CLIMATE CHANGE ACTION PLAN

White House Briefing
September 22, 1993

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CLIMATE CHANGE ACTION PLAN

BACKGROUND

- Scientists and the environmental community agree that climate change is the highest-risk environmental problem we face.

- The President committed his Administration to respond by issuing a dual directive: to reduce our nation's emissions of greenhouse gases to 1990 levels by the year 2000, and to do so in a cost-effective way.

  A clarion call, not for more bureaucracy or regulation, but instead for more American ingenuity and creativity.

- After Earth Day, OEP established a process to produce the plan.

  - OEP hosted the White House Conference on Global Climate Change on June 10-11, where 300 invited participants shared their views with about 800 who attended.

  - Climate Change Mitigation Group selected; Six working groups established: Energy Demand, Energy Supply, Transportation, Methane and other Gases, Sinks, Joint Implementation. Working groups met twice a week from June through August.

  - Interagency Analysis Team tasked with analyzing policy options. Co-chaired by OEP and CEA, involved economists and analysts from OSTP, OMB, EPA, DOE, USDA, DOC, DOT, Treasury. The policy options were analyzed as individual actions and in an integrated modeling framework. Entire package analyzed with several economic models.

- The President's Climate Change Action Plan is a detailed global warming strategy that demonstrates world leadership on a crucial issue. It reduces greenhouse gas emissions and its good for the economy.

  - The Plan relies on the positive link between environment and the economy -- relying on cost-effective and profitable pollution reductions.

OVERVIEW AND KEY ELEMENTS OF THE PLAN

- More than **50 initiatives**, covering **all sectors of the economy**. This is an economy-wide problem that requires economy-wide solutions.

- Covers **all greenhouse gases** -- carbon dioxide, methane, nitrous oxide and other gases. Also includes **sinks** -- actions that take carbon dioxide out of the atmosphere, such as improved forestry management practices.

- Is designed for **rapid and aggressive implementation** and minimizes actions likely to be bogged down in legislative or regulatory arenas. Largely budgetary and administrative.

- Is backed up with **real Federal resources** -- between $200 and $300 million per year annually of new and redirected funding between 1994 and 2000.

- Helps **reduce the deficit** by leasing upgrade opportunities to private investors at federal hydroelectric facilities and by allowing employees the opportunity to "cash out" a parking subsidy.

- Stimulates over $68 billion in private investment, which saves $185 billion in energy bills between 1994 and 2010 (undiscounted 1991 dollars). These investments and energy savings create thousands of jobs in the economy.

- **Recognizes the inherent uncertainty** with "hitting the target" under various assumptions regarding economic growth, market trends, and technology adoption. Will be **monitored actively** to review progress toward the President's goal, and will institute new initiatives if they become necessary.

- Establishes a White House team to **develop long-term strategies**, beginning with the transportation sector.

KEY PROGRAMS BY SECTOR

Residential Sector

- **Energy-efficient mortgage initiative** to allow homeowners to finance efficiency improvements under conventional mortgages where the decreased energy bills more than offset the increased mortgage payment.

- More aggressive **appliance efficiency standards** on a wide range of household appliances to help reduce consumer energy consumption and utility bills.

Commercial Sector

- **Significantly expanded partnership programs** for energy efficiency in commercial buildings. These are modeled on successful efforts at EPA, and include Green Lights and Energy Star Buildings program (EPA) linked with Rebuild America program (DOE).

- Assistance to states for and better enforcement of **building codes.**

Industrial Sector

- **Motor Challenge** -- a partnership between industrial motor users (one of the biggest energy uses), manufacturers, utilities and DOE/EPA to promote efficient motor systems.

Transportation

- **Parking reform** that gives a worker the option to take the cash value of employer-provided (or employer-paid) parking as an incentive to reduce solo-commuting -- and to generate revenues for the plan (cash accepted in lieu of parking benefit is taxable income).

- **One-year transportation strategy.** OEP/NEC/OSTP will lead a team to identify an implement regulatory or non-regulatory means to reduce greenhouse gas emissions from transportation -- the fastest growing sector.

Electric Utilities

- **Voluntary commitments from utilities** to reduce greenhouse gases. DOE has received letters of intent to negotiate limits on greenhouse gas emissions from about 60 utilities, representing over 50 percent of generation and CO_2 emissions from this sector.

- Expand **Integrated Resource Planning** assistance for state utility regulators to improve performance of utility conservation programs and renewable energy development.

- Electric **transformer standards** to increase transmission efficiency.

Methane and other Gases

- Aggressive **landfill methane capture rule** from EPA to limit methane emissions from landfills and to encourage capture for energy use.

- Expanded **Natural Gas Star** program at EPA to reduce methane leaks from natural gas pipeline distribution systems.

- **Voluntary agreements and partnerships with HFC and aluminum producers** to encourage state of the art process equipment to reduce greenhouse gas emissions from manufacturing operations.

Greenhouse Gas Sinks

- Expand USDA technical assistance to small landowners for **better forest management,** which increases carbon storage in standing forests.

- Estimate credit from reduced Federal timber sales from old-growth forest plan.

International

- **Joint Implementation pilot projects.** Joint Implementation is undertaking projects overseas -- it will be a large part of many countries' plans in the future, but the international framework needs further development. The President's pilot program will help build experience and advance international framework. The plan meets the 2000 target with domestic actions.

STAKEHOLDERS AND POLITICAL ANALYSIS

Business Support

- Expect broad business support because of the flexibility inherent in the partnership and technical assistance programs.
  - Many business interests stand to benefit from the plan -- e.g. firms who manufacture energy efficient products, methane capture equipment, building trades (energy mortgages).
  - Some business groups who have traditionally opposed climate change policy may lend qualified support because of the underlying cost-effective philosophy of the plan.
- The electric utility industry has already indicated support for the plan by indicating a willingness to negotiate voluntary reductions in greenhouse gases. They value flexibility in emission reduction options, and expect that state rate regulators will support these actions as prudent investments in reducing future regulatory risks.

Business Opposition

- Parking garage owners will oppose the "cash-out" policy because it will reduce their revenues and the value of their holdings. On the other hand, state and local officials responsible for air quality planning will enthusiastically support the cash out.
- Coal industry could oppose the plan, as overall domestic coal use could decline slightly from current levels under the Action Plan. **However the coal industry and the UMW might not actively oppose because the Plan itself does not single out coal,** relying instead on reducing electricity demand through end-use efficiency.

Congress

- Many on the Hill who are concerned about climate change or energy efficiency will support the overall plan. It expands some popular EPA programs and breathes some life into the Energy Policy Act of 1992, which received wide support. Many moderates support using sinks and joint implementation -- we are using sinks and moving the joint implementation agenda forward.
- Some more conservative members aligned with energy interests may express limited or qualified support for the Plan, under the presumption that the Administration is not proposing draconian mandates with heavy costs or negative impacts.
- We may get some opposition from the extremes. Coal region members who don't think we should do anything on climate will oppose the actions, and strong environmental advocates may want much more done at this stage.

Environmental Groups

- Most environmental groups will support the Plan because it proposes to expand programs that they have long supported and because the Plan represents a serious step toward greenhouse gas reductions, although there will be concerns and qualifications associated with that support.

- Some groups will feel that we did not go far enough and that we should have included tougher measures, especially CAFE. Most groups understand the political difficulties with proposing an increased CAFE and that it would not reduce emissions by much in 2000.

- Some environmental groups dislike sink enhancement as a way to attain greenhouse gas targets -- they think that only sources should count and that estimates of CO_2 uptake from sinks are very uncertain. Some groups support using sinks (domestic or abroad) as a way to get cost-effective net emission reductions.

- Same with joint implementation. Most environmental groups would oppose using overseas emission reductions to count toward the U.S. commitment.

- Most groups will take a wait-and-see attitude with the development of the transportation and the post-2000 strategies.

International

- The U.S. will regain leadership on climate change by proposing a detailed plan that takes direct aim at a stabilization target.

- Including HFCs in our baseline and identifying control actions will send a strong international signal for other countries to follow suit.

- Pilot program on joint implementation will signal support for the concept of international mitigation strategies, while strict rules and criteria proposed will alleviate concerns regarding bogus emission reduction claims.

Put on my schedule & confirm my attendance - if I have a conflict let's discuss

SEP 16 REC'D

FYI 9/16/93

THE WHITE HOUSE

WASHINGTON

September 15, 1993

MEMORANDUM FOR: DISTRIBUTION

FROM: KATIE MCGINTY

SUBJECT: CLIMATE CHANGE ACTION PLAN BRIEFINGS

The briefing on the President's Climate Change Action Plan has been moved from **Monday, September 20, 11:30AM-12:30PM** to **Wednesday, September 22, 1:00-2:00PM in the Roosevelt Room**. I hope you or your representative will be able to attend as we need to coordinate our communications and release strategy to ensure a positive response to the plan.

Please have your assistant contact Jessica Hirst (456-6224) to confirm attendance. Jessica can arrange an alternative briefing time if needed.

DISTRIBUTION

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Joan Baggett

Put this on agenda

THE WHITE HOUSE

WASHINGTON

Roy
What do I have on schedule?

September 15, 1993

MEMORANDUM FOR: DISTRIBUTION

FROM: KATIE MCGINTY

SUBJECT: CLIMATE CHANGE ACTION PLAN BRIEFINGS

The interagency development of the President's Climate Change Action Plan is nearly complete, and we are preparing to announce the plan in the first week of October. The plan is a cost-effective set of innovative actions to meet the President's commitment to reduce U.S. greenhouse gas emissions to 1990 levels by the year 2000.

I would like to hold a White House briefing on the plan on **Monday, September 20, 11:30AM-12:30PM in the Roosevelt Room.** I am pleased with the outcome of the interagency effort. The plan has the potential to receive a positive response from the Hill, the press, and the public but we will need a carefully planned communications and release strategy to ensure that result.

Please have your assistant contact Jessica Hirst (456-6224) to confirm your or your deputy's attendance. Jessica can arrange an alternative briefing time if needed.

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John Podesta
Marcia Hale
Rahm Emanuel
Isabelle Tapia
Joan Baggett

8:30 — Doctor's Breakfast
10:30 — Shriver Mtg.
3:00 — Equal Employment

THE WHITE HOUSE

WASHINGTON

SEP 21 REC'D

September 21, 1993

MEMORANDUM FOR DISTRIBUTION

FROM: Katie McGinty

SUBJECT: President's Climate Change Action Plan

Attached please find the DRAFT CLIMATE CHANGE ACTION PLAN, which will be discussed at a briefing held on Wednesday at 1:00 pm in the Roosevelt Room. **Please hold this document very closely**. It is critical to keep the contents confidential until the principals and the President agree to the policies recommended, so that we will be able to effectively gain support for the Plan prior to release. If you have comments and suggestions, please return the draft to Marc Chupka (Room 360 OEOB) by close of business on Friday September 24.

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THE

CLIMATE CHANGE

ACTION PLAN

President William J. Clinton
Vice President Albert Gore, Jr.

September, 1993

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EXECUTIVE SUMMARY

We must take the lead in addressing the challenge of global warming that could make our planet and its climate less hospitable and more hostile to human life. Today, I reaffirm my personal, and announce our nation's commitment to reducing our emissions of greenhouse gases to their 1990 levels by the year 2000. I am instructing my administration to produce a cost-effective plan ... that can continue the trend of reduced emissions. This must be a clarion call, not for more bureaucracy or regulation or unnecessary costs, but instead for American ingenuity and creativity, to produce the best and most energy-efficient technology.

President Clinton
April 21, 1993

[box with the Earth Day photo]

President Clinton's Climate Change Action Plan is an historic strategy that takes advantage of the many opportunities to reduce emissions of greenhouse gases. It will help reduce the threat of global warming while also strengthening the economy.

The President believes that action is necessary now, even as the scientific community continues to refine its understanding of the role of human activities on the planet's climate system. There is no doubt that human activity is increasing the concentration of greenhouse gases in the atmosphere. The buildup of greenhouse gases threatens to change the global climate, raising sea levels and inundating coastal areas, inflicting irreversible damage to ecosystems, and destabilizing agricultural production. The magnitude of the threat should galvanize, not paralyze our response.

A full scale international response is needed to confront the climate change threat, and the U.S. will help to lead that effort. The President challenges the U.S. and other countries to meet and exceed the requirements of the Framework Convention on Climate Change. Returning U.S. greenhouse gas emissions to their 1990 levels by the year 2000 is an ambitious but achievable goal that can be attained while enhancing prospects for economic growth and job creation, and positioning our country to compete and win in the global market.

The President's climate change strategy presented here:

- **Returns U.S. greenhouse gas emissions to 1990 levels by the year 2000 with cost-effective domestic actions;**
- Includes more than **50 new and expanded initiatives;**

- Covers **all significant greenhouse gases** -- carbon dioxide, methane, nitrous oxide, and selected halogenated compounds, and contains actions to **reduce emissions and enhance sinks.**

- Takes measures in **all sectors of the economy** that emit greenhouse gases;

- Includes a **pilot program of joint implementation** to in order to gain experience in evaluating investments in other countries for emission reduction benefits.

- **Coordinates multiple programs** to enhance their effectiveness and to strengthen their relationship with electric and gas utilities, state and local governments, and industry;

- **Is designed for rapid and aggressive implementation** and minimizes actions likely to be bogged down in legislative or regulatory arenas;

- **Fosters partnerships** with business where focused government guidance and flexible approaches can produce cost-effective emission reductions;

- **Stimulates investments** in the technologies of the future, strengthening the American position in the global environmental technology marketplace;

- **Is backed up with real federal resources** -- $1.6 billion in redirected funding between 1994 and 2000.

- **Does not require new taxes and helps reduce the deficit.**

- **Leverages over $68 billion in private investment** in environmental technologies, that pay off with **$185 billion in saved energy bills** between 1994 and 2010 (undiscounted 1991 dollars);

- **Creates new jobs** in the sectors and industries that produce, install, or market technologies that save energy or reduce greenhouse gas emissions.

- **Will be actively monitored to review progress** toward meeting the President's goal, and will institute new programs as needed to ensure that emission reductions are made.

- **Establishes a White House team to develop strategies for long term emission reductions.**

VP Quote Here
Reinventing government principles
Enviro quote

OVERVIEW

America's most important assets are its people -- decent, hard-working, creative and concerned. When that talent is focused through our economic and political system to solve a problem, it can accomplish great things. We can put people on the moon, we can win the cold war, and we can provide unparalleled prosperity. We can now begin to do the same for the global environment.

This plan harnesses economic forces to meet the challenges posed by the threat of global warming. It calls for limited, and focused, government intervention. It relies on the ingenuity and creativity of the American people.

President Clinton
October _, 1993

President Clinton's Action Plan responds to the threat of global climate change and helps guide the U.S. economy towards environmentally sustainable economic growth into the twenty-first century. The plan is *comprehensive*, involving all greenhouse gases and all sectors of the economy. The plan is a *coordinated* federal response, involving many agencies working together. The plan is designed for *rapid implementation* that can quickly deliver *cost-effective results*. The plan will be actively *monitored* for effectiveness and continually improved to keep it on track. The plan inaugurates a new era of *partnership* with American business to help solve environmental problems. Finally, the plan lays the foundation for an *international response* to this global challenge.

THE PLAN IS COMPREHENSIVE

Emissions of greenhouse gases are pervasive in the U.S. economy. A policy that relies on dramatic reductions of greenhouse gas emissions from one sector of the economy or one region of the country is unlikely to be cost effective: there is no "magic bullet" that solves the problem. However, cost-effective greenhouse gas emission opportunities are broadly distributed throughout the economy. Therefore, the President's Climate Change Action Plan consists of more than 50 actions involving all sectors -- industry, transportation, residential, and agriculture. These actions are targeted in specific sectors to stimulate the adoption of technologies that reduce emissions of carbon dioxide (CO_2), methane, nitrous oxide, and halogenated compounds that contribute to global warming. The plan also increases the amount of CO_2 carbon taken out of the atmosphere by enhancing forest growth, a greenhouse gas "sink."

THE PLAN COORDINATES FEDERAL ACTIVITY

The President directed his Administration to work together for the benefit of the American people and for the environment. Too often, federal programs are a confusing and contradictory

patchwork quilt that lack coordination among themselves and are poorly linked with state and local level efforts or private initiatives. The President's Action Plan was developed in an interagency process that involved the White House and key agencies, including the Departments of Agriculture, Commerce, Energy, Interior, State, Treasury and Transportation and the Environmental Protection Agency. Implementation will require an unprecedented degree of interagency cooperation to deliver results. This cooperation is manifested at all levels in the Administration, from Cabinet Secretaries and Administrators to program managers in the agencies. The National Performance Review has highlighted areas where effective coordination can deliver better performance and cost less, and this plan reflects that understanding.

THE PLAN IS DESIGNED FOR RAPID IMPLEMENTATION

The President directed his Administration to tap the ingenuity and creativity of the American people. Part of that effort involved identifying innovative programs in all levels of government and in the private sector to explore their potential for reducing emissions. While the Action Plan contains major new initiatives, many of the actions build on the success of earlier public or private programs that have focused attention on energy savings or other emission reduction opportunities. These programs do not rely on exotic new technologies, but can help accelerate the diffusion of existing technologies into the marketplace.

Expanding, adapting, or reinforcing innovative and successful programs will ensure that emission reductions occur quickly, so that the Action Plan will meet the President's goal to return greenhouse gas emissions to 1990 levels by the year 2000. Much of the President's Action Plan can be implemented without new legislative authority, and begin to make a difference almost immediately.

Programs that already demonstrate success on severely limited budgets should not be allowed to wither for lack of support. The President is giving his mandate to expand successful efforts and is committing adequate resources to deliver real results. Under the President's plan, additional funding will be committed succesful programs (to cover larger markets segments or to expand into new sectors or technologies), the best programs in one agency will be adapted by other agencies, and programs will be reinforced by complementary initiatives.

THE PLAN IS COST-EFFECTIVE

Low cost and even profitable opportunities exist to reduce emissions of greenhouse gases. While markets work well in most circumstances, significant transaction costs, information gaps, regulatory barriers and other market imperfections exist. Reducing these market imperfections will save money for many U.S. consumers and firms as they reduce greenhouse gases. The President's Action Plan targets these opportunities through a partnership approach, allowing the private sector maximum flexibility to devise innovative means to achieve emission reductions.

THE PLAN WILL BE MONITORED AND ADAPTED

The President's Action Plan is expected to reach the emission reduction goal under reasonable and "best estimate" assumptions. However, a substantial degree of uncertainty accompanies any attempt to quantify current emission levels, to project future emission trends or to estimate program effectiveness. The analysis supporting the plan generates results that appear to be very precise, but we recognize that these estimates could vary by a significant degree under other plausible assumptions. Under some scenarios the Plan will exceed the goal, under other scenarios the plan could fall short. We have taken a snapshot of the future which will take time to develop.

For this reason, a White House task force will aggressively monitor trends in greenhouse gas emissions and the implementation of the plan, and if necessary will modify the program to keep the emission reductions on track. The first opportunity to reevaluate the President's Action Plan is likely to come within one year, when the U.S. will submit a National Action Plan to the Conference of Parties of the Framework Convention on Climate Change. After that milestone, the task force will reassess and update the Action plan every two years.

The Adminstration will also begin to identify additional opportunities for long term emission reductions. The Action Plan is the product of substantial effort to identify near-term emission reduction opportunities; perhaps more importantly, the Plan sets in motion an ongoing process of policy development to address the long term global threat.

THE PLAN ESTABLISHES PARTNERSHIPS FOR PROGRESS

The Climate Change Action Plan breaks new ground in the relationship between government and the private sector -- fostering cooperative approaches and a forward looking agenda rather than relying exclusively on command-and-control mandates. In several key areas -- electric utilities, motor manufacturers and users, [HFC producers] [Automobile manufacturers (if Clean Car goes)] [aluminum manufacturers]-- American firms are entering into partnerships with the federal government to attain environmental objectives using flexible and cost-effective options.

Today, the President proudly announces the "Climate Challenge" that the Administration will sign with major electric utilities to limit their emissions. The utilities gain flexibility in choice of control options and can experiment with innovative ideas. Participating utilities will also encourage residential, commercial, and industrial customers to take advantage of the Administration's many initiatives. The entire package represents a coordinated policy of greenhouse gas reductions that complement and reinforce each other and together will achieve the President's goal.

