CLIMATE CHANGE

The world's leading climate scientists have concluded that human activity is having a discernible impact on our climate. The average global temperature has risen 1 degree Fahrenheit over the last century. Unless action is taken to reduce emissions, concentrations of carbon dioxide in the atmosphere will increase in the next century to the highest level in 50 million years. Scientists project that the planet could warm 2 to 6 degrees F over the next 100 years -- which would be faster than the last 10,000 years.

- Nine of the last 11 years have been the hottest this century; and the 1990's were the warmest decade in 600 years.

- Although this winter's severe El Nino cannot be directly linked to be linked to global warming, it provides a preview some of the extreme, erratic weather that can be expected more frequently as the climate changes.

- U.S. rainfall has increased 5 to 10 percent over the last century, an increase consistent with projections of a warmer, wetter world resulting from climate change.

- Most mountain glaciers around the world have receded significantly in the last 100 years. For example, Glacier National Park has lost 70 percent of its glaciers, and they are predicted to be completely gone by 2030.

POTENTIAL IMPACTS OF CLIMATE CHANGE

Health

- Warmer temperatures are projected to increase fatalities from heart failure and pulmonary disease of the kind that killed 400 people in Chicago in 1995. In the next 50 years, deaths attributable to heat waves in the U.S. could double.

- The prevalence of asthma and other respiratory illnesses, particularly among children and the elderly, is expected to increase from the additional smog caused by warmer temperatures.

- In a warmer, wetter world, the geographic ranges for infectious diseases could significantly expand, resulting in 50 million or more additional cases of malaria a year by 2100.

Increased Costs from Flooding and Drought

- Warmer, wetter weather means increased flooding. Recent years have shown us how vulnerable we are to such events. The 1993 Mississippi River flood caused damages of $10-20 billion, the Pacific Northwest floods in 1996-1997 resulted in $3 billion in losses, the 1997 Ohio River flood cost $1 billion, and the 1997 Red River flood in the Northern Plains caused $2 billion in losses.

- Global warming may also mean increased drought. Large areas of the eastern and central United States would face more frequent moderate to severe droughts, particularly in the Great Plains. Damage from the Southern Plains drought of 1996 was estimated at $4 billion.

Natural Resources

- If seas rise 20 inches over the next 100 years, as predicted, 7,000 square miles of the U.S. will be under water, with Florida and the Gulf Coast at greatest risk.

- Changes in rain and snowfall, and increased evaporation from higher temperatures, could affect water supplies and water quality, posing threats to irrigation, fisheries, and drinking supplies.

- Warmer temperatures will disrupt farming, reducing crop yields up to 30 percent in poorer nations already subject to famine.

- The ideal range for some North American tree species will shift by as much as 300 miles to the north, far faster than forests can migrate naturally. This could cause profound changes in our parks and wildlife refuges and lead to further loss of species.

ENERGY USE AND CLIMATE CHANGE

Carbon dioxide – from the burning of fossil fuels --accounts for 85 percent of U.S. greenhouse gas emissions that contribute to global warming. Fossil fuels are used to power our cars, factories and utilities, and to heat and run our homes and buildings. In the United States, greenhouse emissions come from three principal sources:

- Buildings accounts for one-third, with residential homes responsible for roughly half of those emissions.

- Transportation, such as cars, trucks and other forms of transportation, produces roughly another third.

- Industrial operations account for the last third. Electricity generation and use contributes a substantial portion of the emissions in both the building and industrial sectors.

MEETING THE CHALLENGE - PRESIDENT CLINTON'S CLIMATE CHANGE PLAN

In October 1997, President Clinton put forward a responsible, balanced approach to begin meeting the challenge of global warming while protecting our economy and maintaining our international competitiveness.

U.S. leadership ensured that the international climate change agreement negotiated in Kyoto, Japan, includes strong, realistic emissions reduction targets and flexible, market-based mechanisms for achieving them. Recognizing that climate change is global problem requiring a global solution, the United States continues to work toward meaningful participation by key developing countries.

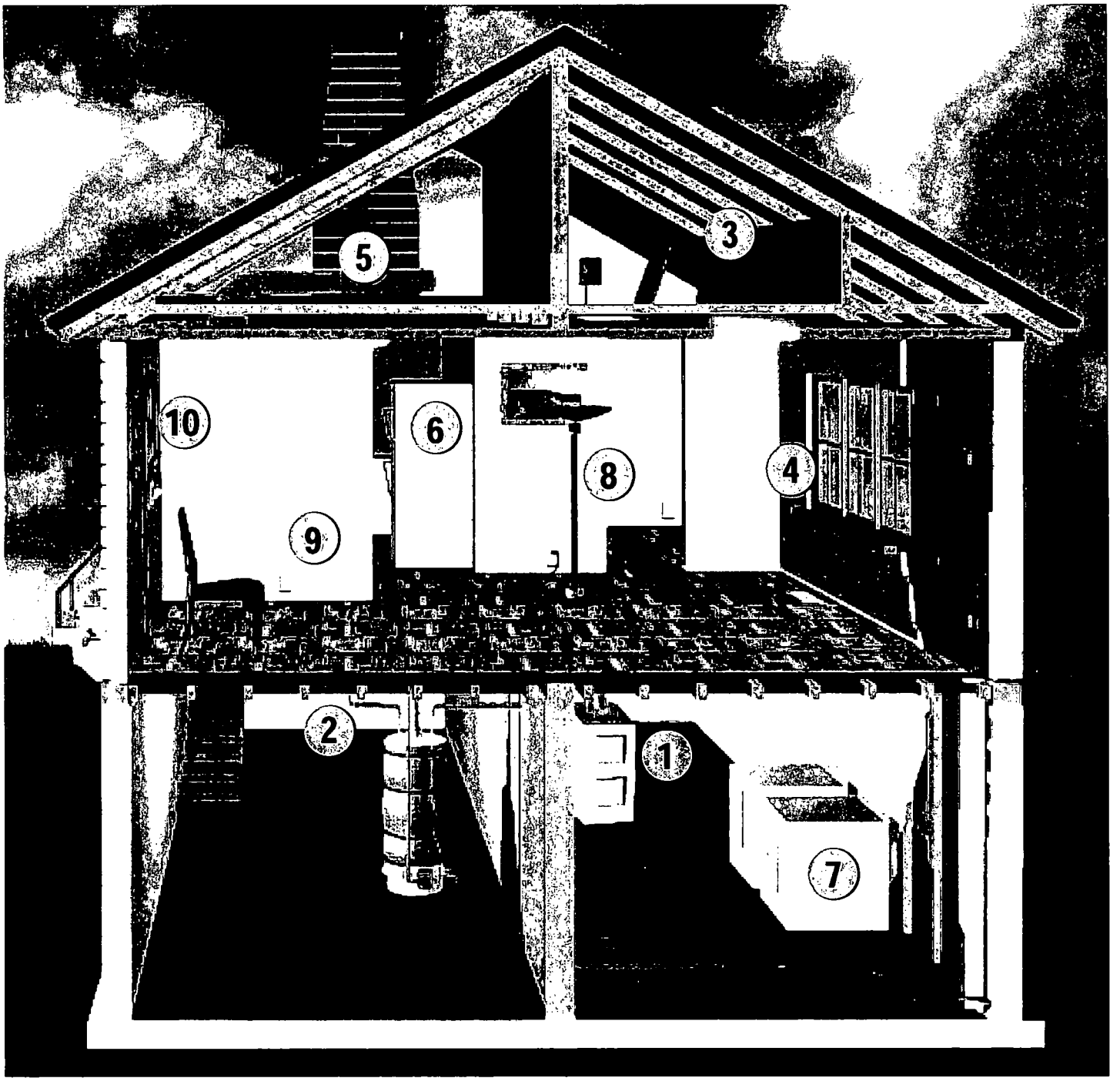
Domestically, the President is working in partnership with the private sector to encourage cost-effective, common-sense steps to reduce greenhouse gas emissions. The President's Fiscal Year 1999 budget proposes a five-year $6.3 billion package of tax incentives and research investments to stimulate development and use of energy-efficient technologies and clean energy sources.

Partnerships with the private sector will improve energy efficiency and reduce emissions. For example:

Partnership for Advancing Technology in Housing. One PATH goal is reducing energy use in new homes by 50 percent over the next 10 years, and by 30 percent in 15 million existing homes. By 2010, consumers could save $11 billion in energy bills per year, and carbon emissions could be reduced by almost 24 million tons per year, the amount produced by about 20 million cars.

Energy Star Buildings. In partnership with the Clinton Administration, owners and managers of commercial buildings, including some of the nation's greatest landmarks – including the Empire State Building, the World Trade Center and the Sears Tower – are voluntarily committing to cut their energy use up to 30 percent.

Partnership for a New Generation of Vehicles. The Administration is working with U.S. automakers to develop a car that is affordable, attractive and three times more fuel efficient. In January, the Big Three rolled out prototypes that get more than twice the mileage of today's models --with no sacrifice in comfort, safety or performance.



Ten steps you can take at home to save money, save energy and fight global warming

1 Heating and cooling systems
2 Hot water systems
3 Insulation
4 Windows
5 Air leaks
6 Refrigerators
7 Clothes washers
8 Lighting
9 Consumer electronics
10 Putting it all together

U.S. Department of Energy
Office of Building Technology, State and Community Programs
Office of Energy Efficiency and Renewable Energy

Ten steps you can take at home to save money, save energy and fight global warming

Energy costs in the typical American home are $1300 a year. Home energy use is also responsible for putting more than three metric tons of carbon into the atmosphere per household. This is equal to the emissions from $2\frac{1}{2}$ cars. More than 30% of your home energy use and associated carbon emissions could be eliminated by taking action in these ten areas.

1. Heating and cooling systems — These two items account for 44% of a household's energy bill. Buy ENERGY STAR® heating and cooling equipment, use a programmable thermostat and have your system maintained with regular tune-ups.

2. Hot water systems — Heating water accounts for 14% of typical energy usage in the home. Look for high-efficiency water heaters, heat pump water heaters and solar water heaters. Proper maintenance, insulation and water-saving features like aerators in faucets and low-flow showerheads will help save here.

3. Insulation — Insulating attics, walls, ducts and basements are among the most cost-effective energy-saving actions you can take.

4. Windows — Inefficient windows can account for 10% – 25% of heating bills and increase your air conditioning. ENERGY STAR windows will help to decrease your heating and cooling bills.

5. Air leaks — Poorly sealed ducts and air leaks in the home waste dollars and can cause health and safety problems. You can save 10% or more by providing mechanical ventilation and by sealing cracks, penetrations, and heating and cooling ducts.

6. Refrigerators — New refrigerators can save you $35 – $70 a year over the models available 15 years ago. This can mean $500 – $1000 in savings over the life of the refrigerator.

7. Clothes washers — New high-efficiency front-loading washing machines can save more than 50% of the energy used for washing. They use 30% less water and save on the energy needed for drying your clothes, as well.

8. Lighting — Lighting accounts for 5% – 10% of home energy use. Increased use of fluorescent lighting in the home and installed timers and motion sensors can reduce your lighting costs. If you buy compact fluorescent floor lamps (torchieres) instead of a halogen lamp, it will not only save energy but also eliminate a dangerous fire hazard.

9. Consumer electronics — Consumer electronics are the fastest energy growth area in the home. Look for the ENERGY STAR label when buying computers, VCR's and TV's.

10. Putting it all together — Treating the whole house as a system saves even more energy and money. For example, you can reduce the size and cost of a heating and cooling system through better insulation, windows and air sealing.

ENERGY STAR is a government industry partnership program. This labeling program is jointly managed by the U.S. Department of Energy and the U.S. Environmental Protection Agency.

The Partnership for Advancing Technologies in Housing (PATH) is a public/private effort to improve the quality, durability, environmental performance, energy efficiency and affordability of our Nation's housing.

For more information, contact the Department of Energy: 1-800-DOE-3732 or http://www.eren.doe.gov

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PATH: ADVANCED HOUSING FOR THE 21ST CENTURY

PATH's primary goal is to dramatically improve the energy efficiency, quality, durability and affordability of new and existing homes.

The Partnership for Advancing Technology in Housing (PATH) brings together federal agencies, state and local governments, and the building, finance and insurance industries to spur technological innovations for the next generation of American housing. Federal agencies, with policy leadership provided by the Department of Housing and Urban Development and the Department of Energy, will serve as a catalyst, working with the private sector to identify promising technologies and swiftly bring them to market. Some examples: ultra efficient heating and cooling systems, a new generation of windows that provide as much insulation as most walls today, and roof shingles that generate solar power.

PATH partners will work together on:

Collaborative Research on Next-Generation Technologies. PATH partners will collaborate to develop and evaluate technologies that can achieve both performance and cost goals. A national ***Conference on the Future of the American House*** in early 1999 will help set the research agenda. Federal research related to residential housing will focus on PATH goals and the evolving research agenda.

Moving Technology from the Laboratory to the Marketplace. Because the housing industry is large and dispersed, it can take 10 to 25 years for a new technique or product to gain wide acceptance. PATH aims to cut that time in half by removing market barriers, developing national testing and evaluation standards and streamlining approval processes. A ***blue-ribbon panel*** made up of experts from among PATH members will investigate regulatory and other barriers. Federal, state and local organizations are committed to helping remove unnecessary barriers and encourage adoption of cost-effective new technologies.

Stimulating Wider Use of Existing Products. One way to move technology to markets more efficiently is to ensure that accurate information about innovative products and experience with their use is readily available. PATH will help get the work out to builders, suppliers and consumers through a ***new website*** available in early June (**http://www.pathnet.org**). Information for consumers about making their homes more energy efficient is available now at (**http://eetd.lbl.gov/path**).

PATH GOALS

Using voluntary approaches, the partnership aims to develop innovative housing components, designs and production methods and reduce by half the time needed to move quality technologies to market. Our goal is that within a decade, technologies widely accepted in the market will make it possible to produce housing that is affordable and at the same time to:

- Cut the environmental impact and energy use of new housing by 50 percent and reduce energy use in at least 15 million existing homes by 30 percent or more.

- Improve durability and reduce maintenance costs by 50 percent; and reduce by at least 10 percent the risk of loss of life, injury and property destruction from natural hazards; and,

- Reduce the monthly cost of new housing by 20 percent or more.

