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Climate Change Talking Points 9/1/97 - 11/98 [3]

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PRESIDENT CLINTON'S \$6 BILLION CLIMATE CHANGE INITIATIVE

"Our overriding environmental challenge tonight is the worldwide problem of climate change, global warming, the gathering crisis that requires worldwide action...We have it in our power to act right here, right now. I propose \$6 billion in tax cuts and research and development to encourage innovation, renewable energy, fuel-efficient cars, energy-efficient homes." President Bill Clinton, State of the Union address, January 27, 1998

A \$6 billion initiative over 5 years to cut greenhouse gas emissions. The Administration is proposing a \$6.3 billion package of tax incentives and research and development investment to stimulate development and use of energy-efficient technologies and clean energy sources. The initiative was announced on October 22, 1997, by the President and builds on U.S. government efforts to encourage voluntary reduction of greenhouse gas emissions.

\$3.6 billion in tax credits. The proposed package contains \$3.6 billion over the next 5 years in tax cuts for energy efficient purchases and renewable energy.

- **Tax credits for fuel efficient cars.** The tax package includes tax credits of \$3,000 to \$4,000 for consumers who purchase advanced technology, highly fuel efficient vehicles -- expected to total \$660 million over the next five years.
- **Tax credits for rooftop solar systems.** Another tax provision provides a 15 percent credit (up to \$2,000) for purchases of rooftop solar electricity and hot water systems -- to provide incentives for meeting the Million Solar Roofs goal.
- **Other tax credits for energy efficiency.** The tax cuts also include a 20 percent credit (subject to a cap) for purchasing energy-efficient building equipment, a \$2,000 credit for purchasing energy-efficient new homes, an extension of the wind and biomass tax credit, and a 10 percent investment credit for the purchase of combined heat and power systems.

\$2.7 billion in new R&D spending. The package also contains \$2.7 billion over the next 5 years in additional research and development spending -- covering the four major carbon-emitting sectors of the economy (buildings, industry, transportation, and electricity), plus carbon removal and sequestration, Federal facilities, and crossing cutting analyses and research. Selected examples of the R&D effort include:

- **Partnership for a New Generation of Vehicles (PNGV).** PNGV is a government-industry effort to develop attractive, affordable cars that meet all applicable safety and environmental standards and get up to three times the fuel efficiency of today's cars. In FY99, the combined proposal for PNGV is \$277 million, up from \$227 million appropriated in FY98. Similar government-industry efforts are proposed to develop cleaner, more efficient diesel engines for both light trucks and heavy trucks.
- **Renewable energy.** The package includes expanded research partnerships for key renewable technologies such as wind, photovoltaics, geothermal, biomass, and hydropower to accelerate price reductions and improve performance. The FY99 budget proposes a \$100 million increase in DOE for solar and renewable energy R&D -- a 37 percent increase over FY98.

Climate Change Technology Initiative: \$3.6 Billion in Tax Incentives

Last fall, the President announced a nine-point plan to begin addressing climate change, including a five-year, \$5 billion package of tax incentives and research and development spending to spur energy efficiency and help develop low-carbon energy sources. The President's budget proposes a \$6.3 billion initiative over 5 years -- including \$3.6 billion of tax incentives that will encourage energy efficiency and help develop low-carbon energy sources (see Table 1). The initiative covers the four major carbon-emitting sectors of the economy (buildings, industry, transportation, and electricity).

TABLE 1

Tax Incentives	Revenue effect (dollars in billions)
	Total FY1999-2003
Buildings	
Provide tax credit for energy-efficient building equipment	-1.4
Provide tax credit for new energy-efficient homes	-0.2
Provide tax credit for rooftop solar systems	-0.1
Transportation	
Provide tax credits for highly fuel efficient vehicles	-0.7
Equalize tax treatment of parking and transit and vanpool benefits	-0.1
Industry	
Provide tax credit for combined heat and power systems	-0.9
Provide tax credit for certain circuit breaker equipment	*
Provide tax credit for PFC/HFC recycling equipment	*
Electricity	
Extend tax credit for electricity produced from wind and biomass	-0.2
Climate Change Tax Initiative	
Total	-3.6

* Less than -\$50 million.

BUILDINGS

- ***Tax credit for energy-efficient building equipment.*** Improvements in the energy efficiency of both residential and commercial buildings can be obtained through tax credits that encourage the purchase of highly efficient equipment: fuel cells, electric heat pump water heaters, natural gas water heaters, electric heat pumps, natural gas heat pumps, and advanced central air conditioners. The credit would be 20 percent of the cost of the investment, subject to a cap. The credit would generally be available for equipment purchased between January 1, 1999 and December 31, 2003.

- ***Tax credit for new energy-efficient homes.*** The energy efficiency of new homes could be improved through the use of energy efficient building practices and efficient heating and cooling equipment. To encourage the purchase of new highly energy-efficient homes, a tax credit would be provided equal to one percent of the purchase price (up to a maximum credit of \$2,000) of new homes that greatly exceed building standards. The full credit would be available for homes purchased between January 1, 1999 and December 31, 2003. A credit of up to \$1,000 would be available for homes purchased between January 1, 2004 and December 31, 2005.
- ***Tax credit for rooftop solar systems.*** Solar energy systems have the potential to reduce greenhouse gas emissions and energy costs for businesses and individuals. A tax credit equal to 15 percent of the cost of rooftop photovoltaic (PV) systems and solar water heating systems would make these systems more affordable and encourage their purchase. The maximum credit would be \$2,000 for PV systems and \$1,000 for solar water heating systems. The credit would apply to equipment placed in service between January 1, 1999 and December 31, 2003 for solar water heating systems, and December 31, 2005 for rooftop PV systems.

INDUSTRY

- ***Tax credit for combined heat and power (CHP) systems.*** CHP systems use thermal energy that is otherwise wasted in producing electricity by more conventional methods. To encourage and accelerate investment in CHP equipment, a 10 percent tax credit would be provided for investments in CHP systems that meet certain energy efficiency requirements. The credit would apply to property placed in service between January 1, 1999 and December 31, 2003.
- ***Tax credit for replacement of certain circuit breaker equipment.*** Sulfur hexafluoride (SF₆), an extremely harmful greenhouse gas, is used in some large power circuit breakers used in the transmission and distribution of electric power. A 10 percent tax credit would be provided for the purchase of new circuit breakers that replace certain circuit breakers that are prone to leak SF₆. The credit would apply to new equipment placed in service between January 1, 1999 and December 31, 2003.
- ***Tax credit for perfluorocarbon (PFC) and hydrofluorocarbon (HFC) recycling equipment.*** PFCs and HFCs are extremely potent greenhouse gases and are used extensively in the semiconductor manufacturing industry. A 10 percent tax credit would be provided for the purchase of PFC/HFC recycling equipment to recover gases used in the production of semiconductors. The credit would apply to equipment placed in service between January 1, 1999 and December 31, 2003.

TRANSPORTATION

- ***Tax credit for highly fuel efficient vehicles.*** Cars and light trucks (including minivans, sport utilities, and pickups) currently account for 20 percent of greenhouse gas emissions.

Tax credits for highly fuel efficient vehicles will help to move vehicles that are ultra efficient from the laboratory to the highway. Tripling a car's fuel economy reduces its emissions of carbon dioxide by 67 percent; doubling a car's fuel economy reduces its emissions of carbon dioxide by 50 percent.

- ***Credit for vehicles with triple the base fuel economy.*** This credit would be \$4,000 for each vehicle that gets three times the base fuel economy for its class. The \$4,000 credit would be available for purchases of qualifying vehicles beginning January 1, 2003. The credit amount would phase down to \$3,000 in 2007, \$2,000 in 2008, and \$1,000 in 2009, and would phase out in 2010.
 - ***Credit for vehicles with twice the base fuel economy.*** This credit would be \$3,000 for each vehicle that gets twice the base fuel economy for its class. The \$3,000 credit would be available for purchases of qualifying vehicles beginning January 1, 2000. The credit amount would phase down to \$2,000 in 2004, \$1,000 in 2005, and would phase out in 2006.
 - These credits would be available for all qualifying vehicles, including cars, minivans, sport utility vehicles, pickup trucks, and electric vehicles.
 - The Administration looks forward to working with the auto manufacturers and other interested parties on the details of the tax incentives.
- ***Equalize the tax treatment of parking and transit benefits.*** This initiative would equalize the tax treatment of parking benefits and transit and vanpool benefits. To encourage public transportation and vanpools, employers would be allowed to provide tax free transit and vanpool benefits in lieu of compensation, up to the same amount that they can provide for parking beginning January 1, 1999.

ELECTRICITY

- ***Extension of tax credit for electricity produced from wind and biomass.*** To encourage the production of electricity from wind and certain biomass, a 5-year extension is proposed for the present 1.5 cent per kilowatt hour tax credit (adjusted for inflation after 1992). The present credit, which applies to facilities placed in service before July 1, 1999, would be extended for five years.

Climate Change Technology Initiative: \$2.7 Billion in Research and Development

Last fall, the President announced a nine-point plan to begin addressing climate change, including a five-year, \$5 billion package of tax incentives and research and development spending to spur energy efficiency and help develop low-carbon energy sources. The President's budget proposes a \$6.3 billion initiative over 5 years -- including \$2.7 billion in increased R&D spending (see Table 1). For FY 1999, the budget shows \$473 million in increased spending on climate-change related technologies (\$1.292 billion vs. \$819 million in FY 1998) and \$421 million in tax incentives, for a total first-year initiative of \$894 million.

TABLE 1

Direct Programs	Dollars in Millions				
	1997 Actual	1998 Estimate	1999 Proposed	Dollar Change: 1998 to 1999	Total Increase 1999-2003
BY AGENCY					
Energy	657	729	1060	+331	+1,899
Environmental Protection Agency	86	90	205	+115	+677
Housing and Urban Development	--	--	10	+10	+10
Commerce	--	--	7	+7	+38
Agriculture	--	--	10	+10	+86
R&D Program Total	743	819	1,292	+473	+2,710
Climate Change Technology Total	743	819	1,713	+894	+6,345

TABLE 2

Direct Programs	Dollars in Millions		
	1998 Estimate	1999 Proposed	Dollar Change: 1998 to 1999
BY AREA OF EFFORT			
Buildings	146	264	+118
Industry	156	216	+60
Transportation	246	356	+110
Electricity	220	332	+112
Carbon Sequestration and Cross-Cutting Research	0	42	+42
Policy Analysis, Market Incentives	6	26	+20
Program Direction	45	57	+12
Climate Change Technology			
Direct R&D Total	819	1,292	+473

Columns may not add due to rounding.

The principal focus of the initiative is an R&D portfolio that covers the four major carbon-emitting sectors of the economy (buildings, industry, transportation, and electricity), plus carbon removal and sequestration, Federal facilities, and crossing cutting analyses and research. (In Table 2, Federal facilities are included under Buildings.)

BUILDINGS

- ***Partnership for Advanced Technologies in Housing (PATH).*** HUD will lead a team that includes DOE and EPA to work with the building industry to develop, demonstrate, and deploy housing technologies and practices that are inexpensive, highly efficient, and attractive to consumers. This effort will also focus on streamlining Federal, state, and local codes and regulations, education outreach, and creating local markets for PATH housing using pilot sites and demonstrations.
- ***Million Solar Roofs.*** In June of 1997, the President announced an initiative to encourage the installation of one million solar hot water and solar photovoltaic (PV) installations on buildings over the next 10 years. DOE will fund cost-reduction R&D for solar thermal and rooftop PV systems, and will establish partnerships with communities, builders, and other Federal agencies to promote the use of building-mounted solar systems.
- ***Increased R&D.*** In addition to encouraging the deployment of the best available technologies, DOE is also increasing its research on building systems modeling, to help architectural engineers, and on major components such as next-generation heat-pumps, cooling systems, furnaces, and lighting.

INDUSTRY

- ***Partnerships with industry.*** DOE works closely with industry on technology roadmaps and plans to reduce energy consumption and secure early reductions in greenhouse gas emissions. Industries already engaged in this effort include aluminum, steel, glass, paper and forest products, metal casting, and chemicals. These technology roadmaps form the basis for cost-shared R&D with industry teams and consortia.
 - This work will be enhanced within DOE, and complementary efforts will be undertaken by EPA, USDA, and DOC (NIST), which will lead to voluntary greenhouse gas reduction programs within industry.
- ***Advanced power generation.*** R&D will be accelerated on advanced turbines, fuel cells, and other technologies, and new approaches to capturing useful work or heat through several temperature stages (e.g. electric generation, industrial process steam, steam building heat) in factories or commercial buildings will be demonstrated. When commercially accepted, these systems will allow us to capture the waste heat the Nation now throws away.

TRANSPORTATION

- ***Partnership for a New Generation of Vehicles (PNGV).*** A government-industry effort to develop attractive, affordable cars that meet all applicable safety and environmental standards and get up to three times the fuel efficiency of today's cars, or roughly 80 miles per gallon. Five agencies participate in PNGV -- DOE is the largest player, followed by EPA, DOC, NSF, and DOT.
 - The program will lead to "concept cars" in the year 2000 and production prototypes in 2004.
 - This winter, industry and the government have announced the designs that they will pursue -- hybrid vehicles that combine a power source (a piston engine or fuel cell) with battery storage and electric motors.
 - In FY99, the combined request for PNGV-related work in those agencies is \$277 million, up from \$227 million appropriated in FY98.
- ***Partnerships for Light and Heavy Trucks.*** Similar government-industry efforts are proposed to develop cleaner, more efficient diesel engines for both light trucks and heavy trucks.
 - DOE has been engaged in R&D on cleaner, more efficient large truck engines for several years, and that effort will be stepped up in FY99, in coordination with increased work on large diesel engines at EPA and DOD.
 - A government-industry partnership is currently being formed for R&D on smaller diesel engines suitable for light trucks and sport-utility vehicles (SUVs), which are the fastest-growing class of passenger vehicles. A clean, efficient diesel engine could improve the fuel-economy of light trucks and SUVs by 35 percent.
- ***Sustainable Transportation.*** This initiative would promote alternatives to single-occupancy vehicle travel using pilot projects in selected communities modeled after the highly successful approach adopted by the Portland, Oregon metropolitan region.
 - The sustainable transportation programs in EPA and DOE will be coordinated with existing and planned DOT programs. (DOT is not funded within the Climate Change Technology Initiative, however.)

ELECTRICITY

- **Renewable energy.** Expand research partnerships for key renewable technologies such as wind, photovoltaics, geothermal, biomass, and hydropower to accelerate price reductions and improve performance. The same programs will also be supporting increased R&D in hydrogen production and storage and in superconductivity.
 - The FY99 budget proposes a \$100 million increase in DOE for solar and renewable energy R&D -- a 37 percent increase over FY98.
- **Nuclear power-plant life extension.** DOE will initiate an R&D effort addressing the critical technology needs to allow currently-operating nuclear power plants to safely extend their operating lifetimes by 10 to 20 years. Under current NRC licences, approximately 60 gigawatts of electric generating capacity would have to be retired between now and 2015. Providing the technologies necessary to safely operate these plants for another 10 to 20 years will make the transition to other low-carbon energy sources, such as solar and renewable energy, much easier.
- **Innovative coal combustion technologies.** In FY99, DOE will initiate a research program on innovative new approaches to coal combustion that offer the possibility of much lower carbon emissions than existing technologies.

CARBON REMOVAL AND SEQUESTRATION.

- **Sequestration R&D.** Research initiatives are being funded in both basic and applied research to find ways to remove carbon dioxide (CO₂) from combustion gases and sequester (store) the carbon so that it does not enter the atmosphere.
 - DOE's basic science office will engage in biochemical and microbial research.
 - DOE's fossil energy office will conduct an applied sequestration R&D program, jointly managed with the basic science office.
 - USDA will initiate research on enhancing the carbon-sequestering capabilities of agricultural species. NIST will support complementary biotechnology work on plant metabolism and carbon use.

CROSSCUTTING ANALYSIS AND RESEARCH

- ***Emissions credits, incentives, and trading.*** EPA will lead an effort, assisted by DOE, to evaluate options for a domestic trading system and early reduction program in industry. The Federal government will work with stakeholders to understand their views and interests, and to build the institutional capacity needed to implement a carbon emissions credit and trading system.
- ***Program and science assessments.*** DOE will lead efforts to assess the implications of new research results produced by the Global Change Research Program, in order to determine what geographic and technological responses may be appropriate.

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MEETING THE CHALLENGE OF GLOBAL CLIMATE CHANGE

Increasing Energy Efficiency & Reducing Energy Use in Federal Buildings

July 25, 1998

In his radio address to the nation, President Clinton today cited new evidence of record-breaking heat, and called on Congress to take responsible action to meet the challenge of climate change by funding common sense energy efficiency and renewable energy programs that will allow us to continue to grow the economy while protecting the environment.

The President also took further action by announcing four new steps to decrease energy use in Federal buildings and facilities, thereby reducing greenhouse gas emissions and saving taxpayer dollars.