Box on Climate Challenge: Describe 1605 program, utility response, administration committment to work details and hold companies accountable

THE PLAN ENCOURAGES INTERNATIONAL EMISSION REDUCTIONS

While the plan relies on domestic actions to attain the President's goal, the Administration recognizes the significant potential for cost-effective emission reductions in other countries. In order to gain experience in verifying net emission reductions from certain types of investments in other countries, the Adminstration is announcing the U.S. Initiative on Joint Implementation. These projects could promote sustainable development and provide greenhouse gas emission reductions beyond the domestic programs in the President's plan. Moreover, these initiatives will help advance thinking on the many issues that need resolution before an international joint implementation effort can be fully developed.

THE CLIMATE CHANGE ACTION PLAN

President Clinton's Climate Change Action Plan will reverse the increasing trends of greenhouse gas emissions. The major greenhouse gases are carbon dioxide, methane, nitrous oxides, and hydroflourocarbons (HFCs). As shown by Figure [ ], these gases are projected to grow by 6 percent betweeen 1990 and 2000 without the Action Plan (all gases are converted to million metric tons of carbon equivalent, or MMTCE). In order to meet the President's target, therefore, the Action Plan must reduce the year 2000 projected emission level by about 110 million metric tons.

In order to accomplish this, the Action Plan targets multiple opportunities in six major areas: Energy Demand, Transportation, Energy Supply, Methane and Other Gases, Sinks, and Joint Implementation. A broad portfolio of policy actions enhances the likelihood for overall success. Some programs called for here may fall short of their estimated impact while others will work better than expected, but a portfolio approach reduces the risk that any specific program that does not live up to expectations will cause a substantial shortfall of emission reductions. Nevertheless, significant uncertainty surrounds the estimates of overall impact.

Table 1 shows the impact of the Action Plan on the environment, the economy, and the Federal budget. The emission reductions are sufficient to reach the goal of returning emissions to 1990 levels by the year 2000. The private investments in greenhouse gas emission reductions yield substantial energy cost savings between 1994 and 2010, and reforms in the tax code provide net revenues for reducing the deficit.

ENERGY DEMAND ACTIONS

In 1990, the United States consumed 85 quadrillion Btus of energy and produced 1280 million metric tons (MMTs) of carbon. Fossil energy consumption is responsible for over 85 percent of the U.S. greenhouse gas emissions.

Investing in energy efficiency is the single most cost-effective way to reduce CO_2 emissions. President Clinton is announcing a bold new series of partnerships to stimulate the deployment of existing energy-efficient technologies and accelerate the introduction of more advanced technologies These programs will cut carbon dioxide emissions while enhancing productivity at home and competitiveness abroad. It is an aggressive agenda, and it is backed up with the resources necessary to get the job done.

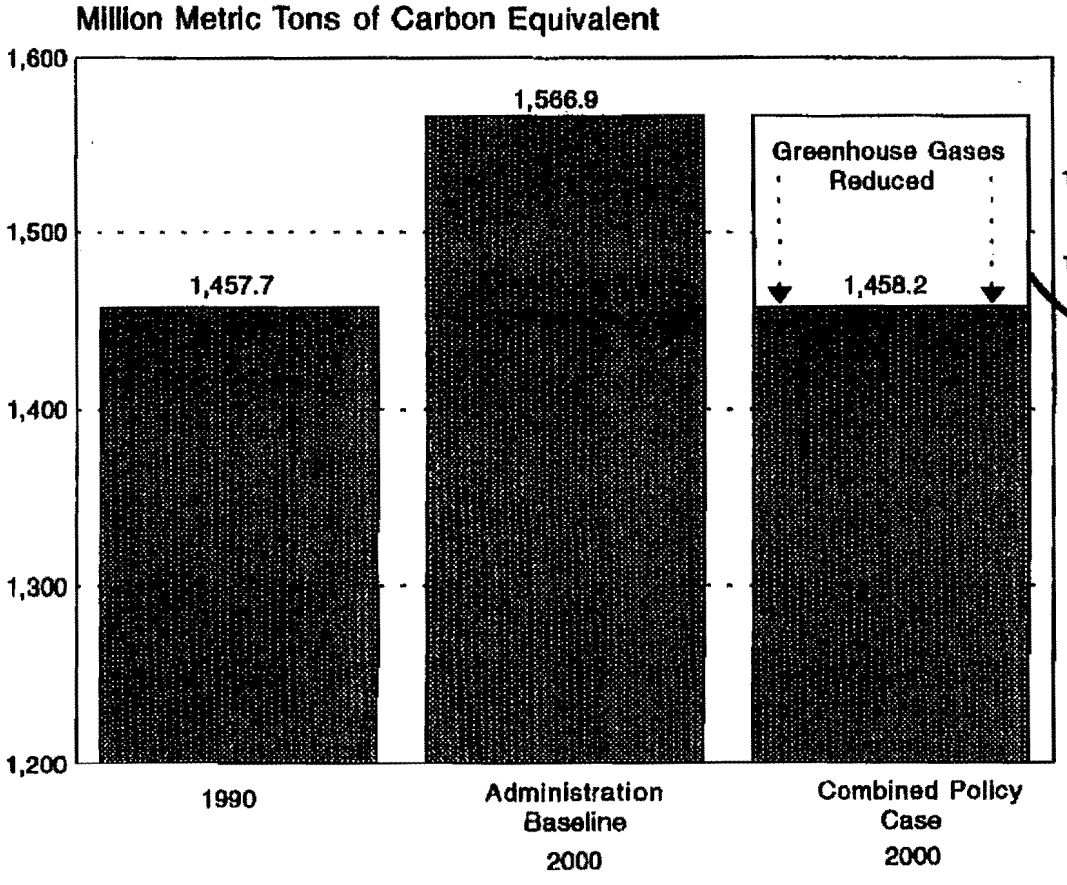
Technical studies have consistently shown that profitable energy efficiency investments exist in residential, commercial, and industrial sectors, yet many of these opportunities go unrealized. This observation niether refutes the technical studies nor suggest that people behave irrationally -- energy analysts have identified the information, regulatory, financial and institutional barriers that impede this investment. Many private sector efforts successfully

SUMMARY OF GREENHOUSE GAS EMISSION AND ECONOMIC IMPACTS

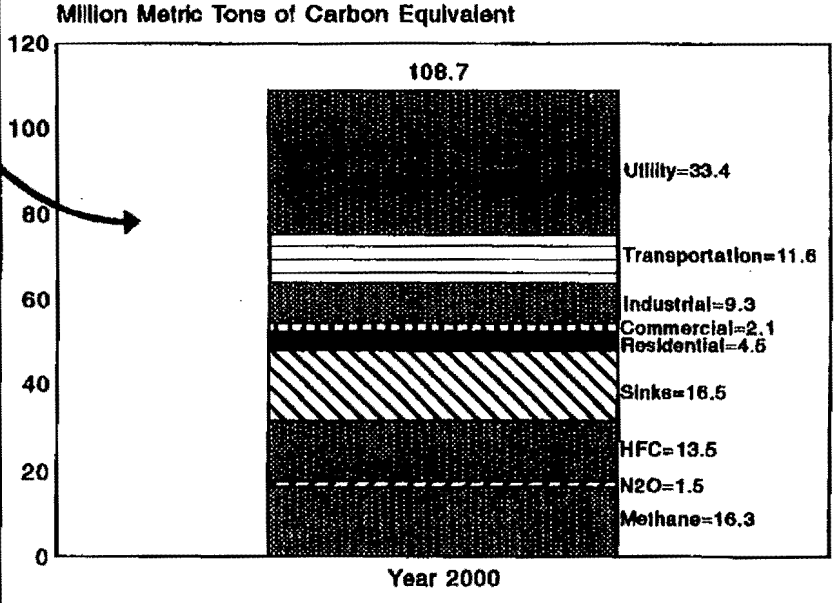
	MMTCe Reduction		Net Federal Outlay	Private Investment	Energy Savings ($M 1991)	
	2000	Cumulative 1994-2010	1994-2000 ($M 1991)	1994-2000 ($M 1991)	1994-2000	2001-2010
Energy Demand						
Commercial	11	150	340	28,000	11,000	47,000
Residential	10	200	260	29,000	14,000	60,000
Industrial	20	310	150	4,600	6,300	21,000
Transportation	13	200	(4,700)	4,100	3,700	14,100
Energy Supply	7	230	(370)	1,200	1,000	4,900
Methane	12-20	180-310	100	900	600	2,000
HFC, PFC, N20	15	na	20	na	na	na
Sinks	17	310	80	40	0	0
Joint Implementation	--	--	--	--	--	--
TOTAL	105-113	1580-1710	(4,120)	68,000	37,000	148,300

NOTE: All dollar figures in undiscounted 1991 dollars. Net revenues (in parentheses) from Parking Cash-out and Hydroelectric Leasing Actions.

Greenhouse Gas Emissions and Reductions



Reductions by Group



address these barriers, and these efforts yield profitable energy savings. For example, utility demand-side management programs and energy service companies reap profits by expoiting the opportunities for profitable energy savings.

Programs that enhance and accelerate these trends can help reduce greenhouse gas emissions and increase U.S. competitiveness. The President's plan outlines innovative solutions to these investment barriers -- from financial reforms in residential mortgages to agreements between motor manufactures and users -- that will align market forces with the environmental imperitive to reduce greenhouse gas emissions.

Residential Energy Efficiency Strategy

Box describing refrigerator golden carrot project.

America's homes consume 34 percent of the nation's energy and contribute 14 percent of U.S. greenhouse gas emissions. Key targets for improvement include heating and cooling, home appliances, lighting, and the design of the building exterior itself. An energy-efficient new home that meets today's best design criteria consumes 50 percent less energy than a poorly designed alternative, while offering a lower lifecycle cost. A typical home built 15 years ago can be upgraded to save 20 percent of energy use, at a profit to homeowners.

President Clinton's Action Plan targets key opportunities in the residential sector, and includes a mix of partnerships with business and utilities, economic incentives, and new standards and building codes.

PRESIDENT CLINTON IS DIRECTING:

- EPA and DOE to form new "*Golden Carrot*" partnerships with non-profits, utilities and environmental groups to accelerate the mass commercialization of advanced energy efficient appliances. The Golden Carrot approach establishes a consortia of potential customers who pool their purchasing power or coordinate utility financial incentives for the development of energy efficient appliances. This gives manufacturers a powerful incentive to improve the energy performance of their products.

- DOE to issue new *residential appliance standards* for eleven product categories: central air conditioners, furnaces, refrigerators, room air conditioners, water heaters, direct heating equipment, mobile home furnaces, kitchen ranges and ovens, pool heaters, televisions and fluorescent lamp ballasts.

- DOE to work with Department of Housing and Urban Development, Veterans Administration, and other agencies to lead a new national effort to market *Home Energy Rating Systems (HERS) and Energy-Efficient Mortgages (EEMS)*. These programs allow home buyers to finance investments in energy improvements through their mortgage lender when the monthly energy savings are greater than increased mortgage payments.

Current federal and state programs are fragmented and not readily accessible to lenders or borrowers and their use is not widespread. The President is ordering DOE to spearhead the effort to ensure that EEM programs reach the intended audience.

- EPA, USDA, DOD, DOE and their industry partners to take *Cool Communities* beyond the pilot stage. This program uses a simple idea -- that shade trees can reduce air conditioning loads -- and promotes urban tree planting where the energy saving benefits are highest. The President is redirecting $25 million to launch the program nationally.

Commercial Energy Efficiency Strategy

Commercial buildings consume 28 percent of all electricity, primarily for lighting, heating, cooling, and air handling. Across America, companies are investing in energy efficiency in order to improve their energy performance, lower overhead, and increase their competitive position.

The President's Action Plan is a comprehensive strategy to accelerate these profitable investments. In the past, the U.S. government programs have been a confusing patchwork of competing programs, operating without coordination among themselves -- let alone in coordination with individual utility or State/local efforts. President Clinton is ordering agencies to streamline their efforts and direct resources where it counts -- toward completing energy efficiency agreements with American business.

PRESIDENT CLINTON IS DIRECTING:

- EPA and DOE to launch a new joint initiative, *Energy Star Buildings / Rebuild America*, for efficient heating, cooling, and air handling.

  - The President's strategy brings the most up-to-date technical knowledge to the people who need it, through joint marketing and technical support.

  - The President is directing EPA and DOE to complete program design with pilot partners by the end of 1994, and is budgeting $20 million in 1995 for nationwide expansion.

- EPA to redouble *Green Lights* efforts to reach untapped portions of the commercial lighting market.

  - The expanded Green Lights will include a new partnership ally effort with electric utilities, coordination with non-profits to bring in new participants, and expanded technical support.

  - President Clinton is allocating $14 million by 1995 to get the job done, a [__] percent expansion of the program.

- DOE to create a *State Buildings Energy Incentive Fund* that includes *state revolving funds for public buildings.*

  - The President's action provides new funding of $10 million per year over five years in seed money to States to fund design and start-up of energy management programs for public buildings.

- DOE to assist States in *updating and enforcing commercial building codes* by the end of 1994.

- DOE to initiate *cost-shared demonstrations* of emerging technologies in Federal, State or local government as well as private buildings. The President's action will help overcome the lack of confidence in new technologies -- a major barrier to their acceptance.

Green lights case study box -- quote from Mobil Oil Co that their energy savings from GL exceeded their expectations.

Industrial Energy Efficiency Strategy

The industrial sector consumes more than a third of the nation's energy. A small number of major manufacturing groups -- primary metals, petroleum, chemicals and pulp and paper -- account for more than 60 percent of industrial energy use. About two-thirds of the sector's electricity use is for motors.

Since the 1970's, the Federal government has funded a large research and development program for energy efficiency and waste-reduction technologies in the industrial sector. President Clinton's Action Plan provides the leadership and vision necessary to get those improvements off of the drawing board and on to the factory floor.

PRESIDENT CLINTON IS DIRECTING:

- DOE and EPA to mount the *Motor Challenge* -- an industry-driven collaborative program to test, verify, and disseminate information on the cost saving potential of industrial motor systems -- and to get commitments from American industry to use them.

  - The President is ordering the two agencies to prepare 25 showcase demonstrations within the next nine months.

  - The President is initiating a nationwide marketing effort following evaluation of the showcases, beginning in 1996.

- DOE and EPA to create *Golden Carrot programs for industrial equipment.* By helping to pool financial incentives and purchasing power, these programs can stimulate rapid commercialization of new energy efficient equipment. The President is directing the agencies to prioritize candidate technologies this year and launch individual Golden Carrots by the end of 1994.

TRANSPORTATION ACTIONS

Combustion of fossil fuels to move people and goods produces roughly one-third of U.S. greenhouse gas emissions, and transportation will be the fastest growing source of emissions through the year 2000. The expected increase in demand for transportation services will also hamper efforts to reduce urban air pollution and U.S. reliance on foreign oil. The President is initiating a package of actions to curb growth in transportation sector emissions by slowing the rapidly growing demand for vehicle travel and enhancing the market for more efficient technology and cleaner fuels. (A comprehensive review of transportation options is also part of the long-term strategy described in a later section.)

PRESIDENT CLINTON IS DIRECTING:

- The Administration to prepare legislation *allowing workers to receive the cash value of employer provided parking* as an financial incentive to reduce solo commuting where alternatives exist.

  - Workers who get free parking from their employers have the opportunity to take the benefit in the form of taxable income, increasing commuter freedom of choice.

  - Employees who chose to "cash-out" the perquisite will increase after-tax pay and decrease CO_2, while those who continue to utilize free parking are not affected by the program.

  - The incentive will not increase the cost of doing business -- employer provided parking will still be deductible from corporate taxes if chosen by the employee.

  - Estimated net tax receipts from employees choosing to "cash out" their parking benefit provide revenues that fund the other elements of the Climate Change Action Plan.

- EPA to draft guidance documents that verify the air quality benefits of *innovative transportation strategies to reduce vehicle miles travelled (VMT)* for states and cities to use in their clean air program development.

- The Department of Transportation to institute a *tire labeling program* to help consumers identify tires that have low rolling resistance. Consumers often purchase replacement tires that have 20% more rolling resistance than original equipment tires, reducing their

fuel economy. With the new information, consumers will know how to save gas, save money, and protect the environment with more efficient tires.

- The Department of Justice to review the legal status of *federal preemption of state programs* such as "feebates" that improve vehicle economy by offering incentives for the purchase of fuel-efficient automobiles.

  - The Bush Administration issued a legal opinion that found that state-level feebate programs were preempted by the Motor Vehicle Cost and Savings Act. This climate plan will [reverse this finding] [modify this finding] [submitlegislation] that would allow states to implement programs to encourage the purchase of fuel efficient motor vehicles, including mileage based registration fees or feebate programs.

[NOTE: THE FEEBATE DECISION IS PENDING OUTCOME OF CLEAN CAR NEGOTIATION AND FINAL LEGAL REVIEW BY DEPARTMENT OF JUSTICEI

ENERGY SUPPLY ACTIONS

The fuels used to meet U.S. energy needs vary in their greenhouse gas emissions. Among fossil fuels, natural gas emits the least amount of CO_2 per unit of heat provided, and renewable energy sources such as solar, wind, geothermal, hydroelectric and biomass energy, as well as nuclear power, release no net CO_2 when used. Newer technologies are also more efficient at generating and distributing electricity, which can lower the amount of greenhouse gas emitted for each kilowatthour of electricity consumed.

The President's Climate Change Action Plan includes a number of new actions to reduce the amount of CO_2 emitted from energy production and use. The Administration will increase the use of natural gas; encourage the commercial application of renewable energy resources; make more efficient use of our existing hydroelectric resources; and reduce the amount of energy lost in electricity transmission.

Natural Gas Strategy

Natural gas, an abundant domestic fuel, emits less CO_2 when burned than either oil or coal. The Administration recognizes the environmental, economic, and national security benefits of encouraging the use of natural gas.

PRESIDENT CLINTON IS DIRECTING:

- EPA to launch the *seasonal gas initiative* that would encourage natural gas as a pollution control strategy under the Clean Air Act. This initiative will lower the cost of combatting the severe ozone pollution problem plaguing many of our cities in a way that also reduces

greenhouse gas emissions. EPA has issued guidelines to urge state and local pollution control agencies to encourage the use of natural gas in the summer in existing coal-fired power plants.

- DOE to accelerate the *commercialization of high-efficiency gas technologies* such as fuel cells through joint ventures with utilities, research organizations and technology developers to fund demonstrations and market entry initiatives. The President has allocated $18 million to the program beginning in FY 1995 and continuing through 1997. This action will provide modest emissions reductions in 2000, and large reductions thereafter.

Renewable Energy Strategy

Renewable energy sources include solar energy, biomass energy (wood, wood waste, and energy crops), geothermal energy, waste-fired energy, hydroelectric power, and related energy sources that emit no net greenhouse gases. Through increased funding and utilization of incentives included in the Energy Policy Act of 1992 to promote the use of renewable energy, the Administration is already laying the groundwork for a future that can rely on these resources. The President's Action Plan features new initiatives to accelerate the widespread commercial deployment of renewable energy sources.

PRESIDENT CLINTON IS DIRECTING:

- DOE to form a *renewable technology consortium* with utilities that will increase the emphasis on commercialization programs and enhance the near-term economic returns from Federal energy R&D programs, beginning in 1994.

- DOE and EPA to facilitate *collective purchases* of renewable energy technology by States, utilities, and other interested firms. Mass purchase strategies enable equipment manufacturers to increase their production capacity and reduce their unit costs -- which will in turn further broaden the market for the technologies.

- The Administration to propose legislation to enable private developers to invest in environmentally sound *upgrades at existing Federal hydroelectric projects*, and to sell the incremental power at market rates.

    - Significant technological potential exists for increasing output at hydroelectric facilities (without changing stream flow regimes), but institutional barriers and lack of appropriations have stifled efforts to make these profitable efficiency upgrades.

    - Private investments will increase the effective capacity of this renewable energy form, and lease payments will help reduce the Federal deficit.