PATH PARTNERS

More than three dozen companies and major trade associations are joining with federal agencies and state and local governments as charter members of this new partnership.

Federal partners will coordinate their efforts to serve as a one-stop shop for other PATH partners and to support a range of PATH activities. Federal participants are: the Departments of Agriculture, Commerce, Energy, Housing and Urban Development, and Labor; the Environmental Protection Agency; NASA; the Federal Emergency Management Agency; the National Institute of Occupational Safety & Health; and the National Science Foundation. HUD will have responsibility for the day-to-day management of PATH, while HUD and DOE will jointly provide federal policy leadership for the partnership.

- More than $70 million is already committed, and the Administration has requested over $100 million for Fiscal Year 1999 to develop and test new building systems, equipment and appliances.

- The 1999 funding request includes $10 million in additional funds for HUD's work to further expand the PATH partnership and move more quickly toward achievement of its goals.

- A new program at the National Institute of Standards and Technology (NIST) will develop tools to evaluate the performance of new housing technologies.

- The Federal Emergency Management Agency (FEMA) will help communities struck by emergencies such as hurricanes, earthquakes use disaster-resistant technologies when rebuilding.

- The Environmental Protection Agency will expand its Energy Star residential program to encourage improvement in the home energy efficiency and resulting increased comfort, improved indoor air quality, and improved construction quality.

Industry partners, including the National Association of Home Builders, the Manufactured Housing Institute, and the Institute for Business and Home Safety, will make good-faith efforts to make products meeting PATH goals widely available. In addition, they will:

- Work with federal and state agencies to test new designs and share testing costs.

- Share non-proprietary information on costs, benefits and other characteristics of building innovations.

- Test experimental technologies in pilot homes and more mature technologies on a

larger scale.

- Share in the costs of research and development.

State and local government partners will work with the private sector to carry out pilot projects and will promote wider adoption of promising technologies. They will:

- Find ways to streamline permitting and other approval processes to ensure rapid adoption of PATH technologies.
- Provide personnel and other resources to ensure the success of pilot projects.
- Provide flexibility in local building codes to promote PATH goals.

PATH PILOT PROJECTS

Several major developments around the country -- some being planned, others already under way -- will serve as the first PATH pilot projects. They include:

Los Angeles -Village Green, adjacent to the Sylmar/San Fernando Metrolink Station, is the largest transit-based development in Los Angeles County. With help from PATH, the 186 single-family homes will be at least 30 percent more energy-efficient than typical new homes. In addition, the L.A. Department of Water and Power will help pay the of cost of super-energy-efficient refrigerators, washing machines and other appliances.

Tucson - The city is working with Community of Civano LLC on the largest "sustainable" master-planned development in the United States. A solar photovoltaic manufacturing plant has been built. Construction of a 20,000 square-foot neighborhood center is under way, and work will soon begin on the first of 2,500 homes incorporating advanced materials and energy and telecommunications technologies.

Pittsburgh - Summerset at Frick Park, a "new traditional" neighborhood of 713 homes, will be built on a decontaminated "brownfields" site 5 miles from downtown. The project, a public/private partnership, will incorporate advanced materials and technologies and the homes will use at least 35 percent less energy than required by local standards.

Denver - The City and County of Denver have committed to work with the PATH program to develop and incorporate sustainable development guidelines at the redevelopment of the former Stapleton Airport; and to develop a PATH pilot project at one or more sites in the community, including as possible sites the former Lowry Air Force Base or the former Stapleton Airport.

President Clinton's Clean Air Partnership Fund

- President Clinton's FY2000 budget proposes a new $200 million Clean Air Partnership Fund. The Fund will provide an opportunity for cities, states and tribes to partner with the private sector, the federal government and each other to provide healthy clean air to local citizens. The Fund will demonstrate smart multi-pollutant strategies that reduce greenhouse gases, air toxics, soot and smog to protect our climate and our health.

- The ***Clean Air Partnership Fund*** will bring the most creative ideas for cleaning the air we breathe to where they are needed most -- local communities. Good ideas for clean air -- ideas that save money and reduce pollution – can be demonstrated to create a cleaner, more efficient environment at the local level. The ***Clean Air Partnership Fund*** will act as a magnet for local innovation and investment.

- The ***Clean Air Partnership Fund*** will:

    - be a catalyst for innovative local, state, private partnerships for air pollution reductions;

    - demonstrate locally managed, self-supporting programs that achieve early integrated reductions in soot, smog, air toxics, and greenhouse gases;

    - be used to capitalize local revolving funds and other financial mechanisms that leverage the original federal investment and result in greater resources for air pollution reduction; and

    - stimulate technology innovation.

- The Clean Air Partnership will fund more optimal, multi-pollutant control strategies. Currently, businesses and municipalities often invest in short-term, single-pollutant control approaches. The Partnership will encourage many industries, such as electric utilities and the transportation sector, to pursue comprehensive criteria pollutant reductions while improving energy and operational efficiencies, thereby also reducing greenhouse gas emissions.

- The Clean Air Fund will provide these needed resources through mechanisms that promise significant leveraging of nonfederal resources. It is expected that the Fund will support the development of local revolving funds, low-interest loan programs, matching funds, public-private partnerships, and other capitalization mechanisms. These mechanisms have been proven to leverage federal dollars 2 to 2 ½ times, substantially increasing the Fund's impact.

U.S. Environmental Protection Agency
The Clean Air Partnership Fund

Frequently Asked Questions
March 1, 1999

President Clinton's FY2000 budget proposes a new $200 million Clean Air Partnership Fund. The Fund will provide an opportunity for cities, states and tribes to partner with the private sector, the federal government and each other to provide healthy clean air to local citizens. The Fund will demonstrate smart multi-pollutant strategies that reduce air toxics, soot, smog, and greenhouse gases to protect our climate and our health.

Why is the Clean Air Partnership Fund being created?

Cities, states and tribes face many air quality challenges in providing clean air to their residents. Localities and states must develop plans to meet new health-based federal air pollution standards for ozone and particulate matter (e.g. smog and soot). Some localities must form state plans to reduce emissions of NO_x to prevent the transportation of ozone from one region to another. Many urban areas are designing their urban air toxics reduction strategies. In addition, electric utility restructuring and visibility-degrading regional haze must be addressed by air quality planners. The Clean Air Partnership Fund is designed to help meet these existing Clean Air needs in an integrated fashion.

Why is the Clean Air Partnership Fund unique?

Currently, businesses and municipalities often invest in short-term, single-pollutant control approaches. The Partnership will encourage many industries, such as electric utilities and the transportation sector, to pursue comprehensive criteria pollutant reductions while improving energy and operational efficiencies, thereby also reducing air toxics and greenhouse gas emissions. Unique public-private partnerships could also result.

What types of projects will be financed by the Clean Air Partnership Fund?

The Clean Air Partnership Fund will support demonstration projects that: (1) control multiple air pollution problems simultaneously; (2) leverage the original Federal funds; (3) facilitate meaningful public involvement; and (4) provide innovative approaches to air pollution control that could be replicated in other cities and states. For example:

- Partnership Funds could help provide start-up capital for municipalities to establish programs to convert existing diesel fleets of school buses to cleaner fuels.

- Partnership Funds could help establish home energy efficiency investment loan funds. Reducing energy use in homes will reduce local soot, smog and air toxics and greenhouse gas emissions.

- Partnership Funds could be used to create incentives for cleaner electricity generation at utilities. Increased use of combined heat and power and natural gas combined-cycle electricity generation will yield criteria, air toxic and greenhouse gas emission reductions.

- Partnership Funds could support local revolving loan funds to finance energy efficient retrofits for local and state agency buildings, public schools, hospitals and private industry. The cost savings realized from lower energy bills would allow borrowers to repay the loans and provide an ongoing source of funding for future innovative investments.

- Partnership Funds could help support tax credits for innovative air pollution control technology investments.

- Partnership Funds could be used to stimulate demand for renewable sources of energy. Renewable energy sources such as fuel cells, photovoltaics, wind and geothermal provide ideal integrated air pollution control technologies.

Who is eligible for funds under the Clean Air Partnership Fund?

Entities eligible for grants through the Partnership Fund include local and state governments, tribes and multi-state organizations.

Special consideration will be given to locally based governmental projects that leverage resources in order to obtain early multi-pollutant benefits through innovative means.

How will EPA implement the program and select projects?

EPA will solicit ideas from all stakeholders for potential multi-pollutant projects and suggestions for program design. Shortly after Congressional approval of the budget, EPA will prepare and release guidelines for proposals and the criteria for project selection.

How will the funding mechanism work?

Grants will be made to cities, states and tribes. These organizations could receive funds to carry out projects themselves or to set up programs which might fund other projects. It is expected that the Fund will support the development of local revolving funds, low-interest loan programs, matching funds, public-private partnerships, and other capitalization mechanisms.

What opportunities exist for harmonizing strategies to address multiple air pollution problems?

Many opportunities exist because air pollution sources usually contribute to more than one air pollution problem at a time. For example, reducing air pollution from the transportation sector by using cleaner fuels will help improve smog conditions, reduce particulate pollution, reduce hazardous air toxics as well as reduce greenhouse gas emissions. The same multiple pollutant reduction opportunities can be found in most sectors of our economy.

For further information about the Clean Air Partnership Fund please call Keith Mason, U.S. Environmental Protection Agency, Office of Air and Radiation at (202) 260-1360.

U.S. Environmental Protection Agency
The Clean Air Partnership Fund

Frequently Asked Questions
March 1, 1999

President Clinton's FY2000 budget proposes a new $200 million Clean Air Partnership Fund. The Fund will provide an opportunity for cities, states and tribes to partner with the private sector, the federal government and each other to provide healthy clean air to local citizens. The Fund will demonstrate smart multi-pollutant strategies that reduce air toxics, soot, smog, and greenhouse gases to protect our climate and our health.

Why is the Clean Air Partnership Fund being created?

Cities, states and tribes face many air quality challenges in providing clean air to their residents. Localities and states must develop plans to meet health-based federal air pollution standards (e.g. smog and soot). Some localities must form state plans to reduce emissions of NO_x to prevent the transportation of ozone from one region to another. Many urban areas are designing their urban air toxics reduction strategies. In addition, electric utility restructuring and visibility-degrading regional haze must be addressed by air quality planners. The Clean Air Partnership Fund is designed to help meet these existing Clean Air needs in an integrated fashion.

Why is the Clean Air Partnership Fund unique?

Currently, businesses and municipalities often invest in short-term, single-pollutant control approaches. The Partnership will encourage many industries, such as electric utilities and the transportation sector, to pursue comprehensive criteria pollutant reductions while improving energy and operational efficiencies, thereby also reducing air toxics and greenhouse gas emissions. Unique public-private partnerships could also result.

What types of projects will be financed by the Clean Air Partnership Fund?

The Clean Air Partnership Fund will support demonstration projects that: (1) control multiple air pollution problems simultaneously; (2) leverage the original Federal funds; (3) facilitate meaningful public involvement; and (4) provide innovative approaches to air pollution control that could be replicated in other cities and states. For example:

The Clean Air Partnership Fund – *Frequently Asked Questions* continued:

- Partnership Funds could help provide start-up capital for municipalities to establish programs to convert existing diesel fleets of school buses to cleaner fuels.

- Partnership Funds could help establish home energy efficiency investment loan funds. Reducing energy use in homes will reduce local soot, smog and air toxics and greenhouse gas emissions.

- Partnership Funds could be used to create incentives for cleaner electricity generation at utilities. Increased use of combined heat and power and natural gas combined-cycle electricity generation will yield criteria, air toxic and greenhouse gas emission reductions.

- Partnership Funds could support local revolving loan funds to finance energy efficient retrofits for local and state agency buildings, public schools, hospitals and private industry. The cost savings realized from lower energy bills would allow borrowers to repay the loans and provide an ongoing source of funding for future innovative investments.

- Partnership Funds could help support tax credits for innovative air pollution control technology investments.

- Partnership Funds could be used to stimulate demand for renewable sources of energy. Renewable energy sources such as fuel cells, photovoltaics, wind and geothermal provide ideal integrated air pollution control technologies.

Who is eligible for funds under the Clean Air Partnership Fund?

Entities eligible for grants through the Partnership Fund include local and state governments, tribes and multi-state organizations.

Special consideration will be given to locally based governmental projects that leverage resources in order to obtain early multi-pollutant benefits through innovative means.

The Clean Air Partnership Fund – *Frequently Asked Questions* continued:

How will EPA implement the program and select projects?

EPA will solicit ideas from all stakeholders for potential multi-pollutant projects and suggestions for program design. Shortly after Congressional approval of the budget, EPA will prepare and release guidelines for proposals and the criteria for project selection.

How will the funding mechanism work?

Grants will be made to cities, states and tribes. These organizations could receive funds to carry out projects themselves or to set up programs which might fund other projects. It is expected that the Fund will support the development of local revolving funds, low-interest loan programs, matching funds, public-private partnerships, and other capitalization mechanisms.

What opportunities exist for harmonizing strategies to address multiple air pollution problems?

Many opportunities exist because air pollution sources usually contribute to more than one air pollution problem at a time. For example, reducing air pollution from the transportation sector by using cleaner fuels will help improve smog conditions, reduce particulate pollution, reduce hazardous air toxics as well as reduce greenhouse gas emissions. The same multiple pollutant reduction opportunities can be found in most sectors of our economy.

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The Clean Air Partnership Fund
Examples of Potential Partnership Projects

President Clinton's FY2000 budget proposes a new $200 million **Clean Air Partnership Fund.** The Fund will provide an opportunity for cities, states and tribes to partner with the private sector, the federal government and each other to provide healthy clean air to local citizens. The Fund will demonstrate smart multi-pollutant strategies that reduce air toxics, soot, smog, and greenhouse gases to protect our climate and our health.

The **Clean Air Partnership Fund** will provide critical start-up capital for innovative financing of local energy efficiency and air pollution reduction projects. Projects such as the following will be encouraged by using the fund as an initial source of capital and as a magnet for creative partnership proposals.