- Directing Cabinet agencies to work more closely with private contractors to retrofit Federal buildings and other facilities with the best energy saving technology, saving as much as \$700 million in energy costs per year and reducing as much as 2 million metric tons of carbon annually, at little or no cost to taxpayers;
- Replacing 300,000 lightbulbs with energy efficient flourescents over the next three years, saving taxpayers \$13.5 million in energy costs and reducing as much as 40,000 metric tons of carbon emissions;
- Directing agencies to bring existing Federal buildings up to the EPA ENERGY STAR efficiency standard, and;
- Announcing that the Department of Defense and six other Federal agencies will adopt "sustainable design" guidelines for construction of new Federal buildings.

If fully carried out, these energy-saving, cost-cutting efforts can save taxpayers as much as \$1 billion per year and reduce over 3 million metric tons of carbon annually for the next 15 years.

President Clinton's Four Steps to Improve the Energy-Efficiency of Federal Buildings

The Federal government is the nation's largest energy consumer with an annual energy bill of \$8 billion. Significantly reducing Federal energy expenditures saves tax payer dollars, cuts emissions that contribute to global warming, and helps create markets for energy efficient and renewable technologies. Today, President Clinton announced four new steps to have the Federal agencies lead in energy efficiency.

1. Expand Use of Energy Savings Performance Contracts

Energy Savings Performance Contracts (ESPCs) leverage private sector investment and expertise to accomplish energy and cost saving projects in Federal facilities at little or no cost to taxpayers. Under ESPC authority, Federal agencies hire contractors to audit facilities, propose energy saving retrofits, and privately finance, install and maintain retrofits. Contractors are paid from a share of the savings; remaining savings return to taxpayers and the agency.

- The President directed all Cabinet agencies to expand the use of ESPCs, and to step up efforts to reduce Federal energy use to 30% below 1985 levels by 2005. ESPCs can save as much as \$700 million per year, and cut over 2 million metric tons of carbon emissions. The President will seek Congressional approval to renew and expand ESPC authority beyond the year 2000.
- The Department of Energy today announced \$1.5 billion in new ESPC contract authority, bringing to \$5 billion the total amount of ESPC authority currently available.

2. Federal Lighting Purchasing and Retrofit Campaign

Today, the President launched an effort to purchase and install an additional 100,000 compact fluorescent bulbs for each of the next three years, which will generate electricity cost savings of \$13.5 million, and cut about 40,000 metric tons of carbon emissions over the life of the bulbs. Also, ESPCs can be used to save an additional \$10 million dollars a year for three years in energy costs by upgrading old-style institutional lighting fixtures. This will prevent up to 600,000 metric tons of carbon emissions over the life of the fixtures.

3. Federal ENERGY STAR Buildings

The ENERGY STAR Building Label is offered to the top 25% of energy efficient buildings. Today, the President directed all agencies to take the steps needed to bring existing Federal buildings up to ENERGY STAR standards, including through use of ESPCs, utility programs and other agency funded efforts. Increasing energy efficiency will save money in energy bills and reduce the emissions that contribute to global warming.

4. Sustainable Design in New Federal Buildings

The Department of Defense and six other Federal agencies will adopt “sustainable design” in all new buildings. The Defense Department, for example, has committed to build facilities that use as much as 50% less energy than similar buildings. “Sustainable design” includes: using the most efficient practices, products and services; utilizing recycled materials; and siting buildings near public transportation. This magnitude of reduction in a typical medium-sized office building would save \$70,000 a year and reduce emissions by over 90 metric tons of carbon per year.

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**ADMINISTRATION ECONOMIC ANALYSIS:
MEETING THE CHALLENGE OF CLIMATE CHANGE AT A REASONABLE COST
July 31, 1998**

The Administration's economic analysis of the Kyoto Protocol concludes that we can meet our Kyoto target for reducing greenhouse gases at modest cost; that taking action to address global warming amounts to an insurance policy against a serious threat; that there are real opportunities for low-cost reductions both at home and abroad; and that the benefits of averting climate change could be large.

There is a powerful scientific rationale for taking action on global warming; taking action amounts to an insurance policy against a serious risk. Greenhouse gases are rapidly building up in the atmosphere and at current rates will reach levels not seen in 50 million years by 2100. The nine hottest years on record have occurred since 1987, 1997 was the hottest year ever, and 1998 has been hotter still. Our leading scientists warn of serious consequences, like severe droughts and floods and health problems, if global warming is ignored. The National Academy of Sciences has said: "...even given the considerable uncertainties in our knowledge of the relevant phenomena, greenhouse warming poses a potential threat sufficient to merit prompt responses....Investment in mitigation measures acts as insurance protection against the great uncertainties and the possibility of dramatic surprises."

The costs of meeting our Kyoto target will be modest. Even without counting the impact of domestic policies or the benefits of mitigating climate change, estimates derived using the Second Generation Model (SGM) suggest an emissions price of \$14 to \$23 per ton of greenhouse gases. This would translate into an increase of \$70-\$110/year in 2010 for an average family's energy bill, although such increase would be substantially offset by the decline in electricity prices from restructuring the electricity industry, as the Administration and others have proposed.

Domestic actions that are not factored into the SGM model can lower costs even more and substantially enhance our ability to make reductions at home. These include federal electricity restructuring to increase competition and lower costs; efforts to increase the rate of technology improvement, such as the President's \$6.3 billion budget and tax cut package; innovative practices, like forestry activities, which can sequester carbon; industry consultations; and initiatives to reform federal energy use and procurement.

Doing it smart: The Kyoto Protocol is based upon flexibility measures that reduce costs. At U.S. insistence, the Kyoto Protocol allows emissions to be reduced where and when such reductions are cheapest. Key provisions include international trading of emissions permits as well as measures that allow our companies to share credit for emissions reducing projects abroad.

The benefits of acting to mitigate climate change could be very large. Noted economists have estimated the environmental, health, and economic costs of global warming during the next century to be 1% of GDP or more -- over \$80 billion a year in today's terms. In the short term, ancillary benefits of reducing greenhouse gas emissions -- such as reduced air pollution -- could produce savings equal to one quarter of the costs of meeting our Kyoto target.

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Fact Sheet on U.S. Domestic Climate Change Program (9/15/98)

OCTOBER 1997 PLAN

In October, 1997, President Clinton outlined an environmentally and economically sound plan for reducing U.S. greenhouse gas emissions. This plan emphasizes win-win initiatives designed to cut emissions by increasing energy efficiency; developing new, cleaner energy technologies; working with industry and others to promote sensible solutions; and relying on market-based mechanisms to ensure cost-effective reductions.

- ***Tax incentives and R&D.*** The President's plan includes the **Climate Change Technology Initiative (CCTI)** -- a vigorous program of tax cuts and research and development aimed at improving energy efficiency and spurring the use of renewable energy sources. The package amounts to \$6.3 billion over 5 years -- \$3.6 billion in tax cuts and \$2.7 billion in new investment.
 - The **tax incentive package** includes a tax credit of up to \$4,000 for consumers who purchase highly efficient vehicles; a tax credit of up to \$2,000 for energy-efficient new homes; a 15% tax credit (with a \$2,000 cap) for rooftop solar equipment; a 20% tax credit (subject to a cap) for energy-efficient building equipment for homes and offices; a 10% tax credit for investment in combined heat and power systems; and an extension of a current tax credit of 1.5 cents per kilowatt hour for the production of electricity from wind and biomass.
 - The **investment package** includes research and development spending in the major carbon-emitting sectors of the economy -- buildings, transportation, and industry. Among projects to be expanded is the Partnership for New Generation Vehicles, a government-industry effort to develop highly-efficient cars, and the Partnership for Advancing Technology in Housing. Substantial funds will also be invested in research partnerships for key renewable energy technologies.
- ***Industry consultations.*** A second component of the President's plan involves building partnerships with key energy-intensive industries to develop sector-by-sector initiatives to cut emissions. These partnerships will identify opportunities for working together to remove barriers to the development and widespread use of energy efficient technologies and practices. As part of these consultations, the Administration will discuss ways to ensure credit for businesses that act early.
 - High-level Administration officials have already met with the following industries at the CEO level: steel, aluminum, cement, publicly-owned and investor-owned electric utilities, forest products. More meetings will follow in the months to come.
 - On May 4, President Clinton announced an important new public-private sector partnership -- the **Partnership for Advancing Technology in Housing (PATH)**.

This partnership with the homebuilding sector is designed to build new homes that are 50% more energy efficient within a decade and to retrofit at least 15 million existing homes within a decade to make them 30% more energy efficient. Meeting PATH goals would save consumers \$11 billion a year in energy costs by 2010 and reduce annual carbon emissions in 2010 by nearly 24 million metric tons (MMTC) -- the amount produced by some 20 million cars.

- ***Electricity restructuring.*** Another core element of the President's plan involves restructuring the electricity industry in such a way as to reduce greenhouse gas emissions while saving consumers millions on their energy bills. The Administration's restructuring proposal includes a requirement that all utilities open up their distribution and transmission wires to all qualified sellers; a renewable portfolio standard to increase the use of electricity from renewable sources; a \$6 billion/year Public Benefits Fund to spur greater investment in energy efficiency and renewable resources; and a green labeling requirement to inform consumers about their clean energy options. This plan would save consumers at least \$20 billion a year on their electricity bills while reducing carbon emissions roughly 25 to 40 MMTC in 2010.
- ***Federal energy use and procurement.*** The President's plan also includes making substantial reductions in the Federal government's own greenhouse gas emissions by improving the energy efficiency of Federal facilities and activities and by reforming procurement practices. These actions are important in their own right, since the Federal government is the nation's largest single energy user, but they can also set an important example for the private sector. In July, the President announced the first four elements of his federal energy plan.
 - **Energy Savings Performance Contracts (ESPCs).** The President directed all Cabinet agencies to expand the use of ESPCs. Under ESPCs, Federal agencies hire contractors to audit facilities, propose energy saving retrofits, and privately finance, install and maintain retrofits. Contractors are paid from a share of the savings and the remainder of savings are returned to the taxpayers and agencies. ESPCs can save as much as \$700 million/year and reduce greenhouse gas emissions by over 2 MMTC/year.
 - **Federal Lighting.** The Federal government will seek to purchase and install an additional 300,000 high-efficiency compact fluorescent bulbs over the next 3 years. This will generate electricity cost savings of \$13.5 million and prevent 40,000 metric tons of carbon (MTC) emissions over the life of the bulbs.
 - **Federal Energy Star Buildings.** The President directed all agencies to take the steps needed to bring existing Federal buildings up to the Energy Star standards (top 25% in energy efficiency).
 - **Sustainable Design in new Federal Buildings.** The Department of Defense and 6

other Federal agencies will adopt “sustainable design” standards in all new buildings. “Sustainable design” is an integrated approach reflecting an increased commitment to environmental stewardship and conservation, including energy efficient and environmentally preferable practices, products, and services.

In the coming months the President is committed to directing further efficiencies in Federal energy management, such as enhancing the procurement of energy efficient equipment, spurring increased use of alternative fuels and vehicles, and expanding renewable technology use by Federal agencies.

- **Domestic emissions trading.** The President has proposed a domestic emissions trading system to begin by 2008, after a decade of experience in reducing emissions. The goal of such a regime is to ensure that further cuts are achieved as cost-effectively as possible. The United States has used emissions trading successfully to reduce the pollution that causes acid rain -- exceeding environmental objectives at costs far lower than anticipated.
- **Scientific research.** The Administration is continuing strong support for the U.S. Global Change Research Program. This program is focused on increasing our knowledge of the timing and regional patterns of the climate changes we expect, the combined effects of natural variation and human actions, and the vulnerability of natural resources. A strong foundation of peer-reviewed science results will support sound policy making and the evaluation of actions taken to confront the challenge of climate change.

ACTIVITIES PREDATING OCTOBER 1997 CLIMATE CHANGE ANNOUNCEMENT

In 1993, following upon the Senate’s ratification of the Framework Convention on Climate Change, President Clinton launched the Climate Change Action Plan (CCAP). The CCAP focussed on promoting voluntary initiatives across a wide array of industries and sectors of the economy to reduce greenhouse gas emissions. Among the ongoing programs undertaken pursuant to the CCAP are:

- ***Climate Challenge.*** This program is a joint, voluntary effort between the Department of Energy (DOE) and the electric utility industry to reduce, avoid, or sequester greenhouse gases. Utilities identify and implement cost-effective activities that are specified in agreements between DOE and individual electric utilities. Under this program, the electric utility industry as a whole has also developed 9 industry-wide initiatives to research, develop, and promote technologies and practices that lower greenhouse gas emissions. Currently, Climate Challenge’s 641 partner utilities represent 71% of the U.S. 1990 electric generation and utility carbon emission. These utilities have pledged to undertake a diverse array of actions that will reduce emissions equal to 47 MMTC below a “business as usual” approach by 2000.
- ***Climate Wise.*** This program gives technical assistance to over 460 individual manufacturing companies that have entered into partnership agreements with the

Environmental Protection Agency (EPA) and DOE to reduce greenhouse gas emissions, increase productivity and save money. Companies submit comprehensive action plans that identify specific steps they will undertake between the time they enter into the compact and 2000. In 1997, Climate Wise partners saved \$80 million on their energy bills and prevented emissions equal to more than 8 MMTC. By 2000, EPA estimates that Climate Wise partners will save more than \$200 million.

- ***Industries of the Future.*** This program works with the nation's most energy-intensive industries to focus cooperative research on increasing energy and resource efficiency. Industries that have signed partnership agreements include: metal casting, aluminum, forest products, steel, chemical, mining, plant/crop based renewable resources. These industries could save over \$10 billion in industry energy costs by 2010 and significantly improve their energy and environmental performance.
- ***Million Solar Roofs.*** This initiative aims to place solar energy systems on 1 million roofs across the United States by 2010. After just 1 year, commitments have already been received for ½ million. In June, the President announced a new private sector partnership to provide homeowners with low cost loans to help meet the program's goal. The President's CCTI includes \$12 million in funding for this initiative, as well as \$120 million in tax credits. Meeting the program's goals will reduce carbon emissions equivalent to the annual emissions from 850,000 cars.
- ***Energy Star Products.*** The Energy Star Products program allows manufacturers of selected energy efficient products to promote their products with an "Energy Star" label. This allows consumers to easily identify products that save energy and money and help the environment. As of January 1998, over 500 manufacturers were participating in the program, offering more than 25 Energy Star products (3,400 models), ranging from computers to refrigerators to central air conditioning units. Products bearing the Energy Star label saved consumers more than \$740 million in 1997 and prevented emissions equal to some 2 MMTC, the equivalent of more than 1.5 million automobiles. In the year 2010, the full program is expected to generate cost savings of \$10.2 billion and prevent emissions equal to 23.7 MMTC.
- ***Energy Star Buildings and Green Lights.*** Energy Star Buildings and Green Lights Partnership promotes energy efficiency as a business strategy that owners and managers of commercial and industrial buildings can adopt to improve their bottom line and the environment. Under Green Lights, EPA provides technical information and support and environmental recognition to participants who agree to install energy efficient lighting. The Energy Star Buildings program expands upon Green Lights by encouraging individual building owners, developers and others to undertake more comprehensive building upgrades. This program leads a building owner through a five-stage strategy to capitalize on system interactions that maximize energy savings at minimum cost. Commercial and Federal buildings that are in the top 25% in energy efficiency are designated "Energy Star Buildings." Among the major buildings that have already signed up for the program are the

Empire State Building, the World Trade Center, and Chicago's Sears Tower.

To date, Energy Star Buildings and Green Lights have established partnerships with over 2,600 organizations that have upgraded the lighting in 3 billion square feet of commercial building space, saving themselves over \$500 million on their annual energy bills and preventing emissions equal to more than 1 MMTC in 1997 alone. In 2010, the full Energy Star Buildings and Green Lights programs are expected to generate energy cost savings of \$11.3 billion and prevent emissions equal to 23.9 MMTC.

- ***Partnership for a New Generation of Vehicles (PNGV).*** This initiative is a government-industry effort to develop cars that have 3X the fuel efficiency (hence 1/3 the greenhouse gas emissions) of today's autos. Meeting this goal would mean that the typical mid-size car would get 80 miles per gallon. This year the Big 3 U.S. automakers rolled-out prototypes that go far in advancing these objectives. The President's CCTI increases the proposed funding in FY99 for PNGV to \$277 million, up from \$227 million in FY98. The CCTI also includes tax credits to stimulate the early introduction of new generation automobiles and light trucks.

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Divider Title: _____

Talking Points on EIA's Analysis of Implementation of the Kyoto Protocol

September 1998

The Energy Information Administration's (EIA) recent analysis of the Kyoto Protocol is flawed. In modeling implementation of the Protocol, EIA fails to take into account the Protocol's flexibility mechanisms and incorrectly assumes that most businesses will fail to take action to address climate change until 2005 or later. In contrast, the Administration's economic analysis of the Protocol, released in July, demonstrates that with effective market mechanisms, meaningful developing country participation, and a realistic ramp up period, the costs of meeting the Kyoto target should be modest.