- DOE will also encourage the Federal Energy Regulatory Commission (FERC), in conjunction with other Federal agencies, to reduce *regulatory barriers to non-Federal hydroelectric development at existing dams* where such development will not impact the environment. DOE has prepared a study of the administrative options, and FERC is expected to issue a rulemaking to implement appropriate actions in one year.

Electric Distribution Efficiency Strategy

In 1991, about 7.4% of U.S. electric generation was lost while being distributed from power plants to end-users. When transmission and distribution losses are reduced, less electricity is generated to meet end-use demands, which reduces CO_2 emissions.

PRESIDENT CLINTON IS DIRECTING:

- DOE to promulgate *efficiency standards for high-efficiency electricity transformers* used to convert high voltage transmission power to lower voltage power for end users. Pending the results of a study which will be completed by March 1994, DOE will implement new cost-effective standards for replacement of utility transformers by 1996.

- EPA to provide *"Energy Star" identification incentives* to accelerate the deployment of the highest efficiency transformers.

Utility Industry Strategy

The energy supply and demand programs outlined above rely on an assumed private sector response to a collection of government initiatives. The analysis of their impact assumes that a favorable climate exists for the penetration of technology and that the programs will be supported by electric utilities. In order to ensure that these programs deliver the estimated impacts, and to enhance the prospects for early emission reductions, DOE has begun to forge commitments to limit greenhouse gas emissions. In addition, DOE and EPA will expand their efforts to encourage supportive state regulatory actions.

PRESIDENT CLINTON IS DIRECTING:

- DOE to enter into *Climate Challenges* with electric utility companies who commit to (1) return greenhouse gas emissions to 1990 levels by the year 2000 or (2) limit emissions under strict performance measures. This partnership links accountability with maximum flexibility to give participating utilities an opportunity to demonstrate cost-effective emission reduction efforts.

  - DOE has received letters of intent from five electric utilities to enter into agreements to return greenhouse gas emissions to 1990 levels or below by 2000. An additional 50 utilities have signed letters of intent to enter into alternative

performance agreements to limit greenhouse gas emissions. In total, these utilities represent about 55% of U.S. electricity generation and about 52% of CO_2 emissions from this sector.

- The Climate Challenge builds upon an innovative government/industry partnership authorized under Section 1605 of the Energy Policy Act of 1992, where participants establish historic baselines for emissions and submit periodic greenhouse gas reduction reports.

- Participating utilities will have flexibility to implement a portfolio of emissions reduction measures -- including enhancing the efficiency of generation and transmission, switching to lower-carbon fuels, investing in renewable generation, enhancing the performance of existing hydroelectic and nuclear capacity, expanding demand-side management programs, forestry projects, electrotechnologies, and international projects. To the extent that these utilities invest in emission reductions abroad, they could provide an important source of private sector participation in the U.S. Initiative on Joint Implementation.

Quote from Secretary O'Leary regarding climate compacts

- DOE to *Expand Utility Integrated Resource Planning (IRP) Assistance* to provide a foundation for other Federal and State programs, and to encourage a supportive regulatory environment for utilities entering Climate Challenges. In 1994, DOE will expand the IRP programs authorized in EPAct, and will link with EPA efforts to promote the environmental and economic benefits of IRP. Key mechanisms of the expanded IRP program include:

  - Increasing Federal technical and financial support to State Regulatory Commissions to make utility investments in energy efficiency as profitable as supply side investments and for more effective demand and supply side planning;

  - Increasing Federal support for removing regulatory barriers to increased use of renewables and natural gas.

METHANE AND OTHER GASES

Methane Recovery and Reduction Strategy

Methane contributes between 8 and 14 percent of the U.S. greenhouse gas emissions. The primary sources of methane emissions in the United States include landfills, coal mines, natural gas systems, and domesticated livestock. While methane emission sources are well known, the actual emission levels and trends are less well understood.

In many cases, methane that would otherwise be emitted to the atmosphere can be used to generate power or the quantity of methane produced can be significantly reduced through the use of cost-effective management methods. Therefore, methane control options offer tremendous opportunity to reduce greenhouse gas emissions at low cost or even at a profit. President Clinton's climate plan contains cost-effective actions to reduce methane emissions from all of the major methane sources.

PRESIDENT CLINTON IS DIRECTING:

- EPA to expand the *Natural Gas Star* partnership to include additional transmission and distribution companies and new production companies.

  - The President's new Natural Gas Star will set an industry-wide performance benchmark for leakage control throughout the entire natural gas system.

  - The President is directing EPA to complete a full analysis of barriers to complete implementation and launch a marketing campaign for producers and processors during 1994.

- EPA to formulate a tough *rule to reduce methane emissions from landfills* under section 111 of the Clean Air Act. The President's directive -- to be accomplished by EPA by the end of this year -- increases the amount of organic compounds that must be recovered by landfills and will result in additional recovery of methane gas.

- EPA to launch new *partnership programs for landfill and coal mine owners*. Many coal mine and landfill owners could make a profit by using or selling the methane they release, yet most have not installed recovery systems because they lack independent, reliable information.

Text box describing succesful methane recovery project

- EPA to launch *AgStar* -- a partnership effort with dairy and swine farmers to meet on-farm energy needs with methane produced from animal manure. The President is directing EPA to launch AgStar by the end of this year, and include farms across the country in cooperation with USDA's Soil Conservation Service.

HFCs, PFCs and Nitrous Oxide Control Strategies

Due to high global warming potentials, long atmospheric lifetimes, and increasing emissions, hydroflourocarbons (HFCs) are a growing contributor to the climate change problem. HFCs are emitted as a by product of HCFC production (a substitute for ozone-depleting CFCs) and are also produced commercially as a CFC substitute. Perfluorocarbon emissions (PFCs),

primarily from aluminum smelting, are also potent greenhouse gases. HFCs and PFCs are projected to grow from 20 MMTCE 1990 to 45 MMTCE in 2000. Nitrous oxide emissions, mostly from fertilizer and chemical manufacture, currently account for roughly 5% of U.S. greenhouse gas emissions. (The current and future emission levels of these gases are subject to high degree of uncertainty. This same uncertainty affects the technical basis for estimating emission reductions from programs.)

President Clinton's climate plan makes the United States the first nation to articulate a national strategy to control the emissions of HFCs and PFCs. The President's plan sets a bold new course that uses a combination of partnership efforts and regulatory mechanisms to minimize the future contribution of HFCs and PFCs to global warming, without disrupting the orderly and cost-effective transition away from CFCs.

PRESIDENT CLINTON IS DIRECTING:

- EPA to use its authority under the Clean Air Act to *narrow the scope of uses allowed for HFCs*. The President is directing EPA to complete the final rule by February 1994.

- EPA to finalize agreements with industry partners in a new national campaign to *limit by-product emissions of HFCs* from their manufacturing operations.

- EPA to engage in a new *partnership with aluminum producers* to reduce PFC emissions by up to 50 percent.

- USDA and EPA to launch a new partnership with American farmers to *improve the efficiency of fertilizer use,* which will result in lower emissions of nitrous oxide from microbial activity occurring in the soil.

    - The President is directing USDA to conduct and complete field experiments regarding bacterial denitrification, and test management options to improve nitrogen use efficiency.

    - The President is calling for demonstration projects and an outreach campaign using nationwide USDA outlets by 1996.

ENHANCING GREENHOUSE GAS SINKS

Atmospheric greenhouse gas concentrations are the net result of continuous emissions and uptake that occur through natural processes and human activities. Future concentrations of greenhouse gases in the atmosphere -- the key factor of the global warming threat -- can be limited either by reducing emissions or by increasing the amount of annual uptake from natural systems, sometimes called greenhouse gas "sinks." Trees and other plants absorb and store CO_2 from the atmosphere, and are a significant carbon sink.

Greenhouse Gas Sink Enhancement Strategy

The President's Action Plan includes several cost-effective sink enhancement programs to sequester carbon in forest ecosystem. These include an expanded program to encourage better management of private forests and programs to increase the recycling of wood fiber that would lead to lower timber harvest levels.

PRESIDENT CLINTON IS DIRECTING:

- USDA to *increase technical and economic assistance to private non-industrial landowners* to encourage better management and greater tree planting. Small private landowners -- often with only a few acres of forests -- generally do not manage their holdings intensively. These forests are often in poor health and are often harvested for short term economic gain and not replanted for maximal growth. Better management and accelerated planting programs will increase the carbon sequestered on private non-industrial lands, increasing carbon uptake while providing significant economic and environmental benefits.

  - USDA will expand management assistance under the Stewardship Incentive Program by funding additional technical consultations for small landowners. USDA will also expand tree planting programs for non-industrial forest owners during the next several years. The President has earmarked an expansion of assistance by $1.6 million in FY 94, growing to $12.5 million in FY 97 as the expanded program covers 233,000 additional acres.

- USDA and EPA to *expand voluntary source reduction and paper recycling programs* and to increase research into recycling technologies, which help reduce the amount of paper waste generated and to increase the fraction of waste paper recycled. These programs pay a double dividend for climate protection -- source reduction and recycling lowers the demand for virgin fiber and reduces harvest levels, and recycling paper consumes less energy than paper manufactured from virgin fiber.

- *USDA to track the carbon benefits* from reduced annual timber harvests and the application of ecosystem management techniques where harvesting occurs on Federal Lands.

  - Reduced harvests in old-growth forests contribute significantly to sink enhancement, even if accompanied by increased harvests elsewhere, because old-growth forests have higher carbon densities than second growth forests.

  - The President has directed his Administration to shift toward ecosystem management, which favors timber harvest methods that inflict less damage and helps retain carbon on forest lands.

JOINT IMPLEMENTATION

Efforts undertaken cooperatively between countries or entities within them to reduce net greenhouse gas emissions -- called joint implementation -- hold significant potential for combatting the threat of global warming and promoting sustainable development. Joint implementation is recognized under the Framework Convention on Climate Change (the Climate Convention) and is an approach open to all Parties to the Convention.

Joint implementation could potentially achieve greater reductions than might be possible if each country pursued only domestic actions, and could achieve these reductions more cost-effectively. At the same time, significant questions arise about what kinds of activities might take place under the rubric of joint implementation: whether these would produce real reductions; whether they would be "new and additional" to ongoing development assistance or private business transactions; how to measure and track net emission reductions achieved; how to assure that reductions in one place do not give rise to increases in another (the "leakage" issue); and how to assure that net reductions will not be lost or reversed through time.

The Intergovernmental Negotiating Committee took up the issue of joint implementation for the first time during its Eighth Session in August 1993. The Climate Convention calls upon the Conference of the Parties to adopt international criteria for joint implementation at its first session, tentatively scheduled for late March 1995. International efforts to develop criteria for joint implementation will clearly benefit from real world experience. At the same time, a number of U.S. firms, especially electric utilities considering voluntary emission reduction commitments, have indicated their interest in international projects.

Joint Implementation Strategy

The President's Climate Change Action Plan achieves the goal of returning U.S. greenhouse gas emissions to 1990 levels by the year 2000 with domestic actions. However, the Administration recognizes the enormous potential for cost-effective greenhouse gas emission reductions in other countries, and that the promise of joint implementation can only be realized if pilot projects are evaluated under workable criteria that avoid the pitfalls mentioned above. The President is therefore announcing a pilot program -- the U.S. Initiative on Joint Implementation (USIJI). The primary purpose of the U.S. initiative is to help establish an empirical basis for considering approaches to joint implementation internationally and thus help realize the enormous potential for joint implementation both to combat the threat of global warming and to promote sustainable development.

PRESIDENT CLINTON IS DIRECTING:

- The Department of State, in consultation with other Agencies, to develop the U.S. Initiative on Joint Implementation (USIJI) as a pilot program.

- The Department of State to publish the initial groundrules and criteria for the USIJI in

the Federal Register for public comment. The President's initiative is outlined in Appenix __ and includes the following key features:

- USIJI will provide a mechanism for investments by U.S. firms and potential official assistance to be evaluated for net greenhouse gas emission reductions.

- The USIJI will establish an interagency evaluation panel to certify net emission reduction estimates from qualified projects

- The USIJI will adhere to strict criteria to evaluate potential emission reductions in order to maximize international acceptance of emission reductions.

- Net emission reductions achieved as a result of projects developed under the USIJI will be measured, tracked, and scored. An accounting of these reductions will be part of the U.S. National Action Plan.

- The USIJI will focus initially on projects in Annex I Countries because that is the area of greatest international consensus.

- The U.S. Initiative will be reevaluated and reassessed within two years of its inception or within six months of adoption of international criteria for joint implementation by the Conference of the Parties under the Climate Convention, whichever is earlier.

MONITORING, EVALUATION, AND ADJUSTMENT

This Action Plan represents a major mobilization effort led by President Clinton to stimulate federal agencies, companies, state and local governments, and citizens across the nation to do their part in addressing the challenge of global warming. But this is only the beginning. The nature of the climate change problem is inescapably long-term and only partly known today. We must estimate -- with some uncertainty -- the future effectiveness and economic impacts of policies we adopt now. In order to meet the goal of returning greenhouse gas emissions to 1990 levels, therefore, the President is committing his Administration to periodic evaluation of emission trends and program effectiveness, and to pursue additional policy initiatives if the trends indicate that our progress is insufficient to attain our goal. This is not a "set and forget" plan.

There are several mechanisms to monitoring emission trends. First, companies participating in the EPAct section 1605 reporting program will supply timely information regarding their efforts. The Department of Energy, the Energy Information Administration, and the Federal Energy Regulatory Commission continuously gather and analyze data on energy production and consumption. The Clean Air Act Amendments of 1990 require that electric utilities employ continuous emission monitoring of CO_2 emissions. Finally, companies participating in the USIJI will provide information on the progress of overseas projects that may qualify for emission reduction credits.

The Clinton Administration will review progress under the Action Plan on a biannual basis to report on current trends, adapt existing programs to evolving circumstances, and to propose additional policies if necessary. This Action Plan is not a one-time policy development exercise but rather begins a process of continual improvement in energy, environmental, and economic policy. We will continue to seek out sensible opportunities for emission reduction that provide for economic growth and job creation.

PRESIDENT CLINTON IS DIRECTING:

- The Office on Environmental Policy to chair an interagency task force to monitor and evaluate the progress made under the President's Climate Change Action Plan.

  - The President is directing this task force to oversee the preparation of the U.S. National Action Plan (NAP) required by the Framework Convention on Climate Change, and recommend revisions to the current Action Plan as necessary. Depending on when the Convention enters into force, the U.S. National Action Plan could be required in as little as one year.

  - After the US submits the NAP to the Conference of the Parties to the Convention, the task force -- coordinating with the Department of State -- will oversee the preparation of reports to the Conference of the Parties and will evaluate the progress made under the Action Plan every two years or when called upon by the Conference of the Parties.

LONG TERM STRATEGIES FOR REDUCING EMISSIONS OF GREENHOUSE GASES

The initiatives outlined in the President's Action Plan will continue to reduce emission levels from expected levels beyond the year 2000. However, this plan is unlikely to stabilize emissions at 1990 levels under reasonable assumptions regarding economic growth, the diffusion of existing technologies, and new technology development. Therefore, the Administration will develop policies to address the longer term trends in greenhouse gas emissions. These policies must address technologies of energy supply and use, and condition markets for the long-term transition away from activities, fuels and technologies that generate large emissions of greenhouse gases.

The policies contained in the Action Plan are directed primarily at creating effective markets for investments in existing or nearly commercially available technology that reduce greenhouse gas emissions. The core of a long term strategy must ensure that a constant stream of improved technology is available and that market conditions remain favorable to their adoption. The Action plan could stimulate a modest acceleration in technology development, but this impact is not readily quantified. Such gains will lay the foundation for the development of technologies that could contribute to significant reductions in greenhouse gas emissions in both the United States and abroad. But a long term economic and technology development strategy must quickly be developed in order for progress to continue on greenhouse gas emission

reductions into the next century.

The Administration will begin a thorough evaluation of budget, technology, and economic policies that directly or indirectly effect future greenhouse gas emission trends. The mitigation of greenhouse gases in the U.S. and abroad should become a fundamental guiding principle of economic, environmental, and international policies. Research priorities to reduce energy demand include advanced building systems, transportation equipment and systems, and manufacturing technology to reduce energy and material requirements. Research priorities for low-carbon energy supply technologies could include sustainable biomass energy systems, advanced natural gas turbine and fuel cell technologies, cogeneration systems, energy storage systems, renewable energy technologies, hydrogen fuel systems, and continued research into nuclear safety and waste disposal options that could maintain the option of commercial nuclear power.

Our efforts will begin with an extensive consideration of transportation sector options. Much of the anticipated growth in greenhouse gas emissions after 2000 will be in the transportation sector. Even with actions taken under this plan, we expect that overall use of automobiles and trucks will increase as vehicles are added to the nation's fleet and as vehicles are driven greater distances. In order to continue emission reduction trends beyond the turn of the century, additional cost-effective measures will be needed to reduce greenhouse gas emissions of individual vehicles and to increase American's transportation options, so that personal mobility can be enhanced while private vehicles can be driven less.

> [**IF CLEAN CAR INITIATIVE HAPPENS:** We have already announced [are announcing today] a bold *Clean Car Initiative* aimed at dramatically reducing the impact of automobiles on the environment. This historic partnership with the major U.S. automakers has the goal of producing a new generation of world-competitive automobiles that are 300 percent more fuel efficient than today' models -- and therefore would emit one-third the CO_2 of comparable cars today -- while meeting all forthcoming standards for safety and conventional air pollutants. If successful, this highly efficient new generation of automobiles would begin to come into widespread production around 2010.
>
> The Clean Car Initiative holds out enormous long-term progress for the health of both the global environment and the U.S. automobile industry. But between now and 2010, additional measures would be required to curb the rising trend of greenhouse gas emissions from the transportation sector.]

PRESIDENT CLINTON IS DIRECTING:

- The National Economic Council, the Office on Environmental Policy, and the Office of Science and Technology Policy to co-chair a process, to be completed not later than one year from issuance of the plan, to develop measures to significantly reduce greenhouse gas emissions from personal motor vehicles, including cars and light trucks.

- The process will involve all relevant departments and agencies in the Federal government. We will also strongly encourage the full participation of the automobile industry, state and local government, the environmental and energy efficiency advocacy community, and others with potential solutions to offer.

- The Administration will look at the full range of options under existing authority as well as alternative methods to cost-effectively reduce total greenhouse gas emissions attributable to personal motor vehicle use, while meeting or exceeding applicable vehicle safety and clean air requirements.

- The goal of the process will be to identify and begin implementation of strategies that yield significant greenhouse gas emission reductions from personal motor vehicles, including cars and light trucks. Included in the issues to be examined will be some combination of regulatory and non-regulatory measures to improve new vehicle fuel efficiency in an amount equivalent to at least 2% to 4% per year over a 10 to 15 year period.

- The Office on Environmental Policy and the Office of Science and Technology Policy to co-chair a long-term strategy working group to examine all budget, technology, R&D, regulatory and economic policies that could impact greenhouse gas emission levels beyond the year 2000. The task force will make initial recommendations by the end of 1994.

APPENDIX

Summary of Modeling and Estimation Process

The assessment of emissions reductions resulting from the plan was carried out using a three-stage process:

1. establish baseline emissions projections based on projected activity levels in energy and other markets;

2. analyze individual emission reductions actions and groups of related actions; and

3. execute an integrated analysis of energy-related actions to account for synergies, overlaps, and market interactions.

Baseline Projections:

Baseline projections are based upon a set of specific assumptions about markets, technologies, and resources, such as GNP growth rates and oil and gas prices. There are four main types of assumptions underlying the projections:

- Economic factors, which include GNP growth rates, world oil prices, and other assumptions.

- Energy resources, which include proved reserves and undiscovered resources.

- Market behavior, reflecting the demand and supply decisions of energy market participants as influenced by prices, standards, and voluntary programs.

- Technology factors, which include information on the costs of energy-consuming and -producing technologies, their performance, and when they will be commercially available.