Municipal Energy Efficiency Investments

- The City of Phoenix, Arizona, with a population of 972,000, established a revolving fund to encourage energy efficiency in municipal buildings. It started the Energy Conservation Savings Reinvestment Plan in 1984 with $50,000 seed money from state oil overcharge funds. Each year, Phoenix reinvested half of all documented energy savings in the Plan. By 1986, annual energy savings were over $1 million, capping off the Plan at its maximum allowable limit of $500,000 a year[1]. The Plan has financed retrofits which resulted in $18 million of audited savings from 1978 to 1992. Accrued projected savings from 1978 to 2002 are expected to total $42.6 million.

- In 1983, the School District of Philadelphia, embarked on an incentive based energy conservation program which has resulted in a 10 year savings of $45 million. Faced with budget constraints, district personnel looked at the then $33 million energy budget as a potential resource[2].

  With the cooperation of all departments, program guidelines were established that provided a financial incentive to any school that could show a savings on its annual - averaged over past three years - energy bills. The savings were divided with 40% going back to the school, 40% to the district and 20% earmarked for investment by the district in energy saving projects. By the end of the first year, district wide savings were $3 million, with two thirds of schools showing savings. Twenty-five percent of the rebates to schools are to be spent on benefiting school maintenance staff, to reward their

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[1] International Council for Local Environmental Initiatives (ICLEI), 1998.
[2] ICLEI, 1998.

contribution and ensure their cooperation.

Energy Service Contracts

- An energy service company, CES/Way International, carried out a turnkey performance contract to retrofit seven municipal buildings in Jefferson County, Kentucky, U.S.A. The $2.5 million project included boiler, air infiltration, HVAC control and lighting retrofits, monitoring, and training of building operators. CES/WAY International also arranged funding and guaranteed the energy savings would be sufficient to repay the debt. After the debt payment, the ESCO split the remaining energy savings with the County in a standard "shared savings" arrangement. Annual energy savings were $530,000 in 1992, about 20 percent of the investment[3].

Lease Purchase Agreements

- The City of Buffalo, New York recently used tax exempt municipal lease purchase financing, provided by Oppenheimer & Co., Inc., to retrofit 55 City facilities. Total project cost was approximately $3.5 million, $1.2 million of which was available as incentives from the local electric utility Niagara Mohawk. Total 15 year benefits to Buffalo will be in excess of $6,100,000. Energy saving measures implemented included energy efficient lighting, high efficiency motors, HVAC upgrades, programmable building controls and controllers on ice rink brine pumps[4].

State Bond Sales

- The sale of over $12 million in "energy conservation bonds" is financing the retrofit of office buildings, hospitals, and schools owned by state agencies in Iowa. The State of Iowa Facilities Improvement Corporation (SIFIC) uses the bond proceeds to pay for the installation of energy efficient equipment. The bond proceeds support a wide range of energy management improvements. Energy improvements installed to date in state-owned facilities total $19 million, and are saving the State $3.4 million a year[5].

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[3]ICLEI
[4]ICLEI
[5]ICLEI

State Revolving Loan Program

- The Texas LoanSTAR program is Texas' own program designed to "Save Taxes And Resources" by monitoring energy use and recommending energy-saving retrofits. In 1988, the Texas Governor's Energy Office (now known as the State Energy Conservation Office) received approval from the U. S. Department of Energy to establish a statewide retrofit demonstration program. The initial capital came from oil overcharge funds. The LoanSTAR program is designed to demonstrate commercially available, energy efficient, retrofit technologies and techniques .LoanSTAR has already generated $62 million in savings (as of August1998) for Texas taxpayers, and the program is projected to save another $250 million over the next 20 years.

  State agencies, such as schools and public buildings, may apply for loans to make recommended retrofits. Participants must repay the loans in four years or less based on estimated energy savings. In most cases repayment is made from savings generated by the cost-effective retrofit measures. Once the loans are repaid, the savings are available for the agencies.

  Savings-generating retrofits to buildings include installing variable speed pumps and variable air volume systems, upgrading heating and air conditioning systems, and installing high efficiency chillers, energy management control systems, high efficiency lighting systems and thermal storage systems[6].

Transportation Air Pollution Investments

- Clean-Fuel Taxi Cabs

  Funding from several sources (DOE, California and South Coast Air Quality Mgmt. District) combined to reduce the cost of purchasing an alternative-fueled taxi cab from $27,000 to $21,000. Each CNG fueled cab reduced on average 6,300 lbs/year of HC and NO_x by over 11,000 lbs/year. The Clean Air Partnership Fund could provide initial capital to attract such matching funds[7].

- Clean-Fuel Fork Lifts

  By converting 36 of 96 forklifts to natural gas, an airport facilities company demonstrated fuel cost savings of $10,000 in the first year. Conversion expenses were $1,200 per vehicle. CO, HC, NO_x and CO_2 emissions were reduced an estimated 90%, 70%, 50%, and 10% respectively[8].

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[6]Texas Loan STAR Program, 1998.

[7]"Spotlight on Niche Markets - Taxis Are Changing to AFVs". Alternative Fuel News, DOE, Vol. 2, No.5.

[8]Case Studies on Cost-Effective Forklift Truck Fleets. Gas Research Institute, May 1, 1996.

- Electric Buses

  Converting diesel buses to electric buses results in virtually zero tailpipe emissions. Air toxics, soot and smog are all reduced. Chattanooga Area Regional Transportation Authority has converted 16 of 81 vehicles to electricity at a cost of $160,000 to $180,000 for 22- and 31-ft electric buses. Fuel costs ranged from $0.04 to $0.05/mile for electric compared to $0.16/mile for diesel. Maintenance costs ranged from $0.04 to $0.075/mile for electric and $0.185/mile for diesel. The initial capital costs of the bus conversions can be offset by fuel and operating cost savings[9].

Residential and Commercial Energy Consumption

- Solar Water Heaters

  Replacing an average home electric water heater with a solar water heater would prevent 26 pounds of NO_x and 40 pounds of SO_2 on average annually. It would also reduce 7,600 pounds of CO_2 annually[10].

- Energy Efficient Lighting

  In a commercial office building project, replacement of over 12,000 florescent T12 lamps with energy-efficient T8s with electronic ballasts prevented over 2.5 million pounds/year of CO_2, and over 3 million g/year of SO_2 and NO_x. This reduced electricity consumption by 43% and saved over $100,000 per year.

Renewable Energy Sources

- Wind Turbines

  A 10-MW wind farm would annually displace 23,000 tons of CO_2, 123 tons of SO_2 80 tons of NO_x [11].

- Fuel Cells

  Fuel cells emit about 1/250th as much NO_x per unit of electricity generated as that from a conventional power plant[12].

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[9]Electric Buses Energize Downtown Chattanooga. Argonne National Lab., DOE, August 1, 1997.

[10]"Reducing Greenhouse Gases & Air Pollution: A Menu of Harmonized Options. Preliminary Findings, November 1998. State and Territorial Air Pollution Program Administrators (STAPPA) and Association of Local Air Pollution Control Officials (ALAPCO).

[11] STAPPA-ALAPCO, 1998.

[12]STAPPA-ALAPCO, 1998.

Municipal Landfill Emissions as Energy Source

- Private developers use gas collected from a Raleigh, NC city owned landfill to fuel boilers, thus reducing GHG and conventional pollutants. The facility eliminates the methane emissions of the landfill avoids the emissions at the utility that provided the original supply of electricity. City of Raleigh receives royalties of $65,000 -$75,000 per year[13].

- The South Davis County Sewer Improvement District operates a cogeneration project that burns methane from sewage sludge processing, thus virtually eliminating the methane emissions and avoids the emissions at the utility that provided the original supply of electricity. The system saves $5,000 per month on utility bills for the District and provides 75% of the facilities electricity and all of its heating needs[14].

Municipal Cogeneration Facilities

- Trenton, NJ partnered with a private company to build and operate a cogeneration facility to avoid paying all the construction and maintenance costs itself. The private company keeps the electricity sales revenues. The cogeneration facility reduces oil and gas consumption by nearly 50% avoiding emissions of 33,000 pounds/year of particulates.

- A new $52 million wood-fired combined heat and power system is to be built in St. Paul, Minnesota. The plant will provide 25 megawatts of electricity to Northern States Power -- enough to supply electricity to 20,000 homes and heat to 450 downtown St. Paul commercial customers. A substantial portion of the wood waste to fire the system will come from downed trees, trimmings and branches from the Twin Cities area.

  The project will significantly reduce air pollution by displacing 110,000 tons of coal that are presently burned every year, with wood waste. This will reduce sulfur dioxide emission by roughly 600 tons per year and reduce fossil fuel derived carbon dioxide emissions by roughly 280,000 tons per year. The power plant can operate at more than double the efficiency of conventional electricity-only power plants, resulting in twice the useful end-energy for the same raw energy input[15].

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[13] DOE, Energy Solutions for Cities and Counties.
[14] DOE, Energy Solutions for Cities and Counties.

[15] Trigen-Cinergy Solutions, 1/8/99.

Clean Air Partnership Fund
Example Demonstration Projects & Programs

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The **Clean Air Partnership Fund** will provide critical start-up capital for innovative financing of local air pollution reduction and energy efficiciency projects. Projects such as the following will be encouraged by using the fund as an initial source of capital and as a magnet for creative partnership proposals.

- ELECTRIC GROUND SERVICE EQUIPMENT: Airport conversion of ground service equipment to electric power could reduce NO_x, PM, and air toxic emissions and generate significant cost savings.

- ULTRA LOW-NO_X GAS FIRED BURNERS: Industrial furnaces and boilers in municipal and government owned buildings could apply ultra low-NO_x technology. New technology can produce low NO_x levels comparable to selective catalytic reduction technology at significantly lower costs.

- URBAN AIR TOXICS MONITORING: As cities develop their urban air toxics control strategies, the need for ambient air toxic monitoring information is increasing. The Fund could be used to promote improvements to the existing air toxics monitoring networks.

- CLEANER SMALL ENGINES: New clean 2-stroke engines and alternative fuels for small consumer and commercial equipment will make significant advancements in traditionally uncontrolled sources of air pollution. The Clean Air Partnership Fund could establish programs to demonstrate these new cleaner engines into use at a local level.

- SMALL BUSINESS TECHNICAL ASSISTANCE CENTERS: The Fund could be used by state or local governments to establish Clean Air assistance centers that could provide innovative technology demonstrations and financial assistance to small manufacturers and businesses as they address air quality. The Clean Air Partnership Fund can play a key role in preserving a healthy and strong local economy.

- ENERGY EFFICIENCY REVOLVING LOAN FUNDS: The Fund could provide start-up capital for state and local energy efficiency revolving loan investment programs. In Texas, such a program (LoanSTAR) has generated $62 million in savings (as of August 1998) for Texas taxpayers, and the program is projected to save another $250 million over the next 20 years. State agencies, such as schools and public buildings, may apply for loans to make recommended retrofits.

- CLEAN-FUEL TAXI CABS: In California, funding from several sources (DOE, California and South Coast Air Quality Mgmt. District) combined to reduce the cost of purchasing an alternative-fueled taxi cab from $27,000 to $21,000. Each CNG fueled cab reduced on average 6,300 lbs/year of HC and NO_x by over 11,000 lbs/year. The Clean Air Partnership Fund could provide initial capital to attract such matching funds and expand the presence of clean-fuel fleets.

- SOLAR WATER HEATERS: Replacing an average home electric water heater with a solar water heater would prevent 26 pounds of NO_x and 40 pounds of SO_2 on average annually. It would also reduce 7,600 pounds of CO_2 annually.

- ENERGY EFFICIENT LIGHTING : In a municipal office building project, replacement of over 12,000 florescent lamps with energy-efficient lights prevented over 2.5 million pounds/year of CO_2, and over 100,000 pounds/year of SO_2 and NO_x. This reduced electricity consumption by 43% and saved over $100,000 per year.

For further information about the Clean Air Partnership Fund please call Keith Mason, U.S. Environmental Protection Agency, Office of Air and Radiation at (202) 260-1360.

- 566-1360 Keith Mason

OUTREACH SUMMARY (3/17)

I. Who We've Talked To:

STAPPA - Bill Becker
US Conference of Mayors - Kevin McCarty
NASEO - Frank Bishop, Jeff Genzer
Alliance to Save Energy - David Nemtzow
NRDC - Dan Lashoff
NALGEP (Nat'l Assoc. of Local Gov't Environmental Professionals)
Union of Concerned Scientists - Michelle Robinson, Jason Mark
ICLEI (Int'l Council for Local Environmental Initiatives) - Nancy Skinner
NESCAUM -- Jason Grumet
American Public Power Association -- Bill Wemhoff/Rebecca Blood
ASHTO
Environmental Defense Fund -- Steve Cochran/Kevin Mills

Talks/presentations given:
NASEO - 2/18, Washington, DC
Center for Clean Air Policy, State Roundtable - 3/11, Wash, DC

Plans to talk/give presentations to:
EPA Regional Climate Coordinators Workshop - 3/18, Chicago, IL
NCSL (Nat'l Conference of State Legislatures)
ECOS Spring Meeting, 3/30-31
Nat'l Environmental Policy Institute -- 4/29
Manufactuers of Emission Control Association -- 3/24

Other possible groups to contact:

Council of State Governments, 4/15-18
Renewable industry groups (SEIA, SERIF, AWEA, etc)
~~American Public Power Association~~
National Environmental Trust
Clean Air Task Force
NESCAUM & MARAMA
Clean Air Energy Group
National Governors Association
ICMA
California Energy Commission
National Town Meeting for Sustainable Development -- 5/3-5/5

Dirk
- Get list - Utilities to reach out to
- Coal staff for Dingell's hearing - for Linda talk

II. Materials Prepared (for public distribution)

1. 1- page program description

2. Frequently Asked Questions

3. Examples of potentially qualifying projects

4. Program Overview: Presentation (to be completed by____)

III. Other Outreach Activities

1. Letters describing program and seeking input (on the way out).

2. Distribute program background materials to interested groups.

3. Follow-up meetings with interested groups (go over materials, discuss program design).

4. Meeting of interested groups with Bob P. to discuss program.

Innovative Approches to Finance Air Pollution Prevention and Energy Efficiency Investments

The **Clean Air Partnership Fund** will provide critical start-up capital for innovative financing of local energy efficiency and air pollution reduction projects. Projects such as the following will be encouraged:

Revolving Funds

- City of Phoenix: The City of Phoenix, Arizona, U.S.A., with a population of 972,000, established a revolving fund to encourage energy efficiency in municipal buildings. It started the Energy Conservation Savings Reinvestment Plan in 1984 with $50,000 seed money from state oil overcharge funds. Each year, Phoenix reinvested half of all documented energy savings in the Plan. By 1986, annual energy savings were over $1 million, capping off the Plan at its maximum allowable limit of $500,000 a year[1].