The EIA Analysis Fails to Model the Kyoto Protocol's Flexibility

- ***The EIA analysis fails to model international trading.*** EIA's model is not capable of modeling international emissions trading, even though this is a critical feature in reducing the cost of compliance for the United States and other countries. By contrast, the Administration explicitly modeled international trading, as has every modeling team participating in the exercise assessing Kyoto conducted under Stanford's Energy Modeling Forum -- which includes virtually all of the leading energy economic modelers in the world. These models have demonstrated that international trading among industrialized countries could lower costs of emissions reductions by as much as half.

EIA does attempt to include scenarios which assume an amount of domestic reductions intended to mirror the level of domestic reductions implied in the model used by the Administration. However, these EIA scenarios still overstate the cost of permits because they fail to take into account the way that an international market, bidding to a single international permit price, lowers cost.

- ***The EIA analysis fails to account for all six types of greenhouse gases.*** The EIA study assumes that the United States would achieve its target only through carbon dioxide reductions. In fact, the Kyoto Protocol covers all six major greenhouse gases, and permits countries to achieve their targets through reductions made in any of these gases. This flexibility allows countries and companies to make reductions in the most cost-effective manner possible, reducing the cost of compliance.

EIA Assumes Firms Take Little or No Action to Address Climate Change before 2005

- ***EIA assumes most firms do not anticipate climate change policies.*** In EIA's study, most businesses do not take action to address climate change until 2005, and therefore only have a short time until the 2008-2012 budget window to reduce emissions. Studies have demonstrated that the amount of lead time a company takes has dramatic economic implications. For example with EIA's model, a 5-year "ramp-up" (starting in 2005) would result in economic costs 65% greater than that associated with a 10-year "ramp-up" (starting in 2000). Thus, EIA's assumption that many businesses would fail to plan for the future results in higher projected costs.

- Already businesses are taking action to address climate change. For example, on September 18, British Petroleum announced its plan to reduce emissions of greenhouse gases worldwide by 10% below 1990 levels by the year 2010. In July, United Technologies announced their plan to reduce its worldwide energy consumption by 25% by the year 2007.

The EIA Analysis Does Not Include Policy Elements That Will Lower Costs

- In the Administration's analysis, additional elements of policy were recognized as having the potential to significantly decrease the costs of compliance and increase the amount of reductions that might be accomplished at home. These policies were not factored into the illustrative model the Administration cited, but were qualitatively taken into account in reaching the conclusion that the United States could meet its Kyoto target for a relatively modest cost. The EIA analysis, however, ignores elements such as forestry activities (covered under the Kyoto Protocol) and the Administration's electricity restructuring proposal, which could significantly lower compliance costs.

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EXECUTIVE SUMMARY OF U.S. DOMESTIC CLIMATE CHANGE PROGRAM

N O V E M B E R 1 9 9 8

"The vast majority of the world's climate scientists have concluded that if the countries of the world do not work together to cut the emission of greenhouse gases, then temperatures will rise and will disrupt the climate. In fact, most scientists say the process has already begun. [Today], I'm announcing a far-reaching proposal that provides flexible market-based and cost-effective ways to achieve meaningful reductions here in America. I want to emphasize that we cannot wait until the treaty is negotiated and ratified to act."

—President Clinton, October 22, 1997

PRESIDENT CLINTON'S OCTOBER 1997 PLAN

In October 1997, President Clinton outlined an environmentally and economically sound plan for reducing U.S. greenhouse gas emissions. This plan emphasizes win-win initiatives designed to cut emissions by increasing energy efficiency; develops new, cleaner energy technologies; works with industry and others to promote sensible solutions; and employs market-based mechanisms to ensure cost-effective reductions. The President's plan will prepare the United States to step up to the challenge of meeting the target set forth in the Kyoto Protocol (greenhouse gas emissions 7% below 1990 levels during the commitment period 2008-12)—once it is ratified by the United States.

Time and again the United States has faced environmental challenges that skeptics claimed would be impossible to solve without threatening the economy. Yet time and again, the ingenuity and creativity of U.S. businesses and consumers have shown that these challenges could be met with greater speed and less economic cost than anyone could have predicted. President Clinton's sensible domestic climate change program will allow for continued economic growth even as we begin to address one of the great environmental challenges of the 21st century. As awareness of the climate change challenge and its importance grows among U.S. businesses and consumers, private responses to the President's broad policy directions can be expected to accelerate.

Important elements of President Clinton's plan include:

- **Tax incentives and R&D.** The President's plan includes the **Climate Change Technology Initiative (CCTI)**—a vigorous program of tax cuts and research and development aimed at improving energy efficiency and spurring the use of renewable energy sources. The package amounts to an additional \$6.3 billion over 5 years (\$3.6 billion in tax cuts and \$2.7 billion in

new investment)—over and above what was planned already for climate change-related investments. The President recently signed the Fiscal Year 1999 appropriations bills, which include over \$1 billion for investments that will improve U.S. energy efficiency—a 26% increase over last year.

- The **investment package** stimulates research and development in the major carbon-emitting sectors of the economy—buildings, transportation, and industry. Among projects to be expanded are the Partnership for a New Generation of Vehicles, a government-industry effort to develop highly efficient cars, and the Partnership for Advancing Technology in Housing, aimed at cutting energy use in new homes by 50% and in retrofitted homes by 30%. Substantial funds also will be invested in research partnerships for key renewable energy technologies such as wind, photovoltaics, geothermal, biomass, and hydropower to reduce prices and improve performance.
- The **tax incentive package** includes a tax credit of up to \$4,000 for consumers who purchase highly efficient vehicles; a tax credit of up to \$2,000 for energy-efficient new homes; a 15% tax credit (with a \$2,000 cap) for rooftop solar equipment; a 20% tax credit (subject to a cap) for energy-efficient building equipment for homes and offices; a 10% tax credit for investment in combined heat and power systems; and an extension of a current tax credit of 1.5 cents a kilowatt hour for the production of electricity from wind and biomass.
- **Industry consultations.** A second component of the President's plan aims at building sector-by-sector partnerships with key energy-intensive industries to encourage voluntary efforts to cut emissions. These partnerships will identify opportunities for working together to remove barriers to the development and widespread use of energy-efficient technologies and practices. As part of these consultations, the Administration will discuss ways to ensure credit for businesses that act early.
 - High-level Administration officials already have met with top management of the following industries: aluminum, cement, publicly-owned and investor-owned electric utilities, forest products, gas pipelines, and steel. Meetings also have occurred with officials from a number of other key industries, including: airlines and aerospace, agriculture, chemicals, commercial real estate, electronics/semi-conductors, glass, residential housing, metal casting, and oil. More meetings will follow in the months to come.
 - On May 4, President Clinton announced an important new partnership with the homebuilding sector—the **Partnership for Advancing Technology in Housing (PATH)**. This partnership is designed to build new homes that are 50% more energy-efficient within a decade and to retrofit at least 15 million existing homes within a decade to make them 30% more energy-efficient. Meeting PATH goals would reduce annual carbon emissions in 2010 by an amount equal to nearly 24 million metric tons (MMTCE)—the amount produced by some 20 million cars—and would save consumers \$11 billion a year in energy costs by 2010.
- **Electricity restructuring.** Another core element of the President's plan involves restructuring the electricity industry in a manner that will reduce greenhouse gas emissions while cutting consumers' energy bills. The Administration's restructuring proposal includes a requirement that utilities open up their distribution and transmission wires to all qualified sellers; a renewable portfolio standard to increase the use of electricity from renewable sources to at least 5.5% of

sales by 2010; a \$6 billion/year Public Benefits Fund to spur greater investment in energy-efficiency and renewable energy technologies; and a green labeling requirement to inform consumers about their clean energy options. This plan is projected to reduce carbon emissions by roughly 25 to 40 MMTCE in 2010 while saving consumers at least \$20 billion a year on their electricity bills.

- **Federal energy use and procurement.** The President's plan also includes making substantial reductions in the Federal government's own greenhouse gas emissions by improving the energy efficiency of Federal facilities and activities and by reforming procurement practices. These actions are important in their own right, since the Federal government is the nation's largest single energy user, but also they can set an important example for the private sector. In July, the President announced the first 4 elements of his federal energy plan.
 - **Energy Savings Performance Contracts (ESPCs).** The President directed all Cabinet agencies to expand the use of ESPCs. Under an ESPC, a Federal agency hires contractors to audit facilities; propose energy-saving retrofits; and privately finance, install, and maintain retrofits. Contractors are paid from a share of the savings, and the remainder of savings are returned to the taxpayers and agency. Expanded use of ESPCs can reduce greenhouse gas emissions by over 2 MMTCE/year, reduce Federal energy use 30% below 1985 levels by 2005, and save as much as \$700 million/year.
 - **Federal Lighting.** The Federal government will seek to purchase and install an additional 300,000 high-efficiency compact fluorescent light bulbs over the next 3 years. This will prevent emissions equal to 40,000 metric tons of carbon (MTCE) over the life of the bulbs and generate electricity cost savings of \$13.5 million.
 - **Federal ENERGY STAR® Buildings.** The President directed all agencies to take the steps needed to bring existing Federal buildings up to the ENERGY STAR® standards (top 25% in energy efficiency).
 - **Sustainable Design in New Federal Buildings.** The Department of Defense and 6 other Federal agencies will adopt "sustainable design" standards in all new buildings. "Sustainable design" is an integrated approach reflecting an increased commitment to environmental stewardship and conservation, including energy-efficient and environmentally preferable practices, products, and services.

In the coming months the President is committed to directing further efficiencies in Federal energy management, such as enhancing the procurement of energy-efficient equipment, spurring increased use of alternative fuels and vehicles, and expanding renewable technology use by Federal agencies.

- **Domestic emissions trading.** The President has proposed a domestic emissions trading system to begin by 2008. Emissions trading would harness the power of the market to achieve a national greenhouse gas target at the lowest possible cost. The United States has used emissions trading successfully to reduce the pollution that causes acid rain—exceeding environmental objectives at about 50% below the expected cost.
- **Scientific research.** The Administration is continuing strong support for the U.S. Global Change Research Program. This program is focused on increasing our knowledge of the timing and regional patterns of expected climate changes, the combined effects of natural variation and

human actions, and the vulnerability of natural resources. A strong foundation of peer-reviewed science results will support sound policy making and the evaluation of actions taken to confront the challenge of climate change.

PROGRAMS PREDATING THE PRESIDENT'S OCTOBER 1997 PLAN

In 1993, following The United States' ratification of the Framework Convention on Climate Change, President Clinton launched the Climate Change Action Plan (CCAP). The CCAP focuses on promoting voluntary initiatives across a wide array of industries and sectors of the economy to reduce greenhouse gas emissions. Among the ongoing programs undertaken pursuant to the CCAP are:

- **Partnership for a New Generation of Vehicles (PNGV).** This initiative is a government-industry effort to develop cars that have 3 times the fuel efficiency (one-third the greenhouse gas emissions) of today's autos. Meeting this goal would mean that the typical midsize car would have an efficiency of 80 miles per gallon. This year all 3 major U.S. automakers announced concept vehicles that go far in advancing these objectives. The President's Climate Change Technology Initiative proposes increased funding for PNGV and also includes tax credits to stimulate the early introduction of new generation automobiles and light trucks. Substantial increases in funding for PNGV were included as part of the Fiscal Year 1999 appropriations bills recently signed into law.
- **Climate Challenge.** This program is a joint, voluntary effort between the Department of Energy (DOE) and the electric utility industry to reduce, avoid, or sequester greenhouse gases. Utilities identify and implement cost-effective activities that are specified in agreements between the Federal government and individual electric utilities. Under this program, the electric utility industry as a whole also has developed 9 industry-wide initiatives to research, develop, and promote technologies and practices that lower greenhouse gas emissions. Currently, Climate Challenge's partner utilities now number over 600 and represent 71% of the U.S. 1990 electric generation and utility carbon emissions. It is estimated that pledged Climate Challenge partners' actions will reduce emissions by 47 MMTCE in 2000.
- **Climate Wise.** This program gives technical assistance to over 450 individual manufacturing companies that have entered into partnership agreements with the Federal government to reduce greenhouse gas emissions, increase productivity, and save money. Companies submit comprehensive action plans that identify specific steps they will undertake between the time they enter into the compact and 2000. In 1997, Climate Wise partners prevented emissions equal to more than 8 million metric tons of carbon (MMTCE) and saved \$80 million on their energy bills. By 2000, it is estimated that Climate Wise partners will reduce emissions by more than 9.5 MMTCE and cut energy costs by more than \$350 million.
- **Industries of the Future.** This program works with the nation's most energy-intensive industries to focus cooperative research on increasing energy and resource efficiency. Industries that have signed partnership agreements include: metal casting, aluminum, forest products, steel, chemicals, mining, and plant/crop-based renewable resources. It is estimated that partners will prevent emissions of 25 MMTCE by 2010 and realize a \$4 billion savings in energy costs.
- **Million Solar Roofs.** This initiative aims to place solar energy systems on 1 million roofs across the United States by 2010. After just 1 year, commitments already have been received for a half million systems. In June, a new private sector partnership was announced to provide homeown-

ers with low-cost loans for rooftop solar systems and to help meet the program's goal. The President's CCTI includes \$12 million in funding for this initiative, as well as \$120 million in tax credits. Substantial increases in funding were included as part of the Fiscal Year 1999 appropriations bills recently signed into law. Meeting the program's goal will reduce carbon emissions equivalent to the annual emissions from 850,000 cars.

- **Motor Challenge.** Motor Challenge, Steam Challenge, Combined Heat and Power Challenge, and Compressed Air Challenge are a group of voluntary program initiatives aimed at improving energy efficiency in U.S. manufacturing plants by breaking down market barriers to the development and diffusion of energy-efficient technologies and practices. These 4 programs offer a variety of technical assistance, tools, and information to industry. By 2015, the 4 initiatives are expected to reduce emissions by 20 MMTCE and will generate \$3 billion in annual cost savings.
- **Energy-efficiency Standards for Equipment and Appliances.** To save energy and reduce consumer utility bills, the U.S. Government develops test procedures and national minimum energy-efficiency standards for equipment and appliances, such as heating and cooling equipment, water heaters, lighting, refrigerators, clothes washers and dryers, and cooking equipment. Through 1997, residential appliance standards have avoided cumulative emissions of 30 MMTCE and saved consumers a cumulative \$10.5 billion. By 2010, the currently enacted standards cumulatively will have avoided cumulative emissions of 150 MMTCE and saved consumers \$33 billion.
- **ENERGY STAR® Products.** The ENERGY STAR® Products program allows manufacturers of selected energy-efficient products to promote their products with an "ENERGY STAR®" label. This allows consumers to easily identify products that help the environment and save energy and money. Over 3,000 highly efficient ENERGY STAR® product models currently are available to consumers, ranging from computers to refrigerators to central air-conditioning units. Accompanied by a national consumer education campaign, the ENERGY STAR® program prevented emissions of 2 MMTCE—the equivalent of more than 1.5 million automobiles—and saved consumers more than \$740 million in 1997. By 2010, the full program is expected to prevent emissions of 23 MMTCE and generate cost savings of \$10 billion.
- **ENERGY STAR® Buildings and Green Lights.** The ENERGY STAR® Buildings and Green Lights Partnership encourages individual building owners, developers, and managers to install energy-efficient lighting and undertake a 5-stage strategy to capitalize on system interactions that maximize energy savings at minimum cost. Commercial and Federal buildings that are in the top 25% in energy efficiency qualify for an "ENERGY STAR® Buildings" label. Among the major buildings that already have signed up for the program are the Empire State Building, the World Trade Center, and Chicago's Sears Tower.

To date, ENERGY STAR® Buildings and Green Lights have established partnerships with over 2,600 organizations that have upgraded the lighting in 3 billion square feet of commercial building space, preventing emissions equal to more than 1 MMTCE in 1997 alone and saving themselves over \$500 million on their annual energy bill. In 2010, the full ENERGY STAR® Buildings and Green Lights Partnership is expected to prevent emissions of 23.9 MMTCE and generate energy cost savings of \$11.4 billion.