The starting point for baseline development was the 1993 Annual Energy Outlook of the Energy Information Administration (EIA), an independent statistical and forecasting unit within the Department of Energy. Both the AEO forecast and its underlying assumptions were reviewed by the interagency analysis team and shared with participants in the public workshops. Based on public comments and internal review, the interagency analysis group modified assumptions regarding economic growth and oil prices to maintain consistency with Administration budget forecasts and the assumed growth rate for commercial floorspace to more closely reflect market conditions.

Analysis of Actions and Action Groups

Actions included in the plan affect virtually all energy-using activities in the economy. Interagency expert teams used a wide variety of modeling tools in developing initial impact estimates. External analyses developed through the public workshop process were reflected in the analytical exercise, and an ongoing dialogue with non-governmental experts was maintained throughout the process.

In some cases, several actions jointly promote the same type of energy efficiency improvement. For example, increased lighting efficiency is promoted through standards under the Energy Policy Act, utility-sponsored demand side management programs authorized by state regulators, government and corporate energy management programs, the voluntary "Green Lights" program, and private initiative. While the multiplicity of programs (especially when coupled with bottom-line corporate and utility commitments) raises confidence as to the likelihood of achieving significant investments in lighting efficiency, it is clear that simple summation of individual program effects would overstate actual impacts. To avoid double-counting, such directly overlapping actions were evaluated jointly rather than individually by the working groups.

Integrated Analysis

Most energy-related options affect more than one sector or fuel; changes in one sector often affect fuel prices, which in turn affect energy demand and supply in other sectors. In addition, policy options usually do not work in isolation from other options; some options are synergistic, with a total effect that exceeds the sum of their individual effects, while others have overlapping or offsetting effects. For this reason, capturing interactions among energy prices, supply, and demand is essential.

The IDEAS (Integrated Dynamic Energy Modeling Simulation) model was used as a modeling tool for the integrated analysis of energy-related options. IDEAS, an updated version of the earlier FOSSIL-2 model, was initially calibrated to the 1990 and 2010 AEO93 forecast, then adjusted for the differences in assumptions noted in the discussion of baselines and for policies already reflected in the Clinton Administration program.

The effects of supply-side actions on demand and prices are straightforward. In general, increases in supplies of carbon-free electricity (e.g., renewables and nuclear) are projected to displace the use of coal, oil, and natural gas in electricity generation. Switching towards less carbon-intensive fossil fuels (e.g. substitution of natural gas for coal or oil) and reductions in transmission losses are other ways to lower carbon emissions.

On the demand side, reductions are achieved by imposing efficiency standards (building standards, lighting standards, and motor standards), using market incentives (integrated resource planning), and improving energy efficiency through research and development. All of the demand-side actions interact with supply-side actions in a manner that could either offset or reinforce reductions.

Research and development (R&D) measures have positive effects on energy conservation on both the demand and supply sides. These measures are generally synergistic with other conservation and energy efficiency initiatives. Given the lags inherent in research, development, initial commercialization, and widespread market acceptance, the primary effects of R&D will only be realized after a considerable period. For this reason, the primary role of R&D actions in the plan is to contribute towards continuation of the trend of reduced emissions beyond 2000.

Uncertainty in Forecasting Future Emissions

Uncertainty regarding future levels of energy-related emissions arises from at least three distinct sources:

- the relationship between energy use to energy prices and economic activity levels may differ from those embodied in the AEO93 forecast used to calibrate the IDEAS model;

- future conditions may diverge from the assumptions made regarding economic growth rates, world oil prices, U.S. energy resources, and the costs and performance of technologies used on the supply and demand sides of the energy market; and

- the actual impact of actions identified in the plan may differ from their projected effects.

The effects of uncertainty regarding future conditions is illustrated by consideration of changes in assumptions regarding economic growth rates and oil prices on projected baseline carbon emissions. Assumed economic growth rates determine the future gross domestic product (GDP), which reflects the level of various economic activities (e.g., commercial growth, industrial production, and travel). All of these economic activities demand energy. In general, higher GDP is associated with higher energy demand. A sensitivity case with GDP growth rates 0.5 percent per year lower than the baseline assumption reduced projected carbon emissions in 2000 by zz million metric tons.

Assumptions about the world oil price over time are based on implicit assumptions about the availability of world petroleum reserves. Larger-than-expected petroleum reserves could be translated into lower world oil prices in the future. Consumption, related closely to oil prices, could increase significantly. A sensitivity case with constant real oil prices through 2000 in place of the xx percent average annual increase in the base case increased projected carbon emissions in 2000 by ?? million metric tons.

The plan includes features to guarantee meaningful results notwithstanding the uncertainties inherent in projection and modeling. One key facet of the plan is the use of bottom line commitments by utilities, who supply almost ___ percent of end-use energy outside the transportation sector, to deliver the changes in energy consumption patterns that are reflected in the mitigation plan. These commitments provide assurance that the effect of the illustrated modeled actions is achieved, even if the approach ultimately required to do so differs from the modeled actions. The focus on bottom-line commitments recognizes that the ultimate success

of federal efforts in leveraging end-use behavior will depend in large measure on the role of the utilities. Electric utilities alone already project expenditures of over x.x billion (1000 times the anticipated cost of Federal outreach programs) on energy efficiency investments on the customers' side of the meter by 2000.

SUMMARY TABLE OF ACTIONS

September 17, 1993

NOTE: These tables are DOE modeling results of individual actions in the Plan. These numbers have been updated more recently than the one-page fact sheets.

Option Summary Sheet

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Plan Element Number	Policy	Title	Carbon Reductions in 2000 (MMT)	Cumulative Carbon Reductions Through 2010	Cost in $1991 (Millions) Federal 1994-2000	Non-Federal Capital Outlay 1994-2000	Undiscounted Cumulative Value of Energy Savings: 1994 - 2000 for Investments through 2000	Undiscounted Cumulative Value of Energy Savings: 2001 - 2010 for Investments through 2000
			model					
		ENERGY SUPPLY OPTIONS						
		Enhanced Natural Gas Utilization						
1	ES3	Climate Challenge/Commercialized High-Efficiency Gas Technologies	0.4	27.0	$62	$140	$68	$626
2	ES29	Climate Challenge/Seasonal Gas Use	1.0	19.0	$0	($925)	($463)	($942)
		Improved Energy Efficiency						
3	ES73	Climate Challenge/Reduces Electric Generation Losses Through Transmission Pricing Reform	0.8	9.0	$0	($5)	$276	$1,037
4	ES47	Climate Challenge/Efficiency Standards for Electric Transformers	0.8	13.0	$7	$486	$278	$595
5	ES74	Climate Challenge/Energy Star Transformers						
		Enhanced Renewable Commercialization						
6	ES9/10	Climate Challenge/Renewable Energy Market Mobilization Collaborative	0.7	128.0	$116	$52	$280	$1,114
7	ES8	Climate Challenge/Expanded IRP	1.3	16.0	$46			
		Improve Performance of Existing Zero Emissions Tech.			Leasing			
8	ES4	Climate Challenge/Retain/Improve Hydro Generation	2.0	18.0	($597)	$1,500	$554	$2,510
		Combined Results	**6.8**	**230.0**	**($366)**	**$1,248**	**$994**	**$4,940**

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Plan Element Number	Policy	Title	Carbon Reductions In 2000 (MMT)	Cumulative Carbon Reductions Through 2010	Cost In $1991 (Millions) Federal 1994-2000	Non-Federal Capital Outlay 1994-2000	Undiscounted Cumulative Value of Energy Savings: 1994 - 2000 for Investments through 2000	Undiscounted Cumulative Value of Energy Savings: 2001 - 2010 for Investments through 2000
			model					
		RESIDENTIAL DEMAND OPTIONS						
		Home Improvements	4.3	69.0				
9	RD12	Climate Challenge/Energy Efficiency and Housing Technology Centers	(approx.)		$105	$2,392	$1,381	$5,959
10	RD7	Climate Challenge/Home Energy Rating Systems and Energy Efficient Mortgages			$9	$4,784	$1,779	$5,959
11	RD1	Building Standards			$72	$2,392	$1,723	$5,959
12	CD11	Cool Communities			$14			
		Appliance Improvements	5.5	130.0				
13	RD2	Appliance Standards			$0	$5,163	$4,150	$22,864
14	RD4	Climate Challenge/Market Pull Incentives			$60	$14,342	$5,300	$17,862
		Combined Results	**9.7**	**199.0**	**$260**	**$29,073**	**$14,334**	**$58,602**
		COMMERCIAL DEMAND OPTIONS						
		Development, Commercialization, and Training	5.1	68.0				
15	CD17	Expanded Cost-Shared Demonstration of Emerging Technologies			$50	$4,964	$1,604	$6,912
16	CD18	Climate Challenge/National EE Education and Training Program			$25	$7,197	$2,444	$10,532
17	CD19	Climate Challenge/National EE and Renewable Information Program			$12	$4,467	$1,604	$6,912
		State Option						
18	CD23	Climate Challenge/State Revolving Funds	1.1	17.0	$50	$4,268	$1,741	$7,505
		Voluntary Commitment Programs						
20	CD6	Climate Challenge/Expanded Green Lights	2.5	30.0	$98	$3,289	$1,940	$8,093
21	CD7	Climate Challenge/Coordinated DOE & EPA Buildings Programs	3.1	39.0	$100	$3,905	$1,717	$7,397
		Combined Results	**10.8**	**154.0**	**$335**	**$28,090**	**$11,050**	**$47,350**

Option Summary Sheet

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Plan Element Number	Policy	Title	Carbon Reductions in 2000 (MMT)	Cumulative Carbon Reductions Through 2010	Cost in $1991 (Millions) Federal 1994-2000	Non-Federal Capital Outlay 1994-2000	Undiscounted Cumulative Value of Energy Savings: 1994 - 2000 for Investments through 2000	Undiscounted Cumulative Value of Energy Savings: 2001 - 2010 for Investments through 2000
			model					
		INDUSTRIAL DEMAND OPTIONS						
		Accelerated Efficiency						
23	ID5	Climate Challenge/Accelerate Adoption of Energy Efficient Technologies	1.7	29	$22	$179	$234	$1,813
24	ID32	Climate Challenge/Industrial Golden Carrots			$14	$192	$421	$1,371
25	ID10	Energy Analysis and Diagnostic Centers	0.6	10	$31	$154	$281	$954
26	ID13	Broad-Based Recycling	4.2	81	$25	n/a		
27	ID9	Testing/Labeling	9.1	138	$31	$55	$63	$431
28	ID19	Climate Challenge/Motor Challenges (modeled with ID9)			$31	$4,004	$5,329	$16,769
22	ID21	Climate-wise Companies (Green companies)						
29	ID?	Fertilizer Option	3.8	50				
		Combined Results	**19.3**	**308.0**	**$154**	**$4,584**	**$6,329**	**$21,339**
		TRANSPORTATION DEMAND OPTIONS						
30	AT9	End Federal Preemption of State Programs	0.2	6.0	$0	$2,157	$888	$2,195
31	AT19	Fuel Economy Labels for Tires	1.5	25.0	$0	$1,977	2805.8	$11,934
32	AT_A	Parking Reform	8.2		GAIN			
33	AT_B	Transportation System Efficiency Strategy	5.6		$36			
34	AT_A+B**	Parking Reform and Transportation System Efficiency Strategy	11.1	165.0	GAIN			
35	AT25	Telecommuting	0.3	5.0	$0			
		Combined Results	**13.0**	**201.0**	**$36**	**$4,134**	**$3,694**	**$14,129**

* Plus potential revenue gains from parking options

** Not included in transportation combined results

Option Summary Sheet

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			off-line estimate					
		CARBON SINK OPTIONS						
36	SK1	Reduced Harvest, National Forest Service Lands	4.5	86.0	$0	$0		
37	SK20	Ecosystems Management	2.5	32.5	$0	$0		
38	SK7	Reduced Depletion of Nonindustrial Private Land	4.0	28.0	$4	$0		
39	SK2	Accelerated Tree Planting	0.4	15.0	$71	$36		
40	CD11	Cool Communities	0.5	9.5	see CD11			
41	ID13/SK3	Broad-Based Recycling	5.0	142.3	see ID13			
		Combined Results	**16.9**	**313.3**	**$75**	**$36**	**$0**	**$0**
		HFC/Other Gases Options						
42	HFC1	Reduce HFC-23 Emissions in HCFC-22 Production	5.0		$4			
43	HFC2	Narrow Uses of High GWP Chemicals Under Sec. 612 of the Clean Air Act	4.0	38-75	$7	n/a	n/a	n/a
44	HFC3	Voluntary Program to Reduce By-Product Emissions In the Aluminum Industry	4.5		$4			
		Combined Results	**13.5**		**$15**			

Plan Element Number	Policy	Title	Carbon Reductions in 2000 (MMT)	Cumulative Carbon Reductions Through 2010	Cost In $1991 (Millions) Federal 1994-2000	Non-Federal Capital Outlay 1994-2000	Undiscounted Cumulative Value of Energy Savings: 1994 - 2000 for Investments through 2000	Undiscounted Cumulative Value of Energy Savings: 2001 - 2010 for Investments through 2000
			off-line estimate					
		METHANE OPTIONS						
45	ME1	Increase Stringency of Landfill Rule	3.4-5.0	37-55		n/a	n/a	n/a
46	ME2	Landfill Outreach Program	0.9-1.3	13-18	$6	$174	$135	$275
47	ME3a	Coalbed Methane Outreach Program	1.6-2.7	28-43	$9	$80	$89	$158
48	ME4	Expanded AgStar	1.0-2.0	15-28	$26	$135	$118	$178
49	ME5,6,7,8	Improve Ruminant Productivity and Product Marketing	1.0-2.6	14-37	$27	n/a	n/a	n/a
50	ME9	Expanded Natural Gas Star (ME14 included here)	2.6-3.4	37-50	$6	$66	$97	$112
51	ME12	R&D for Methane Recovery from Coal Mining	1.0-1.8	22-40	$15	$200	$120	$810
52	ME13	R&D for Methane Recovery from Landfills	0.5-1.5	14-36	$8	$200	$85	$415
		Combined Results	**12.0-20.3**	**180-307**	**$97**	**$855**	**$644**	**$1,948**
		NITROUS OXIDES OPTION						
53	NO1	Improve Fertilizer Use Efficiency	1.5					
		GRAND TOTAL	**108.0**		**$606**	**$68,020**	**$37,044**	**$148,308**

THE CLIMATE CHANGE ACTION PLAN

INDIVIDUAL ACTIONS

RESIDENTIAL SECTOR ENERGY-EFFICIENCY ACTIONS

DRAFT September 17, 1993 2:36pm

TITLE: "Golden Carrot" Market-Pull Consortia

DESCRIPTION: The President is directing DOE and EPA to accelerate the mass commercialization of advanced, energy-efficient technologies through an initiative to form partnerships with key market players (utilities, manufacturers, dealers, environmental groups, and public agencies). These initiatives -- commonly known as "Golden Carrots" -- will be designed and implemented through the Consortium for Energy Efficiency (CEE). Advanced technologies and energy efficiency improvements are accelerated by:

- o establishing utility DSM program elements to coordinate incentives and create large markets for new technologies;
- o creating "winner-take-all" contests for new technology introduction;
- o working with government agencies to influence agency or Federally-assisted institution procurements; and
- o coordinating comprehensive utility retrofit programs with Federal efforts to improve energy efficiency mortgages (EEMs) and home energy rating systems (HERs).

There is some interaction with the appliance standards action, depending upon the appliances targeted for market pull initiatives.

IMPLEMENTATION: Authority provided in the Energy Policy Act 1992, Title I, Sections 127, 128. EPA, DOE and members of CEE are actively discussing a group of market pull initiatives for launch in FY 94. These include clothes washers, residential lighting, advanced heat pumps and central air conditioners. The President is directing DOE to conform its FY 94 study on advanced technologies (EPAct, Section 127) to update and expand these ongoing assessment efforts, and to provide information that will facilitate program design and marketing. Recent studies, such as EPA's "Space Conditioning: The Next Frontier," suggest several technologies that are ripe for promotion through concerted, utility market-pull initiatives. Federal cost is projected to be $10 million annually, for a total 1994-2000 cost of $60 million.

PRIVATE INVESTMENT/MARKET IMPACT: The President's action will stimulate $15 billion in private investment; the value of energy savings is expected to be $24.2 billion through 2010[1].

GREENHOUSE GAS REDUCTIONS:

- o 5.5 MMTC in 2000, when coupled with appliance standards
- o 130 MMTC cumulative reduction by 2010, when coupled with appliance standards

[1] Undiscounted cumulative $1991 values throughout text.

TITLE: Residential Appliance Standards

DESCRIPTION: The President is directing DOE to promulgate energy-efficiency standards for eleven residential appliance categories where more stringent standards are technologically feasible and economically justified, and to revise them periodically. This action works in concert with the Market Pull initiative that seeks to accelerate similar advanced, energy-saving technologies.

IMPLEMENTATION: Authority is provided by the Energy Policy and Conservation Act (Public Law 94-163), as amended by the National Appliance Energy Conservation Act, and the Energy Policy Act of 1992. Federal costs are negligible.

DOE already has two pending rulemakings that affect carbon emissions in 2000. The President is directing DOE to issue a notice of proposed rulemaking (NOPR) covering eight products within the next few months: room air conditioners, water heaters, direct heating equipment, mobile home furnaces, kitchen ranges and ovens, pool heaters, television sets, and fluorescent lamp ballasts. After receiving and reviewing comments on its proposed rules, DOE will determine what new standards should be issued. Standards will become effective three years after promulgation.
The President also is directing DOE to issue an advanced notice of public rulemaking (ANOPR) covering three products: central air conditioners, furnaces, and refrigerators. After receiving comments, reflecting them in a NOPR, and receiving comments on the NOPR, DOE will issue updated standards that become effective three years after promulgation.

MARKET IMPACT: Cumulative private sector expenditures for more efficient appliances are projected at $5 billion over the 1994 to 2000 period. Since the standards are required to be cost-effective, these investments will be more than offset by energy savings. The value of energy savings is expected to be $27 billion cumulative through 2010.

GREENHOUSE GAS REDUCTIONS: This action was modeled together with the Market Pull action. Together, these actions produce emissions reductions of 5.5 MMTC in 2000, and cumulative reductions of 130 MMTC through 2010.

TITLE: **Home Energy Rating Systems and Energy-Efficient Mortgages**

DESCRIPTION: The President is directing DOE together with the Dept. of Housing and Urban Development, the Dept. of Veterans Affairs, the Farmers Home Administration and the secondary mortgage institutions to lead a national effort to promote Home Energy Ratings Systems (HERS), and Energy Efficient Mortgages (EEMs). HERS estimate the annual energy use of a building, while EEMs promotes the affordability of energy efficient housing. The Under the President's program, these Agencies will launch education, training, and publicity campaigns in five HUD pilot states. The President is asking these Federal agencies to bring together the other stakeholders--the building, financing, environmental, and consumer communities--to develop teams to promote EEMs these pilot states. Under the initiative, realtors, appraisers, lenders, and lenders will be offered training programs; special recognition will be given to those who offer these additional customer services; publicity campaigns will encourage home sellers to offer--and home buyers to demand--these energy efficient homes. The President is directing the affected agencies to develop guidelines for reporting HERS and EEMs experience and will monitor the programs and provide case studies on the most innovative and successful efforts.

IMPLEMENTATION: The President is directing DOE to act based upon the authority provided in the Energy Policy Act of 1992 (EPAct) Title I, Sec.102, Residential Energy Efficiency Rating Guidelines, and Title I, Secs. 105 and 106, Energy Efficient Mortgages and Energy Efficient Mortgages Pilot Program. The Veterans Home Loan Program Amendments of 1992 and the Affordable Housing Act of 1990 also contain relevant provisions. The President is ordering DOE to spearhead the effort to coordinate various Federal programs and ensure that EEM programs reach the intended audience. Federal costs are estimated to be $9 million for FY 1994 through FY 2000.

MARKET IMPACT: By 2000 HERS will provide a national system available to anyone seeking reliable information on the energy performance of their home. Under the President's initiative, EEMs are projected to penetrate 20% of the home mortgage market by 2000. This level of market penetration will stimulate a cost-effective, non-Federal investment of $6 billion in energy saving technologies in the 1994-2000 period. The estimated value of energy savings is $9.7 billion cumulative through 2010.