  The Plan has financed retrofits which resulted in $18 million of audited savings from 1978 to 1992. Accrued projected savings from 1978 to 2002 are expected to total $42.6 million.

- Philadelphia School District: In 1983 the School District of Philadelphia, USA, embarked on an incentive based energy conservation program which has resulted in a 10 year savings of $45 million. Faced with budget constraints, district personnel looked at the then $33 million energy budget as a potential resource[2].

  With the cooperation of all departments, program guidelines were established that provided a financial incentive to any school that could show a savings on its annual - averaged over past three years - energy bills. The savings were divided with 40% going back to the school, 40% to the district and 20% earmarked for investment by the district in energy saving projects. By the end of the first year, district wide savings were $3 million, with two thirds of schools showing savings. Twenty-five percent of the rebates to schools are to be spent on benefiting school maintenance staff, to reward their contribution and ensure their cooperation.

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[1]Source: International Council for Local Environmental Initiatives (ICLEI).

[2]Source: ICLEI

Direct Borrowing: Loans, Bonds and Debentures

- State of Iowa, U.S.A. The sale of over $12 million in "energy conservation bonds" is financing the retrofit of facilities owned by state agencies in Iowa. The State of Iowa Facilities Improvement Corporation (SIFIC) uses the bond proceeds to pay for the installation of energy efficient equipment. The bond proceeds support a wide range of energy management improvements. Energy improvements installed to date in state-owned facilities total $19 million, and are saving the State $3.4 million a year.

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- Jefferson County, Kentucky: An energy service company, CES/Way International, carried out a turnkey performance contract to retrofit seven municipal buildings in Jefferson County, Kentucky, U.S.A. The $2.5 million project included boiler, air infiltration, HVAC control and lighting retrofits, monitoring, and training of building operators. CES/WAY International also arranged funding and guaranteed the energy savings would be sufficient to repay the debt. After the debt payment, the ESCO split the remaining energy savings with the County in a standard "shared savings" arrangement. Annual energy savings were $530,000 in 1992, about 20 percent of the investment.

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The Clean Air Partnership Fund

Innovative Clean Air Technology

The Clean Air Partnerhsip Fund will provide create further demand for innovative air pollution control and prevention technologies. Virtually all sectors of the economy have the opportunity to operate in a more efficient manner and reduce conventional and greenhouse gas emissions at the same time. Innovative technology will play a key role.

Using Compressed Natural Gas in Government-owned Vehicles

- If Federal, state, county, and local government-owned fleets use compressed natural gas, an estimated national carbon equivalent emission reduction of approximately 0.5 MMTCE would result.

- Similarly, the following table shows a broad approximation of the national emission reduction potential for criteria pollutants if 50 to 100% of the Federal, state, county, and local government fleets are comprised of CNG-fueld vehicles:

Potential Mobile Source Emission Reductions if Government Vehicles Use CNG

Emission Source	Potential Emission Reductions of 50%-100% CNG Fleets (thousand metric tonnes)			
	NOx	CO	NMHC	PM
Light Duty Vehicles (gasoline)	9 - 18	200 - 400	20 - 40	NA
Heavy Duty Trucks (diesel)	4.5 - 9.0	NA	NA	0.3 - 0.6
Buses (diesel)	50 - 100	NA	NA	1.5 - 3.0

Possible Questions for Rob Brenner, OAR in preparation for House Science Subcommittee Hearing

Q: The appropriations language says that the President is requesting "$200,000,000 for a clean air partnership fund demonstration program under section 103 of the Clean Air Act to support programs to achieve early, integrated reductions in emissions of air pollutants, including local revolving funds and other mechanisms for leveraging non-Federal resources." Doesn't the phrase "to achieve reductions in emissions" exceed the authority EPA has under section 103?

A: No. The language you quoted provides additional specificity, but does not provide exceed the authority of Section 103. All Clean Air Partnership Fund grants will be for demonstrations, which are explicitly authorized by Section 103.

Q: Is EPA relying on all of section 103 for the Clean Air Partnership Fund grants? Or just on section 103(b)(3)?

A: EPA is utilizing the grant making authority of Section 103. That authority is specifically contained within Section 103 (b) (3). 103 (b)(3) authorizes EPA to make grants to fulfill purposes stated in subsection (a)(1) of Section 103.

Background:

The budget langauage refers to section 103 -- it does not specify 103(b)(3). Congressional appropriators usually never specify a subsection.

-- Section 103(b)(3) allows us to make grants for the purposes set out in section 103(a)(1).

-- Section 103(a)(1)'s purposes cover (albeit in general terms) the purposes of the Partnership Fund.

-- 103(g) is the only other section that people have asked about:

Section 103(g) states that in carrying out Section 103(a) the Administrator "shall conduct a basic engineering research and technology program..." and then describes what should be included in the program. Section 103(b)(3) authorizes the Administrator to award grants for the purposes set forth in Section 103(a)(1). Because Section 103(g) refers to carrying out Section 103(a), for which grants in turn can be made under (b)(3), there is a link between 103(g), 103(a) and 103(b)(3), and thus the authority under Section 103(b)(3) allows us to award grants for the activities listed in Section 103(g).

-- 103(g) is of particular interest because it talks about nonregulatory strategies for reducing multiple pollutants, including carbon dioxide.

-- 103(g) may be of particular interest to the Science Subcommittee because

they (rather than Commerce) may have jurisdiction over it.

Q: Is this a regulatory program?

A: No. Its a grant program designed to help local, state and tribal governments demonstrate innovative, multi-pollutant approaches to achieving cleaner air.

Q: But couldn't this be used to fund state and local regulation of greenhouse gases?

A: This is not designed to be a regulatory program at any level of government. It is a grant program designed to meet the need for funding that we've heard about from local, state and tribal governments for innovative approaches to clean the air.

Q: Are you telling me that the Fund would not be used to provide money for state or local regulation?

A: That's not a purpose of the Fund. However, there may be cases where a grant recipient needs to assess and perhaps modify existing local regulations to facilitate the purpose of the grant. For example, if a city is setting up a revolving fund for purposes of clean air investments, it is likely that their financial authority may have to address the legal and regulatory specifics allowing them to set up such a financial mechanism. Or, if a city is utilizing the Fund to help convert existing diesel buses to clean fuels, it may need to modify contractual purchase agreements that authorize such transportation investments.

Q: Isn't this really implementing Kyoto through the back door?

A: No. First, the Fund is designed to reduce many pollutants besides greenhouse gases. Second, as you know, EPA is not seeking to implement the Kyoto Protocol before the Senate has provided its advice and consent to ratification. To the extent that the Fund would reduce greenhouse gases, it really is an extension of our current voluntary programs. EPA believes it is important to recognize that actions, such as EPA's voluntary energy efficiency programs and the Clean Air Partnership Fund, that would have the effect of reducing, or are intended to reduce greenhouse gases covered by the Kyoto Protocol, do not necessarily implement the Kyoto Protocol. These programs are authorized under the Clean Air Act and make sound environmental and economic sense. Most of EPA's voluntary programs long predate negotiation of the Kyoto Protocol. They were developed to meet the existing U.S. commitments to reduce greenhouse gas emissions under the Framework Convention on Climate Change, which the Senate voted unanimously to ratify in 1992. While the Clean Air Partnership Fund is largely focused on developing innovative approaches to multi-pollutant emission reductions, of which greenhouse gases are only one component, to the extent that it addresses greenhouse gases the Clean Air Partnership Fund has the same purposes and effect as the rest of EPA's voluntary programs. These programs are not intended to and do not implement the Kyoto Protocol.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON D.C. 20460

MAR 18 1999

OFFICE OF
AIR AND RADIATION

Ms. Michele Brown
Commissioner
AK Department of Environmental Conservation
410 Willoughby Avenue, Suite 105
Juneau, AK 99801-1795

Dear Commissioner Brown:

As part of the FY2000 budget request, President Clinton announced a new $200 million Clean Air Partnership Fund. I bring this important initiative to your attention because I believe it responds to many of the needs you and your communities have raised with EPA over the years. The Fund represents a prime opportunity for us to work with you to demonstrate innovative, multi-pollutant strategies for air pollution control and prevention. The Fund will create and sustain locally managed clean air partnerships among communities, states, tribes, and the private sector.

States and local communities face significant clean air challenges. The Clean Air Partnership Fund will create opportunities to reduce urban air toxics, attain the health-based ozone and particulate matter air quality standards, and improve the energy efficiency of our economy. This Fund is a chance to test creative, new ideas and to spark innovative financing mechanisms, such as local revolving loan funds, to implement those ideas. The Clean Air Partnership Fund will support demonstration projects that: (1) control multiple air pollution problems simultaneously; (2) leverage the original federal funds; (3) facilitate meaningful public involvement; and (4) provide innovative approaches to air pollution control that could be replicated in other cities and states.

Over the next several months as Congress reviews the FY2000 budget, EPA will work in partnership with states and local governments to develop the best opportunities to put this exciting new program to work on the most critical air pollution challenges. Meeting the challenges before us all on air pollution, energy, and climate will require a new and strong commitment to working together. The Clean Air Partnership Fund is proposed with that commitment in mind.

Please find enclosed some initial materials outlining the Fund. There is still much work to be done and I invite you to contact me, or Keith Mason of my staff at 202-260-1360, to share your thoughts about this new initiative. I look forward to working with you and Congress to implement a dynamic and effective Clean Air Partnership Fund for communities of all sizes.

Sincerely,

Bob Perciasepe

Robert Perciasepe
Assistant Administrator

Enclosures

cc: Tom Chapple
Robert E. Roberts
S. William Becker

President Clinton's Clean Air Partnership Fund

- President Clinton's FY2000 budget proposes a new $200 million Clean Air Partnership Fund. The Fund will provide an opportunity for cities, states and tribes to partner with the private sector, the federal government and each other to provide healthy clean air to local citizens. The Fund will demonstrate smart multi-pollutant strategies that reduce greenhouse gases, air toxics, soot and smog to protect our climate and our health.

- The ***Clean Air Partnership Fund*** will bring the most creative ideas for cleaning the air we breathe to where they are needed most -- local communities. Good ideas for clean air -- ideas that save money and reduce pollution -- can be demonstrated to create a cleaner, more efficient environment at the local level. The ***Clean Air Partnership Fund*** will act as a magnet for local innovation and investment.

- The ***Clean Air Partnership Fund*** will:

    - be a catalyst for innovative local, state, private partnerships for air pollution reductions;

    - demonstrate locally managed, self-supporting programs that achieve early integrated reductions in soot, smog, air toxics, and greenhouse gases;

    - be used to capitalize local revolving funds and other financial mechanisms that leverage the original federal investment and result in greater resources for air pollution reduction; and

    - stimulate technology innovation.

- The Clean Air Partnership will fund more optimal, multi-pollutant control strategies. Currently, businesses and municipalities often invest in short-term, single-pollutant control approaches. The Partnership will encourage many industries, such as electric utilities and the transportation sector, to pursue comprehensive criteria pollutant reductions while improving energy and operational efficiencies, thereby also reducing greenhouse gas emissions.

- The Clean Air Fund will provide these needed resources through mechanisms that promise significant leveraging of nonfederal resources. It is expected that the Fund will support the development of local revolving funds, low-interest loan programs, matching funds, public-private partnerships, and other capitalization mechanisms. These mechanisms have been proven to leverage federal dollars 2 to 2 ½ times, substantially increasing the Fund's impact.

Clean Air Partnership Fund
Example Demonstration Projects & Programs

President Clinton's FY2000 budget proposes a new $200 million **Clean Air Partnership Fund.** The Fund will provide an opportunity for cities, states and tribes to partner with the private sector, the federal government and each other to provide healthy clean air to local citizens. The Fund will demonstrate smart multi-pollutant strategies that reduce air toxics, soot, smog, and greenhouse gases to protect our climate and our health.

The **Clean Air Partnership Fund** will provide critical start-up capital for innovative financing of local air pollution reduction and energy efficiciency projects. Projects such as the following will be encouraged by using the fund as an initial source of capital and as a magnet for creative partnership proposals.

- ELECTRIC GROUND SERVICE EQUIPMENT: Airport conversion of ground service equipment to electric power could reduce NO_x, PM, and air toxic emissions and generate significant cost savings.

- ULTRA LOW-NO_x GAS FIRED BURNERS: Industrial furnaces and boilers in municipal and government owned buildings could apply ultra low-NO_x technology. New technology can produce low NO_x levels comparable to selective catalytic reduction technology at significantly lower costs.

- URBAN AIR TOXICS MONITORING: As cities develop their urban air toxics control strategies, the need for ambient air toxic monitoring information is increasing. The Fund could be used to promote improvements to the existing air toxics monitoring networks.

- CLEANER SMALL ENGINES: New clean 2-stroke engines and alternative fuels for small consumer and commercial equipment will make significant advancements in traditionally uncontrolled sources of air pollution. The Clean Air Partnership Fund could establish programs to demonstrate these new cleaner engines into use at a local level.

- ENERGY EFFICIENCY REVOLVING LOAN FUNDS: The Fund could provide start-up capital for state and local energy efficiency revolving loan investment programs. In Texas, such a program (LoanSTAR) has generated $62 million in savings (as of August 1998) for Texas taxpayers, and the program is projected to save another $250 million over the next 20 years. State agencies, such as schools and public buildings, may apply for loans to make recommended retrofits.