U.S. DOMESTIC CLIMATE CHANGE PROGRAM (continued)

- **Voluntary Aluminum Industrial Partnership (VAIP).** This partnership between the U.S. Government and the U.S. domestic aluminum industry seeks to reduce perfluorocarbon (PFC) (an extremely potent greenhouse gas) emissions while increasing the efficiency of primary aluminum production. Since the VAIP was launched in April 1995, membership has grown to include 11 of the nation's 12 primary aluminum producers, representing 22 smelters and 94% of U.S. production capacity. In 1996, partners reduced their emissions by 1.45 MMTCE. VAIP partners cumulatively have committed to reducing PFC emissions by 45% from 1990 levels by 2000—equal to 2.2 MMTCE.
- **WasteWi\$e.** WasteWi\$e works with American businesses; federal, state, local, and tribal governmental agencies; and other institutions to reduce municipal solid waste. Presently, more than 800 organizations are WasteWi\$e partners. Waste reduction activities reduce greenhouse gas emissions in several ways, including energy savings, increased carbon sequestration, and avoided methane emissions. In 1997 alone, the combined waste reduction results of WasteWi\$e partners prevented emissions of 5 MMTCE—equivalent to the average annual emissions from electric power consumption of roughly 3.0 million households.
- **Methane Reduction Programs.** The U.S. Government administers a variety of industry-government voluntary partnerships that significantly reduce U.S. methane emissions from a variety of sources: the Landfill Methane Outreach Program, the Coalbed Methane Outreach Program, Natural GasSTAR, AgSTAR, and the Ruminant Livestock Efficiency Program. In each case, the programs encourage the profitable collection and use of methane, as opposed to its release to the atmosphere. In 1997, participants in the programs reduced methane emissions by 3.7 MMTCE—equivalent to the emissions from more than 3 million automobiles. By 2010, these programs are expected to avoid 22 MMTCE of methane emissions.
- **Energy Smart Schools.** This national partnership brings together public and private sector resources to cut energy bills in schools and reinvest the savings in students and their education. The program will work with primary and secondary school systems to reduce energy use, energy costs, and greenhouse gas emissions. It is estimated that a 25% reduction in schools' energy use will cut annual U.S. greenhouse gas emissions by 3-4 MMTCE.
- **Bioenergy.** The U.S. government administers a variety of programs, in partnership with industry, on the research, development, and deployment of bioenergy resources and technologies, including electricity production, fuels for transportation, and industrial processing and manufacturing. These programs provide both federal tax incentives and funding for R&D and demonstration projects to encourage the use of biofuels. Currently, bioenergy is one of the leading renewable energy technologies in the United States—accounting for 3-4% of primary energy consumption—and one of the few technologies that can recycle and sequester carbon.
- **Carbon Sequestration in Agriculture and Forestry.** Carbon sequestration and carbon "sinks" will play a critical role in helping the world meet the challenge of climate change. Recently, there has been an intensified focus and greater understanding of how agriculture and forestry practices can greatly affect the ability of farmland and forests to sequester carbon and help mitigate climate change effects. As a result, the U.S. Government has begun to analyze the net carbon effects of its various conservation and environmental programs and to determine how they can be enhanced and expanded to foster greater sequestration. In general, these programs assist farmers, ranchers, and other landowners in conserving and improving soil, water, and other natural resources associated with rural land.

- ***State and Local Climate Change Program.*** The State and Local Climate Change Program helps states and communities reduce greenhouse gas emissions by providing guidance and technical information to help prepare inventories of their greenhouse gas emissions, assess and build awareness of the impacts of climate change, and develop action plans to reduce emissions. The program also provides technical and financial assistance to help states integrate climate change initiatives with existing state programs. Based on initial estimates, the program will help reduce U.S. greenhouse gas emissions by 1.9 MMTCE in 2000 and 4.2 MMTCE in 2010.
- ***U.S. Country Studies Program.*** This program provides financial and technical assistance to developing countries and countries with economies in transition in addressing the problem of global climate change, particularly within the context of the U.N. Framework Convention on Climate Change (UNFCCC). Since 1993, funding for the Country Studies Program has totaled \$40 million. The program assists countries to: inventory their emissions of greenhouse gases; assess their potential vulnerability to climate change and approaches for adapting to such change; identify and evaluate options for controlling these gases or increasing sinks; develop national plans for responding to climate change; assess related technological needs; and increase public understanding of climate change.

(Because of the interaction effects of programs designed to reinforce each other, it would not be appropriate to add together emissions reductions estimates for all programs listed above to arrive at an estimate of total U.S. reductions. Furthermore, there is a substantial amount of uncertainty associated with any of these projections because the estimates attempt to quantify projected technology adoption more than a decade into the future.)

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FACT SHEET ON CLIMATE CHANGE TECHNOLOGY INITIATIVE

N O V E M B E R 1 9 9 8

An important component of the President's October 1997 plan to reduce U.S. greenhouse gas emissions is the **Climate Change Technology Initiative (CCTI)**—designed to provide an additional \$6.3 billion over 5 years of tax incentives and research and development investment to stimulate the development and use of energy-efficient technologies, clean energy sources, and carbon sequestration. The CCTI builds and expands upon an existing foundation of advanced science, basic research, and government-industry partnership. It will increase U.S. competitiveness, reduce U.S. dependence on foreign oil, help maintain U.S. leadership in energy technology, and reduce greenhouse gas emissions at the same time. In response to the CCTI, the Fiscal Year 1999 appropriations bills recently signed into law by the President include over \$1 billion for investments that will improve U.S. energy efficiency—a 26% increase over last year.

\$2.7 billion in new R&D investment. The CCTI contains \$2.7 billion over the next 5 years in additional research and development spending—covering the 4 major carbon-emitting sectors of the economy (buildings, industry, transportation, and electricity), plus carbon removal and sequestration, Federal facilities, and cross-cutting analyses and research. Selected examples of the R&D effort include:

- **Partnership for a New Generation of Vehicles (PNGV).** Government-industry effort to develop safe, attractive, affordable cars that get up to 3 times the fuel efficiency of today's cars. Similar efforts are underway to develop cleaner, more efficient diesel engines for both light trucks and heavy trucks.
- **Partnership for Advanced Technologies in Housing (PATH).** Partnership with the homebuilding industry to develop, demonstrate, and deploy housing technologies and practices that are inexpensive, highly efficient, and attractive to consumers. PATH's goal is to build new homes that are 50% more energy efficient within a decade and to retrofit at least 15 million existing homes to make them 30% more energy efficient.
- **Industries of the Future.** Research partnerships with energy-intensive industries focused on increasing energy and resource efficiency. Increased funding will permit expansion of the program to include 2 new industry sectors—mining and agriculture. Package also includes increased funding for Motor Challenge, which focuses on saving energy through better motor technology.
- **Million Solar Roofs.** Increased funds for DOE cost-reduction R&D for solar thermal and rooftop PV systems to help meet the President's goal of placing solar installations on 1 million roofs over the next 10 years. Million Solar Roofs will establish partnerships with communities, builders, and other Federal agencies to promote the use of building-mounted solar systems.
- **Bioenergy.** Increased funds for accelerated deployment of rural bioenergy projects that will provide the power industry with opportunities to produce electricity with very low net greenhouse gas emissions while giving farmers an alternative market for crops.
- **Wind Power.** Increased funds for the development of the next generation of wind turbines, which have the potential to make wind power cost-competitive with natural gas.

CLIMATE CHANGE TECHNOLOGY INITIATIVE (continued)

\$3.6 billion in tax credits. The CCTI also contains \$3.6 billion over the next 5 years in tax cuts for purchases of energy-efficient and renewable energy technologies.

- ***Tax credits for fuel-efficient cars.*** Includes tax credits of \$3,000 to \$4,000 for consumers who purchase highly fuel-efficient vehicles.
- ***Tax credits for rooftop solar systems.*** Provides a 15% credit (up to \$2,000) for purchases of rooftop solar electricity and hot water systems.
- ***Other tax credits for energy efficiency.*** Includes a \$2,000 credit for purchasing energy-efficient new homes; a 20% credit (subject to a cap) for purchasing energy-efficient building equipment; a 10% tax credit for investment in combined heat and power systems; and an extension of the current tax credit of 1.5 cents a kilowatt hour for the production of electricity from wind and biomass.

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FACT SHEET ON INDUSTRY CONSULTATIONS

N O V E M B E R 1 9 9 8

A key component of the President's October 1997 plan to reduce U.S. greenhouse gas emissions is to build voluntary partnerships with energy-intensive industries to develop strategies to cut emissions. Consultations are identifying opportunities for the development and diffusion of energy-efficient or less carbon-intensive technologies and practices, and, in the case of agriculture and forestry, carbon storage. As part of this process, the Administration actively solicits ideas from industry about how to remove technical and regulatory barriers and foster innovative ways that government can support industry's efforts to reduce net emissions. Consultations also are addressing ways to ensure credit for those businesses that take early action.

HIGH-LEVEL DIALOGUE

Pursuant to the President's initiative, senior White House staff have initiated dialogues with high-level officials from key industries over the past several months on voluntary emissions reductions, including:

- Aluminum
- Cement
- Electric Power
- Forest Products
- Gas Pipelines
- Steel

Initial consultations have begun with officials from a number of other key industries, including: airlines and aerospace, agriculture, chemicals, commercial real estate, electronics/semi-conductors, glass, residential housing, metal casting, and oil. Dialogues with additional key, energy-intensive industries will be initiated in the months to come.

REAL REDUCTIONS

As part of the consultative process, the Administration is encouraging industries to review their current energy practices, conduct emissions inventories, and establish systems for ongoing emissions measurement. The Administration also is encouraging industries to articulate "stretch goals" for emissions reductions and improved energy efficiency and to set forth action plans for achieving these goals.

BUILDING ON WHAT WORKS

The Administration's industry consultations initiative builds on successful voluntary approaches developed under 1993's Climate Change Action Plan (CCAP), including: **Climate Challenge** (partnership program with electric utili-

PARTNERSHIP FOR ADVANCING TECHNOLOGIES IN HOUSING (PATH)

The Administration's dialogue with the home-building sector has produced an important new partnership. PATH, announced in May, seeks to design and build new homes that are 50% more energy efficient within a decade and to retrofit at least 15 million existing homes within a decade to make them 30% more energy efficient. PATH joins government and industry in a coordinated strategy to identify promising housing technologies and swiftly move them to market. Meeting PATH goals would reduce annual emissions equal to nearly 24 million metric tons of carbon (MMTCE)—the amount produced by 20 million cars—and save consumers \$11 billion a year in energy costs by 2010.

INDUSTRY CONSULTATIONS (continued)

ties to reduce emissions); **Climate Wise** (manufacturing partnership program); **Industries of the Future** (cooperative research program with energy-intensive industries); **Voluntary Aluminum Industrial Partnership** (emissions reduction program involving 90% of U.S. aluminum industry); and **Natural Gas STAR** (methane emissions reduction program).

EARLY CREDIT

Consultations with industry and non-governmental organizations have included discussions on how companies can receive credit for actions taken to reduce emissions or increase carbon removal by storage before the start of the first commitment period under the Kyoto Protocol (2008-2012). The President has made clear that he is committed to providing credit for early action, and the Administration will continue working with the private sector on this issue.

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FACT SHEET ON PARTNERSHIP FOR ADVANCING TECHNOLOGIES IN HOUSING

N O V E M B E R 1 9 9 8

In May 1998, President Clinton launched a new partnership with America's building industry to improve the energy efficiency of U.S. homes dramatically—cutting consumers' energy bills by 30-50%, while significantly reducing greenhouse gas emissions. Over the next decade, the **Partnership for Advancing Technologies in Housing (PATH)** seeks to cut energy use by 50% in new homes and by 30% in 15 million retrofitted existing homes. By fostering the development and deployment of 21st century housing technologies, PATH has the potential to reduce annual emissions equal to nearly 24 million metric tons of carbon (MMTCE)—the amount produced by some 20 million cars—and save consumers \$11 billion a year in energy costs by 2010.

ADVANCED HOUSING FOR THE 21ST CENTURY

Residential energy use currently accounts for about 20% of U.S. emissions of greenhouse gases. PATH will make possible homes that are stronger, more affordable, and far more energy-efficient. It brings together Federal agencies, state and local governments, and the building, finance, and insurance industries to spur design and construction innovations for the next generation of American housing. Important industry partners that have signed on to this effort include the National Association of Home Builders, the Manufactured Housing Institute, and the Institute for Business and Home Safety.

COLLABORATIVE RESEARCH ON NEXT-GENERATION TECHNOLOGIES

PATH will bring together the best minds of the public and private sectors to develop and evaluate new technologies that can achieve both performance and cost goals. A national Conference on the Future of the American House in 1999 will help set the research agenda. Examples of promising technologies include: ultra-efficient heating and cooling systems, a new generation of windows that provide as much insulation as most walls today, and roof shingles that generate solar power.

PATH PROJECTS AROUND THE COUNTRY

Several major developments around the country—some still in the planning stages, others already underway—will serve as the first PATH pilot projects:

- Los Angeles (186 single-family homes);
- Tucson (2,500 homes);
- Pittsburgh (713 homes); and
- Denver (airport and air base redevelopment).

These pilot sites will begin developing the markets for, and demonstrating the feasibility of, new generation housing technologies. They also will act as training sites for builders and community leaders to learn about the benefits of the technologies and how to use them.

MOVING TECHNOLOGY FROM THE LABORATORY TO THE MARKETPLACE

Because the housing industry is large and dispersed, it can take 10 to 25 years for a new technique or product to gain wide acceptance. PATH aims to cut that time in half by removing market barriers, developing national testing and evaluation standards, and streamlining approval processes. A blue-ribbon panel made up of experts from among PATH members

will investigate regulatory and other barriers. Federal, state, and local organizations are committed to helping remove unnecessary barriers and encourage adoption of cost-effective new technologies. PATH's website (<http://www.pathnet.org>) will help ensure that builders, suppliers, and consumers have access to the latest information about innovative products.

TAX INCENTIVES FOR ENERGY EFFICIENCY

The President's Climate Change Technology Initiative (CCTI) includes \$200 million in tax credits for purchases of ultra-efficient homes and \$1.4 billion in tax credits for energy-saving systems and appliances for buildings and homes. In response to the CCTI, the Fiscal Year 1999 appropriations bills recently signed into law by President Clinton include a substantial increase in funding to build this new partnership as well as increased funding for research and development related to energy-efficient appliances and systems.

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FACT SHEET ON ELECTRICITY RESTRUCTURING

N O V E M B E R 1 9 9 8

Restructuring the U.S. electricity sector and opening it up to competitive market forces is a key part of President Clinton's climate change initiative. Enactment of legislation along the lines of the President's Comprehensive Electricity Competition Plan will reduce carbon emissions roughly equal to 25 to 40 million metric tons (MMTCE) in 2010 and save consumers at least \$20 billion a year on their electricity bills.

HOW RESTRUCTURING WOULD WORK

Under electricity restructuring, competition will replace regulation as the primary mechanism for setting electricity generation prices. In the past, U.S. electrical utilities were generally State-regulated monopolies that were permitted to charge customers a regulated rate for electric power based on the cost of production plus a "rate of return" on investment. Under restructuring, electricity generation would become a competitive market, and utilities would be required to open up their distribution and transmission wires to all qualified sellers. At the same time, the actual distribution and transmission of electricity would continue to be regulated because these functions will remain monopolies for the foreseeable future. The system would be restructured, not completely deregulated.

BENEFITS OF COMPETITION

Today, a typical older fossil fuel electricity generator wastes two-thirds of the energy it produces. Monopoly regulation does little to discourage this type of inefficiency. Under restructuring, a generator that wrings as much energy as it can from every unit of fuel will be rewarded by the market. In addition, under restructuring, competitive sellers can be expected to maximize the value of their product offerings by bundling electricity with energy efficiency and management services.

Thus, a more competitive electricity industry will provide immense benefits to both individual U.S. consumers and the U.S. economy as a whole. It will result in a cleaner environment, lower prices, greater innovation and new services, a more reliable power supply grid, and will save the government money.

Cleaner Environment. Restructuring will produce significant environmental benefits through both market mechanisms and policies that promote investment into energy efficiency and renewable energy. The Administration's Competition Plan is projected to reduce greenhouse gas emissions by roughly 25 to 40 MMTCE in 2010. Specific environment-enhancing provisions of the plan include:

- Establishment of a non-hydroelectric **Renewable Portfolio Standard** to ensure that at least 5.5% of all electricity sales include generation from renewable sources by 2010.
- Establishment of a \$6 billion/year **Public Benefits Fund** to provide matching funds to states for energy-efficiency programs, renewable technologies, low-income assistance, and other purposes.
- "Green" labeling to help consumers who value clean energy choose it.
- A net metering provision encouraging the installation of small renewable systems.

ELECTRICITY RESTRUCTURING (continued)

Cost Savings. The Administration estimates that retail competition will save consumers at least \$20 billion a year on their electricity bills. This translates into projected savings for the typical family of four of \$232 a year—\$104 of direct savings plus another \$128 of indirect savings arising from the lower costs of other goods and services.

Economic Growth. Competition also will spark innovation in the American economy, creating new industries, jobs, products, and services just as telecommunications reform spawned widespread use of cellular phones and other new technologies. This will further strengthen the U.S. position as the world's most vibrant and dynamic economy.

Fiscal Benefits. Competition is likely to reduce total government spending—federal, state, and local—on electricity by at least 10%, a savings of close to \$2 billion a year, helping governments maintain balanced budgets into the future while meeting critical public needs.

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FACT SHEET ON FEDERAL ENERGY EFFICIENCY

N O V E M B E R 1 9 9 8

President Clinton's plan to reduce U.S. domestic greenhouse gas emissions includes an aggressive effort to reduce the Federal government's own emissions by improving the energy efficiency of Federal facilities and activities and by reforming government procurement practices.