PROJECTED GREENHOUSE GAS REDUCTIONS: This action was modeled with other residential structural improvement initiatives. Together they produce emissions reduction of 4.3 MMTC in 2000 and 69 MMTC cumulative reduction by 2010.

TITLE: Expand Cool Communities Program in Cities and Federal Facilities

Description: The President is directing EPA to mobilize community and corporate resources to strategically plant trees around buildings. Strategic landscaping to shade residential and commercial buildings can reduce energy use and yield cost savings of 10-35%, when combined with lightening building surface colors to reduce absorption of sunlight. Cool Communities build on the positive results seen in the pilot Cool Communities founded by EPA and American Forest in 1991. The President is expanding the existing public/private Cool Communities program to 100 cities, and to 100 DoD bases and two other federal facilities. The expansion will be achieved nationally through a concerted outreach and education effort. "Cool Communities" will be widely utilized by city planners, developers, utilities, community organizations, and Federal facilities managers. Also, the Federal Government will commit to building 20% of new Federal facilities managers. Also, the Federal Government will commit to building 20% of new Federal facilities using "Cool Communities" concepts. Utilities may adopt this approach as a potential demand-side management strategy, and will enhance the quality of the urban landscape and directly sequester carbon, and should be considered with other forestry options.

IMPLEMENTATION: The Agency will solicit partnership agreements with interested parties. Currently, DOE's Lawrence Berkeley Laboratories (LBL), DOD, USDA-Forest Service, and DOE are already involved. In the first 3-6 months of the program, we will enroll one additional Air Force base and two new Navy and Army bases as "cool" federal facilities to build on the expressed interest at DoD. We will quickly enroll five new cities and reach agreement on program formats and schedules. One training seminar would beheld by the end of the period. We will identify and sign agreements with five utilities and 15 corporations as program participants. In each of the first three years (FY94-96) we will enroll 25 cities and ten federal facilities in the program, hold five regional training seminars and sign participation agreements with 25 utilities and 75 corporate sponsors. The total federal cost over FY 1994 through FY 2000 is projected to be $14 million.

MARKET IMPACTS: The cost of the urban tree planting component of "Cool Communities" is based on average tree planting costs of $48-137/tree, plus 50-year maintenance costs of $15-183/tree. Tree planting in all the scenarios assumes strategic residential tree plantings shading air-conditioned houses and buildings, of which 25% shade low-income houses (to provide equity benefits to low-income neighborhoods). Roughly 15.7 million trees are planted, assuming $100/tree, the program costs $1.57 billion between 1994 and 2000. Federal costs are projected to be $14 million over 1994-2000.

GREENHOUSE GAS REDUCTIONS: This program was modeled together with other home improvement actions. In 2000, this initiative accounts for up to 0.5 MMT of the projected 4 MMT gained in home improvements. Home improvement actions, including "Cool Communities," will result in cumulative savings of 10 MMT in 2010.

TITLE: **Residential Building Standards**

DESCRIPTION: The President is directing DOE to actively assist States in upgrading their residential building standards. Such assistance will include: providing information to State officials about the model code to promote its benefits to new home buyers, developing compliance and educational material, offering training programs for code officials and home builders, supporting advocacy organizations, preparation of model legislation, testifying before State legislative and administrative bodies, and providing grants to States with exemplary programs. EPAct requires States to examine the feasibility of upgrading their residential building standards to meet or exceed the Model Energy Code (MEC) of the Council of American Building Officials (CABO). States are required to report the results of this review to the Secretary of Energy by October 24, 1994.

IMPLEMENTATION: The President has asked DOE to implement this program under the authority of Section 101 of EPACT, which sets forth the requirement that States review their residential standards. Under the Clinton Administration, DOE has been preparing guidelines for States to use in reviewing their residential building codes and in reporting the results of this review to the Secretary of Energy. The President has also directed HUD to promulgate new standards for manufactured housing to include requirements for energy efficiency by Oct. 24, 1993 (authority contained in the Manufactured Home Construction and Safety Standards Act). HUD, with support from DOE, developed proposed standards for manufactured housing that reduces the energy use of new manufactured housing by about 25%. Federal cost is $75 million from FY 1994 through FY 2000. DOE has already requested a $3 million increase in Federal funding in FY 1994 to implement Section 101. An expanded program of support to produce the higher emission reduction costs an additional $12 million annually through 2000, with 80% of the increase going to the States to support expansion of State building code programs.

MARKET IMPACT: The building standards are estimated to stimulate a non-Federal investment of $3 billion in 1994-2000 in energy-efficient and solar residential buildings and materials, including insulation, wood products, masonry materials, and windows. Since the standards are required to be cost-effective, these investments will be more than offset by energy savings. The value of energy savings is estimated to be $5 billion through 2010.

GREENHOUSE GAS REDUCTIONS: This action was modeled with the other residential structural improvements in the President's plan. Together, these actions produce emission reductions of 4.3 MMTC in 2000, and cumulative reduction of 69 MMT by 2010.

TITLE: **Residential Energy Efficiency and Housing Technology Centers**

DESCRIPTION: The President is directing DOE to create Residential Energy Efficiency and Housing Technology Centers, in order to support the participation of U.S. home builders in the reduction of carbon emissions. Homebuilders who build new homes that exceed the standards set forth in the Model Energy Code of the Council of American Building Officials (CABO) and/or apply active and passive solar technologies will receive support, recognition and awards. The action increases builder awareness and acceptance for efficient technologies through: government/ industry education and training programs and training programs in targeted States; cost-shared demonstrations to "showcase" advanced energy efficiency and solar techniques; and consumer-lead education/promotion programs outlining the cost savings to buyers of "exemplary" efficient homes. The President is directing DOE and EPA to help ensure the success of the exemplary homes program. As needed, Federal agencies will assist in overcoming institutional banners related to standards, appraisal, financing, or other areas.

Initially, the President's action supports a number (four to eight) of State pilot projects. Housing Technology Centers -- usually at an existing, related facility -- will coordinate the exemplary housing program. Each pilot project is operated in cooperation with a local host organization. The program emphasizes the key role of home builders in the adoption of new construction technology and builds "win-win" strategies that provide financial awards for home builders who are leaders in responding to this national priority.

IMPLEMENTATION: According to the President's plan, the program will be initiated by DOE and EPA working with the National Association of Home Builders, its research center, and the State Home Builders Associations. The President is directing DOE in FY94 to focus on joint efforts to develop analytical tools for assessing the performance and environmental benefits of the most up-to-date equipment, appliances and building measures in new home construction, and on discussions with home builders and their industry allies on program design. Federal costs are $105 million in FY 1994 through FY 2000.

MARKET IMPACT: The initiative is projected to generate additional investments totaling $3 billion in energy efficient housing in the 1994-2000 period. This investment is a good one: the value of energy savings is estimated to be $9.2 billion cumulative through 2010.

PROJECTED GREENHOUSE GAS REDUCTIONS: The action was modeled with other home improvement initiatives. Together, they produce a reduction of 4.3 MMT in 2000, and 69 MMT cumulative reduction by 2010.

COMMERCIAL SECTOR ENERGY-EFFICIENCY ACTIONS

TITLE: Coordinate DOE Rebuild America and EPA Energy Star Buildings

DESCRIPTION: The President is directing DOE and EPA to coordinate the DOE Rebuild America program and EPA Energy Star Buildings Program -- and is providing resources for their expansion. Working in concert, DOE and EPA will provide the product development, marketing and implementation functions necessary for comprehensive commercial buildings upgrades.

Commercial buildings are complex, dynamic systems made up of numerous components and subsystems. Many past programs have used a fragmented strategy targeted at individual end-uses or technologies and have ignored interactions between systems. DOE and EPA program strategies reflect a comprehensive, whole-building approach to reduce energy use.

IMPLEMENTATION: Partners to the Energy Star Buildings program will (1) survey all their domestic facilities, (2) upgrade their heating, ventilation and air conditioning systems where profitable, and (3) complete upgrades within 7 years.

Rebuild America is a new DOE initiative that incorporates extensive demonstrations, training, education, performance monitoring and cost-shared energy audits. The program will bring to the marketplace expertise developed in DOE advanced commercial buildings and existing buildings efficiency research programs.

The President is directing the Agencies to plan and coordinate the programs and develop initial materials in FY 1994, and launch a full, coordinated program in FY 1995, and has allocated funds for their rapid growth. Highlights of DOE/EPA program implementation:

- Rebuild America: DOE will utilize the 10 regional building efficiency centers established under the Energy Policy Act of 1992. The centers will work with States and regional participants. Training of building owners and managers and retrofit performance monitoring will also take place through the centers.

- Expanded Energy Star Buildings: EPA will use marketing and program implementation resources developed for the Green Lights and baseline Energy Star Buildings Programs to support increased program participation. EPA Ally Programs targeting manufacturers, utilities, distributors, surveyors, and energy service companies will be expanded.

MARKET IMPACTS: The President's action will stimulate $4 billion in private investment in commercial building upgrades between FY 1994 and FY 2000, and lead to a cumulative fuel savings of $10 billion through 2010. These figures are based on the assumption that 6 percent of commercial buildings will participate, with savings of 35 percent in heating and cooling energy use. The programs will help companies reduce their overhead and become more productive, and will stimulate the introduction of more advanced commercial technologies.

GREENHOUSE GAS REDUCTIONS: This action is expected to reduce carbon emissions by 3.1 MMT in 2000 and by a cumulative 39 MMT through 2010.

TITLE: **Expand EPA's "Green Lights" Program**

DESCRIPTION: The President is providing resources to EPA for several new or significantly expanded Green Lights initiatives designed to capture hard-to-reach portions of the commercial lighting market and generally increase the availability of energy-efficient lighting products. EPA Green Lights was launched in January 1991, and currently has over 1,000 participants. The President's expanded Green Lights effort will include: Non-Profit Marketing support to increase participation by universities and health-care facilities; Small Companies marketing and implementation; a Super Ally Program to include 10 new utilities; "Assist" organizations' education effort expanded to 5 more regional groups; and Distributor Ally Program support to benefit non-participants; as well as increased technical support.

IMPLEMENTATION: All Green Lights participants ("Partners") sign a Memorandum of Understanding (MOU) with EPA agreeing to (1) survey all their domestic facilities, (2) upgrade their lighting where profitable and (3) complete their lighting upgrades within 5 years. EPA supports its Partners with a package of tools designed to ensure that lighting upgrades will result in the greatest possible energy savings and the highest possible return on investment. A team of lighting experts provides Green Lights Partners with technical support and problem-solving advice through a technical hotline, comprehensive manual, regional training workshops, up-to-date literature and on-site implementation visits. Additionally, the Green Lights "Allies" programs for lighting manufacturers, lighting management companies, and electric utilities would extend the Green Lights partnership by enlisting the support of the lighting and power industries.

In the coming months the President's new Green Lights program will launch several initiatives, including Energy Star Region in the Washington/Baltimore area and the Living Landmarks program to increase the visibility of the Green Lights program and encourage the use of energy-efficient lighting by the general public. In FY 1995, the President is providing additional resources to expand rapidly Green Lights marketing and implementation -- targeting non-profit organizations, small companies, electric utilities and lighting equipment distributors.

The Federal cost of the initiative for FY 1994-2000 is estimated at $98 million.

MARKET IMPACTS: This action will stimulate $3 billion in private investment in energy-efficient lighting between 1994 and 2000, leading to energy savings of $10 billion through 2010. Efficient lighting systems save up to 65 percent over conventional systems. Green Lights promotes installation of efficient lighting in up to 16 billion square feet at a cost of $.50 to $2.00 per square foot. The program lowers overhead costs for participants, and stimulates the market for new, energy-efficient lighting products.

GREENHOUSE GAS REDUCTIONS: This action will reduce carbon emissions by 2.5 MMT in 2000 with a cumulative 30 MMT cumulative by 2010.

TITLE: **State Revolving Fund for Public Buildings**

DESCRIPTION: The President is directing DOE to provide States with $10 million per year over five years to design and implement energy management programs for State and local public buildings. The program will expand upon a requirement of Section 141 of Energy Policy Act of 1992, which authorizes DOE to establish a State Buildings Energy Incentive Fund.

State and local government facilities represent an attractive target of opportunity for highly cost-effective energy savings. The investment can be highly leveraged since the Federal capitalization grants would be loaned, repaid out of savings from decreased energy usage, and loaned out again. State and local government leadership may also stimulate private sector investments in energy efficiency.

IMPLEMENTATION: Several States have already established revolving funds for energy management projects for existing buildings and under the Clinton Administration, DOE has been developing rules and guidelines governing the use of funds for a nationwide program.

The President is directing DOE do the following in 1995:

- o Gather information from States that have recently initiated revolving funds for efficiency improvements in state and local buildings;
- o Develop technical information to aid States in evaluating energy efficient retrofit opportunities;
- o Work with States to develop methods and criteria for selection of the 8-9 states for initial funding;
- o Develop a formal DOE evaluation process to assess the performance of the national revolving fund program. The data will be used both to interest States in raising their commitment to the program and to provide quality information on the performance of energy efficient retrofit technologies.

Federal costs for FY 1994-2000 are estimated to be $50 million ($10 million per year for five years).

MARKET IMPACTS: This action will stimulate $4 billion in State and local government investment between FY 1994 and 2000, leading to energy savings of $9 billion through FY 2010. DOE projects that 15% of State and local buildings will be affected by 2000, with energy savings averaging 20% for all end-uses.

GREENHOUSE GAS REDUCTIONS:

This action will reduce carbon emissions by 1 MMT in 2000 and 17 MMT through 2010. The initiative contributes to the overall 10.8 MMT reduction in 2000 from the commercial sector.

TITLE: **Expand Cost-Shared Demonstrations of Emerging Technologies**

DESCRIPTION: The President is directing DOE to promote the field validation of emerging energy technologies in the commercial sector through a series of cost-shared demonstrations. These demonstrations will be full-scale applications of new technologies or practices in Federal, State and local government or private buildings. On the customer side, they will help to overcome the lack of confidence in emerging energy efficiency and renewable energy technologies that is a major barrier to these technologies' acceptance into the market place. On the manufacturers, side field experience with emerging technologies and practices, increases familiarity, lowers perceived risk and accelerates commercialization.

IMPLEMENTATION: DOE is soliciting proposals to demonstrate technologies that are nearly commercial. Proposals will be evaluated on the basis of technical merit, level of co-funding by manufacturers and host agencies, State and local government involvement, and proposed information dissemination.

As directed by the President, program activities for FY 1994 include:

- o Identification of emerging energy technologies meeting the needs of specific industries and regions; and complementary non-hardware innovations for co-demonstration (e.g., innovative financing arrangements);
- o Solicitations of proposals from private- or public-sector organizations who would act either as hosts or contributors for the demonstration;

Demonstrations involve the following activity:

- o Installation of the new technologies with significant cost sharing from the host organizations and other partners;
- o Monitoring and evaluation of the performance of the technologies;
- o Facilitation of first-hand observation of the demonstration by potential investors, users, manufacturers and others; and
- o Dissemination of evaluation results through the partners, industry associations, State governments and the DOE field network.

The Federal costs to implement the program are estimated at $50 million between FY 1994 and FY 2000.

MARKET IMPACTS: Market deployment would be accelerated due to the cost-shared demonstration and R&D. The initiative leads to $5 billion in private sector investment through 2000; and the projected energy savings would be $3.4 billion through 2010.

GREENHOUSE GAS REDUCTIONS: This initiative was modeled together with the National Energy Education and Training Program. These two actions jointly produce emissions reductions of 5.1 MMT in 2000, and cumulative reductions of 68.0 MMT through 2010.

TITLE: **National Efficiency Energy Education and Training Program**

DESCRIPTION: The President is directing that DOE establish a program to stimulate the use of energy efficient technologies and practices in the building industry by improving the dissemination of current technical information. This comprehensive national initiative will provide education and training for designers, builders, code officials, business managers, the financial community, and others who may not have a complete understanding of state-of-the-art energy efficient technologies and practices and how they can reduce the cost of doing business.

This broad-based education initiative, which will complement DOE's commercial demonstration and information program, will: (1) provide training programs at the national and State level, (2) develop training and informational materials, (3) initiate a series of design competitions to promote the use of energy efficient design practices and technologies, (4) work with industry representatives to design a certification process to encourage facilities managers to adopt efficient building maintenance and operation practices, and (5) establish a project on savings available through improved commissioning practices.

IMPLEMENTATION: The President's initiative builds upon elements of DOE's advanced commercial building program, which is developing computer-based design tools to help architects and engineers incorporate energy efficient and renewable technologies and designs in new buildings. The program will also be coordinated with the State Energy Conservation Program (SECP). SECP provides grants to States that can be used to fund education and training programs. Federal cost is estimated at $25 million between FY 1994 and FY 2000 to implement this initiative.

MARKET IMPACTS: The program will lead to private sector investment of $7 billion from 1994-2000; and will save $13 billion through the year 2010.

GREENHOUSE GAS REDUCTIONS: This initiative was modeled together with the commercial demonstration and information programs. Together, these actions produce emissions reductions of 5.1 MMT of carbon in 2000, and cumulative reductions of 68 MMT of carbon through 2010.

TITLE: **Establish an Energy Efficiency and Renewable Energy Information Program**

DESCRIPTION: The President is directing DOE to establish a national information program to disseminate accurate, useful information on energy efficiency and renewable energy options to facility managers, homeowners, architects, engineers and others. This program builds on the activities of the regional building efficiency centers that are being established under the Energy Policy Act of 1992.

IMPLEMENTATION: DOE will leverage the program by working with a variety of groups, such as the National Advertising Council, industry associations, State energy offices, technology manufacturers, and public interest groups. DOE has pre-existing agreements and working relationships with many of these organizations, as well as an effective field structure reaching into every State.

The President is directing DOE to take the following actions in 1994:

- Develop a strategy to provide information to key players in the commercial building sector;
- Identify related information activities both within and outside the Federal government and potential co-sponsors for the program;
- Collect and package information customized for each targeted group;
- Initiate a media campaign to promote energy efficiency and renewables;
- Make available through the centers the materials developed for architects, engineers and facility managers in the energy efficiency education and training program.

The FY 1994-2000 Federal cost of the new initiative is estimated to be $12 million.

MARKET IMPACTS: DOE estimates that by 2010, eight percent of existing buildings will be affected by this action. Average energy savings of 15 percent are projected in existing buildings for investments made prior to 2000. Energy savings are projected to total $3.4 billion through 2010. The private investment impact is estimated to be $1.8 billion over the FY 1994 to FY 2000 period (undiscounted cumulative 1991 dollars).

GREENHOUSE GAS REDUCTIONS: This initiative was modeled together with the commercial demonstration and information programs. Together, these two actions produce emissions reductions of 5 MMT in 2000 and cumulative reductions of 68 MMT through 2010.

INDUSTRIAL SECTOR ENERGY-EFFICIENCY ACTIONS

TITLE: **Motor Challenge Program, with Enhanced Testing & Labeling**

DESCRIPTION: The President is directing DOE and EPA to create a Motor Challenge to reduce greenhouse gas emissions through increased market penetration of efficient electrical motor systems. The President is directing DOE to complement the Motor Challenge program with enhanced testing and labeling of motors, to provide more reliable information for prospective buyers. The Motor Challenge program is an industry-driven collaborative program that will stimulate the adoption of energy-efficient electric motor systems (EMS). Increased EMS efficiency will be achieved through the system integration of a variety of technology and application options including: energy efficient motors, adjustable speed drives, and efficient motor-driven equipment (e.g., pumps, fans, compressors). The President's Motor Challenge program also includes motor repair and rewinding, and power quality.

IMPLEMENTATION: Under the President's plan, DOE and EPA assist U.S. industry to develop and implement activities within the Motor Challenge program. Implementation will involve pilot Showcase Demonstrations, a National EMS Account, and a Motor Challenge partnership initiative. In FY 94, the President directs DOE to select a series of 25 Showcase demonstration projects. Other steps include development of a test protocol, issuance of a Request for Proposal (RFP) and selection of 25 projects, and monitoring of the implementation of these projects. Under the President's timeline, the outreach phase of the program begins in FY 1996. The budget is estimated at $31 million for this program over FY 1994 through FY 2000.