- CLEAN-FUEL TAXI CABS: In California, funding from several sources (DOE, California and South Coast Air Quality Mgmt. District) combined to reduce the cost of purchasing an alternative-fueled taxi cab from $27,000 to $21,000. Each CNG fueled cab

reduced on average 6,300 lbs/year of HC and NO_x by over 11,000 lbs/year. The Clean Air Partnership Fund could provide initial capital to attract such matching funds and expand the presence of clean-fuel fleets.

- SOLAR WATER HEATERS: Replacing an average home electric water heater with a solar water heater would prevent 26 pounds of NO_x and 40 pounds of SO_2 on average annually. It would also reduce 7,600 pounds of CO_2 annually.

- ENERGY EFFICIENT LIGHTING : In a municipal office building project, replacement of over 12,000 florescent lamps with energy-efficient lights prevented over 2.5 million pounds/year of CO_2, and over 100,000 pounds/year of SO_2 and NO_x. This reduced electricity consumption by 43% and saved over $100,000 per year.

U.S. Environmental Protection Agency
The Clean Air Partnership Fund

Frequently Asked Questions
March 1, 1999

President Clinton's FY2000 budget proposes a new $200 million Clean Air Partnership Fund. The Fund will provide an opportunity for cities, states and tribes to partner with the private sector, the federal government and each other to provide healthy clean air to local citizens. The Fund will demonstrate smart multi-pollutant strategies that reduce air toxics, soot, smog, and greenhouse gases to protect our climate and our health.

Why is the Clean Air Partnership Fund being created?

Cities, states and tribes face many air quality challenges in providing clean air to their residents. Localities and states must develop plans to meet new health-based federal air pollution standards for ozone and particulate matter (e.g. smog and soot). Some localities must form state plans to reduce emissions of NO_x to prevent the transportation of ozone from one region to another. Many urban areas are designing their urban air toxics reduction strategies. In addition, electric utility restructuring and visibility-degrading regional haze must be addressed by air quality planners. The Clean Air Partnership Fund is designed to help meet these existing Clean Air needs in an integrated fashion.

Why is the Clean Air Partnership Fund unique?

Currently, businesses and municipalities often invest in short-term, single-pollutant control approaches. The Partnership will encourage many industries, such as electric utilities and the transportation sector, to pursue comprehensive criteria pollutant reductions while improving energy and operational efficiencies, thereby also reducing air toxics and greenhouse gas emissions. Unique public-private partnerships could also result.

What types of projects will be financed by the Clean Air Partnership Fund?

The Clean Air Partnership Fund will support demonstration projects that: (1) control multiple air pollution problems simultaneously; (2) leverage the original Federal funds; (3) facilitate meaningful public involvement; and (4) provide innovative approaches to air pollution control that could be replicated in other cities and states. For example:

- Partnership Funds could help provide start-up capital for municipalities to establish programs to convert existing diesel fleets of school buses to cleaner fuels.

- Partnership Funds could help establish home energy efficiency investment loan funds. Reducing energy use in homes will reduce local soot, smog and air toxics and greenhouse gas emissions.

- Partnership Funds could be used to create incentives for cleaner electricity generation at utilities. Increased use of combined heat and power and natural gas combined-cycle electricity generation will yield criteria, air toxic and greenhouse gas emission reductions.

- Partnership Funds could support local revolving loan funds to finance energy efficient retrofits for local and state agency buildings, public schools, hospitals and private industry. The cost savings realized from lower energy bills would allow borrowers to repay the loans and provide an ongoing source of funding for future innovative investments.

- Partnership Funds could help support tax credits for innovative air pollution control technology investments.

- Partnership Funds could be used to stimulate demand for renewable sources of energy. Renewable energy sources such as fuel cells, photovoltaics, wind and geothermal provide ideal integrated air pollution control technologies.

Who is eligible for funds under the Clean Air Partnership Fund?

Entities eligible for grants through the Partnership Fund include local and state governments, tribes and multi-state organizations.

Special consideration will be given to locally based governmental projects that leverage resources in order to obtain early multi-pollutant benefits through innovative means.

How will EPA implement the program and select projects?

EPA will solicit ideas from all stakeholders for potential multi-pollutant projects and suggestions for program design. Shortly after Congressional approval of the budget, EPA will prepare and release guidelines for proposals and the criteria for project selection.

How will the funding mechanism work?

Grants will be made to cities, states and tribes. These organizations could receive funds to carry out projects themselves or to set up programs which might fund other projects. It is expected that the Fund will support the development of local revolving funds, low-interest loan programs, matching funds, public-private partnerships, and other capitalization mechanisms.

What opportunities exist for harmonizing strategies to address multiple air pollution problems?

Many opportunities exist because air pollution sources usually contribute to more than one air pollution problem at a time. For example, reducing air pollution from the transportation sector by using cleaner fuels will help improve smog conditions, reduce particulate pollution, reduce hazardous air toxics as well as reduce greenhouse gas emissions. The same multiple pollutant reduction opportunities can be found in most sectors of our economy.

For further information about the Clean Air Partnership Fund please call Keith Mason, U.S. Environmental Protection Agency, Office of Air and Radiation at (202) 260-1360.

The Clean Air Partnership Fund
Examples of Potential Partnership Projects

President Clinton's FY2000 budget proposes a new $200 million **Clean Air Partnership Fund.** The Fund will provide an opportunity for cities, states and tribes to partner with the private sector, the federal government and each other to provide healthy clean air to local citizens. The Fund will demonstrate smart multi-pollutant strategies that reduce air toxics, soot, smog, and greenhouse gases to protect our climate and our health.

The **Clean Air Partnership Fund** will provide critical start-up capital for innovative financing of local energy efficiency and air pollution reduction projects. Projects such as the following will be encouraged by using the fund as an initial source of capital and as a magnet for creative partnership proposals.

Municipal Energy Efficiency Investments

- The City of Phoenix, Arizona, with a population of 972,000, established a revolving fund to encourage energy efficiency in municipal buildings. It started the Energy Conservation Savings Reinvestment Plan in 1984 with $50,000 seed money from state oil overcharge funds. Each year, Phoenix reinvested half of all documented energy savings in the Plan. By 1986, annual energy savings were over $1 million, capping off the Plan at its maximum allowable limit of $500,000 a year[1]. The Plan has financed retrofits which resulted in $18 million of audited savings from 1978 to 1992. Accrued projected savings from 1978 to 2002 are expected to total $42.6 million.

- In 1983, the School District of Philadelphia, embarked on an incentive based energy conservation program which has resulted in a 10 year savings of $45 million. Faced with budget constraints, district personnel looked at the then $33 million energy budget as a potential resource[2].

  With the cooperation of all departments, program guidelines were established that provided a financial incentive to any school that could show a savings on its annual - averaged over past three years - energy bills. The savings were divided with 40% going back to the school, 40% to the district and 20% earmarked for investment by the district in energy saving projects. By the end of the first year, district wide savings were $3 million, with two thirds of schools showing savings. Twenty-five percent of the rebates to schools are to be spent on benefiting school maintenance staff, to reward their

[1] International Council for Local Environmental Initiatives (ICLEI), 1998.
[2] ICLEI, 1998.

contribution and ensure their cooperation.

Energy Service Contracts

- An energy service company, CES/Way International, carried out a turnkey performance contract to retrofit seven municipal buildings in Jefferson County, Kentucky, U.S.A. The $2.5 million project included boiler, air infiltration, HVAC control and lighting retrofits, monitoring, and training of building operators. CES/WAY International also arranged funding and guaranteed the energy savings would be sufficient to repay the debt. After the debt payment, the ESCO split the remaining energy savings with the County in a standard "shared savings" arrangement. Annual energy savings were $530,000 in 1992, about 20 percent of the investment[3].

Lease Purchase Agreements

- The City of Buffalo, New York recently used tax exempt municipal lease purchase financing, provided by Oppenheimer & Co., Inc., to retrofit 55 City facilities. Total project cost was approximately $3.5 million, $1.2 million of which was available as incentives from the local electric utility Niagara Mohawk. Total 15 year benefits to Buffalo will be in excess of $6,100,000. Energy saving measures implemented included energy efficient lighting, high efficiency motors, HVAC upgrades, programmable building controls and controllers on ice rink brine pumps[4].

State Bond Sales

- The sale of over $12 million in "energy conservation bonds" is financing the retrofit of office buildings, hospitals, and schools owned by state agencies in Iowa. The State of Iowa Facilities Improvement Corporation (SIFIC) uses the bond proceeds to pay for the installation of energy efficient equipment. The bond proceeds support a wide range of energy management improvements. Energy improvements installed to date in state-owned facilities total $19 million, and are saving the State $3.4 million a year[5].

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[3]ICLEI
[4]ICLEI
[5]ICLEI

State Revolving Loan Program

- The Texas LoanSTAR program is Texas' own program designed to "Save Taxes And Resources" by monitoring energy use and recommending energy-saving retrofits. In 1988, the Texas Governor's Energy Office (now known as the State Energy Conservation Office) received approval from the U. S. Department of Energy to establish a statewide retrofit demonstration program. The initial capital came from oil overcharge funds. The LoanSTAR program is designed to demonstrate commercially available, energy efficient, retrofit technologies and techniques .LoanSTAR has already generated $62 million in savings (as of August1998) for Texas taxpayers, and the program is projected to save another $250 million over the next 20 years.

  State agencies, such as schools and public buildings, may apply for loans to make recommended retrofits. Participants must repay the loans in four years or less based on estimated energy savings. In most cases repayment is made from savings generated by the cost-effective retrofit measures. Once the loans are repaid, the savings are available for the agencies.

  Savings-generating retrofits to buildings include installing variable speed pumps and variable air volume systems, upgrading heating and air conditioning systems, and installing high efficiency chillers, energy management control systems, high efficiency lighting systems and thermal storage systems[6].

Transportation Air Pollution Investments

- Clean-Fuel Taxi Cabs

  Funding from several sources (DOE, California and South Coast Air Quality Mgmt. District) combined to reduce the cost of purchasing an alternative-fueled taxi cab from $27,000 to $21,000. Each CNG fueled cab reduced on average 6,300 lbs/year of HC and NO_x by over 11,000 lbs/year. The Clean Air Partnership Fund could provide initial capital to attract such matching funds[7].

- Clean-Fuel Fork Lifts

  By converting 36 of 96 forklifts to natural gas, an airport facilities company demonstrated fuel cost savings of $10,000 in the first year. Conversion expenses were $1,200 per vehicle. CO, HC, NO_x and CO_2 emissions were reduced an estimated 90%, 70%, 50%, and 10% respectively[8].

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[6]Texas Loan STAR Program, 1998.
[7]"Spotlight on Niche Markets - Taxis Are Changing to AFVs". Alternative Fuel News, DOE, Vol. 2, No.5.
[8]Case Studies on Cost-Effective Forklift Truck Fleets. Gas Research Institute, May 1, 1996.

- Electric Buses

  Converting diesel buses to electric buses results in virtually zero tailpipe emissions. Air toxics, soot and smog are all reduced. Chattanooga Area Regional Transportation Authority has converted 16 of 81 vehicles to electricity at a cost of $160,000 to $180,000 for 22- and 31-ft electric buses. Fuel costs ranged from $0.04 to $0.05/mile for electric compared to $0.16/mile for diesel. Maintenance costs ranged from $0.04 to $0.075/mile for electric and $0.185/mile for diesel. The initial capital costs of the bus conversions can be offset by fuel and operating cost savings[9].

Residential and Commercial Energy Consumption

- Solar Water Heaters

  Replacing an average home electric water heater with a solar water heater would prevent 26 pounds of NO_x and 40 pounds of SO_2 on average annually. It would also reduce 7,600 pounds of CO_2 annually[10].

- Energy Efficient Lighting

  In a commercial office building project, replacement of over 12,000 florescent T12 lamps with energy-efficient T8s with electronic ballasts prevented over 2.5 million pounds/year of CO_2, and over 3 million g/year of SO_2 and NO_x. This reduced electricity consumption by 43% and saved over $100,000 per year.

Renewable Energy Sources

- Wind Turbines

  A 10-MW wind farm would annually displace 23,000 tons of CO_2, 123 tons of SO_2 80 tons of NO_x [11].

- Fuel Cells

  Fuel cells emit about 1/250th as much NO_x per unit of electricity generated as that from a conventional power plant[12].

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[9] Electric Buses Energize Downtown Chattanooga. Argonne National Lab., DOE, August 1, 1997.

[10] "Reducing Greenhouse Gases & Air Pollution: A Menu of Harmonized Options. Preliminary Findings, November 1998. State and Territorial Air Pollution Program Administrators (STAPPA) and Association of Local Air Pollution Control Officials (ALAPCO).

[11] STAPPA-ALAPCO, 1998.

[12] STAPPA-ALAPCO, 1998.

Municipal Landfill Emissions as Energy Source

- Private developers use gas collected from a Raleigh, NC city owned landfill to fuel boilers, thus reducing GHG and conventional pollutants. The facility eliminates the methane emissions of the landfill avoids the emissions at the utility that provided the original supply of electricity. City of Raleigh receives royalties of $65,000 -$75,000 per year[13].

- The South Davis County Sewer Improvement District operates a cogeneration project that burns methane from sewage sludge processing, thus virtually eliminating the methane emissions and avoids the emissions at the utility that provided the original supply of electricity. The system saves $5,000 per month on utility bills for the District and provides 75% of the facilities electricity and all of its heating needs[14].

Municipal Cogeneration Facilities

- Trenton, NJ partnered with a private company to build and operate a cogeneration facility to avoid paying all the construction and maintenance costs itself. The private company keeps the electricity sales revenues. The cogeneration facility reduces oil and gas consumption by nearly 50% avoiding emissions of 33,000 pounds/year of particulates.

- A new $52 million wood-fired combined heat and power system is to be built in St. Paul, Minnesota. The plant will provide 25 megawatts of electricity to Northern States Power -- enough to supply electricity to 20,000 homes and heat to 450 downtown St. Paul commercial customers. A substantial portion of the wood waste to fire the system will come from downed trees, trimmings and branches from the Twin Cities area.

  The project will significantly reduce air pollution by displacing 110,000 tons of coal that are presently burned every year, with wood waste. This will reduce sulfur dioxide emission by roughly 600 tons per year and reduce fossil fuel derived carbon dioxide emissions by roughly 280,000 tons per year. The power plant can operate at more than double the efficiency of conventional electricity-only power plants, resulting in twice the useful end-energy for the same raw energy input[15].