The Federal government is the United States' largest energy consumer with an annual energy bill of \$8 billion. Over 90% of this energy derives from fossil fuels. Improving Federal energy efficiency saves taxpayer dollars, cuts emissions that contribute to global warming, and expands markets for energy-efficient and renewable technologies. Progress towards these goals currently is being made through the initiatives outlined below.

EXPANDED USE OF ENERGY SAVINGS PERFORMANCE CONTRACTS

In July 1998, President Clinton directed all Cabinet agencies to expand the use of Energy Savings Performance Contracts (ESPCs) and other alternative financing, and to step up efforts to reduce Federal energy use to 30% below 1985 levels by 2005. ESPCs leverage private sector investment and expertise to accomplish energy and cost-saving projects in Federal facilities at little or no cost to taxpayers. Under ESPC authority, Federal agencies hire contractors to audit facilities, propose energy saving retrofits, and privately finance, install, and maintain retrofits. Contractors are paid from a share of the savings, with the remaining savings returned to the taxpayers and the agency.

Streamlined ESPC contracts put in place by the Department of Defense (DOD) and the Department of Energy (DOE) already have accelerated large investments in energy projects at many Federal facilities. In July, DOE announced \$1.5 billion in new ESPC contract authority, bringing to \$5 billion the total amount of ESPC authority currently available to Federal agencies. ESPCs can cut over 2 million metric tons of carbon (MMTCE) emissions and save as much as \$700 million a year. The President has directed Federal agencies to develop proposals on ways in which ESPC authority can be expanded, and Congress recently voted to renew existing ESPC authority through 2002.

FEDERAL LIGHTING PURCHASING AND RETROFIT CAMPAIGN

The President's July initiative includes a vigorous effort to upgrade institutional lighting fixtures and to purchase and install an additional 300,000 compact fluorescent bulbs over the

NEXT STEPS

Significant strides already have been made in improving Federal energy efficiency—energy consumption per square foot in Federal buildings is down 15%, and energy use in civilian and military vehicles is down approximately 27% from 1985 levels. However, much more can and will be done. In the coming months, the President is committed to directing further efficiencies in Federal energy management, such as: enhancing the procurement of energy-efficient equipment; spurring increased use of alternative fuels and vehicles; expanding renewable technology use by Federal agencies; and expanding knowledge of sustainable building practices by making Federal energy management training materials available by internet and satellite broadcast.

FEDERAL ENERGY EFFICIENCY (continued)

next 3 years. This will prevent up to 600,000 metric tons of carbon emissions (MTCE) over the life of the fixtures and generate electricity cost savings of over \$10 million/year for 3 years through upgrades of old-style institutional lighting fixtures.

FEDERAL ENERGY STAR® BUILDINGS

The ENERGY STAR® Building Label is offered to the top 25% of energy-efficient buildings. In July, the President directed all agencies to take the steps needed to bring existing Federal buildings up to the ENERGY STAR® standards through the use of ESPCs, utility programs, and other agency funded efforts. Increasing energy efficiency will save money in energy bills and reduce the emissions that contribute to global warming.

SUSTAINABLE DESIGN IN NEW FEDERAL BUILDINGS

In July, the President announced that DOD and 6 other Federal agencies will adopt "sustainable design" standards in all new buildings. DOD, for example, has committed to build facilities that use as much as 50% less energy than similar buildings. "Sustainable design" is an integrated approach reflecting increased commitment to energy-efficient and environmentally preferable practices, products, and services. Sustainable design standards can reduce emissions by over 90 MTCE a year and cut energy costs for a typical medium-sized office building by \$70,000 a year.

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FACT SHEET ON U.S. GLOBAL CHANGE RESEARCH PROGRAM

N O V E M B E R 1 9 9 8

The U.S. Global Change Research Program (USGCRP) is a \$1.82 billion national, interagency research program. Its goals are to increase understanding of the Earth and human and naturally induced changes in the Earth's environment; to assess the consequences of, and society's vulnerability to, those changes; and to provide a sound scientific basis for decision-making on global change issues.

PROVIDING A SOUND SCIENCE FOUNDATION FOR POLICY DECISIONS

Much is known about the science of climate change. Most fundamentally, it is known that atmospheric concentrations of carbon dioxide and other greenhouse gases are rising as a result of the burning of fossil fuel. Much of the uncertainty of climate change science is focused not on whether increased greenhouse gas concentrations will cause global warming, but rather on exactly how fast and how much temperatures will rise and how climate extremes will be affected. Those are significant questions with far-reaching policy implications. The goal of the continuing U.S. climate change research program is to help reduce those uncertainties and give policymakers a better understanding of both the global and regional impacts of climate change.

CORE RESEARCH AREAS

- ***Seasonal to Interannual Climate Variability:*** Acquire the understanding and skills in order to reliably forecast short-term climate fluctuations such as El Niño.
- ***Climate Change Over Decades to Centuries:*** Understand, predict, and assess changes in climate resulting from natural causes and human activities, and assess the vulnerability of society, ecosystems, and natural resources to long-term changes in climate.
- ***Changes in Ozone, UV Radiation, and Atmospheric Chemistry:*** Monitor, understand, and characterize chemical changes in the global atmosphere and assess their consequences for the well-being of society and ecosystems.
- ***Changes in Land Cover and Terrestrial and Aquatic Ecosystems:*** Understand, predict, and assess the causes and consequences of changes in land cover, and in terrestrial and aquatic ecosystems.

NEW RESEARCH DIRECTIONS

- ***Nation's Vulnerability to Climate Change:*** Apply available analytical and modeling tools to assess U.S. vulnerability to climate change on a region-by-region, cross-region, and cross-sector basis (i.e., water, food).
- ***Sources and Repositories of Atmospheric CO₂:*** More accurately identify and quantify sources and sinks for carbon; understand how movement of carbon from one reservoir to another influences climate change; and assess potential opportunities to store and/or manage carbon for the purposes of coping with climate change.
- ***Ecosystem Health and Function:*** Identify and understand the requirements and processes responsible for ecosystem health and function; assess the consequences of the direct and indirect human impacts on ecosystems.

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FACT SHEET ON PARTNERSHIP FOR A NEW GENERATION OF VEHICLES

N O V E M B E R 1 9 9 8

In 1993 President Clinton, Vice President Gore, and the CEOs of the 3 major U.S. domestic auto makers announced the **Partnership for a New Generation of Vehicles (PNGV)**. PNGV joins the U.S. Federal government (7 agencies and 20 federal laboratories) and Chrysler, Ford, and General Motors in an effort to develop safe, attractive, affordable automobiles that get up to 3 times the fuel efficiency of comparable vehicles sold today. This would mean that a typical midsize car would be able to achieve 80 miles per gallon.

POTENTIAL BENEFITS OF PNGV

The number of registered vehicles in the United States is expected to climb from 198 million in 1996 to as many as 253 million in 2010, making PNGV's success critical to controlling U.S. and world greenhouse gas emissions. The program also will result in low-cost methods for controlling other urban air pollutants, reduce U.S. dependence on foreign oil, and enhance America's competitiveness in clean, sustainable technologies.

NEXT STEPS

PNGV's ambitious goals are seemingly within reach, given the advances in key technologies that have been achieved during the relatively short life of the program. Since 1993, great strides have been made in the production of lower-cost, light-weight materials for the vehicle body and frame; electrical control systems; batteries; compact, inexpensive fuel cells; and advanced internal combustion engines for use in hybrid vehicles.

An enormous amount of work remains to be done, however, to convert these concepts into practical production vehicles. While the bulk of investments in vehicle development will be made by the industry, Federal cost-sharing and incentive-setting is essential to stimulating the introduction of key new technologies. That is why the President's Climate Change Technology Initiative (CCTI) includes a substantial increase in funding for all PNGV-related work, including funds for developing fuel cells that can substitute for today's internal combustion engine, advanced direct injection diesel cycle engines, and low-NO_x methanol-fueled diesel engines. In response to this initiative, the Fiscal Year 1999 appropriations bills recently signed by President Clinton include a substantial increase in PNGV-related funding.

PROGRESS ON CONCEPT CARS

A direct result of PNGV is the development of "concept cars"—including hybrid vehicles that combine a traditional power source with battery storage and electric motors—that appear capable of approaching PNGV's fuel efficiency and emissions goals without sacrificing safety, performance, or cost. At this year's Detroit Auto Show, all 3 major U.S. auto manufacturers had such concept cars on display. Ford, for instance, demonstrated its P2000 concept car that uses advanced materials to reduce the weight of a full-size vehicle by 40%. Combined with an advanced direct-injection engine, the P2000 is projected to deliver 63 miles per gallon. More recently, at this September's Paris Auto Show, General Motors introduced the first drivable fuel cell vehicle.

PARTNERSHIP FOR A NEW GENERATION OF VEHICLES (continued)

The CCTI also proposes tax credits to stimulate early introduction of new generation automobiles and light trucks. Under the President's plan, in 2000 a credit of up to \$3,000 would be provided for vehicles achieving 2 times the efficiency of today's comparable vehicles, and in 2003 a credit of up to \$4,000 would be provided for cars that achieve 3 times today's efficiency. The Administration also continues to work with industry to explore other tax credit options that would spur increased use of more efficient cars and trucks.

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FACT SHEET ON CLIMATE CHALLENGE

N O V E M B E R 1 9 9 8

Climate Challenge is a joint, voluntary effort of the Department of Energy (DOE) and the U.S. electric utility industry to reduce, avoid, or sequester greenhouse gases. Utilities identify and implement cost-effective activities that are specified in agreements between DOE and individual electric utilities. Electric utility trade associations are active in promoting the program and developing industry-wide initiatives. DOE estimates that pledged Climate Challenge partners' actions will reduce emissions equal to 47 million metric tons of carbon (MMTCE) in 2000.

REAL REDUCTIONS

Climate Challenge has been successful in helping shift the thinking of electric utility management and strategic planners, making greenhouse gas emissions mitigation part of their corporate culture and philosophy. Examples of real reductions include:

- **Tennessee Valley Authority** is planning to co-fire wood waste on a continuous, commercial basis at several of its plants. Substituting wood waste for coal causes no net addition of CO₂, since the CO₂ emitted is part of the natural carbon cycle.
- Several utilities, including **Jacksonville (Fla.) Electric Authority**, have committed to landfill gas and generation projects. Others, such as **Allegheny Power**, are seeking to recover methane from coal mining operations.
- In the first market-based CO₂ emissions trade between electric utilities, **Niagara Mohawk Power** exchanged 1.75 million tons of CO₂ reductions for **Arizona Public Service Company's** 25,000 tons of SO₂ allowances (which have an established market value under the 1990 Clean Air Act Amendments). Niagara Mohawk then donated the SO₂ allowances to a non-profit environmental group to be retired, helping mitigate both acid rain and global climate change.

Other actions that utilities have committed to in their agreements include: efficiency improvements in end-use, distribution, transmission, and generation; increased use of electrotechnologies; fuel switching to lower carbon fuels (e.g., natural gas, nuclear, or renewables); transportation actions, including greater use of natural gas-powered and electric vehicles; forestry actions; recovery of methane from landfills and coal seams; and the use of fly-ash as a Portland cement substitute.

INDUSTRY-WIDE INITIATIVES

The utility industry as a whole also has developed 9 industry-wide initiatives under Climate Challenge to research, develop, and promote technologies and practices that lower greenhouse gas emissions. Prominent among these are:

- **EnviroTech:** \$50 million in venture capital funds committed to accelerate commercialization of renewable energy technology and energy-efficient electrotechnologies.
- **Earth Comfort Program:** promoting a ten-fold increase in the purchase of energy-efficient geothermal heat pumps.

- ***International Utility Efficiency Partnerships***: identifies international energy project development opportunities for U.S. utilities that reduce, limit, or avoid greenhouse gas emissions, and works with host countries to facilitate project investments.

STATUS REPORT

Through April 1998, DOE has signed 124 Climate Challenge Participation Agreements. These agreements represent over 600 utilities and 71% of the U.S. 1990 electric generation and utility carbon emissions. DOE's estimate that currently pledged actions will reduce emissions by 47 MMTCE in 2000 does not include reductions not yet quantified or reductions resulting from the 9 industry-wide initiatives. Some of the Climate Challenge emissions reductions reported by electric utilities also are accounted for elsewhere in the Climate Change Action Plan (CCAP) within estimates for specific technology programs or in baseline assumptions.

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FACT SHEET ON CLIMATE WISE

N O V E M B E R 1 9 9 8

Climate Wise is a government-industry voluntary partnership sponsored by the Environmental Protection Agency (EPA) that helps businesses reduce greenhouse gas emissions, increase productivity, and save money. The program gives technical assistance to over 450 individual manufacturing companies (representing 12% of U.S. industrial energy use) that have entered into partnership agreements and submitted comprehensive action plans that identify specific steps they will undertake between the time they enter into the compact and 2000. In 1997, Climate Wise partners prevented emissions equal to more than 8 million metric tons of carbon (MMTCE) and saved \$80 million on their energy bills. By 2000, EPA estimates that Climate Wise partners will reduce emissions by more than 9.5 MMTCE and cut energy costs by more than \$350 million.

HOW IT WORKS

As part of their Climate Wise commitment, partner companies develop comprehensive Action Plans that describe and quantify cost-effective energy efficiency, pollution prevention goals, and specific implementation measures. Companies then must report results annually while striving for continuous improvement. In return, participants receive help in identifying actions that both save energy and reduce costs:

- ***Climate Wise Action Plan Software*** helps companies identify, track, and quantify project benefits.
- ***Peer exchange seminars and workshops*** bring companies together to share managerial and technical expertise.
- ***Technical documents***, such as Wise Rules and Case Study Compendium, help partners estimate energy, cost, and carbon dioxide savings from a wide number of projects and sector-specific savings opportunities.
- ***Public recognition*** for achievements gives companies and individual employees the motivation to continuously improve operations.

WIDE AND GROWING PARTICIPATION

Climate Wise's reach is not limited to large companies—in fact, nearly 50% of Climate Wise partners have fewer than 500 employees. The program also supports 30 State and Local Government Ally partners that are bringing state and local technical assistance resources together with those of the Federal government to help companies identify and implement cost-saving energy efficiency projects.

Building on its U.S. domestic success, EPA recently has teamed with the United States Agency for International Development (USAID) to extend Climate Wise to local municipalities and companies abroad that seek energy savings and emissions reductions. Targeted countries and regions include Brazil, Central America, India, Mexico, and the Philippines.

SUCCESS STORIES

The success of Climate Wise is based on its unique ability to attract a diverse range of companies from various industrial sectors and to encourage the inclusion of greenhouse gas emissions mitigation into their corporate culture and philosophy. Climate Wise success stories include:

- **British Petroleum** has implemented energy efficiency projects at 10 company business units that are reducing annual emissions equal to 54,500 metric tons of carbon (MTCE). In 1996 alone, the company improved the energy efficiency of its worldwide refining operations by 1.2%, saving more than \$8 million. [Apart from its participation in Climate Wise, British Petroleum announced in September that it planned to reduce its worldwide greenhouse gas emissions by 10% below 1990 levels by 2010.]
- **Boeing Company** is upgrading air compressor systems and motors and adopting state-of-the-art energy management control systems covering over 46 million square feet of custodial space. The company also is pioneering the use of digital design technology and lower impact materials. By 2000, Boeing will reduce emissions by 300,000 MTCE.
- **General Motors** has implemented a wide array of actions including annual energy project competitions, more than 800 conservation projects, over 370 energy partnership projects, and implementation of fuel-switching for 5 steam generating powerhouses. These actions have resulted in emissions reductions of 545,000 MTCE.

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FACT SHEET ON INDUSTRIES OF THE FUTURE

N O V E M B E R 1 9 9 8

Through **Industries of the Future**, the Department of Energy (DOE) has formed research partnerships with the United States' most energy-intensive industries, focusing on ways to increase energy and resource efficiency. Industries included in the program use more than 80% of all energy consumed in U.S. manufacturing. As research projects come to fruition, participating industries stand to significantly reduce both their energy costs and their greenhouse gas emissions.

HOW IT WORKS

Industries of the Future seeks to make the most of scarce research resources by helping to ensure that government-funded research is more sharply focused on helping U.S. industry develop energy-efficient technologies. Industry participants create a document outlining the industry's vision for the future, providing a framework for shaping major advancements in technology. DOE then draws from the menu of possibilities to shape a portfolio of near-, medium-, and long-term research, development, and deployment activities.

TOWARDS A GREENER, MORE COMPETITIVE FUTURE

Without significant improvements in reducing waste in the participating industries, expenditures on pollution abatement and control are expected to exceed \$200 billion by 2000. By incorporating pollution prevention and energy efficiency into their corporate culture and philosophy, industry can reduce or eliminate the need for expensive downstream pollution control equipment and transform these expenditures into productive investments for new manufacturing equipment and jobs. The international competitiveness of these industries also will be enhanced significantly as the developing world increasingly demands cleaner technologies to set them on a sustainable development course.