MARKET IMPACTS: Industry cost-share investment is expected to be approximately $4 billion through 2000. Investment costs are shared by industrial end-users and utility demand-side management programs. The investment is expected to return $22 billion in energy savings through 2000. The Motor Challenge will lower overhead in participating businesses and accelerate the introduction of advanced efficiency motors.

PROJECTED GREENHOUSE EMISSIONS REDUCTIONS: The two actions, Motor Challenge and Testing/Labeling together produce emissions reductions of 9.1 MMT of carbon in 2000 and cumulative reductions of 138 MMT of carbon through 2010.

TITLE: **"Golden Carrot" Programs for Industrial Air Compressors, Pumps, Fans and Drives**

DESCRIPTION: The President is directing DOE to work with other Agencies and business to create "Golden Carrot" programs, which use pooled financial incentives to promote commercialization of advanced efficiency measures, for air compressors, fans and pumps, as well as other types of process equipment. The greatest potential for improved energy efficiency is found in pulp and paper, textiles, chemicals, petrochemical, and food processing industries, which use over 50% of the process energy consumed by industry. The President's "Golden Carrot" initiative will remove barriers to the commercialization and use of high efficiency air compressors, pumps, fans and drives; through the following:

- o A Department of Energy (DOE) sponsored study that quantifies the efficiency gains that could be made through the development and commercialization of advanced high efficiency air compressors, pumps and fans, and to identify other types of process equipment when cost effective efficiency gains can be achieved.

- o A joint utility/industrial/government energy user non-profit effort to establish common utility specifications and financial incentives to promote the commercialization of advanced high efficiency equipment. These efforts ensure that utilities develop uniform specifications for high efficiency equipment purchases and provide incentives for their use.

- o A utility-led effort to develop "winner take all" contests to promote development of advanced technologies, and the commitment to deliver these technologies, within utility service districts.

- o A private sector "pooled" purchasing project to enable industrial energy users to make large purchases of high efficiency industrial equipment.

IMPLEMENTATION: No additional authorization is required. The Federal budget is estimated to be $14 million over FY 1994 through FY 2000 for the federal cost of the entire program.

MARKET IMPACT: Private sector investment in the FY 1994 through FY 2000 period is expected to be $183 million.

PROJECTED GREENHOUSE EMISSION REDUCTIONS: This program was modeled together with Accelerated Adoption of Energy Efficient Process Technologies. The two actions jointly produce emissions reductions of 1.7 MMT of carbon in 2000 and cumulative reductions of 29 MMT of carbon through 2010.

TITLE: **Accelerate Source Reduction, Pollution Prevention and Recycling**

DESCRIPTION: The President is directing EPA, USDA and DOE to promote source reduction, pollution prevention and recycling of paper and other municipal solid waste (MSW) to reduce greenhouse gas emissions. Source reduction and recycling lead to increased carbon sequestration in forests and reduced energy use in extraction and processing of virgin materials. Steel and aluminum have the greatest energy savings per unit recycled. Recycled plastics and newsprint also provide significant energy savings. The President's strategy includes:

- **Expanded Federal Partnership Programs (EPA):**
  - **Source Reduction**: unit pricing; provide incentives and education to practice source reduction; stimulate markets to encourage use of longer life, reparable goods.
  - **Recycling** "buy recycled" programs; information clearinghouses; government loan guarantees for use of secondary materials; technical assistance to State/local governments to improve quality of recycled materials.
- **Expand Paper Recycling Technology Research (USDA Forest Service)** Priorities include research on recycling solid wood and composites and on recycling paper and paperboard to increase the number of times products can be recycled.
- **Expand NICE^3 Industrial Pollution Prevention Grants Program (DOE, EPA)** The National Competitiveness through Energy, Environment, and Economics (NICE^3) is a joint DOE/EPA program that provides grants to diffuse existing technologies, to prevent pollution, and to improve energy efficiency. The President's program targets the addition of new processes and/or equipment. This will reduce high-volume wastes in industry, conserve energy and energy-intensive feedstocks, and improve industrial cost-competitiveness.

IMPLEMENTATION: The President is directing at DOE, EPA, and USDA to allocate additional resources to improve current programs. The Federal budget is estimated to be $25 million for the of program expansions over FY 1994 through FY 2000.

MARKET IMPACT: Expansion of the partnership programs is expected to save 97 trillion Btus of fossil-generated electricity by 2000, with an additional 6 trillion Btu savings from the paper recycling research program and 16 trillion Btu savings from the expansion of the NICE3 grants program. Stimulating source reduction and recycling will cut greenhouse gases, save money, reduce the need for natural resource extraction and help alleviate disposal problems.

PROJECTED GREENHOUSE EMISSIONS REDUCTIONS: This action will produce emissions reductions of 4 MMT of carbon in 2000 and cumulative reductions of 81 MMT of carbon through 2010.

TITLE: **Expand and Enhance Energy And Diagnostic Centers**

DESCRIPTION: The President is directing DOE to significantly increase the number of EAD Centers across the U.S., and to improve the implementation rates of recommended cost-effective energy efficiency improvements at EADC client facilities. EADC's are university-based programs that offer free energy audits and technical recommendations to small and medium-sized firms by engineering faculty and students who gain real-world experience in technical evaluation and project implementation. Under an aggressive expansion of the EADC program, the number of audits conducted annually will increase from 700 to over 2000 per year by the year 2010. The President is directing DOE to provide a range of implementation support services not now included in the existing EADC program. Additional EADC program enhancements include: (a) "tie-ins" to utility industrial DSM programs and State energy conservation program incentives, (b) life-cycle analysis to consider conservation opportunities beyond the typical 2-year payback cutoff, (c) best practice profiles offering annual recognition and awards to model industries, and (d) outside process consultants to support consideration of frontier technologies within the EADC process.

IMPLEMENTATION: The President is directing DOE to build on the existing EADC program. Under the new initiative, six new EADC centers will be added by FY95; some existing programs will be restructured and a best practice program component will be established that is tailored to small- and medium-size industries. The President's program also includes best practice profiles and the offers of annual recognition awards to model industries. The Federal budget is expected to be $31 million over FY 1994 through FY 2000 for the expansion of this program.

MARKET IMPACT: Private sector investment in the FY 1994 through FY 2000 period is expected to be $150 million; over $1 billion will accrue in reduced energy bills by 2010.

PROJECTED GREENHOUSE EMISSIONS REDUCTIONS: This action will produce emissions reductions of 0.6 MMT of carbon in 2000 and cumulative reductions of 10.0 MMT of carbon through 2010.

TITLE: **Accelerated Adoption of Energy Efficient Process Technologies**

DESCRIPTION: The President is directing DOE and EPA to step up Federal efforts to remove barriers and speed the adoption of energy efficient industrial process technologies, including both fossil-fueled and electro-technologies. The President's action creates opportunities for switching from high carbon fuels to lower carbon fuels, such as natural gas. The action targets energy-intensive process industries such as petroleum refining, chemicals, pulp and paper, primary metals, waste treatment, and food processing.

The President is directing the DOE/EPA to begin initiatives that include:

- o Information dissemination/education and training -- establishing technology dissemination networks by leveraging existing industries at DOE, NIST, EPRI and DOD, and electric/gas utilities; conducting seminars, workshops and creating certification programs.

- o Targeted R&D - The Agencies are directed to target R&D specifically toward reducing technical or economic barriers to commercialization of advanced process technologies.

IMPLEMENTATION: Use of incentives and existing relationships to establish the program. The Federal budget is estimated to be $21.5 million for Federal capital outlays for 1994-2000.

MARKET IMPACT: Investment by industry in the 1994-2000 period is estimated to be $180 million; this sum is recouped through savings due to reduced energy usage of $2 billion through 2010. This initiative will add to the energy efficiency of targeted process technologies by 9 percent by 2000 and by 13 percent by 2010.

PROJECTED GREENHOUSE EMISSION REDUCTIONS: This program was modeled together with Industrial Golden Carrots. The two actions jointly produce emissions reductions of 1.7 MMT of carbon in 2000 and cumulative reductions of 29 MMT of carbon through 2010.

Title: Climate-Wise Companies

DESCRIPTION: The President is directing EPA and DOE to create Climate-Wise Companies, a partnership program to encourage U.S. industry to take advantage of the environmental and economic benefits associated with energy efficiency improvements and greenhouse gas emission reductions. Through this program, EPA and DOE will work with industry representatives, and other eligible participants, to set and achieve meaningful greenhouse gas emission reduction goals. Organizations which meet these goals will be recognized with a seal of responsible environmental stewardship. By establishing meaningful and credible performance goals, providing technical assistance, and publicly recognizing significant voluntary achievements, the Federal government serves as a catalyst for environmental action and innovation.

The President is directing that the design and development of the Climate-Wise program reflect broad public input. Program benefits will be evaluated annually through external peer review. Climate-Wise complements other energy-efficiency partnership programs, but also encourages innovation and emission reductions beyond the scope of these programs. Many current programs encourage specific technological changes (e.g., installing high efficiency lighting, building heating and cooling systems, and motors). Climate-Wise leaves to individual organizations the choice of how best to reduce greenhouse gas emissions, encompassing behavioral/process changes as well as technological advances. The program also recognizes greenhouse gas emission reductions from non-energy related activities such as raw materials substitutions and carbon sequestration. Participation in the program is open to all sectors of the economy.

IMPLEMENTATION: DOE and EPA; Voluntary emission reduction reporting database established under Energy Policy Act, Section 1605(b) provides mechanism for tracking emission reductions. Climate-Wise creates an incentive for participation in the voluntary reporting program by providing an opportunity for participants to receive public recognition. Climate-Wise also provides a vehicle for reporting entities to demonstrate reduction achievements. The President is directing that for FY 94, the planning and outreach phase, the Agencies will develop informational materials for a range of target audiences; technical assistance materials; conduct informational meetings via State/EPA/DOE partnerships and outreach to trade association meetings, conferences, workshops and other events. The President calls for active solicitation and recognition efforts to begin in FY 95. Federal budget is estimated to be $56 million over FY 1994 through FY 2000 for this program.

PROJECTED GREENHOUSE EMISSIONS REDUCTIONS: This action is modeled with the other industrial demand options, which together will produce 19 MMT carbon reductions in 2000, and 308 MMT through 2010.

TRANSPORTATION ACTIONS

TITLE: **Parking Reform - Cash Out Federal Tax Subsidy for Employer-Provided Parking**

DESCRIPTION: The President is transforming an existing tax subsidy narrowly targeted at employer-provided parking into a powerful reward for commuters to ride transit, carpool, or find other ways to get to work. Employees given free parking at work will have the option of retaining the parking space, or accepting a cash allowance equal to the market cost of the parking space. The cash reward will be considered taxable income. Those who opt for the parking space will be unaffected by the change. Whether the employee opts for the parking or the cash reward, the company can still deduct the cost from corporate income tax.

IMPLEMENTATION: The President will shortly propose changes in the tax law necessary to bring about parking subsidy reform, and will work with Congress to ensure speedy passage. The change will require employers who offer tax-exempt parking to their employees to offer also the choice of a cash payment. Employees will be able to take this payment in the form of a tax-free transit pass. The President's proposal will include a phase-in period to avoid creating hardships for business. The Treasury Department, EPA, and DOT will cooperate in implementing the change to maximize environmental benefits without imposing new costs on employers. Finally, EPA will ask the national organizations of local planners, real estate developers, environmentalists and transit agencies to work together to recommend revisions to local zoning and parking regulations in response to the change in federal policy.

MARKET IMPACT: Parking subsidy reform will raise the disposable income of employees while reducing the need to construct new parking facilities in urban areas and increasing the use of mass transit, carpool lanes, and other travel alternatives. Parking subsidy reform will alleviate traffic congestions during week-day rush hour, perhaps reducing the need for some new highway expenditures. Finally, the tax code change will bring in new revenues from employees who chose not to take a parking space will take the benefits in the form of taxable income.

PROJECTED GREENHOUSE GAS REDUCTIONS: This action is expected to produce a net emissions reductions of 8.5 MMTCE in 2000.

TITLE: **Transportation System Efficiency Strategy**

DESCRIPTION: The President is directing EPA and DOT to encourage more efficient use of urban transportation infrastructure and air quality resources by spreading demand management and other effective strategies in the transportation sector. EPA will shortly promulgate the Clean Air Act Transportation Conformity Rule to ensure that transportation infrastructure spending is consistent with states' clean air plans. EPA and DOT will aggressively advocate the use of innovative strategies - such as market mechanisms to encourage people to drive less, parking charges, emissions-based fees, advanced accelerated vehicle scrappage, and transit subsidies - as emissions control measure for Clean Air Act purposes. A Travel Model Improvement Program will improve the quality of analysis so that state and local officials can make smarter transportation spending decisions and Alternative Transportation Futures projects, cooperative demonstrations between governmental and industry, foster innovations such as telecommuting and small-scale transit. DOT will reevaluate the $1 billion per year Congestion Mitigation and Air Quality (CMAQ) fund to ensure that it fosters demand management and travel alternatives that contribute to long-run air quality and greenhouse goals. DOT and EPA will investigate the impact of transportation finance on ar quality, greenhouse gas emissions and other environmental issues, and recommend reforms in how American pay for their roads, trains, and other publicly provided transportation infrastructure.

IMPLEMENTATION: Action begins with promulgation of the Transportation Conformity rule in October, 1993. The President will direct EPA and DOT to use informational conferences, technical documents and on-line assistance to smooth the transition for state and local transportation and air quality officials and to empower environmental, business, and citizen's groups to participate in local transportation decision making. In 1994, the President will ask the EPA to issue the first of a series of technical guidances describing how states can take credit for market-based transportation measures in their clean air plans, and direct EPA and DOT to launch the first Alternative Transportation Futures projects, focusing on telecommuting, within a year. DOT and EPA will expedite review of the CMAQ program to ensure that, if necessary, changes will be implemented for FY 1995. Federal expenditures on this action are projected to be $15 million per year between 1994 and 2000.

MARKET IMPACT: The Transportation System Efficiency Strategy will broaden the arsenal of strategies available to states seeking to meet the joint challenges of clean air and urban mobility. These actions will reduce the cost to business and individuals of attaining clean air and offer states alternatives to massive highway expansion for congestion relief. New technologies, such as virtual office, telecommuting devices, smart cars and transit vehicles, and advanced traveller information systems will be encouraged.

PROJECTED GREENHOUSE GAS REDUCTIONS: This action is expected to produce a net emissions reductions of 6.0 MMTCE in 2000.

TITLE: **Develop Fuel Economy Labels for Tires**

DESCRIPTION: The President is directing DOT to increase vehicle fuel economy by establishing tire labels in the replacement market based on a measure of their impacts on vehicle fuel economy (due to rolling resistance). It encourages both consumers and businesses to purchase, and manufacturers to produce, more fuel-efficient tires to meet the labeling requirements. An efficient tire increases fuel economy by 4 percent over an average replacement tire. There is no significant interaction with other programs.

IMPLEMENTATION: The President is directing DOT, through the National Highway Safety Administration to adopt test procedures and new DOT rules requiring tire manufacturers to test and label. DOT will also create a consumer-focused publicity program and a monitoring program in order to realize maximum benefits. There are no new Federal funding requirements necessary to implement the tire labeling program.

MARKET IMPACT: This program is expected to result in the purchase of 30 million additional fuel efficient tires (out of a total replacement market of about 150 units) at an average cost of $20 per tire, for an added investment of $2 billion. This action is expected to displace 20 - 50 MMBD of oil in 2000 and 20 - 50 MMBD in 2010. The value of energy savings through 2010 is expected to be $15 billion.

PROJECTED GREENHOUSE GAS REDUCTIONS: This action is expected to produce a net emissions reductions of 2 MMT in 2000, and 25 MMT net cumulative reduction by 2010.

TITLE: Greater Use of Telecommuting

Description: The President is directing EPA and DOT to promote home based or satellite based telecommuting to provide direct reductions in commute travel. A recent study by the Department of Transportation estimates that home-based telecommuting will increase by as much as five fold by the year 2000. Current trends toward telecommuting are likely to save 1.5 billion gallons of motor fuel and 3.5 million metric tons of Carbon equivalent in 2000. The President's plan will stimulate greater growth through additional incentives for employers and employees. The recently released National Performance Review encourages greater use of telecommuting to make the federal workplace more efficient, and has recommended implementation of telecommuting to make the federal workplace more efficient, and has recommended implementation of telecommuting pilot projects for a number of federal agencies. In conjunction with implementation of telecommuting projects within federal agencies, this action proposes a combination of actions that may lead to modest increases in telecommuting. The President is directing the following:

- o EPA to issue guidance for States to take pro-telecommuting measures, such as:
  - remove local zoning ordinances that prohibit telecommuting.
  - give employers extra credit under trip reduction ordinances.
  - business tax incentives.
  - implement telecommuting programs for State and local employees.

- o DOT to encourage States to use discretionary ISTEA funds to initiate or expand telecommuting programs and assist in establishing local pilot programs.

- o Implement a federal telecommuting pilot project with the goal of getting one to two percent of federal employees to work at home at least one day per week.

- o Develop a national "work-at-home" campaign to promote part-time, home-based telecommuting to reduce traffic congestion and promote energy conservation for national security purposes.

IMPLEMENTATION: Required regulatory actions: SIP guidance must be issued by EPA in order to implement suggested State measures. A federal work-at-home program may require changes in current regulations. It is expected that most Federal costs will be covered with existing programs.

PROJECTED GREENHOUSE GAS REDUCTIONS: This action is expected to produce a net emissions reductions of 0.2 MMTCE in 2000.

ENERGY SUPPLY ACTIONS

TITLE: **Expand the Integrated Resource Planning Program**

DESCRIPTION: The President is directing DOE, through its Integrated Resource Planning Program and EPA, through its climate programs to provide informational, technical, and financial support to State Regulatory Commissions, and public and private utilities to promote consideration of actions which reduce greenhouse gas emissions. The expanded IRP program includes both supply and demand facets. The President's plan includes: removing barriers to increased use of natural gas; investments in efficiency measures in generation, transmission and distribution of power; actions to make cost-effective utility investments in energy efficiency and conservation as profitable as supply-side investments; demand side management (DSM) for electric and natural gas utilities; rate design reform; and least-cost Clean Air Act compliance.

IMPLEMENTATION: The President is expanding the mission and budget of DOE's IRP program, under its current authority. DOE's IRP program will coordinate with the EPA and other Federal agencies in the development and provision of relevant technical and financial assistance to the States.

The President is directing the Department of Energy revise its current IRP Program Plan over the next 3 to 6 months, to incorporate additional efforts to facilitate implementation of utility energy conservation and efficiency activities that also achieve greenhouse gas emission reductions. In fiscal years 1994 and 1995, the President is asking the Department to provide technical, training, and financial assistance to State commissions and utilities to facilitate adoption of measures that increase the efficiency of electricity and natural gas production, transmission and end use.

The Federal IRP budget under the proposed expanded IRP increases above the current FY 1994 request of $6.8 million by $3 million in FY 1994, and $6 million annually from 1995 to 2000.

MARKET IMPACT: Electricity demand is expected to be reduced by 5 billion kilowatt-hours. This program, which also leverages other initiatives, supports regulatory practices favored by the recent Energy Policy Act.

PROJECTED EMISSIONS REDUCTION: This initiative has projected emissions reductions of 1.3 MMT of carbon by 2000 and cumulative reductions of 16.0 MMT of carbon by 2010.

TITLE: **Promote of Seasonal Gas Use for Control of Nitrous Oxides (NO_x)**

DESCRIPTION: The President is committed to promote aggressively the summer use of natural gas in utility coal and oil plants and in industrial facilities as an innovative, low-cost NO_x reduction strategy. This action, which reduces NO_x emissions that contribute to smog formation during summer months, also reduces carbon emissions through substitution towards low-carbon fuel.

Under the Clinton Administration, EPA is promoting Economic Incentive Program (EIP) strategies that allow and encourage seasonal gas use. EPA has issued a guidance document describing how States may use an EIP to meet NOx reasonably available control technology (RACT) requirements. The EIP rules encourage the adoption of incentive-based, innovative programs that help States meet air quality goals through flexible approaches which allow for less costly control strategies and provide stronger incentives for the development and implementation of innovative emission reduction technologies. The Administration generally encourages the development of incentive-based strategies.