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[13] DOE, Energy Solutions for Cities and Counties.
[14] DOE, Energy Solutions for Cities and Counties.

[15] Trigen-Cinergy Solutions, 1/8/99.

U.S. Environmental Protection Agency
The Clean Air Partnership Fund

Questions and Answers

President Clinton's FY2000 budget proposes a new $200 million Clean Air Partnership Fund. The Fund will provide an opportunity for cities, states and tribes to partner with the private sector, the federal government and each other to provide healthy clean air to local citizens. The Fund will demonstrate smart multi-pollutant strategies that reduce air toxics, soot, smog, and greenhouse gases to protect our climate and our health.

Q: Why is the Clean Air Partnership Fund unique?

A: Currently, businesses and municipalities often invest in short-term, single-pollutant control approaches. The Partnership will encourage many industries, such as electric utilities and the transportation sector, to pursue comprehensive criteria pollutant reductions while improving energy and operational efficiencies, thereby also reducing air toxics and greenhouse gas emissions. Unique public-private partnerships could also result.

Q: What air quality challenges are localities and states facing over the next 10 years?

A: Localities and states must develop plans to meet new health-based federal air pollution standards for ozone and particulate matter (e.g. smog and soot). Some localities must form state plans to reduce emissions of NO_x to prevent the transportation of ozone from one region to another. In addition, electric utility restructuring and visibility-degrading regional haze must be addressed by air quality planners.

Q: What types of projects will be financed by the Clean Air Partnership Fund?

A: The Clean Air Partnership Fund will support projects that: (1) control multiple air pollution problems simultaneously; (2) demonstrate an ability to leverage the original Federal funds; (3) facilitate meaningful public involvement; and (4) provide innovative approaches to air pollution control that could be replicated in other cities and states. For example:

- Partnership Funds could help provide start-up capital for municipalities to establish programs to convert existing diesel fleets of school and transport buses to cleaner fuels.

- Partnership Funds could help establish home energy efficiency investment loan

funds. Reducing energy use in homes will reduce local soot, smog and air toxics and greenhouse gas emissions.

- Partnership Funds could be used to create incentives for cleaner electricity generation at utilities. Increased use of combined heat and power and natural gas combined-cycle electricity generation will yield criteria, air toxic and greenhouse gas emission reductions.

- Partnership Funds could support local revolving loan funds to finance energy efficient retrofits for local and state agency buildings, public schools, hospitals and private industry. The cost savings realized from lower energy bills would allow borrowers to repay the loans and provide an ongoing source of funding for future innovative investments.

- Partnership Funds could support tax credits for innovative air pollution control technology investments.

- Partnership Funds could be used to stimulate demand for renewable sources of energy. Renewable energy sources such as fuel cells, photovoltaics, wind and geothermal provide ideal integrated air pollution control technologies.

Q: Who is eligible for funds under the Clean Air Partnership Fund?

A: Entities eligible for grants through the Partnership Fund include local and state governments, tribes and multi-state organizations. + non-profit entities

Special consideration will be given to locally based governmental projects that leverage resources in order to obtain early multi-pollutant benefits through innovative means.

Q: How will USEPA implement the program and select projects?

A: USEPA will solicit ideas from all stakeholders for potential multi-pollutant projects and suggestions for program design. Shortly after Congressional approval of the budget, USEPA will prepare and release guidelines for proposals and the criteria for project selection.

Q: How will the funding mechanism work?

A: Grants will be made to cities, states and tribes. These organizations could receive funds to carry out projects themselves or to set up programs which might fund other projects. It is expected that the Fund will support the development of local revolving funds, low-interest loan programs, matching funds, public-private partnerships, and other capitalization mechanisms.

Q: What opportunities exist for harmonizing strategies to address multiple air pollution problems?

A: Many opportunities exist because air pollution sources usually contribute to more than one air pollution problem at a time. For example, reducing air pollution from the transportation sector by using cleaner fuels will help improve smog conditions, reduce particulate pollution, reduce hazardous air toxics as well as reduce greenhouse gas emissions. The same multiple pollutant reduction opportunities can be found in most sectors of our economy.

Study of Odors and Odorous Emissions

Pub.L. 95–95, Title IV, § 403(b), Aug. 7, 1977, 91 Stat. 792, provided that the Administrator of the Environmental Protection Agency conduct a study and report to the Congress not later than Jan. 1, 1979, on the effects on public health and welfare of odors or odorous emissions, the sources of such emissions, the technology or other measures available for control of such emissions and the costs of such technology or measures, and the costs and benefits of alternative measures or strategies to abate such emissions.

Study on Regional Air Quality

Pub.L. 95–95, Title IV, § 403(d), Aug. 7, 1977, 91 Stat. 793, directed the Administrator of the Environmental Protection Agency to conduct a study of air quality in various areas throughout the country including the gulf coast region, with such study to include analysis of liquid and solid aerosols and other fine particulate matter and the contribution of such substances to visibility and public health problems in such areas."

§ 7402. Cooperative activities

[CAA § 102]

(a) Interstate cooperation; uniform State laws; State compacts

The Administrator shall encourage cooperative activities by the States and local governments for the prevention and control of air pollution; encourage the enactment of improved and, so far as practicable in the light of varying conditions and needs, uniform State and local laws relating to the prevention and control of air pollution; and encourage the making of agreements and compacts between States for the prevention and control of air pollution.

(b) Federal cooperation

The Administrator shall cooperate with and encourage cooperative activities by all Federal departments and agencies having functions relating to the prevention and control of air pollution, so as to assure the utilization in the Federal air pollution control program of all appropriate and available facilities and resources within the Federal Government.

(c) Consent of Congress to compacts

The consent of the Congress is hereby given to two or more States to negotiate and enter into agreements or compacts, not in conflict with any law or treaty of the United States, for (1) cooperative effort and mutual assistance for the prevention and control of air pollution and the enforcement of their respective laws relating thereto, and (2) the establishment of such agencies, joint or otherwise, as they may deem desirable for making effective such agreements or compacts. No such agreement or compact shall be binding or obligatory upon any State a party thereto unless and until it has been approved by Congress. It is the intent of Congress that no agreement or compact entered into between States after November 21, 1967, which relates to the control and abatement of air pollution in an air quality control region, shall provide for participation by a State which is not included (in whole or in part) in such air quality control region. (July 14, 1955, c. 360, Title I, § 102, formerly § 2, as added Dec. 17, 1963, Pub.L. 88–206, § 1, 77 Stat. 393, renumbered § 102, Oct. 20, 1965, Pub.L. 89–272, Title I, § 101(3), 79 Stat. 992, and amended Nov. 21, 1967, Pub.L. 90–148, § 2, 81 Stat. 485; Dec. 31, 1970, Pub.L. 91–604, § 15(c)(2), 84 Stat. 1713.)

HISTORICAL AND STATUTORY NOTES

Revision Notes and Legislative Reports

1963 Acts

House Report No. 508 and Conference Report No. 1003, see 1963 U.S. Code Cong. and Adm. News, p. 1260.

1965 Acts

House Report No. 899, see 1965 U.S. Code Cong. and Adm. News, p. 3608.

1967 Acts

House Report No. 728 and Conference Report No. 916, see 1967 U.S. Code Cong. and Adm. News, p. 1938.

1970 Acts

House Report No. 91-1146 and Conference Report No. 91–1783, see 1970 U.S. Code Cong. and Adm. News, p. 5356.

Codifications

Section was formerly classified to section 1857a of this title.

Prior Provisions

Provisions similar to those comprising the first clause of subsec. (a) of this section were contained in subsec. (b)(1) of a prior section 1857a of this title, Act July 14, 1955, c. 360, § 2, 69 Stat. 322, prior to the general amendment of this chapter by Pub.L. 88–206.

§ 7403. Research, investigation, training, and other activities

[CAA § 103]

(a) Research and development program for prevention and control of air pollution

The Administrator shall establish a national research and development program for the prevention and control of air pollution and as part of such program shall—

(1) conduct, and promote the coordination and acceleration of, research, investigations, experiments, demonstrations, surveys, and studies relating to the causes, effects (including health and welfare effects), extent, prevention, and control of air pollution;

(2) encourage, cooperate with, and render technical services and provide financial assistance to air pollution control agencies and other appropriate public or private agencies, institutions, and organizations, and individuals in the conduct of such activities;

(3) conduct investigations and research and make surveys concerning any specific problem of air pollution in cooperation with any air pollution control agency with a view to recommending a solution of such problem, if he is requested to do so by such agency or if, in his judgment, such problem may

affect any community or communities in a State other than that in which the source of the matter causing or contributing to the pollution is located;

(4) establish technical advisory committees composed of recognized experts in various aspects of air pollution to assist in the examination and evaluation of research progress and proposals and to avoid duplication of research, and

(5) conduct and promote coordination and acceleration of training for individuals relating to the causes, effects, extent, prevention, and control of air pollution.

(b) Authorized activities of Administrator in establishing research and development program

In carrying out the provisions of the preceding subsection the Administrator is authorized to—

(1) collect and make available, through publications and other appropriate means, the results of and other information, including appropriate recommendations by him in connection therewith, pertaining to such research and other activities;

(2) cooperate with other Federal departments and agencies, with air pollution control agencies, with other public and private agencies, institutions, and organizations, and with any industries involved, in the preparation and conduct of such research and other activities;

(3) make grants to air pollution control agencies, to other public or nonprofit private agencies, institutions, and organizations, and to individuals, for purposes stated in subsection (a)(1) of this section;

(4) contract with public or private agencies, institutions, and organizations, and with individuals, without regard to section 3324(a) and (b) of Title 31 and section 5 of Title 41;

(5) establish and maintain research fellowships, in the Environmental Protection Agency and at public or nonprofit private educational institutions or research organizations;

(6) collect and disseminate, in cooperation with other Federal departments and agencies, and with other public or private agencies, institutions, and organizations having related responsibilities, basic data on chemical, physical, and biological effects of varying air quality and other information pertaining to air pollution and the prevention and control thereof;

(7) develop effective and practical processes, methods, and prototype devices for the prevention or control of air pollution; and

(8) construct facilities, provide equipment, and employ staff as necessary to carry out this chapter.

In carrying out the provisions of subsection (a) of this section, the Administrator shall provide training for, and make training grants to, personnel of air pollution control agencies and other persons with suitable qualifications and make grants to such agencies, to other public or nonprofit private agencies, institutions, and organizations for the purposes stated in subsection (a)(5) of this section. Reasonable fees may be charged for such training provided to persons other than personnel of air pollution control agencies but such training shall be provided to such personnel of air pollution control agencies without charge.

(c) Air pollutant monitoring, analysis, modeling, and inventory research

In carrying out subsection (a) of this section, the Administrator shall conduct a program of research, testing, and development of methods for sampling, measurement, monitoring, analysis, and modeling of air pollutants. Such program shall include the following elements:

(1) Consideration of individual, as well as complex mixtures of, air pollutants and their chemical transformations in the atmosphere.

(2) Establishment of a national network to monitor, collect, and compile data with quantification of certainty in the status and trends of air emissions, deposition, air quality, surface water quality, forest condition, and visibility impairment, and to ensure the comparability of air quality data collected in different States and obtained from different nations.

(3) Development of improved methods and technologies for sampling, measurement, monitoring, analysis, and modeling to increase understanding of the sources of ozone percursors [1], ozone formation, ozone transport, regional influences on urban ozone, regional ozone trends, and interactions of ozone with other pollutants. Emphasis shall be placed on those techniques which—

(A) improve the ability to inventory emissions of volatile organic compounds and nitrogen oxides that contribute to urban air pollution, including anthropogenic and natural sources;

(B) improve the understanding of the mechanism through which anthropogenic and biogenic volatile organic compounds react to form ozone and other oxidants; and

(C) improve the ability to identify and evaluate region-specific prevention and control options for ozone pollution.

(4) Submission of periodic reports to the Congress, not less than once every 5 years, which evaluate and assess the effectiveness of air pollution control regulations and programs using monitoring and modeling data obtained pursuant to this subsection.

(d) Environmental health effects research

(1) The Administrator, in consultation with the Secretary of Health and Human Services, shall conduct a research program on the short-term and long-term effects of air pollutants, including wood smoke, on human health. In conducting such research program the Administrator—

(A) shall conduct studies, including epidemiological, clinical, and laboratory and field studies, as

President Clinton's Clean Air Partnership Fund

- President Clinton's FY2000 budget proposes a new $200 million Clean Air Partnership Fund. The Fund will provide an opportunity for cities, states and tribes to partner with the private sector, the federal government and each other to provide healthy clean air to local citizens. The Fund will demonstrate smart multi-pollutant strategies that reduce greenhouse gases, air toxics, soot and smog to protect our climate and our health.

- The ***Clean Air Partnership Fund*** will bring the most creative ideas for cleaning the air we breathe to where they are needed most -- local communities. Good ideas for clean air -- ideas that save money and reduce pollution -- can be demonstrated to create a cleaner, more efficient environment at the local level. The ***Clean Air Partnership Fund*** will act as a magnet for local innovation and investment.

- The ***Clean Air Partnership Fund*** will:

    - be a catalyst for innovative local, state, private partnerships for air pollution reductions;

    - demonstrate locally managed, self-supporting programs that achieve early integrated reductions in soot, smog, air toxics, and greenhouse gases;

    - be used to capitalize local revolving funds and other financial mechanisms that leverage the original federal investment and result in greater resources for air pollution reduction; and

    - stimulate technology innovation.

- The Clean Air Partnership will fund more optimal, multi-pollutant control strategies. Currently, businesses and municipalities often invest in short-term, single-pollutant control approaches. The Partnership will encourage many industries, such as electric utilities and the transportation sector, to pursue comprehensive criteria pollutant reductions while improving energy and operational efficiencies, thereby also reducing greenhouse gas emissions.

- The Clean Air Fund will provide these needed resources through mechanisms that promise significant leveraging of nonfederal resources. It is expected that the Fund will support the development of local revolving funds, low-interest loan programs, matching funds, public-private partnerships, and other capitalization mechanisms. These mechanisms have been proven to leverage federal dollars 2 to 2 ½ times, substantially increasing the Fund's impact.