WIDE PARTICIPATION, AMBITIOUS GOALS

Industries participating in the program account for about 5% of the U.S. gross domestic product, employ 2.9 million workers, and account for more than 80% of all energy used and 90% of all waste produced by the U.S. manufacturing sector. They include:

- Agriculture
- Aluminum
- Glass
- Chemicals
- Forest Products
- Metal Casting
- Mining
- Petroleum Refining
- Steel

Industries of the Future-based research has put many of these industries on the verge of genuine technological and commercial breakthroughs that will improve their energy efficiency dramatically and lower their greenhouse gas emissions. The forest products industry, for example, is working with DOE on the development of advanced biomass and black liquor gasification technology for use in cogeneration systems that actually could make the forest products industry a net *sink* of carbon. The aluminum industry believes that it is possible to reduce dramatically the energy intensity

INDUSTRIES OF THE FUTURE (continued)

of the aluminum reduction cell through the use of a non-consumable anode combined with wettable cathode technology. Adoption of these technologies could increase the industry's energy efficiency up to 25%, reduce operating costs up to 10%, and eliminate PFC emissions and process-related CO₂ emissions from smelters.

For the program as a whole, DOE has articulated a "stretch goal" of a 25% reduction in energy intensity (energy/unit output) in these industries by 2010. DOE's preliminary estimates are that partners will prevent emissions equal to 25 million metric tons of carbon (MMTCE) by 2010 and realize a \$4 billion savings in energy costs. These numbers may increase significantly as research programs related to the mining, agriculture, and petroleum industries (all of which only recently joined the program) are analyzed.

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FACT SHEET ON MILLION SOLAR ROOFS INITIATIVE

N O V E M B E R 1 9 9 8

In June 1997 President Clinton launched the **Million Solar Roofs Initiative** with the goal of placing solar energy systems on 1 million roofs in the United States by 2010. This goal will be achieved through existing Federal financing, procurement, and other programs, and by working in partnership with local communities, businesses, utilities, and Federal agencies to accelerate the use of solar energy systems. Meeting the President's goals will reduce carbon emissions equivalent to the annual emissions from 850,000 cars by 2010 and will produce the same electrical generating capacity as several large coal-fired plants. It also will create an estimated 70,000 high-tech jobs and increase domestic production of solar technologies, helping reduce production prices and enhancing the competitiveness of the U.S. solar energy industry.

STATUS REPORT

By June, 1998—just one year after President Clinton announced the initiative—the Department of Energy (DOE) already had received commitments from utilities and states for over half a million solar rooftop installations. Entities involved include: Hawaii Electric Company, the Los Angeles Department of Water and Power, New England Service, Sacramento Municipal Utility District, the State of Colorado, Maryland Energy Administration, Tucson Electric Power Company, Washington State, Salt River Project, and the Federal government.

AFFORDABLE FINANCING

This past June, a new private sector partnership was announced to provide long-term, low-cost financing for solar energy systems. Spurred by the President's initiative, the General Motors Acceptance Corporation and the Solar Energy Industries Association announced a partnership to provide long-term, low-cost financing for solar energy systems. Under this plan, financing will be available at the same rate as standard home mortgages, rather than at the much higher rates that are typically charged. This breakthrough removes a significant barrier to the installation of solar energy systems in new and existing homes.

TAX INCENTIVES AND R&D FUNDING

The President's Climate Change Technology Initiative (CCTI) includes tax incentives and R&D investments to encourage installation of solar energy systems in buildings, including:

- **Increased investment in solar and renewable energy R&D.** DOE would fund cost-reduction R&D for solar rooftop systems and establish partnerships with communities, builders, and other Federal agencies to accelerate their use.
- **A tax credit equal to 15%** of the cost of rooftop photovoltaic (PV) systems and solar water heating systems to make them more affordable and encourage their purchase. The maximum credit would be \$2,000 for PV systems and \$1,000 for solar water heating systems.

In response to the CCTI, the Fiscal Year 1999 appropriations bills recently signed into law by President Clinton include a substantial increase in funding to further solar and other renewable energy research and development.

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FACT SHEET ON MOTOR CHALLENGE AND ENERGY EFFICIENCY IN MANUFACTURING

N O V E M B E R 1 9 9 8

The Department of Energy (DOE) currently has several voluntary initiatives aimed at improving energy efficiency in manufacturing plants: **Motor Challenge**, **Steam Challenge**, **Combined Heat and Power Challenge**, and **Compressed Air Challenge**. These 4 programs offer various types of technical assistance, tools, and information to industry. By 2015, the 4 initiatives are expected to reduce emissions equal to 20 million metric tons of carbon (MMTCE) and to generate \$3 billion in annual cost savings.

The most mature partnership, Motor Challenge, began in 1995 and works with U.S. industry to increase the energy efficiency of electric motor systems by eliminating unfavorable market barriers so that system efficiencies are achieved and sustained by market forces alone. Through Motor Challenge, U.S. industry already has saved 6 to 9 billion kilowatt-hours a year through the installation of energy-efficient electric motors and adjustable speed drives, reducing emissions by 2 MMTCE—equivalent to the emissions from 400,000 automobiles—and saving \$300-\$450 million in energy costs.

OVERCOMING MARKET BARRIERS TO ENERGY EFFICIENCY

Energy-efficient technologies and practices have the potential to reduce greatly the amount of energy used in U.S. manufacturing, but often they face significant market barriers to widespread use. Sixty-six percent of industrial electricity, for example, goes to some type of motor-driven system and accounts for nearly 10% of all U.S. emissions of carbon dioxide. A recent Motor Challenge study projected that 10-16% of motor system electricity use could be saved if all cost-effective applications of proven efficiency technologies and practices were undertaken. However, significant barriers prevent these changes from occurring.

One such barrier is the low priority of energy efficiency among capital investment and operating objectives within U.S. manufacturing. This is because manufacturing motor system energy costs constitute less than 1% of total operating costs. Another barrier is the general lack of awareness among facility managers, equipment distributors, and engineers of options to increase motor system efficiency. Manufacturing plants also lack the staff resources to target the opportunities. Lastly, there are conflicting incentives for suppliers regarding the promotion of efficiency equipment and practices.

SUCCESS STORY

DuPont is working with the Motor Challenge and Steam Challenge programs to identify new management methods and additional efficiency opportunities at DuPont's Chambers Works plant in Deepwater, New Jersey. Since 1993, DuPont's efforts to conserve energy and improve efficiency at the Chambers Works plant have increased productivity by 5%, reduced energy cost per pound of product by 25%, and improved overall energy utilization by 29%. Cumulative energy cost savings from 1994 to 1997 amounted to more than \$45 million, with a corresponding reduction in greenhouse gas emissions.

MOTOR CHALLENGE AND ENERGY EFFICIENCY IN MANUFACTURING (continued)

Motor Challenge, Steam Challenge, Combined Heat and Power Challenge, and Compressed Air Challenge seek to reduce barriers such as these by providing tools, information, and training.

WIDE AND GROWING PARTICIPATION

As of 1998, Motor Challenge has reached over 30,000 industry people to provide them with tools, information, and training (about 5% of the potential customer base). Currently, there are over 200 Motor Challenge Allied Partner companies that work with DOE to disseminate the information and tools of Motor Challenge; the Allied Partners have trained over 10,000 people in the past year. Organizations such as the Technical Association of the Pulp and Paper Industry (TAPPI), which has 33,000 members, and the Hydraulic Institute, which represents the U.S. pump industry, are examples of industry groups that have joined with DOE to develop new products and disseminate valuable information resources as broadly as possible to industry.

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FACT SHEET ON ENERGY EFFICIENCY STANDARDS FOR EQUIPMENT AND APPLIANCES

N O V E M B E R 1 9 9 8

To save energy and reduce consumer utility bills, the Department of Energy (DOE) develops test procedures and national minimum **energy efficiency standards for equipment and appliances**, such as heating and cooling equipment, water heaters, lighting, refrigerators, clothes washers and dryers, and cooking equipment. By law, these standards must result in the maximum improvement in energy efficiency that is technologically feasible and economically justified. Through 1997, residential appliance standards avoided emissions equal to 30 million metric tons of carbon (MMTCE) and have saved consumers a total \$10.5 billion. These standards will continue to save money and avoid carbon emissions every time a new appliance is purchased. By 2010, the currently enacted standards will have avoided emissions of 150 MMTCE and saved consumers \$33 billion.

HOW IT WORKS

Residential and commercial buildings account for 37% of total U.S. energy use and 35% of total U.S. carbon emissions. About 75% of this use is determined by 6 kinds of equipment and appliances: heating and cooling equipment, water heaters, lighting, refrigerators, clothes washers and dryers, and cooking equipment. Improving the energy efficiency of these products offers tremendous opportunities for reducing U.S. greenhouse gas emissions. DOE enlists the participation of manufacturers, utilities, environmental groups, state officials, and consumers to enact standards that reflect a consensus position that maximizes energy savings while balancing the economic, energy, and environmental objectives. Currently, DOE is in the process of developing standards for 4 additional priority products: clothes washers, fluorescent lamp ballasts, water heaters, and central air conditioners.

OTHER BENEFITS

In addition to reducing U.S. greenhouse gas emissions and saving money for consumers, equipment and appliance standards also benefit the marketplace in other ways. Reduced energy consumption of peak-load equipment like air-conditioners has allowed utilities to better balance electricity capacity. Product planning by manufacturers can take place with known future levels of performance standards. Finally, the consumer benefits not only from reduced operating costs, but also often from higher quality products since standards tend to remove the worst performing products from the market.

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FACT SHEET ON ENERGY STAR® PRODUCTS

N O V E M B E R 1 9 9 8

The ENERGY STAR® Products program is a voluntary, public-private partnership that helps bring high-efficiency consumer and office products into U.S. homes and offices. Administered by the Department of Energy (DOE) and the Environmental Protection Agency (EPA), the program allows manufacturers of selected energy-efficient products to promote their products with an "ENERGY STAR®" label, giving consumers and businesses the ability to easily identify products that save energy and money and help the environment. In 1997 alone, products bearing the ENERGY STAR® label prevented emissions equal to some 2 million metric tons of carbon (MMTCE)—the equivalent of more than 1.5 million automobiles—and saved consumers more than \$740 million. In 2010, the full program is expected to prevent emissions of 23 MMTCE and generate cost savings of \$10 billion.

OVERCOMING MARKET BARRIERS TO ENERGY EFFICIENCY

Electricity generation accounts for 35% of all U.S. emissions of carbon dioxide and 38% of nitrogen oxides. Studies by DOE indicate that the United States could reduce its greenhouse gas emissions by 20% by 2010 simply by investing in existing, proven, and cost-effective energy-efficiency technology.

But both consumers and businesses often lack objective information on energy-efficient products or are dissuaded from buying them due to competing and confusing energy efficiency claims or their higher purchase price (despite the long-term savings they afford). ENERGY STAR® Products seeks to overcome these market barriers and provide consumers and businesses with the standardized, reliable information they need to invest in long-term energy cost savings. The program also works with lenders to provide financing packages that overcome the high initial purchase price of energy-efficient products.

WIDE AND GROWING PARTICIPATION

As of January 1998, over 500 manufacturers were participating in the ENERGY STAR® Products program, offering more than 25 kinds of ENERGY STAR® products, ranging from computers to refrigerators to central air conditioning units. The number of ENERGY STAR®-qualified models across these products has grown to 3,400. Recent additions to the partnership include TV and VCR manufacturers and window manufacturers. Products now bearing the ENERGY STAR® label include:

- **Appliances:** Dishwashers, refrigerators, room air-conditioning units, clothes washers
- **Office Equipment:** Computers, monitors, copiers, fax machines, printers, scanners
- **Residential Heating and Cooling Equipment:** Boilers, central air-conditioning, furnaces, heat pumps, thermostats
- **Home Electronics:** Televisions, VCRs, TV/VCR combination units
- **Windows:** Residential windows, doors, skylights
- **Other Products:** Exit signs, insulation, home lamps and lighting fixtures, transformers

The program also is continuing its consumer awareness efforts through televised public service announcements, print media advertisements, and mass-transit bulletins. In addition, 20 utilities across the United States are now using the ENERGY STAR® label to promote energy-efficient products in their own service areas.

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FACT SHEET ON ENERGY STAR® BUILDINGS AND GREEN LIGHTS

N O V E M B E R 1 9 9 8

ENERGY STAR® Buildings and Green Lights are cutting-edge, voluntary partnerships with the private sector to improve energy efficiency in commercial and industrial buildings. These programs promote energy efficiency as a business strategy that owners and managers of commercial and industrial buildings can adopt to improve the environment and their bottom line. In 1997, participants in the programs prevented emissions equal to 1.4 million metric tons of carbon (MMTCE)—equivalent to the emissions from more than 1 million automobiles. In 2010, the full ENERGY STAR® Buildings and Green Lights programs are expected to prevent emissions of 23.9 MMTCE and generate energy cost savings of \$11.3 billion.

OVERCOMING MARKET BARRIERS TO ENERGY EFFICIENCY

Electricity generation accounts for 35% of all U.S. emissions of carbon dioxide and 38% of nitrogen oxides. Commercial and industrial buildings, in turn, account for over 15% of all U.S. energy consumption. Yet businesses often lack objective information on the benefits of energy-efficient strategies or are dissuaded by high up-front costs (despite the long-term savings they

SUCCESS STORIES

Notable ENERGY STAR® Buildings and Green Lights success stories include:

- The **Mobil Corporation** has realized tremendous success as a partner in both the Green Lights and ENERGY STAR® Buildings programs. By completing a comprehensive lighting upgrade, they already have saved over \$1 million a year and are preventing emissions equal to more than 13,500 metric tons of carbon (MTCE). Mobil Corporation's management has embraced the principles of Green Lights and ENERGY STAR® Buildings and implemented their own "Energy Management Plan" which reaches not only across the U.S., but to all of their facilities around the globe. With this new plan, Mobil is committed to reaching a goal of \$125 million energy cost savings in 5 years.
- The **State of Wisconsin** has joined the Green Lights & ENERGY STAR® Buildings Partnership and invested in energy-efficient lighting technologies in its state buildings. Wisconsin already is preventing the release of over 30,000 MTCE annually while saving more than \$7 million annually in taxpayers' money.
- The **Davenport Community School District**. With the help of technical information from EPA, the Davenport, Iowa, school system was able not only to improve the lighting in its buildings, but also to prevent the annual release of 729 MTCE and 25,000 pounds of smog-forming nitrogen oxides and save more than \$240,000 in annual energy costs. According to Dr. Brad Allison, superintendent of the school district: "Green Lights is a government program that really works. Now [the money we are saving in energy costs] can be used instead for textbooks and other needs."

afford). ENERGY STAR® Buildings and Green Lights seek to overcome these market barriers and provide consumers and businesses with the information they need to invest in long-term energy cost savings. Once thought of as an uncontrollable overhead expense, energy has, in fact, become an area for high-return investment—estimated at 20-30% for whole-building upgrades.

HOW IT WORKS

Under Green Lights, EPA provides technical information and support and public recognition to participants who agree to install energy-efficient lighting. The ENERGY STAR® Buildings program expands upon Green Lights by encouraging individual building owners, developers, and others to undertake more comprehensive building upgrades. This program leads a building owner through a five-stage strategy to capitalize on system interactions that maximize energy savings at minimum cost. Commercial and Federal buildings that are in the top 25% in energy efficiency qualify for the "ENERGY STAR® Buildings" label.

WIDE AND GROWING PARTICIPATION

To date, ENERGY STAR® Buildings and Green Lights have established partnerships with over 2,600 organizations that are now helping eliminate 7 billion kilowatt-hours of annual energy waste and saving themselves over \$500 million on their annual energy bills. Among the buildings that have already signed up for the ENERGY STAR® Buildings Program are the Empire State Building, the World Trade Center, and Chicago's Sears Tower.

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FACT SHEET ON THE VOLUNTARY ALUMINUM INDUSTRIAL PARTNERSHIP

N O V E M B E R 1 9 9 8

The Voluntary Aluminum Industrial Partnership (VAIP) is a joint effort of the Environmental Protection Agency (EPA) and the domestic aluminum industry to reduce perfluorocarbon (PFC) emissions while increasing the efficiency of primary aluminum production. PFCs are extremely potent greenhouse gases that occur during interruptions in the aluminum production process. Reducing PFCs emissions not only helps counteract global climate change, but also puts to productive use energy that would otherwise be wasted. Since the VAIP was launched in April 1995, membership has grown to include 11 of the nation's 12 primary aluminum producers, representing 22 smelters and 94% of U.S. production capacity. In 1996, partners reduced their emissions by an amount equal to 1.45 million metric tons of carbon (MMTCE). VAIP partners cumulatively have committed to reducing PFC emissions by 45% from 1990 levels by 2000—equal to 2.2 MMTCE.