IMPLEMENTATION: EPA; Title I, Clean Air Act.
Administrative action is tied to rules and guidance issued in response to NO_x RACT requirements, the Economic Incentive Program, and State Implementation Plans related to National Ambient Air Quality Standards attainment under Title I of the Clean Air Act. There is a savings relative to NO_x/ozone control strategies, making this a low- or no-cost CO_2 reduction measure.

MARKET IMPACT: The emissions reduction estimate assumes that seasonal gas use (and other gas-related, fuel-neutral, and market-oriented actions) coupled with an intra- or inter-utility trading program are adopted in several non-attainment areas, such as the Northeast Transport Region, Atlanta, Houston, and Chicago-Milwaukee, as part of a Clean Air Act compliance strategy. Approximately 3% of utility coal boilers nationwide were assumed to adopt a seasonal gas burn strategy and/or other gas-related compliance actions. Participating facilities will avoid large investments in equipment needed to meet RACT standards without fuel switching.

GREENHOUSE GAS REDUCTIONS: This initiative has projected emissions reduction of 1.0 MMT in 2000 and cumulative reductions of 19.0 MMT by 2010.

TITLE: **Federal Electric Power Reforms**

DESCRIPTION: The Federal government generates roughly eight percent of the country's electric power at dams built and operated by the U.S. Army Corps of Engineers and the Interior Department's Bureau of Reclamation. That power is sold to the public by the Department of Energy's power marketing administrations.

The Vice President's National Performance Review recommends five changes, described under "Implementation" below, which will affect those organizations, their finances, and the prices they charge for the power. These changes will created incentives for energy conservation, reduce the need to construct additional power plants, and decrease the future level of greenhouse gas emissions.

IMPLEMENTATION: The NPR recommends the following policy changes: a) Four power marketing administrations -- Bonneville, Western, Southwestern, and Southeastern -- will raise the prices they charge for Federal hydropower to cover a larger proportion of the cost of producing that power. (b) DOE will restructure the debt Bonneville Power owes the Federal government. (c) The Administration will support legislation allowing utilities buying power from the PMAs to resell the power they save through energy conservation efforts. In addition In addition (d) the Administration encourages Congress to remove the prohibition against expending federal funds to study market rates for pricing Federal power and (e) the Alaska Power Administration will be turned over to the State of Alaska. These policies will bring increased receipts totalling over $2.4 billion from FY 1994-2000.

MARKET IMPACT: Higher prices for Federal power will create incentives for energy conservation in the homes, businesses, and other entities which buy the power. This conservation in turn would reduce the need for investment in new electric generating plants.

PROJECTED GREENHOUSE GAS REDUCTIONS: This action is expected to produce a net emissions reduction of 0.7 MMTC in 2000, and 0.7 MMTC net cumulative reduction by 2010.

TITLE: Demonstration and Commercialization of Fuel Cells

DESCRIPTION: The President is directing DOE to provide cost sharing for a portion of the cost of fuel cells each year during 1995-97. DOE will provide one third of the rebate funds, with an anticipated payback of funding from royalties on future sales.

The President is directing DOE to initiate a second round of demonstrations for advanced fuel cells, which is anticipated to cause market entry of the advanced fuel cells. This portion of the initiative will be co-funded with the private sector, with DOE providing one-third of the cost of demonstrations.

Fuel cells are an ultra-high efficiency and environmentally benign method of producing electricity and by-product thermal energy. This technology is a means of converting the chemical energy of fuel directly into electrical energy without a combustion process.

IMPLEMENTATION: The market entry initiative and demonstrations will be jointly funded by DOE, AGA, GRI, EPRI, technology developers, utilities and others. Federal costs are estimated to be $22 million between FY 1994 and FY 2000.

MARKET IMPACT: The initiative leads to $180 million in private investment; the value of energy savings is expected to be $2 billion through 2010.

GREENHOUSE GAS REDUCTIONS: This initiative has projected emissions reductions of 0.4 MMT in 2000 and cumulative reductions of 29 MMT by 2010.

TITLE: Renewable Energy Market Mobilization Collaborative

DESCRIPTION: The President has directed DOE to form a collaborative to accelerate market acceptance of renewable technologies and applications. DOE will fund a utility/independent power producer consortium to pool purchases of small, nearly commercial renewable systems. This effort will increase the production efficiency of these technologies because of improved economies of scale and will send positive market signals, attracting capital to renewable technologies manufacturers. DOE will also partner with the consortium and States for cost-shared demonstrations of larger systems that are not yet economically viable.

IMPLEMENTATION: DOE is actively building support for each of the consortia under the Clinton Administration using existing authority. The initiative meets the consortia expectations and stimulates sustainable investment in these important technologies: for wind, the Department of Energy/Electric Power Research Institute/Utility consortium phase one solicitation is in final review with responses from more than 20 utilities/industry partners. Funds can be used immediately and be awarded by the end of December to support the highest quality partners in cost shared field validations of commercial prototype wind turbines. For photovoltaics, a non-profit consortia formed by Edison Electric Institute, American Public Power and National Rural Cooperative consists of 67 utilities. The start-up has been funded and proposal for field demonstrations of new technologies is expected by September 30, 1993. For biomass power, over twenty project developer/utility customer/advanced biomass hardware suppliers partnerships have been formed. Feasibility work is in final stages. Negotiations to proceed with joint-venture cost shared projects could start as early as October 1993. The number of partnerships supported each year is dependent on the final funding plan. For geothermal, a consortium of geothermal developers and utilities has been established for cost-share exploration and development. Plans have been initiated to issue a competitive solicitation in January 1994, to cost-share industry drilling and exploration corehole programs to expand the geothermal reserves available for production of electricity. The President is directing DOE to allocate additional funds to allow for an accelerated program, with wider anticipation of those companies with a large inventory of undeveloped sites. Several companies have shown interest, and other companies are expected to cost-share in later years. The Federal costs to implement this initiative is estimated to be $432 million between FY 1994 and FY 2000. Additionally a $423 million decrease in tax revenues results from increased use of the Renewable Energy Production Incentives tax credit.

MARKET IMPACT: Non-Federal private cost sharing expected to be $50 million for the period 1994-2000. The value of energy savings is expected to be $300 billion, cumulative through 2010.

GREENHOUSE GAS REDUCTIONS: This initiative has project emissions reductions of 0.7 MMT of carbon in 2000 and cumulative reductions 128 MMT of carbon through 2010.

TITLE: Retain and Improve Hydro Generation at Existing Dams

DESCRIPTION: The President's strategy is a two-fold initiative to remove barriers for the use of environmentally sound hydroelectric generation. The Federal Energy Regulatory Commission (FERC), in conjunction with other interested agencies, can act to remove regulatory barriers to low-impact, non-Federal hydroelectric development at existing dams. At the same time, the Administration will remove regulatory barriers to private funding of generation improvements at existing Federal water facilities. The Department of Energy will review all Federal water facilities to identify opportunities to economically improve hydro generation. The Bureau of Reclamation and the Corps of Engineers will continue to conduct feasibility studies, but instead of asking Congress for appropriations to make generation improvements, they will request private sector bids for the lease of the development rights. This reduction in carbon results from about 2 GW of new hydro capacity achieved only through powerhouse efficiency improvements. Stream flows would not be affected.

IMPLEMENTATION: The Administration will propose legislation to allow private investment in improvements at Federal water facilities. FERC action is accomplished through improved Commission policies and regulations (18 CFR, Parts 1-399). Administration action is initiated under section 2404 of the Energy Policy Act, which requires the Department of Energy to review Federal water facilities.

It will cost approximately $1 million to implement regulatory and policy changes. A review of all Federal water facilities will cost approximately $2 million. These costs will be incurred in FY 94 and FY 95. Reclamation and the Corps will continue to fund feasibility studies at current projected levels of funding. Between 1998 and 2000, the Federal government will receive approximately $600 million in lease payments.

MARKET IMPACT: The President's action provides a revenue source, after initial up-front upgrade costs, for private providers of efficiency improvements. Investment in construction costs for project upgrades and new development at existing dams would be approximately $500 per kW or approximately $1.2 billion for 2 GW of generating capacity. Assuming a 30 percent capacity factor, power being sold at 4 cents/Kwh, and a investor discount rate of 12 percent (prime + 6%) the Federal treasury would receive lease payments of approximately $160 million per year between 1998 and 2000 for a total of $480 million. Construction and lease costs for the developer would be less than or comparable to other sources of electric power. These costs would be fully recovered by the developer from the sale of the additional electricity generated. The value of energy savings is expected to be $3 billion cumulative through 2010.

GREENHOUSE GAS REDUCTIONS: This initiative has projected emissions reductions of 2 MMT of carbon by 2000, and cumulative reductions of 18.0 MMT of carbon by 2010.

TITLE: Efficiency Standards for Electric Transformers

DESCRIPTION: The President is directing DOE to accelerate the development of testing requirements and efficiency standards for electric transformers in order to get maximum energy savings by 2000.

Under Sec. 124 of the Energy Policy Act of 1992, DOE is charged with developing testing requirements for distribution transformers (by March 1995), and prescribing energy conservation standards for transformers (by September 1996). DOE is expected to complete a study of the potential for cost-effective replacement of utility transformers by March 1994. Based on this timeline, new efficiency standards will most likely take effect in the 1998/1999 timeframe.

IMPLEMENTATION: The President is directing DOE to accelerate these standards using current authority under the Energy Policy Act. Federal costs will be negligible.

MARKET IMPACT: Utilities will incur some incremental costs associated with purchasing transformers that meet the new standards, but this equipment will be cost-effective for the majority of utilities. Currently, on average, high efficiency conventional transformers cost $200 more per unit than low efficiency transformers. Utilities now replace a million transformers per year out of a total stock of 40 million transformers. The capital cost differential will decline as the sales volume of the higher-efficiency transformers increases, due to economies of scale in the production process.

PROJECTED EMISSIONS REDUCTION: This program was modeled together with Energy Star Transformers. Jointly, the two produce emissions reductions of 0.8 MMT of carbon in 2000 and cumulative reductions of 13 MMT of carbon through 2010.

TITLE: EPA "Energy Star" Transformers

DESCRIPTION: The President is directing EPA to launch Energy Star Transformers, a partnership with electric utilities to invest in amorphous core energy-efficient transformers that reduce transformer losses (approximately 50 billion Kwh are lost per year in transformers). The President is directing EPA to work with industry to establish minimum efficiency levels, where all qualifying equipment will be designated with the Energy Star logo. Participating utilities agree to purchase only Energy Star transformers, and to institute early replacement of transformers where economically warranted. EPA will distribute information regarding energy-efficient transformers to utilities and State PUCs, and help participating utilities to organize group purchases of energy-efficient transformers in order to obtain lower prices.

IMPLEMENTATION: Implementation is underway in 1993 under current authority. Initial meetings with industry stakeholders have occurred. Manufacturer response has been highly positive. The President is allocating additional resources in 1994 and 1995 to gain greater program participation among the roughly 3,250 electric utilities in the United States through sponsorship of additional program conferences and broad marketing initiatives. The total federal cost over FY 1994 through FY200 is projected to be $7 million. This action works in concert with consideration of minimum efficiency standards for transformers, which will remove low efficiency transformers from the marketplace.

MARKET IMPACT: Participating utilities will incur up-front incremental costs of 25-35% as compared to regular transformers. This investment, however, will quickly pay off. This cost differential will decline as the sales volumes increases, due to economies of scale in the production process. The costs will be incurred annually as utilities replace their transformers (i.e., natural turnover), or undertake cost-effective early replacement. Under Energy Star Transformers, 3 million amorphous core transformers will be installed by 2000, with penetration rising from less than 5 percent of total installations in 1995 to nearly 100 percent of total installations in 2000.

GREENHOUSE GAS REDUCTIONS: This program was modeled together with efficiency standards for transformers. Jointly, the two actions produce emissions reductions of 0.8 MMT of carbon in 2000 and cumulative reductions of 13 MMT of carbon through 2010.

TITLE: Reduce Electric Generation Losses Through Transmission Pricing Reform

DESCRIPTION: The Administration supports electric transmission pricing reforms which reflects the benefits of reverse flows.

In 1991, about 211 billion kWh, or 7.4% of U.S. electric generation, was lost while being distributed from power plants to end-users. Many of the inter-utility, interregional transmission corridors in the U.S. are heavily loaded during peak hours. Marginal line losses on heavily loaded lines can be as high as 12-18% of marginal generation -- about 6 to 8 times the average line loss. Transactions that go against prevailing power flows reduce total line losses, and hence total fuel consumption, within a region. Reverse flows decrease total line losses because 1) the amount of power carried over a line with relatively high line losses decreases (i.e., more demand is served by local generation) and 2) lighter loading reduces the average loss on the line.

IMPLEMENTATION: On June 30, 1993, the Federal Energy Regulatory Commission initiated a generic inquiry on electric transmission pricing issues. In this inquiry, the commission requested comment on a wide range of transmission pricing issues, including the pricing of reverse flows. The economic and environmental benefit provided by reverse flows can be readily addressed in that proceeding. The Administration, through DOE will support transmission pricing reform that reflects the benefits of reverse flows.

MARKET IMPACT: No or minimal net cost to the electric industry since many if not all utilities will have to file revised transmission tariffs if the Commission implements a new pricing policy. Transmitting utilities may have to do additional modeling and thus incur increased computer costs.

This is a highly cost effective initiative which will produce net economic benefits apart from greenhouse gas reduction. Lower line losses translate directly into 1.5 lower generation needs and reduced fuel costs. Also, reverse flows help avoid or defer the need for additional transmission capacity. The value of energy savings is expected to be $1,450 billion cumulative through 2010.

GREENHOUSE GAS REDUCTIONS: This initiative has projected emissions reduction of 0.8 MMT in 2000 and cumulative reductions of 9 MMT by 2010.

METHANE REDUCTION AND RECOVERY ACTIONS

TITLE: Expand Natural Gas Star

DESCRIPTION: The President is directing EPA to expand the Natural Gas Star program, which is a public/private partnership that prevents methane emissions by introducing and promoting cost-effective technologies and practices throughout the U.S. natural gas industry. Gas Star provides technical assistance, implementation guidelines, and an information sharing network for gas companies to achieve cost effective emissions reductions. The President's expanded Gas Star targets transmission and distribution companies, and additional production companies. The new program also includes addition of a best management practice to the Gas STAR agreement calling for replacement of high-bleed pneumatics after 5 years rather than the current 7 years.

IMPLEMENTATION: The President is redoubling effort on the Natural Gas Star program which was launched in Spring 1993 and currently has 26 partner companies. The President is directing EPA to do the following in FY94/95: market the program to natural gas producers and processors; develop and disseminate program materials aimed at producers and processors; expand assessment and promotion of newly available technologies; and initiate analyses of state and other barriers to full-scale program penetration. The program's reductions will be verified through company implementation reports, field testing, and engineering analysis.

MARKET IMPACT: This action will stimulate $66 million in private investment at U.S. gas companies. The results of the program will include significant fuel savings, more profitable operations for participating companies, and the generation of additional jobs in the manufacture and installation of equipment, and will save $200 million through 2000.

PROJECTED GREENHOUSE EMISSION REDUCTIONS: This program will reduce greenhouse emissions by 3.0 MMTCE in 2000 and result in cumulative emission reductions of 26-50 MMTCE in 2010.

TITLE: Increase Stringency of Landfill Rule

DESCRIPTION: The President's action will increase the amount of Non-Methane Organic Compound (NMOC) that must be recovered by landfills. The recovery process by which these NMOC's are gathered will result in additional recovery of methane gas from landfills. The landfill New Source Performance Standard and Existing Source Guidelines, which require control of landfill gas under Sections 111(b) and 111(d) of the Clean Air Act, was proposed in May 1991. The President has asked for promulgation of the final rule in Fall 1993. A stringency level of 150 Mg NMOC level was originally proposed. However, the supporting analysis has changed substantially since the time of proposal, and it is currently assumed that a 75 Mg rule will be proposed. This action evaluates the incremental impacts of increasing the stringency of the rule from 75 Mg to 50 Mg.

IMPLEMENTATION: EPA expects to issue the final rule regarding NMOC emissions from landfills in Fall 1993, under Clean Air Act sections 111(b) and 111(d).

MARKET IMPACT: This action will result in $30 million in incremental private investments in 2000. These investments will likely be made by large landfills, as the final rule is expected to include an exemption for landfills with a design capacity of less than 1 million Mg.

PROJECTED GREENHOUSE EMISSION REDUCTIONS: Enactment of the landfill NMOC rule at a stringency level of 50 Mg will produce emission reductions of 3.4 - 5.0 MMTCE in 2000 and cumulative reductions of 37-55
MMTCE through 2010.

TITLE: Landfill Outreach Program

DESCRIPTION: The President is directing EPA to encourage landfills to capture the methane that would otherwise be emitted and use it to produce electricity or sell it as a medium-Btu gas. The outreach program will overcome the barriers to profitable landfill methane recovery projects at landfills that are not affected by the EPA NMOC Rule. The outreach program will provide information such as case studies and sample RFPs to landfill owner/operators, utilities, state regulators and others. Of the more than 6,000 landfills in the United States, only a fraction will be affected by the Rule. Many additional "unaffected" landfills could profitably recover and use the methane they emit, but have not initiated projects because they face a number of barriers, such as disincentives for utility purchases of landfill gas, artificially low prices, lack of information, regulatory constraints, and technological constraints.

IMPLEMENTATION: This program will build on existing activities underway at EPA to design and assess the impact of the landfill rule. In FY94/95 the President is directing EPA to: release a case study report on landfill successes to raise awareness of emission reduction potential; organize of a series of state and regional workshops on landfill energy recovery opportunities; and initiate site visits to develop feasibility analyses of project opportunities. Federal costs are expected to be $6 million over 1994-2000.

MARKET IMPACT: This program will have a positive market impact because only profitable projects will be undertaken. The estimated private investment associated with the program is $174 million through 2000, resulting in additional revenues of $410 million through 2010.

PROJECTED GREENHOUSE EMISSION REDUCTIONS: This program will result in additional emission reductions of 0.9 - 1.3 MMTCE in 2000 and cumulative emission reductions of 12-18 MMTCE through 2010.

TITLE: Coalbed Methane Outreach Program

DESCRIPTION: The President is directing EPA to create an outreach program to raise the awareness of the potential for cost-effective emissions reductions with key coal companies and state agencies. It will also help to ensure that the Energy Policy Act provisions resolving coalbed methane ownership issues in the key states achieve the potential reductions in these states. The program includes development of outreach materials (technology descriptions, sample RFPs, cost/benefit analyses, financing information), an information clearinghouse, briefings for companies, states, utilities, and others, and demonstration projects. The program will target approximately 30 of the gassiest mines in the U.S.

IMPLEMENTATION: This program builds on existing activities of the EPA Ad-Hoc Working Group on Coalbed Methane and analytical efforts related to quantifying emissions and profitable reduction opportunities. For FY94/95 the President is directing EPA to: initiate of state outreach efforts through workshops and meetings aimed at identifying and removing project barriers; develop of outreach materials on successful projects and available technologies; expand industry discussions to identify candidate sites for feasibility studies; and initiate R&D efforts for promotion of new technologies (with DOE).

MARKET IMPACT: Under this program, an estimated 10-15 coal mines with profitable opportunities to reduce methane emissions will take action. The private investment in project development will be an estimated $80 million through 2000; energy savings will be $250 million through 2010. As a result of these projects, a significant number of jobs will be created in coalbed methane production and supporting industries.

PROJECTED GREENHOUSE EMISSION REDUCTIONS: This program will result in emission reductions of 1.6 - 2.7 MMTCE in 2000 and cumulative emission reductions of 28 - 43 MMTCE through 2010.