President Clinton's FY 2000 Climate Change Budget

> *"Our most fateful new challenge is the threat of global warming...Tonight I propose a new clean air fund to help communities reduce greenhouse and other pollution, and tax incentives and investments to spur clean energy technology."*
>
> President Bill Clinton, State of the Union address, January 19, 1999

Meeting the challenge of global warming. In his FY 2000 budget, the President is proposing a 34 percent increase for R&D in energy efficient technology and renewable energy; a new Clean Air Partnership Fund to boost state and local efforts to reduce greenhouse gases and air pollution; a five-year package of tax incentives to spur clean energy technologies; substantial new funding to focus on the ways farms and forests can reduce and offset greenhouse gas emissions; and $1.8 billion for global change research -- a total package for FY 2000 of over $4 billion.

Clean Air Partnership Fund. The President proposes $200 million for a new fund to provide grants to state and local governments for projects that reduce both greenhouse gases and pollutants like soot, smog, and air toxics.

Climate Change Technology Initiative (CCTI). The CCTI is a package of targeted tax incentives and investments aimed at increasing energy efficiency and spurring the broader use of renewable energy. The package will save consumers money and reduce greenhouse gas emissions at the same time. FY 1999 appropriations represented a 25 percent increase over the prior year. The President's new budget proposes a still more accelerated effort.

$3.6 billion in tax incentives over five years. The proposed package contains $3.6 billion over five years in tax cuts ($383 million for FY 2000) for consumers who purchase energy efficient products and for producers of energy from renewable sources. Highlights include:

- Tax credits for energy efficient homes. Consumers can receive a $1000-2000 credit toward the purchase of a new energy efficient home; a 10-20 percent tax credit for the purchase of selected energy efficient products for their homes and buildings; and a $1000-2000 credit for installing a rooftop solar system.

- Tax credits for fuel-efficient cars. The package includes tax credits ranging from $1000-4000 for the purchase of a qualifying electric, fuel cell or hybrid vehicle.

- Tax credits for renewable energy. The package extends the 1.5 cent per kilowatt hour tax credit for the production of electricity from wind and biomass; expands the biomass credit to cover additional sources of biomass; and adds a 1.0 cent per kilowatt hour tax credit for cofiring coal and biomass in power plants.

$1.4 billion for Energy Efficiency & Renewables. The proposed package contains nearly $1.4 billion in FY 2000 to research, develop, and deploy clean technologies for the four major carbon-emitting sectors of the economy -- buildings, transportation, industry, and electricity -- a 34 percent increase over the amount appropriated in FY 1999. Highlights include:

- Partnership for a New Generation of Vehicles. PNGV is a government-industry effort to develop comfortable, affordable cars that meet all applicable safety and environmental standards and get up to three times the fuel efficiency of today's cars. The combined proposal for PNGV in the FY 2000 budget is $264 million, an increase from the $240 million appropriated in FY 1999.

- Partnership for Advancing Technology in Housing. PATH is a government-industry partnership to improve the energy efficiency of new homes by more than 50 percent and to retrofit 15 million existing homes to make them 30 percent more energy efficient within a decade. The FY 2000 budget request for building efficiency efforts, such as PATH, Energy Star, and Building America, totals $273 million, a 59 percent increase over FY 1999 appropriations.

- Renewable energy. The President proposes $399 million for the Department of Energy's (DOE) solar and renewable energy programs, a 19 percent increase over the amount appropriated in FY 1999. The package includes expanded efforts in key renewable technologies, such as wind, bioenergy, photovoltaics, and geothermal energy.

Forests and Farms. The FY 2000 proposal includes $105 million for the Department of Agriculture's (USDA) climate change budget, an increase of $50 million over the amount appropriated in FY 1999 and $40 million over the Administration's FY 1999 request. The new proposal includes funding for a new, multi-agency Carbon Cycle Initiative to better understand how carbon is absorbed by agricultural soils and forests; a soil carbon inventory; pilot projects to demonstrate how improved farming practices can help store carbon; and programs to reduce emissions through means such as the conversion of waste to energy. In addition, DOE, in conjunction with USDA, will expand efforts aimed at broadening the use of biomass to produce power, fuels, and chemicals.

Cleaner Coal. The budget request contains $122 million for R&D to develop next-generation technologies for coal combustion with much higher energy efficiency and lower greenhouse gas emissions.

Weatherization & State Energy Grants. The budget request includes $191 million -- a $25 million increase over FY 1999 appropriations -- to deliver energy conservation services to low-income Americans and to assist state energy offices in addressing their energy priorities.

U.S. Global Change Research Program. The FY 2000 request includes $1.8 billion for scientific research to improve our understanding of human and natural forces that influence the Earth's climate system and to assess the likely consequences of global warming.

President Clinton's FY 2000 Climate Change Budget

The President's climate change package for FY 2000 totals over $4.1 billion -- an increase of more than $1 billion (34 percent) from the amount enacted for FY 1999. It is comprised of a new Clean Air Partnership Fund to boost state and local efforts to reduce both greenhouse gases and ground-level air pollutants; the Climate Change Technology Initiative, which mixes tax incentives and direct spending to spur the research, development, and deployment of energy efficient technology and renewable energy; other climate-related investments, such as R&D of highly efficient technologies for the combustion and use of coal and natural gas, weatherization, and state energy grants; and the United States Global Change Research Program, to enhance our understanding of the human and natural forces that influence the Earth's climate system.

Table 1. Climate-Change-Related Domestic Programs ($ in Millions)

	FY 1999 Enacted	FY 2000 Request	Change
Clean Air Partnership Fund	0	200	+200
Climate Change Technology Initiative--tax incentives	--	383*	+383
Climate Change Technology Initiative--spending	1,021	1,368	+347
Other Climate-Related Investments (cleaner coal & natural gas; weatherization; state energy grants)	387	400	+13
Global Change Research Program	1,681	1,786	+105
TOTAL	**3,090**	**4,137**	**+1,048**

*First year of a proposed five year, $3.6 billion package.

Clean Air Partnership Fund

To help protect public health and ease the threat of global warming, President Clinton is proposing $200 million for the creation of a new Clean Air Partnership Fund. The Fund will provide grants to states, localities, and tribes to support state, local, tribal, and private efforts that achieve reductions in both greenhouse gas emissions and ground-level air pollutants. The Fund will be administered by the Environmental Protection Agency (EPA) under existing authority.

- ***Integrated Pollution Control.*** The Fund will stimulate integrated, cost-effective pollution control strategies. It directs new resources to state, local, and tribal governments to finance projects and programs that achieve accelerated reductions in both air pollutants, such as soot, smog, and air toxics, and in greenhouse gases.

- ***A Quicker Path to Cleaner Air.*** By providing new resources for projects that accelerate pollution reductions, the Fund will enable communities to achieve multi-pollutant clean air goals sooner and reduce greenhouse gas emissions at the same time.

- ***Technological Innovation.*** The Fund will help spur both public and private sector innovations in next-generation pollution control technology.

- ***A Magnet for Local Investment & Innovation.*** The Fund will encourage public-private partnerships to demonstrate ways to create a cleaner environment at the local level. The Fund can be used to support local revolving funds, low-interest loan programs, matching grants, and other mechanisms that will leverage the original Federal investment, greatly increasing its impact.

- ***"Win-Win" Clean Air Projects.*** The Fund will support a wide range of practical projects that will mean cleaner air, reduced greenhouse gas emissions, and real savings for taxpayers and consumers. These could include projects such as building combined heat and power facilities that put waste heat to work, reducing emissions of both sulfur dioxide and carbon dioxide; retrofitting municipal buildings to make them more energy efficient, reducing pollution resulting from electricity generation; and upgrading municipal vehicle fleets to make them more fuel efficient.

Climate Change Technology Initiative: $3.6 Billion in Tax Incentives

The President is proposing a new $3.6 billion package in tax incentives over five years to help reduce greenhouse gas emissions by spurring the purchase of energy efficient products and the use of renewable energy (see Table 2).

Table 2. CCTI Tax Incentives ($ in Billions)	**Revenue Effect**	
	FY 2000	**Total FY00-04**
Homes and Buildings		
Provide tax credit for energy efficient building equipment	-0.2	-1.5
Provide tax credit for new energy efficient homes	-0.1	-0.4
Provide tax credit for rooftop solar systems	--*	-0.1
Vehicles		
Extend tax credit for electric or fuel cell vehicles and provide tax credits for highly fuel efficient hybrid vehicles	0	-0.9
Renewable Energy		
Extend tax credit for electricity produced from wind and biomass; expand eligible biomass sources; and include coal-biomass cofiring	--*	-0.3
Industry		
Provide tax credit for combined heat and power systems	-0.1	-0.3
TOTAL**	**-0.4**	**-3.6**

*Less than $50 million.

**Total may not add due to rounding.

HOMES AND BUILDINGS

- ***Tax credit to consumers who purchase new energy efficient homes.*** To encourage the purchase of new energy efficient homes, consumers would receive a tax credit of $1,000 for homes purchased from 2000-2001 that are at least 30 percent more energy efficient than the standard under the 1998 International Energy Conservation Code (IECC); a credit of $1,500 for homes purchased from 2000-2002 that are at least 40 percent more efficient than the IECC standard; and a credit of $2,000 for homes purchased from 2000-2004 that are at least 50 percent more efficient than the IECC standard.

- ***Tax credit for energy efficient equipment in new and existing homes or buildings.*** This credit will encourage the purchase of electric heat pump and natural gas water heaters, electric and natural gas heat pumps, advanced central air conditioners, and fuel cells. The credit would apply to both residential and commercial equipment. For electric heat pump water heaters, natural gas heat pumps, and fuel cells, the credit would be 20 percent of the cost of the investment, subject to a cap, for equipment purchased from 2000-2003. For all other equipment, the credit would be 10 percent of the cost of the investment, subject to a cap, at one level of efficiency (2000-2001) and 20 percent, subject to a cap, at a higher level of efficiency (2000-2003).

- ***Tax credit for rooftop solar systems.*** A 15 percent tax credit will encourage the purchase by consumers and businesses of rooftop solar systems. The maximum credit would be $2,000 for rooftop photovoltaic systems placed in service from 2000-2006 and $1,000 for solar water heating systems placed in service from 2000-2004.

VEHICLES

- ***Tax credits for highly efficient cars and light trucks.*** Cars and light trucks (including minivans, sport utilities, and pickups) currently account for 20 percent of greenhouse gas emissions. Tax credits for electric, fuel cell, and hybrid vehicles will help to move these highly efficient technologies from the laboratory to the highway. These technologies can significantly reduce emissions of carbon dioxide, the most prevalent greenhouse gas.

    - **Extend the current tax credit for electric vehicles and fuel cell vehicles.** Under current law, a 10 percent credit, up to $4,000, is provided for the cost of qualified electric vehicles and fuel cell vehicles. The credit begins to phase down in 2002 and phases out in 2005. The President's proposal would extend the tax credit at its $4,000 maximum level through 2006.

- **Tax credits for hybrid vehicles.** The credit -- available for all qualifying vehicles, including cars, minivans, sport utility vehicles, and pickup trucks -- would be:

  -- $1,000 for each vehicle that is one-third more fuel efficient than a comparable vehicle in its class -- available from 2003-2004;

  -- $2,000 for each vehicle that is two-thirds more fuel efficient than a comparable vehicle in its class -- available from 2003-2006;

  -- $3,000 for each vehicle that is twice as fuel efficient as a comparable vehicle in its class -- available from 2004-2006; and,

  -- $4,000 for each vehicle that is three times as fuel efficient as a comparable vehicle in its class -- available from 2004-2006.

RENEWABLE ENERGY

- ***Tax credit for electricity produced from wind.*** Current law encourages the production of electricity from wind, which emits no greenhouse gases, through a tax credit of 1.5 cents per kilowatt hour (adjusted for inflation after 1992). The current tax credit covers facilities placed in service before July 1, 1999. The President proposes a 5-year extension of this tax credit.

- ***Tax credits for electricity produced from biomass.*** Biomass refers to trees, crops and agricultural wastes used to produce power, fuels or chemicals. This package of credits would:

  -- **Extend current biomass credit.** This proposal extends for five years the current 1.5 cent per kilowatt hour tax credit (adjusted for inflation after 1992), which covers facilities placed in service before July 1, 1999.

  -- **Expand definition of eligible biomass.** This proposal expands the definition of biomass eligible for the 1.5 cent tax credit to include certain forest-related resources and agricultural and other sources.

  -- **Include cofiring biomass and coal.** This proposal adds a 1.0 cent per kilowatt hour tax credit for electricity produced by cofiring biomass in coal plants.

INDUSTRY

- ***Tax credit for combined heat and power (CHP) systems.*** CHP systems make effective use of thermal energy that is otherwise wasted in producing electricity by more conventional methods. To encourage and accelerate investment in CHP equipment, this proposal provides an 8 percent tax credit for investments in large CHP systems that have a total energy efficiency exceeding 70 percent and in smaller systems that have a total energy efficiency exceeding 60 percent. The credit would apply to property placed in service from 2000-2002.

Climate Change Technology Initiative: $1.4 Billion for Energy Efficiency & Renewables

The President's FY 2000 budget proposes nearly $1.4 billion for the research, development, and deployment of renewable energy technologies and energy efficient products that will help reduce U.S. greenhouse gas emissions. This represents a $347 million increase (34 percent) over FY 1999 spending (see Table 3). The President's proposed investment package covers the four major carbon-emitting sectors of the economy -- buildings, transportation, industry, and electricity -- as well as carbon sequestration (see Table 4). The following sections highlight selected programs in each of these areas of effort. The full agency programs extend well beyond what is described here.

Table 3. CCTI Funding by Agency ($ in Millions)

	FY 1998 Enacted	FY 1999 Enacted	FY 2000 Request	Change from 1999
Energy	729	902	1,124	+222
EPA	90	109	216	+107
Housing & Urban Development	0	10	10	0
Agriculture	0	0	16	+16
Commerce	0	0	2	+2
TOTAL*	**819**	**1,021**	**1,368**	**+347**

*Totals may not add due to rounding

Table 4. CCTI Funding by Area of Activity ($ in Millions)

	FY 1998 Enacted	FY 1999 Enacted	FY 2000 Request	Change from 1999
Buildings	140	172	273	+101
Transportation	245	291	377	+86
Industry	157	188	239	+51
Electricity	239	310	379	+69
Carbon Sequestration	0	14	39	+25
Management, Planning & Analysis	37	46	60	+14
TOTAL*	**819**	**1,021**	**1,368**	**+347**

* Totals may not add due to rounding.