OVERCOMING MARKET BARRIERS TO ENERGY EFFICIENCY

The primary aluminum industry is energy intensive, consuming 430 trillion British thermal units (Btus) of electricity in 1995, roughly 1.2% of the nation's total industrial energy use. Energy accounts for about one-third of the cost of primary aluminum production. As a result, primary aluminum smelters have a clear economic incentive to reduce energy use. One of the ways producers can reduce energy use is by minimizing so-called "anode effects," which in turn reduces emissions of PFCs. By supporting research on anode effects and disseminating information, VAIP is helping its partners take steps to reduce anode effects and use energy more efficiently.

HOW IT WORKS

The VAIP is implemented through a Memorandum of Understanding (MOU), which describes the commitments and responsibilities of each party. For its part, EPA agrees to support the development of technical information that will improve the understanding of how PFC emissions relate to anode effects and what steps might be taken to reduce emissions. Partners, in turn, agree to pursue technically feasible and cost-effective efforts to reduce PFC emissions, and to provide EPA with annual reports indicating their success. The VAIP is flexible, allowing its partners to tailor the program to reflect their own particular mix of technology, management structure, and operational practices. VAIP partner actions to reduce anode effects and emissions include improved employee training, changes in the alumina feed techniques, and the use of computer monitoring to optimize pot performance.

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FACT SHEET ON WASTEWI\$E

N O V E M B E R 1 9 9 8

Since January 1994, the Environmental Protection Agency's (EPA) **WasteWi\$e** program has worked with American businesses; Federal, state, local, and tribal governmental agencies; and other institutions to reduce municipal solid waste. Presently, more than 800 organizations are WasteWi\$e partners. Through the WasteWi\$e program, partners voluntarily set goals in 3 areas: waste prevention, recycling, and buying/manufacturing recycled products. Partners track their progress during a 3-year period and report annually on their accomplishments.

Waste reduction activities reduce greenhouse gas emissions in several ways, including energy savings, increased carbon sequestration, and avoided methane emissions. In 1997 alone, the combined waste reduction results of WasteWi\$e partners prevented emissions equal to 5 million metric tons of carbon (MMTCE)—equivalent to the average annual emissions from electric power consumption of roughly 3 million households.

HOW IT WORKS

The WasteWi\$e program helps participating organizations discover waste reduction opportunities and set waste reduction goals. Partners contact the program to receive personalized technical assistance and have access to an extensive library containing information on municipal solid waste reduction practices nationwide. In addition, the program maintains a website and a list server to support its partners. EPA also publicly recognizes individual organizations and program successes through its publications, satellite forums, trade show exhibits, regional and national events, and an awards program.

WIDE AND GROWING PARTICIPATION

WasteWi\$e partners are located all across the United States and represent over 50 business, civic, and industrial sectors, ranging from Fortune 1000 companies to small local governments. In

SUCCESS STORIES

WasteWi\$e recognizes Partners of the Year and Program Champions at a national awards ceremony held every year. In September of this year, 8 Partners of the Year and 20 Program Champions were recognized. Examples of these domestic waste reduction achievements include:

- **Partner of the Year Bank America** recycled 14,500 tons of office paper and used 386 tons less paper by switching to 15 pound rather than 20 pound paper.
- **Partner of the Year Bell Atlantic** recycled 21,600 tons of metal and purchased 61,000 tons of recycled mixed paper for telephone directories.
- **Program Champion Herman Miller, Inc.** reduced its volume of transport packaging for finished goods by 50 percent, eliminating 250 tons of wood pallets and 491 tons of corrugated cardboard.
- **Program Champion Seattle University** collected 438 tons of material through its campus-wide recycling program.

These are just several of the thousands of waste reducing activities undertaken by WasteWi\$e partners. Although the program promotes these types of waste reduction activities to reduce costs and pollution in the United States, these activities are readily transferable internationally to companies and governments interested in waste reduction.

WASTEWI\$E (continued)

recent years, WasteWi\$e membership has grown from 361 partners in 1994 to its current membership of 823 partners. Most recently, WasteWi\$e has expanded to include government partners. Reported waste reduction achievements of WasteWi\$e partners totaled 7.7 million tons of solid waste in 1997. Avoided disposal cost savings has grown from \$35 million in 1994 to \$217 million in 1997.

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FACT SHEET ON METHANE REDUCTION PROGRAMS

N O V E M B E R 1 9 9 8

The United States government administers a variety of industry-government voluntary partnerships that are reducing significantly U.S. methane emissions from a variety of sources. Three of the programs (the **Landfill Methane Outreach Program**, the **Coalbed Methane Outreach Program**, and **Natural GasSTAR**) are administered by the Environmental Protection Agency (EPA); the two agriculture-based programs (**AgSTAR** and the **Ruminant Livestock Efficiency Program**) are joint efforts of the EPA and the U.S. Department of Agriculture (USDA). In each case, the programs encourage the profitable collection and use of methane, as opposed to its release to the atmosphere. In 1997, participants in the programs reduced methane emissions by an amount equal to 3.7 million metric tons of carbon (MMTCE)—equivalent to the emissions from more than 3 million automobiles. By 2010, these programs are expected to avoid methane emissions of 22 MMTCE.

OVERCOMING BARRIERS

The reasons for methane emissions are diverse, and vary among the different industries in which they occur. In all instances, however, methane emissions represent lost energy product. In natural gas systems, for example, methane emitted to the atmosphere through valves or leaky pipelines represents gas that cannot be sold to customers.

In general, there are 3 main types of barriers to reducing methane emissions. First, typically methane is a byproduct emission and is not viewed as a resource in its own right. Companies may lack objective technical and economic information on methane recovery options. Second, reducing methane emissions frequently involves investing in methane recovery technologies, which may be unfamiliar to companies or require partnerships with outside entities. Third, many companies confront institutional or regulatory barriers as they try to develop projects. The United States Government's methane reduction programs seek to overcome these barriers by promoting the use of available methane technologies, taking account of the unique needs and challenges of each industry.

- The **Landfill Methane Outreach Program** provides technical information and support to the many players in landfill projects, including state agencies, energy companies, communities, and industry. The landfill program has assisted more than 80 planned and operational projects, through such activities as providing decision support software, identifying potential partners, and addressing specific technical or regulatory issues.
- The **Coalbed Methane Outreach Program** works with coal mines and project developers to identify attractive opportunities and identify the necessary participants to develop projects. EPA profiles promising projects, develops technical and cost evaluation models, and undertakes a variety of studies for coal mines on specific project implementation issues. As a result of the program, methane recovery by the coal industry has more than doubled since 1993.
- Through **Natural GasSTAR**, EPA works with more than 70 gas production, transmission, and distribution companies, which commit to evaluate the applicability of several "best management practices" in their systems. EPA provides partners with detailed technical and economic

METHANE REDUCTION PROGRAMS (continued)

information on how to reduce emissions, as well as recognition for their efforts. The program has identified more than 50 previously unrecognized ways of economically reducing methane emissions, which are now being widely adopted by industry.

- **AgSTAR** is a joint EPA/USDA program that assists livestock producers with recovering methane from their animal waste management systems. Through provision of technical information and design and engineering assistance, AgSTAR helps producers optimize their waste management systems and recoup some of their investments through energy recovery. Over 500 farms are currently AgSTAR partners and are evaluating the potential to install methane recovery systems.
- The **Ruminant Livestock Efficiency Program** is a joint effort of USDA and EPA that aims to increase livestock production efficiency by improving the conversion of animal feed into useful products like beef or milk, resulting in increased profitability for producers and less methane per unit of product. The program has identified a number of simple livestock management techniques that can improve productivity and is now focused on educating livestock producers in these techniques through USDA's field extension services.

SUCCESS STORIES

- **Lucent Technologies**, a leader in telecommunications, is benefiting as an end-user from one of the Landfill Methane Outreach Program's Gas-to-Energy projects. Lucent, in collaboration with Network Energy of Lake County, Inc., is fueling boiler operations with landfill gas instead of fossil fuels, saving Lucent \$100,000 a year on fuel bills. The project is reducing greenhouse gas emissions equal to more than 28,000 metric tons of carbon (MTCE)—equivalent to taking more than 23,000 cars off the road each year.
- Since 1990 **Chevron USA Production Company**, an integrated energy company that produces, transports, and refines petroleum products, has actively implemented several cost-effective methane reduction technologies and practices with the help of the Natural GasSTAR Program. By taking actions such as the replacement or retrofit of high-bleed pneumatic devices, the installation of flash tank separators on glycol dehydrators, and the use of vapor recover units on oil tank batteries, the company has prevented methane emissions of 780,000 MTCE.

WIDE AND GROWING PARTICIPATION

All of the methane recovery programs have secured wide participation from key industry groups. To date, there are more than 80 landfills, almost 20 coal mines, 70 natural gas companies, and over 500 livestock producers participating in the programs. In addition, key companies, states, and trade associations are working together with the U.S. government to promote methane recovery. As a result, the U.S. should be able to maintain relatively flat methane emissions through 2000 and is projecting declining methane emissions in the future.

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FACT SHEET ON ENERGY SMART SCHOOLS

N O V E M B E R 1 9 9 8

Energy Smart Schools is a national partnership that brings together public and private sector resources to cut energy bills in schools and reinvest the savings in students and their education. Announced by U.S. Energy Secretary William Richardson on October 5, 1998, the Energy Smart Schools partnership will work with primary and secondary school systems to reduce energy use, energy costs, and greenhouse gas emissions. The partnership will increase the use of clean energy technologies in existing and new schools; develop incentives that allow additional school districts to reinvest energy savings into critical education needs; improve the learning environment of classrooms and other school facilities through daylighting, better temperature control, and air quality; and increase student, teacher, and community awareness of energy and related issues. It is estimated that a 25% reduction in schools' energy use will cut annual U.S. greenhouse gas emissions by an amount equal to 3-4 million metric tons of carbon (MMTCE).

BENEFITS OF ENERGY SMART SCHOOLS

Our nation's schools spend over \$6 billion a year on energy. At the same time, it is believed that schools could save up to \$1.5 billion annually through smarter energy use in both new and existing schools. These smarter energy practices will not only reduce greenhouse gas emissions, but also result in better lighting conditions, better indoor and outdoor air quality, better controlled classroom temperature, and reductions in vehicle emissions—all of which can improve the productivity and general well-being of students and teachers. What is more, the savings could pay for 40 million new text books, 30,000 new teachers, or 1.5 million new computers every year.

10-POINT ACTION PLAN

Through the Energy Smart Schools partnership, the U.S. Department of Energy (DOE) will work with diverse groups and individuals involved with schools, including administrators, teachers, facility managers, custodians, school bus drivers, teachers, students, parents, architects, and labor unions. Under a 10-point action plan, the Energy Smart Schools partnership will establish aggressive goals; disseminate information on energy efficiency and renewable energy; provide training and technical assistance; remove barriers to innovative financing; develop energy curricula; support studies that quantify the impact of energy technologies on learning and health; develop energy specifications for school design and construction; demonstrate advanced technologies; recognize success; and hold quarterly meetings to track progress, share lessons learned, and plan future activities.

GROWING NUMBER OF PARTNERS

Though officially launched just last month, the Energy Smart Schools partnership already is building a solid foundation of participation. Major companies, along with federal, state, and local organizations, already have pledged significant support to the Energy Smart Schools partnership after a July meeting with over 80 representatives of utilities; leading businesses; manufacturers; the renewable energy industry; federal, state, and local governments; unions; and school organizations.

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FACT SHEET ON BIOENERGY

N O V E M B E R 1 9 9 8

The U.S. government administers a variety of programs, in partnership with industry, on the research, development, and deployment of **bioenergy** resources and technologies, including electricity production, fuels for transportation, and industrial processing and manufacturing. Administered by the U.S. Department of Energy (DOE) and the U.S. Department of Agriculture (USDA), these programs provide both federal tax incentives and funding for R&D and demonstration projects to encourage the use of biofuels. Currently, bioenergy is one of the leading renewable energy technologies in the United States—accounting for 3-4% of primary energy consumption—and one of the few technologies that can recycle and sequester carbon. Bioenergy refers to the application of advanced technologies for the conversion of trees, grasses, crops, and wastes, including agricultural wastes, to electricity, fuels, and chemicals.

POTENTIAL BENEFITS OF BIOENERGY TECHNOLOGIES

Bioenergy technologies provide substantial environmental benefits. Since bioenergy crops absorb carbon during growth, their use for energy applications can result in a near zero net carbon release. When these fuels are used to displace traditional fossil fuels, significant emissions reductions of greenhouse gases can be achieved. DOE estimates, for example, that by 2010, the addition of 8,000 megawatts of new biomass power capacity will result in reduced emissions equal to 11-16 million metric tons of carbon (MMTCE). Four billion gallons of increased ethanol production is expected to result in emissions reduction of 3-9 MMTCE. In addition, since biomass is domestically produced and is renewable, it offers significant opportunities for job creation, rural economic development, and alternative crop production opportunities for farmers.

BIOENERGY TAX INCENTIVES

Federal tax incentives to expand bioenergy use include:

- **Unconventional Fuels Credit** (gas produced from biomass and certain other fuels can qualify for a credit of 51.7 cents/million Btus [plus indexation for post-1979 inflation]);
- **Production Tax Credit** (1.5 cents/kilowatt hours [plus indexation for post-1992 inflation] for electricity generated from wind and "closed loop biomass");
- **Alcohol Fuel Credit** (60 cents/gallon for converting biomass into ethanol or methanol);
- **Alcohol Mixture Credit** (54 cents/gallon of ethanol and 60 cents/gallon of methanol when mixed with gasoline and diesel fuel and claimed by the company that does the mixing as a credit against otherwise applicable excise taxes on motor fuel);
- **Tax Credit for "Small" Ethanol Producers** (10 cents/gallon tax credit on first 15 million gallons of output a year for producers who have a production capacity of less than 30 million gallons/year);
- **Tax-Exempt Financing** (for certain facilities that burn municipal waste and also generate electricity).

DEMONSTRATION PROJECT SUCCESSES

In order to accelerate the use of bioenergy technologies and realize environmental benefits, demonstration projects are a high priority. Working with industry, several demonstrations of first-of-a-kind technology are underway. These successes include a biomass gasification system, which initiated operations in 1997; a chemical process producing plastics from plants, which was proven technically feasible in 1998; and an ethanol-from-waste facility projected to go into operation in 1999. The recent formation of the Agriculture Industries of the Future program is a positive step toward using plant and crop resources for making a host of everyday consumer products like plastics, paints, and adhesives.

NEXT STEPS

More than ever, concerns about weakening economic conditions for the nation's farmers, global climate change, clean air, clean water, rising oil imports, and the restructuring of the utility industry offer the bioenergy industries an opportunity to increase production of clean and affordable feedstocks, fuels, and technologies. DOE and USDA are working to strengthen the existing research, development, and deployment programs in bioenergy technologies to accelerate the development of these technologies and overcome barriers to deployment. In support of these efforts, the President's Climate Change Technology Initiative includes significant increases in funding for bioenergy, as do the Fiscal Year 1999 appropriations bills he recently signed into law.

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FACT SHEET ON CARBON SEQUESTRATION AND U.S. AGRICULTURE AND FORESTRY PROGRAMS

N O V E M B E R 1 9 9 8

Carbon sequestration and carbon “sinks” will play a critical role in helping the world meet the challenge of climate change. Recently, there has been an intensified focus on and greater understanding of how agriculture and forestry practices can greatly affect the ability of farmland and forests to sequester carbon and help mitigate climate change effects. As a result, the U.S. Department of Agriculture (USDA) has begun to analyze the net carbon effects of its various conservation and environmental programs and to determine how they can be enhanced and expanded to foster greater sequestration. In general, these programs assist farmers, ranchers, and other landowners in conserving and improving soil, water, and other natural resources associated with rural land. Some of these programs and their estimated ancillary carbon sequestration benefits (where available) are described more fully below.

- **Conservation Technical Assistance (CTA)** helps farmers to develop and implement conservation plans on farms and ranches. Conservation compliance requires such plans on highly erodible lands to maintain eligibility for other USDA programs. USDA estimates that an amount equal to 22 million metric tons of carbon (MMTCE) was sequestered in 1997 as a result of conservation tillage alone. Other practices that result in significant carbon sequestration and have been applied due to this program include cover crops, residue management, crop rotation, and buffer establishment.
- **Conservation of Private Grazing Land Initiative (CPGLI)** provides technical grazing management assistance for owners and managers of non-Federal grazing lands that result in improved animal performance, decreased methane gas emissions, and increased carbon sequestration. In 1997, conservation systems were implemented on 6.4 million acres through this initiative (up 25% over 1996).
- **Conservation Reserve Program (CRP)** provides rental payments and cost-sharing on 36.4 million acres for grass, shrub, or tree plantings in exchange for retiring highly erodible or other environmentally sensitive cropland for 10-15 years. The annual carbon sequestration for this program is approximately 11.3 MMTCE/year. Additional benefits from elimination of nitrogen application have been estimated at 1.8 MMTCE/year.
- **Environmental Quality Incentives Program (EQIP)** provides cost-sharing to encourage farmers and ranchers to adopt conservation practices. For example, in 1997 grazing land cover was improved on 3.2 million acres (increasing soil carbon storage), and nutrient and manure management systems were implemented on 1.9 million acres (lowering emissions).
- **Swampbuster** program links wetlands protection to program benefit eligibility and has preserved over 5.8 million acres of wetlands that would otherwise have been converted to agricultural use. This has resulted in sequestration of an estimated .6-1.3 MMTCE/year (not including above-ground carbon sequestered in wetland trees or shrubs).
- **Wetlands Reserve Program (WRP)** offers private landowners financial incentives to enhance wetlands in exchange for retiring marginal agricultural land. Some 666,760 acres are now enrolled in the program, sequestering an estimated 66,676 metric tons of soil organic carbon (MTCE)/year (not including above-ground carbon).