TITLE: Expand AgStar Partnership Program with Dairy and Swine Producers

DESCRIPTION: The President is directing EPA to expand the AgStar program to achieve 50% of total reductions that can be profitably recovered from animal wastes. AgStar is an existing pollution prevention program with the livestock industry, namely swine and dairy facilities. Expansion of AgStar demonstrates that animal manure management technology has improved since the 1970s and is now being successfully used in many sites across the country. Under the program, producers commit to a survey of their facilities to identify profitable options for capture and use of methane for on-farm power usage. The program provides farmers with information in the form of demonstration projects and decision support software. Producers will install the most profitable option within a specified time period. EPA is initiating the program in key states, focusing its expansion efforts on large-scale dairy and swine producers. AgStar encourages the recovery and use of methane only where it is profitable to do so.

IMPLEMENTATION: The new AgStar program will build on the existing EPA AgStar program, which was launched in Summer 1993. For FY94/95 the President is directing EPA to: market the program to swine producers; develop and disseminate outreach materials to swine and dairy producers; develop decision support software to aid producers in technical and economic assessments of options; and organize a series of regional workshops to communicate program objectives and disseminate program materials and software.

MARKET IMPACT: This action will stimulate $135 million in private investments in methane recovery systems at U.S. swine and dairy facilities through 2000, leading to significant private sector profits, reduced energy demand by farms, and generation of additional jobs providing and installing equipment. Total revenues estimated to be generated from these projects could reach $300 million through the year 2010.

PROJECTED GREENHOUSE EMISSION REDUCTIONS: This program will reduce greenhouse gas emissions by 1-2 MMTCE in 2000 and result in cumulative emission reductions of 15-28 MMTCE through 2010.

TITLE: Improve Ruminant Productivity and Product Marketing

DESCRIPTION: The President is directing EPA to work with USDA on research, demonstration projects and an outreach program targeted to reduce methane emissions from dairy and beef cattle, which are responsible for over 30 MMTCE of methane emissions per year. The Agencies will address the six main ways to reduce these emissions through improved management at the farm level: 1) improved nutrition through mechanical and chemical feed processing, 2) improved nutrition through strategic supplementation, 3) production enhancing agents, 4) improved production through improved genetic characteristics, 5) improved production efficiency through improved reproduction, and 6) controlling disease.

The marketing portion of the action will provide information so that market incentives lead to a reduction in the accretion of excess trimmable fat. The industry estimates that each year over two billion pounds of excess fat is produced, trimmed off, and discarded. This production of fat incurs a methane cost of 0.66 MMTCE. Incentives to reduce excess fat production in addition to other incentives for the production of specialized products will result in an increase in the portion of calves that move directly from the cow-calf producers into other grazing systems not dependent on high energy feeds.

IMPLEMENTATION: The new program will build on existing activities to improve animal management and nutrition, identify profitable emission reduction opportunities, and quantify emissions. In FY94 and 95, the President is directing EPA to: initiate regional field studies to refine emission estimates, nutrition deficiencies and the economics of reduction options; design and test various marketing options aimed at reducing emissions; and design and disseminate of information on profitable opportunities.

MARKET IMPACT: This program will improve the productivity and profitability of farming operations throughout the United States. Significant benefits, in terms of more effective nutrition and animal management, will result from private investments.

PROJECTED GREENHOUSE EMISSION REDUCTIONS: This program will result in emission reductions of 1.0-2.6 MMTCE from base in 2000 and cumulative emission reductions of 14-37 MMTCE in 2010.

HFC, PFC AND NITROUS OXIDE REDUCTION ACTIONS

TITLE: Narrow Use of High GWP Chemicals Under Section 612 of the Clean Air Act

DESCRIPTION: The President is directing EPA to use Section 612 of the Clean Air Act Amendments of 1990 to restrict the use of CFC substitutes based on an overall risk assessment. In May 1993, EPA released a Notice of Proposed Rulemaking which included restricted markets for long-lived chemicals. EPA has the authority to restrict uses of HFCs and PFCs if other alternatives to ozone depleting chemicals exist and are clearly environmentally superior.

EPA will use Section 612 to narrow uses of high GWP HFCs or PFCs to high value, "essential and critical" uses that protect life or property. Section 612 regulations can also be triggered by outside parties who submit petitions to the EPA. These regulations will be considered in conjunction with partnership programs, such as product stewardship, where emissive uses of high GWP chemicals would be unacceptable.

IMPLEMENTATION: EPA released a Notice of Proposed Rulemaking for Section 612 in May of 1993 which has taken the first steps to restrict long-lived chemicals to high value uses. The President's initiative provides resources to EPA to continue to evaluate the overall impact on the environment from CFC substitutes and encourage the prudent use of long-lived, high GWP chemicals. Total Federal cost is projected to be $7 million through 2000.

MARKET IMPACT: Regulated companies may experience cost increases from restricted markets, but the regulations will signal prudent use and investment in high GWP chemicals, and will stimulate the development of alternatives which are less damaging to the environment.

PROJECTED GREENHOUSE GAS REDUCTIONS: This action is modeled with Product Stewardship, which are expected to achieve emissions reductions of 5 MMTCE in 2000.

TITLE: Product Stewardship for Long Lived Chemicals

DESCRIPTION: The President is directing EPA to create a partnership program with manufacturers of long lived HFCs and PFCs, under which they commit not to sell to emissive uses and to ensure that users of long lived gases handle the material in an environmentally responsible manner -- by capturing and destroying the gas rather than emitting it into the atmosphere. One method of accomplishing product stewardship will be for companies to enter into written agreements when they are sold committing to reclaim -- and recycle or destroy the chemicals.

IMPLEMENTATION: Some aggressive companies have already initiated policies for cradle to grave responsible handling. The President's new initiative will expand these efforts and use them in conjunction with actions taken under Section 612 of the Clean Air Act. The total Federal cost for instituting the Product Stewardship program and coordinating it with Section 612 of the Clean Air Act is projected to be $2 million through 2000.

MARKET IMPACT: There may be costs associated with capture and destruction technology. However, higher costs are likely to allocate these chemicals to the high value uses for which they were intended. Partnership policies such as this are designed to foster new technology development.

PROJECTED GREENHOUSE GAS REDUCTIONS: Product Stewardship was modeled with Narrow Uses for High GWP Chemicals, which are projected to achieve greenhouse gas emissions reductions of 5 MMT carbon equivalent in 2000.

Title: Partnership Program with Manufacturers of HCFC-22 to Eliminate HFC-23 Emissions

DESCRIPTION: EPA will step up efforts in a new partnership program with manufacturers of HCFC-22 to develop and implement better management practices or technologies to reduce HFC-23 as a by-product of HCFC-22 production. Currently 2-4% of the HCFC-22 production is released as HFC-23, a potent greenhouse gas. Participating manufacturers agree to reduce emissions of HFC-23 to economically viable levels, which could be as high as 50% of current emissions.

IMPLEMENTATION: Manufacturer response has been highly positive. The U.S. HCFC-22 manufacturers signed letters of intent to reduce HFC-23 emission levels by 2000 [date]. The President is directing EPA to assist in conducting economic and technical analysis and methods to measure emission reductions, during the period 1994-1996. The total Federal cost is projected to be $4 million through 2000.

MARKET IMPACT: U.S. companies will be seen as worldwide leaders in developing better management practices and technologies to reduce HFC-23 emissions. Participating companies will incur some increased costs of manufacturing if the production process has to be changed or if technologies need to be added to reduce emissions. The Partnership effort will be designed to achieve the highest emission reductions at the lowest cost to manufacturers.

PROJECTED GREENHOUSE GAS REDUCTIONS: This action is expected to achieve emissions reductions of 5.0 MMTCE in 2000.

TITLE: Partnership With Aluminum Producers To Reduce Emissions From Manufacturing Processes

DESCRIPTION: The President is directing EPA to partner with aluminum producers to reduce emissions of CF_4 and C_2F_6. Emissions of CF_4 and C_2F_6 may be reduced by 30-60% by efforts of the aluminum industry through management and technological reforms. The President is encouraging aluminum companies to agree to reduce the occurrence and frequency of these emissions by a target percentage within 3 years. Their emissions would periodically be measured to ensure that the goals of the action are achieved. This action also includes support of research efforts, such as developing a better understanding of emissions and control options.

IMPLEMENTATION: The program mechanism will be a partnership agreement between the company and EPA. This program will build on existing activities underway this summer with the aluminum industry to identify profitable emission reductions. In FY94 the President is directing EPA to: conduct site visits to aluminum companies to assess processes and refine emission estimates; and organize of a series of workshops to assess available technologies and develop partnership program components. The Federal costs are estimated to be $4.15 million in FY 1994 through FY 2000.

MARKET IMPACT: In many cases, reductions will lead to profitable increases in energy efficiency. In some cases, moderate up-front investment in new technology may be necessary. The net cost will be zero, plus or minus a small amount; private investment to achieve reductions will be offset by energy savings.

PROJECTED GREENHOUSE GAS REDUCTIONS: This action is expected to achieve emissions reductions of 4.5 MMTCE in 2000.

ACTIONS TO ENHANCE SINKS

TITLE: Reduced Timber Harvest on National Forest Lands

DESCRIPTION: This action reflects the increase in carbon sequestration resulting from the decrease in timber harvests on National Forest Lands as outlined in the President's FY 1994 budget. Harvest on National Forest Lands are held at a level of 4.6 billion board feet as compared with 10.5 billion board feet in 1989. The increased area in National Forests restricted from timber harvest protects habitat for threatened and endangered species and for other values, such as watersheds and biodiversity. This action reduces the number of new trees necessary to meet the President's goal for increased carbon sequestration and accelerates attainment due to earlier sequestration in more mature trees.

IMPLEMENTATION: The projected level of timber harvest and sales is reflected in the President's FY 1994 budget. Implementation depends on Congressional action and the initiative of ongoing judicial reviews. As part of the President's recently announced Northwest Forest Plan, USDA has announced its intention to reduce harvests in National Forests by 700 million cubic feet beginning in FY 1993 and extending into the out-years. There is no additional cost to the Federal government.

MARKET IMPACT: The reduction in harvest creates opportunities for owners of private timberland and may create opportunities for recreational and other uses of National Forests.

PROJECTED GREENHOUSE GAS REDUCTIONS: This action is estimated to reduce net carbon emissions by 4.5 MMTC in 2000 with a cumulative net reduction of 86 MMT through 2010.

TITLE: **Improve Efficiency of Fertilizer Nitrogen Use**

DESCRIPTION: The President is directing EPA and USDA to launch a new partnership with American farmers to improve the efficiency of fertilizer use, which will result in lower emissions of nitrous oxide from microbial activity occurring in the soil. The USDA will expand activity to develop models that focus on trace gas exchange related to the bacterial denitrification processes. These models will be used to improve nitrogen use efficiency while building a more productive agricultural system. The President is directing USDA to initiate demonstration projects and prepare an information campaign to insure widespread application of improved management practices.

IMPLEMENTATION: EPA and USDA will initiate a partnership program to encourage better management practices, and utilize USDA county personnel for marketing and support.

PROJECTED GREENHOUSE GAS REDUCTIONS: The action will result in 1.5 MMT carbon equivalent reductions in 2000.

TITLE: **Improve Ecosystems Management to Increase Carbon Sequestration**

DESCRIPTION: This action reflects the net carbon sequestration associated with ecosystem management. The President has already directed Forest Service to implement a policy of ecosystems management to achieve objectives unrelated to carbon sequestration. Unlike clear cutting, improved timber harvest methods retain the structural characteristics of multi-aged, natural forests. Forestry based on ecosystem management will result in additional weight being given to the condition of the forest following harvest, and additional efforts to carry out harvesting in ways that help reinforce or mimic natural variations in the forest ecosystem. Using improved ecosystem management and harvest methods result in an increase in carbon accumulation. This action interacts with actions to increase tree-planting and reduce timber harvests.

IMPLEMENTATION: No new authorization is required. USDA is in the process of reducing clear cutting, increasing attention to watershed and other environmental values, and paying more attention to wildlife habitat. No additional Federal expenditures are required.

PROJECTED GREENHOUSE GAS REDUCTIONS: This action is estimated to reduce carbon emissions through increases in carbon sequestration by 2.5 MMTC in 2000, with a 32.5 MMTC net cumulative reduction by 2010.

TITLE: Reduce The Depletion of Nonindustrial Private Forests

DESCRIPTION: The President is directing USDA to take action to reduce the depletion of nonindustrial private forests caused by excessive and poor timber harvesting practices by 180,000 acres annually within five years, by providing private forest landowners with free timber evaluations by public and private foresters. These timber evaluations will be written plans that describe the owner's timber (tree species composition, age, stocking, growth rate, and approximate volume and value) and recommend management options for the next 10 years. If the recommendation is to harvest timber, a harvesting prescription will be prepared that ensures adequate stocking and protection of the residual stand and/or regeneration of the stand by natural or artificial means.

IMPLEMENTATION: Cooperative Forestry Assistance Act of 1978 (16 USC 2101 et seq.), as amended by the Forest Stewardship Act of 1990 as Title XII of the Food, Agriculture, Conservation, and Trade Act of 1990 (7 USC 1421 note). USDA has long-standing authority to assist landowners with forest management on private lands. This initiative will operate as a new special practice under the Stewardship Incentive Program, and can be made operational under existing laws and guidelines within 45 days. In the next 3 to 6 months, USDA will establish new special practices under the Forest Service Stewardship Program, survey the status of tree seedling production, begin signing up landowners for timber evaluations. Federal costs are $90,000 in the first year, increasing to $900,000 in the fifth year as the program is fully implemented at 180,000 acres per year. Total undiscounted cost for 1994 to 2000 is $4.1 million.

MARKET IMPACTS: There is no expense to private landowners, save for the time to meet with foresters to discuss the timber evaluations in the context of their ownership objectives. Landowners are responsible for all costs of actually preparing and conducting actual timber sales. Over the short term, less timber volume per acre will be harvested from private lands. However, reductions in overharvesting and stand depletion will result in larger and more sustainable long run timber supplies, benefiting landowners, workers, owners in the wood-processing industry, and consumers.

PROJECTED GREENHOUSE GAS REDUCTIONS: This action is estimated to produce a net emissions reduction of 4 MMTC in 2000, and 28 MMTC cumulative net reduction through 2010.

TITLE: Accelerated Tree Planting In Nonindustrial Private Forests

DESCRIPTION: The President is directing USDA to step up efforts to increase tree planting in existing nonstocked and poorly stocked nonindustrial private forest land by 233 thousand acres per year within 5 years. Trees capture and store carbon as they grow (about one-half of the dry weight of wood is carbon), and additional carbon is captured and stored through the increase of organic matter in the soil, surface litter and in understory plants.

IMPLEMENTATION: Various laws relating to this activity are consolidated into the Cooperative Forestry Assistance Act of 1978 (16 USC 2101 et seq.), as amended by the Forest Stewardship Act of 1990 as Title XII of the Food, Agriculture, Conservation, and Trade Act of 1990 (7 USC 1421 note). Increased tree planting will be achieved through the regular tree planting practice of the Stewardship Incentive Program or as a new special practice, implemented under existing laws and regulations within 45 days. Assistance to forest landowners will be provided through the established USDA Forest Service-State Forester delivery system. There is no increase in Federal staffing at the field level, as State Service Foresters and private consulting foresters provide on-the-ground assistance to landowners. Private landowners will have the choice of either planting the trees themselves, or as is more common, hiring a commercial tree planting contractor. Landowners who have been approved in advance will be reimbursed for the Federal share of tree planting costs after the planting is certified as completed to the standards specified in the tree planting plan prepared by a professional forester.

The President is directing USDA over the next 3 to 6 months, to establish new special practices under the Forest Service Stewardship Program, survey the status of tree seedling production, and begin signing up landowners for timber evaluations.

Federal costs are $1.6 million in the first year, rising to $12.5 million in the fourth year--as the amount of tree planting rises to 233,000 acres per year. Costs stabilize at about $16 million per year thereafter through year 2000.

MARKET IMPACT: This initiative is projected to stimulate $36 million in direct landowner investments in tree planting to match Federal funding. In addition, there are positive economic impacts on tree nurseries, foresters needed to assist landowners, and tree planting contractors and their employees. Since tree planting occurs on forest lands, there is no displacement of agriculture or other economic land-use activities.

PROJECTED GREENHOUSE GAS REDUCTIONS: This action is expected to produce a net emissions reductions of 0.4 MMTC in 2000, and 15 MMTC net cumulative reduction by 2010. The reductions associated with this initiative will be most visible in the years after 2015 due to the rate of carbon sequestration over a tree's lifetime.

THE FOLLOWING REVISED ONEPAGERS DID NOT ARRIVE IN TIME TO BE INCLUDED WITH THE OTHERS, BUT ARE ESSENTIAL COMPONENTS OF THE CLIMATE CHANGE ACTION PLAN:

TITLE: The Climate Challenge-- Utility Volunteers

DESCRIPTION: This action would encourage electric utilities and other eligible firms to submit voluntary reduction portfolios to the Department of Energy for inclusion in the Energy Information Administration database. Fifty-four major electric utilities have signaled their intent to work with the Secretary of Energy to voluntarily limit their greenhouse gas emissions using the flexible array of options allowed under the Energy Policy Act-- which include improvements from energy efficiency measures in supply, demand and transmission of electricity, switching to lower carbon fuels (natural gas, hydro, nuclear and renewable energy projects), forestry, methane capture, more efficient appliances and automobiles, and international projects. This action strengthens the performance of every option targeted at the electric power sector by providing assurance that positive results will actually be delivered.

IMPLEMENTATION: This program is authorized under Section 1605(b) of the Energy Policy Act of 1992, and comments at recent oversight hearings have made clear the Congress' strong support for the program. Implementation began on July 27, 1993, when DOE issued a Notice of Inquiry regarding implementation of the program, which is on schedule to be up-and-running in April 1994. This fall, a series of stakeholder workshops will be held to begin to establish the details of the program. In addition, EPA and DOE are set to release an additional Notice of Inquiry to construct an initiative to reward excellence in the program with special recognition.

MARKET IMPACTS: It was unnecessary to perform separate economic analysis on this program, since it draws on the same economic principles of complementary programs that were analyzed in full. Further, this action recognizes that the plan may not have captured every cost-effective option, so it permits utilities and other volunteers to register the most cost-effective greenhouse gas reductions they can discover, including joint implementation projects, electro-technologies and other measures. To that end, it helps ensure optimal cost-effectiveness across the other options in the plan.

GREENHOUSE GAS REDUCTIONS: The final reductions attributable to this program will depend on the number of utilities involved, and discussions are still underway with several companies that we hope will notify DOE of their intent to participate before the President's announcement. In general terms, the panorama of utility options scored in this plan spans about 40.1 MMT. To date, utilities representing over half of the nation's carbon-based generation capacity have offered written notice of their intent to negotiate agreements to participate in this program.

TITLE: Reduction in Pesticide and Fertilizer Use

DESCRIPTION: Several U.S. actions will reduce fertilizer and pesticide use thereby reducing the energy-intensive production of these agricultural chemicals. The implementation of management measures proposed in S.1114 (reauthorization of the Clean Water Act) will reduce nitrogen fertilizer use by 10 to 25%. These management measures include more judicious use of fertilizers and pesticides. In addition, three trends contribute to the reduction in the volume of pesticide use: (1) greater use of bio-engineered agricultural products; (2) coordinated actions of EPA, USDA and FDA to lower the exposure of children and other sensitive populations to pesticides; and (3) the use of low-volume pesticides. As a result, pesticide use will decrease by 4% per year through the next decade.

IMPLEMENTATION: Under S.1114, EPA is allowed three months to consider new management measures. USDA and State Universities will then calibrate the more promising nutrient recommendations, and train private and government consultants to apply them, along the lines proposed by the draft Nitrogen Action Plan/Pollution Prevention Strategy. Important steps toward funding these activities have already taken place. Also, as the pesticide reduction program moves forward, EPA, USDA and FDA will achieve pesticide reductions by (1) pesticide registrations and re-registrations and (2) disseminating more promising agricultural strategies involving lower pesticide use.

MARKET IMPACT: By using the improved nutrient management measures, farmers will achieve net reductions in costs through reduced fertilizer purchases, while not affecting yields. As the trend away from traditional pesticide use picks up momentum, so too will promotion of the high-technology bio-engineering industry.

EMISSIONS REDUCTION:

* 1.61 - 2.97 mmMTCe in 2000