BUILDINGS

- ***Partnership for Advancing Technology in Housing (PATH).*** PATH is a partnership between the Federal government and building industry to develop and deploy housing technologies to make new homes 50 percent more energy efficient and to make at least 15 million existing homes 30 percent more energy efficient within a decade.

- ***Energy Efficient Appliances and Products.*** Various DOE and EPA programs aim to promote the dissemination of energy efficient appliances and products:

  -- DOE will accelerate its program to establish **energy efficiency standards for lighting and appliances.**

  -- EPA and DOE's **Energy Star Products** program saves consumers money and reduces greenhouse gas emissions at the same time by promoting the use of energy efficient products -- everything from computers to refrigerators to central air-conditioning units. New funding will support the launch of new Energy Star product lines.

- ***Energy Efficient Commercial Buildings.*** DOE and EPA work in partnership with industry to research, develop, and deploy new technologies and practices to improve the energy performance of commercial buildings. Buildings in the top 25 percent in energy efficiency qualify for EPA's **"Energy Star Buildings"** label. Participants include the Empire State Building, the World Trade Center, and Chicago's Sears Tower.

- ***Energy Smart Schools.*** Announced in October 1998, this initiative cuts across several DOE programs and brings together public and private sector resources to cut schools' energy bills so that the savings can be reinvested in students and their education.

TRANSPORTATION

- ***Partnership for a New Generation of Vehicles (PNGV).*** PNGV is a government-industry effort that aims to develop attractive, affordable cars that meet all applicable safety and environmental standards and get up to three times the fuel efficiency of today's cars. Since 1993, great strides have been made in producing lower-cost, light-weight materials, inexpensive fuel cells, and advanced internal combustion engines for use in hybrid vehicles. The program aims to produce a prototype mid-sized family car capable of 80 miles per gallon (mpg) with a two-thirds reduction in carbon emissions by 2004. The FY 2000 budget includes $264 million for PNGV-related work, an increase of $24 million over the amount appropriated for FY 1999.

- ***Light and Heavy Trucks.*** Similar government-industry efforts are aimed at developing cleaner, more efficient diesel engines for both light and heavy trucks.

  -- By 2002, DOE aims to develop **advanced diesel cycle engine technologies** for pickup trucks, vans, and sport utility vehicles which achieve at least a 35 percent fuel efficiency improvement relative to current gasoline-fueled trucks while meeting strict emission standards.

  -- By 2004, DOE, in coordination with EPA and the Department of Defense, aims to develop **engine and vehicle technologies for heavy trucks** that will increase the fuel economy to 12 mpg from the current average of 5.3 mpg.

- ***Biofuels.*** Working with the Department of Agriculture (USDA), DOE will continue its work in the biochemistry of converting wood chips, grasses, agricultural wastes, and other products into ethanol and other potentially useful fuels.

INDUSTRY

- ***Industries of the Future.*** This DOE program works cooperatively with the nation's most energy-intensive industries -- such as aluminum, glass, chemicals, forest products, mining, petroleum refining, and steel -- on developing technologies that increase energy and resource efficiency. Promising collaborative efforts include improvements in the process of making steel, pulp and paper, and other energy-intensive products that could dramatically increase efficiency, lower greenhouse gas emissions, and improve competitiveness.

- ***Industrial Combined Heat and Power (CHP) Systems.*** DOE is developing new industrial CHP systems to capture thermal heat would otherwise be wasted. These systems are expected to be 15 percent more energy efficient and 80 percent cleaner than conventional power systems and cut electricity costs by 10 percent. In addition, EPA and DOE are also working to eliminate barriers to the rapid dissemination of combined heat and power technology.

- ***Voluntary Industrial Partnerships.*** EPA will expand its industry partnership programs, such as **Climate Wise** and the **Voluntary Aluminum Industrial Partnership**, to encourage businesses to take advantage of cost-effective emissions reductions opportunities -- including emissions of the most potent greenhouse gases, such as methane, perfluorocarbons (PFCs), hydrofluorocarbons (HFCs), and sulfur hexaflouride (SF6).

- ***Agriculture and Forestry.*** USDA will undertake R&D and support demonstration projects aimed at both lowering greenhouse gas emissions from agriculture and forestry and reducing their vulnerability to climate change.

  --The **Natural Resources Conservation Service** will invest $3 million in projects to demonstrate and test various means of reducing greenhouse gas emissions in agriculture, such as compost-based waste-handling facilities, rotational grazing systems, and improved feed and forage systems.

  --The **Agricultural Research Service** will devote $7 million towards climate change related activities, including the development of new technology and expertise for reducing agriculture's vulnerability to a changing climate. Field experiments will seek to measure various potential effects of climate change, such as varying amounts and patterns of rainfall on forage production.

The FY 2000 budget also includes important USDA funding for developing advanced biomass energy technologies; R&D and demonstration projects for carbon sequestration; research to study the role of farms, forests, and other natural or managed lands in capturing and storing carbon; and a comprehensive U.S. soil carbon inventory (see pp. 10-12 below).

ELECTRICITY

- ***Photovoltaic Energy Systems.*** Over the past 20 years, Federal R&D has resulted in a 90 percent cost reduction in solar photovoltaics. DOE will accelerate R&D of the next generation photovoltaic cells; increase manufacturing R&D; increase research in buildings-integrated applications; and fund efforts to develop new, unconventional technologies.

  -- **Million Solar Roofs.** In June, 1997, the President announced an initiative to encourage the installation of one million solar systems by 2010, which would reduce carbon emissions equivalent to the annual emissions from 850,000 cars. DOE has received commitments for over half a million solar rooftop installations.

- ***Biomass.*** Biomass represents a tremendous renewable resource whose use can help strengthen our energy security, protect the environment, and enhance our rural economy.

  -- **Biomass Power.** DOE is testing and demonstrating biomass co-firing with coal; developing advanced technologies for biomass gasification using paper industry by-products; and developing and testing high-yield, low-cost biomass feedstocks.

-- **Advanced Biomass Technologies.** This year DOE, USDA, and other Federal agencies and private partners will launch a national partnership to develop advanced integrated biomass technologies. These technologies will enable the production of power, transport fuels, and high-value chemicals from biomass feedstocks.

- ***Wind Power.*** DOE will continue developing a next-generation wind turbine able to produce power at 2.5 cents per kilowatt-hour in good wind regions, accelerate R&D on critical components, and accelerate testing and field validation.

- ***Hydrogen.*** DOE will accelerate research on low-cost hydrogen production and storage, prerequisites to the widespread use of hydrogen as a fuel.

- ***High Temperature Superconductivity.*** DOE supports industry-led projects to capitalize on recent breakthroughs in superconducting wire technology, aimed at developing devices such as advanced motors, power cables, and transformers. These technologies would allow more electricity to reach the consumer without an increase in fossil fuel input.

CARBON SEQUESTRATION

- ***R&D for Sequestration.*** Research initiatives are being funded to find ways to sequester (store) carbon. Examples include:

  -- **Enhancing Forest and Farmland Sinks.** The **Forest Service**, in conjunction with other USDA agencies, will spend $6 million for R&D and demonstration projects for optimizing forest, farmland, and rangeland carbon sinks. The focus of such projects will include storage of carbon in forest soils and increased durability and use of wood products to sequester carbon.

  -- **Enhancing natural geological and oceanic processes.** DOE will support research into the feasibility of capturing and storing carbon dioxide in underground geological structures and in the deep ocean.

Other Climate-Related Investments

There are a number of additional programs for which funding is proposed in the FY 2000 budget that -- while not part of the Climate Change Technology Initiative per se -- contribute to improving energy efficiency and reducing greenhouse gas emissions. These programs include:

- ***Cleaner Coal and Natural Gas.*** The FY 2000 budget includes $209 million to support the Department of Energy's (DOE) aggressive R&D effort to develop next-generation technologies for the combustion and use of coal and natural gas. For example, research and development of two new coal combustion technologies -- integrated gasification combined cycle and pressurized fluidized bed combustion -- could lead to ultra-high efficiency coal plants with dramatically lower greenhouse gas emissions.

- ***Low Income Weatherization and State Energy Grants.*** These DOE programs facilitate energy efficiency investments at the State and local level. The **Weatherization Assistance Program**, for example, delivers energy conservation services, such as insulation, to low-income Americans, reducing energy costs for consumers, improving health and safety, and reducing carbon emissions. The total FY 2000 budget request for these two programs is $191 million -- a $25 million increase over FY 1999 appropriations.

- ***Agricultural & Forestry Conservation Programs.*** Many Department of Agriculture conservation programs have the co-benefit of reducing carbon emissions resulting from agriculture and forestry and enhancing the ability of "sinks," such as forests and farmlands, to sequester or store carbon. This includes programs such as the **Conservation Reserve Program**, the **Environmental Quality Incentives Program**, and the **Farmland Protection Program**. In general, these programs assist farmers, ranchers, and other landowners in conserving and improving soil, water, and other natural resources associated with rural land.

U.S. Global Change Research Program

The United States Global Change Research Program (USGCRP) seeks to provide a sound scientific understanding of both the human and natural forces that influence the Earth's climate system. The information produced by USGCRP's scientists is used by national and international policy makers to make informed decisions on global change issues. This multi-agency scientific research program coordinated through the National Science and Technology Council.

For FY 2000, the President is requesting nearly $1.8 billion for the USGCRP, an increase of $105 million, or 6 percent, above the amount enacted for FY 1999. Of the FY 2000 budget request, $828 million is for scientific research (up $84 million) and $958 million is for NASA's development of climate monitoring satellites and ground based observation systems. Other important USGCRP budget highlights include:

- ***Carbon Cycle Initiative.*** The FY 2000 budget request establishes a new multi-agency initiative to improve our understanding of how carbon cycles between the atmosphere, the oceans, and land. Included in this request are funds to study the role of farms, forests, and other natural or managed lands in capturing carbon. Such carbon "sinks" may provide the U.S. and other nations with new tools for offsetting greenhouse gas emissions. The initiative includes $10 million in new funding for the Department of Agriculture (USDA) and $5 million for the Department of Energy.

- ***Soil Carbon Inventory.*** The FY 2000 budget request includes $14 million (an increase of $12 million from FY 1999 appropriations) to significantly expand efforts to conduct a comprehensive scientific inventory of carbon stored in U.S. soils and to develop methods to predict how soil carbon levels would be affected by different practices and policies. The inventory will be conducted by USDA's Natural Resources Conservation Service.

- ***3-Dimensional Mapping of Forests.*** The FY 2000 budget provides funding to launch NASA's Vegetation Canopy Lidar, which, for the first time, will give scientists a three dimensional view of the Earth's forests to help determine the contribution of forests in sequestering atmospheric carbon.

- ***Consequences of Climate Change.*** The FY 2000 budget provides funding to complete a report on the first national assessment of the potential consequences of climate change on the United States. The report will identify potential impacts on key economic sectors and geographic regions, mitigation and adaptation strategies, and provide technical information for policy makers.

- ***Regional Variability.*** The FY 2000 budget request includes funding to help scientists examine climate change and variability on a regional scale. Supported in part by the Administration's new Information Technology Initiative, the funding will help improve U.S. computer capabilities to run the complex models required to understand the effects of climate change and variability at the regional level.

Agriculture and The President's FY 2000 Climate Change Budget

Farmland, rangeland, and forests can play a critical role in meeting the challenge of global warming through carbon sequestration and renewable bioenergy. In his FY 2000 budget, the President is proposing $251 million in funding for sequestration and bioenergy research, development, and deployment. This includes $105 million for the Department of Agriculture (USDA), a $50 million increase over the amount appropriated for FY 1999, and $146 million for the Department of Energy (DOE), a $59 million increase over FY 1999 appropriated funds. Highlights include:

SEQUESTRATION

Carbon sequestration refers to the storage of carbon from the atmosphere by soils, trees, crops, and other plants.

- ***Demonstration Projects and New R&D.*** The Forest Service, the Agriculture Research Service and the Natural Resources Conservation Service will launch new R&D and demonstration projects to optimize farmland, rangeland, and forest carbon sinks.

- ***Carbon Cycle Initiative.*** The FY 2000 budget request establishes a new multi-agency initiative to improve our understanding of how carbon cycles between the atmosphere, the oceans, and land. Included in this request are funds to study the role of farms, forests, and other natural or managed lands in capturing carbon. Such carbon "sinks" may provide the U.S. and other nations with new tools for offsetting greenhouse gas emissions. The initiative includes $10 million in new funding for USDA and $5 million for DOE.

- ***Soil Carbon Inventory.*** The FY 2000 budget request includes $14 million to significantly expand efforts to conduct a comprehensive scientific inventory of carbon stored in U.S. soils and to develop methods to predict how soil carbon levels would be affected by different practices and policies.

BIOENERGY

Biomass refers to trees, crops and agricultural wastes used to produce power, fuels or chemicals. It represents a tremendous renewable resource whose use can help strengthen our energy security, protect the environment, and enhance our rural economy.

- ***Biomass Power and Fuels.*** DOE and USDA will continue developing, testing, and demonstrating high-yield, low-cost biomass feedstocks; testing and demonstrating biomass cofiring with coal; and seeking to produce alternative fuels, such as ethanol, from biomass.

- ***Advanced Biomass Technologies.*** This year, DOE, USDA and other Federal agencies and private partners will launch a national partnership to develop advanced integrated biomass technologies.

- ***Biomass Tax Credit.*** The President's tax package proposes to extend for 5 years the current 1.5 cent per kilowatt hour tax credit for electricity produced from biomass. The proposal also expands the types of biomass eligible for the credit to include certain forest-related, agricultural and other resources. Finally, the package includes a 1.0 cent per kilowatt hour tax credit for electricity produced by cofiring biomass in coal plants.