**CARBON SEQUESTRATION AND U.S. AGRICULTURE
AND FORESTRY PROGRAMS (continued)**

- ***Forestry Incentives Program (FIP)*** provides financial and technical assistance to encourage production of sawtimber and pulpwood on non-industrial private forestlands. From 1991 to 1997, a total of 1,054,500 acres were enrolled in the program. In 1997 .2 MMTCE was sequestered in biomass above and below ground due to this program.
- ***Stewardship Incentive Program (SIP)*** provides financial and technical assistance to expand tree planting and implement stewardship plans on private forest properties. In 1997 .1 MMTCE was sequestered in biomass above and below ground due to this program.
- ***National Forest conservation*** practices in the 1990s on the 85 million acres of U.S. timberland have reduced timber harvest from 12 billion board-feet/year in the 1980s to 4 billion board-feet/year in the 1990s. Clear cutting has been reduced from 250,000 acres/year in the 1980s to 100,000-120,000 acres/year in the 1990s. Because of these changes in management, the net biomass flux from national forests has gone from a minus 60 MMTCE/year in the 1980s to a net gain of 40 MMTCE/year, and is continuing upward.

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FACT SHEET ON STATE AND LOCAL CLIMATE CHANGE PROGRAM

N O V E M B E R 1 9 9 8

The State and Local Climate Change Program has been helping states and communities reduce emissions of greenhouse gases for the past 9 years. Administered by the Environmental Protection Agency (EPA), this capacity-building program provides states and local governments with guidance and technical information to help them prepare inventories of their greenhouse gas emissions, assess and build awareness of the impacts of climate change, and develop action plans to reduce emissions. The program also provides technical and financial assistance to help states integrate climate change initiatives with existing state programs. The goal of this technical and financial assistance is to encourage state and local decision makers to implement voluntary measures to reduce greenhouse gas emissions.

Between 1992 and 1997, the State and Local Climate Change Program allocated more than \$7 million in grants and other awards for state greenhouse gas emissions inventories, action plans, demonstration projects, and education and outreach programs. Based on initial estimates, the program will help reduce U.S. greenhouse gas emissions by an amount equal to 1.9 million metric tons of carbon (MMTCE) by 2000 and 4.2 MMTCE by 2010.

STATES AND LOCAL GOVERNMENTS ARE ACTING

Currently, 34 states and Puerto Rico participate in the program, accounting for nearly 60 percent of total U.S. carbon dioxide emissions. These 34 states and Puerto Rico have started or completed inventories of their emissions of carbon dioxide and other greenhouse gases.

Twenty-five of these states also have taken additional steps, such as setting up task forces and starting or completing action plans to curb their state's greenhouse gas emissions.

SUCCESS STORIES

Some examples of how state and local governments are addressing climate change, utilizing assistance from the EPA's State and Local Climate Change Program, include the following:

- After completing a greenhouse gas inventory, **New Jersey** issued an executive order to reduce its greenhouse gas emissions 5% below 1990 levels by 2005. New Jersey also is creating a Greenhouse Gas Bank and has signed a letter of intent with The Netherlands that establishes a framework for developing joint initiatives to address global warming, including an emissions trading system.
- **California** boasts the largest and most diverse renewable energy generation industry in the world. Renewable resources provide 11% of all electricity used in the state. The 1998 inventory reported that electric generation in 1994 produced only about 16% of all carbon-related emissions in California.
- The State of **Oregon** introduced state legislation and business tax credits to encourage transportation efficiency. Today Oregon is one of the nation's leaders in the field of telecommuting (working at home using telecommunications equipment, including the telephone, fax, and internet). Approximately 7-8% of Oregon's workforce currently telecommutes.

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FACT SHEET ON THE U.S. COUNTRY STUDIES PROGRAM

N O V E M B E R 1 9 9 8

The U.S. Country Studies Program (USCSP) was announced in 1992, at the "Earth Summit" in Rio de Janeiro, Brazil. The purpose of the program is to provide financial and technical assistance to developing countries and countries with economies in transition in addressing the problem of global climate change, particularly within the context of the U.N. Framework Convention on Climate Change (UNFCCC). Since 1993, funding for the Country Studies Program has totaled \$40 million. The program assists countries to:

- Inventory their emissions of greenhouse gases;
- Assess their potential vulnerability to climate change and approaches for adapting to such change;
- Identify and evaluate options for controlling these gases or increasing sinks;
- Develop national plans for responding to climate change;
- Assess related technological needs; and
- Increase public understanding of climate change.

ACHIEVEMENTS

- **China:** Since 1994, the People's Republic of China (PRC) has been active in several areas of the U.S. Country Studies Program. China's completed country study includes a greenhouse gas emissions inventory, an assessment of the PRC's potential vulnerability to climate change in a number of sectors, and an evaluation of technologies and strategies for mitigating climate change. The Country Studies Program also has provided technical assistance for the development of a national climate change action plan, which will be completed in early 1999.
- **Mexico:** Since 1993, the U.S. Country Studies Program has worked with Mexico on the development of a greenhouse gas emissions inventory, an assessment of Mexico's potential vulnerability to climate change, the development of future emission scenarios, the identification and evaluation of measures for adapting to or mitigating climate change, and the development of a national action plan.
- **Egypt:** With the support of the U.S. Country Studies Program, the Egyptian Organization for Energy Conservation and Planning (OECF) coordinated a 2-day workshop in June 1997 on its "National Action Plan and National Communication." The workshop was organized to present the Framework of Egypt's National Action Plan (developed with USCSP support), Egypt's climate change program, and guidelines for the preparation of its first National Communication to the Framework Convention on Climate Change. The former governor of Alexandria, the head of the Egyptian Environmental Affairs Agency, and the chairman of OECF led the workshop, which was attended by high-level government officials, industrialists, non-government organizations, and representatives of the media.

HOW IT WORKS

To enhance the long-term capacity of developing and transition countries to address the problem of climate change and to participate fully in the international response to this problem, the U.S. Country Studies Program provides participants with financial support, training, technical assistance, computer equipment, data, analytical tools, and information services. Fifteen senior officials from the participating countries have helped shape the program by working for a number of months each with the Country Studies Management Team in Washington. Thus, handbooks to guide studies, state-of-the-art simulation models, and analytical methodologies and tools have been tailored to meet the needs of the countries. During the life of the program, training has been provided in 10 global training workshops and over 20 regional workshops. Building on the work of analysts from developing and transition countries, more than 350 publications and journal articles have been produced, including 10 guidance documents, 60 workshop and conference proceedings, more than 160 country reports, and 17 special journal editions.

WIDE PARTICIPATION

Fifty-five countries have been involved in the Country Studies Program since 1993. Forty-three countries have received support for the development of greenhouse gas emission inventories, and 26 have submitted final emission inventories. Forty-nine countries have received support for conducting vulnerability and adaptation assessments, and 34 have completed these assessments. Thirty-four countries have initiated studies of mitigation options, and 27 have completed these studies. Eighteen countries have initiated the development of national action plans, and 4 have completed these plans.

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CLIMATE CHANGE TECHNOLOGY INITIATIVE FY99 BUDGET HIGHLIGHTS

The Fiscal Year 1999 budget provides for over \$1 billion -- a 25% increase -- for research investments that will reduce greenhouse gas pollution, create jobs, and save consumers money through energy efficiency and renewable energy technologies. Funding for the Climate Change Technology Initiative is contained in three appropriations bills:

1. Energy and Water - \$350M

\$336 for DOE's Solar and Renewable Energy Portfolio. Programs under this account include:

- **Photovoltaics R&D**, including the President's goal of installing **One Million Solar Roofs** on American homes and offices by 2010.
- **Biopower and Wind power R&D** to improve and accelerate rural biopower as well as the next generation of wind turbines.
- **Hydropower** design work on a new generation turbine that will be both more energy efficient and avoid killing fish.
- The **Climate Challenge** program. A successful voluntary DOE/electric utilities partnership with over 640 participants, that will result in reductions of 47 million metric tons of carbon emissions in 2000.

\$14M for Energy Research

- Basic research, including research on carbon sequestration, to support the applied R&D climate change programs.

2. Interior - \$552M

\$526M for DOE's Energy Efficiency Portfolio. Programs under this account include:

- The **Industries for the Future** program which establishes research partnerships between DOE and energy-intensive industries to develop ways to increase energy and resource efficiency and are projected to save participating industries over \$10 billion in energy costs by 2010.
- The **Partnership for a New Generation of Vehicles** - additional funding will help achieve the President's goal of an affordable, triple efficiency family sedan by 2004. Development of this vehicle would reduce carbon emissions by 1.4 million metric tons annually and reduce energy costs by \$1.2 billion annually by 2010.

- Building Technologies.** DOE will implement technology roadmaps for commercial buildings and lighting and develop new energy efficiency standards for large appliances.

\$24M for Fossil Energy R&D

- Applied research and development for, among other things, sequestration and highly efficient combustion techniques.

\$3M for Energy Information Administration

- Funding to track voluntary greenhouse gas emissions reductions in the U.S. as well as international emissions reduction activities.

3. VA-HUD-Independent Agencies - \$119M

\$109M to EPA for climate change programs which include:

- The Green Lights and Energy Star Buildings program.** With increased funding for Green Lights and Energy Star Buildings, EPA will be able to enter into partnerships with many new small businesses and schools by the year 2000. A typical school can cut its energy bills by \$27,000 per year through this program -- enough money to buy 900 new text books.

\$10M to HUD for PATH

- **The Partnership for Advancing Technology in Housing (PATH)** is an important new public-private partnership with the homebuilding sector. Launched by the President in May, PATH will dramatically improve the energy efficiency of homes, cutting consumers' energy bills by 30%-50%, saving consumers \$11 billion a year in energy costs by 2010 and reducing annual carbon emissions by nearly 24 million tons by 2010.

TDS Remarks for Pre-Indianapolis Workshop Meeting April 8, 1998

Introduction

- Thank you for coming here to discuss the United States' presentations at the Indianapolis workshop.
- Also want to thank you more generally for being part of our ongoing dialogue on the issue of climate change in general, and carbon sequestration and sinks in particular.
- As you know, there are a great number of very difficult issues – scientific, economic and technical – that arise when you start getting into the topic of carbon sinks. Your input is critical to our ability to navigate these issues successfully and in a way that is both good for the environment, scientifically sound, and fair to everyone that has a stake in this topic.
- As you know, the Administration feels very strongly that carbon sequestration and sinks can play a vital and valuable role in helping the world meet the challenge of climate change:
 - Sinks can help make reducing net emissions much more cost effective;
 - Sinks also mean that our agricultural and forestry sectors can potentially be part of the solution to climate change.
- That is why we worked so hard at Kyoto to ensure that the Protocol included provisions on sinks and why we have worked so hard since then to get the parties to elaborate on these provisions.

Diplomatic Context -- Where Indianapolis Fits In

- Helpful, I think, to step back and recognize where this upcoming workshop fits in the larger picture of climate change and the Kyoto Protocol.

- At last year's UN climate change conference in Buenos Aires, the Parties to the Protocol agreed to a 2 year action plan for fleshing out some of the key details left unresolved in Kyoto, including:
 - Rules and guidelines for the Protocol's market-based mechanisms, such as emissions trading and the Clean Development Mechanism;
 - Rules and procedures on compliance.
- In addition, the Parties agreed in Buenos Aires to move forward with a process to define, measure, and verify various categories of carbon sinks. Part of this process is having the UN's Subsidiary Body for Scientific and Technological Advice -- SBSTA, for short -- conduct workshops on land use change and forestry issues. The United States offered to host one of these workshops and that is what brings us to Indianapolis.
- In a moment I will turn the floor over to Jeff Miotke who was part of our State Department negotiating team. He will be able to give you chapter and verse on how these workshops fit together with other parts of the international process for resolving questions about the scope and use of sinks -- including a report being prepared by the Intergovernmental Panel on Climate Change. But essentially, we're looking at having the Parties wrap up these questions by the end of 2000.

Conclusion

- In conclusion, I just want to say how important I think it is that the United States take advantage of opportunities such as the workshop in Indianapolis.

- The United States leads the world in understanding the science of carbon sinks. We have just done a lot more thinking about this topic than many others. Important that we share this knowledge and help overcome any prejudices or misconceptions that are out there.
- Many parties and many NGOs – probably some in this room -- are quite nervous about sinks because they see them as a vast loophole that we or others are going to use try to avoid making tough choices and lowering our emissions.
- Our position is that sinks have not just a legitimate but an absolutely necessary role in meeting the challenge of climate change.
- AT THE SAME TIME: it is also absolutely necessary that we move forward based on sound science.
- That is why the President's FY 2000 budget includes more funding for such items as USDA demonstration projects, a carbon cycle initiative, and an expanded soil carbon inventory, all of which will further our understanding of sinks. Indeed, that is why we agreed to host the Indianapolis workshop.
- It is also absolutely necessary that we ensure that we have a positive, constructive dialogue with everyone who has interests at stake in this issue. And that is why we have invited you here today. We look forward to your participation in this dialogue, both today and in the months to come. Thank you very much.

**THE BUENOS AIRES CLIMATE CHANGE CONFERENCE
STATE DEPARTMENT FACT SHEET
DECEMBER 1998**

OVERVIEW

- At a conference held November 2-13, 1998, in Buenos Aires, Argentina, the Parties to the UN Framework Convention on Climate Change agreed to a two-year action plan for advancing the ambitious agenda outlined in the historic Kyoto Protocol. The Protocol commits developed countries to reduce emissions of the greenhouse gases most scientists believe are causing global warming, and provides innovative, market-based tools for achieving those reductions. [See box].
- The Buenos Aires conference (known also as the "Fourth Session of the Conference of the Parties" or "CoP-4") also saw a significant breakthrough on the issue of developing country participation in international efforts to address climate change. Argentina became the first developing country to announce its intention to take on a binding emissions target for the 2008-2012 time period. Kazakhstan announced that it intended to do so as well.
- During the Buenos Aires conference, on November 12, 1998, the United States signed the Kyoto Protocol at the United Nations in New York. Signing reaffirms the United States' commitment to work with other nations to meet the Protocol's ambitious environmental goals and ensures a continued strong U.S. role in settling issues left unresolved at Kyoto. Signing does *not* impose an obligation on the United States to implement the Kyoto Protocol. (The Protocol cannot become binding on the United States without the approval of the United States Senate.) The President will not submit the Protocol to the U.S. Senate for approval without the meaningful participation of key developing countries in efforts to address climate change.

SUMMARY OF ACCOMPLISHMENTS

BUENOS AIRES ACTION PLAN

- By securing a plan of action with a deadline for developing key aspects of the operational framework of the Kyoto Protocol, the United States achieved one of its primary diplomatic objectives in Buenos Aires.
- In the Buenos Aires action plan, the Parties resolved to reach decisions by the end of 2000 on a number of key issues, including:
 - Rules and guidelines for Kyoto's market-based mechanisms (e.g., emissions trading, joint implementation, and the Clean Development Mechanism);
 - Compliance rules and procedures, including consequences for non-compliance;
 - Development and transfer of cleaner, climate-friendly technologies; and
 - Consideration of the adverse impacts of climate change and response measures.

THE KYOTO PROTOCOL

In December, 1997, in Kyoto, Japan, some 160 countries reached an historic agreement to cut greenhouse gas emissions in an effort to fight global warming -- one of the most profound environmental challenges of the 21st century.

The Kyoto Protocol includes binding emissions targets for developed nations -- 8% below 1990 emissions levels for the European Union; 7% for the United States; and 6% for Japan -- as well as U.S. proposals for flexible, market-based measures to ensure that these targets can be met in a cost-effective manner. The key market-based provisions are:

- **International emissions trading among nations with emissions targets.** Under an emissions trading regime, countries or companies that find it relatively expensive to reduce emissions may purchase additional emissions units from those emitters that have more units than they need (because they have already met their targets with room to spare). Trading encourages reductions where they can be achieved at the lowest cost, thus getting the world the most greenhouse gas reductions for each available dollar, euro or yen.
- **Clean Development Mechanism (CDM).** Industrialized countries will be able to use certified emissions reductions from projects in developing countries to contribute to their compliance with greenhouse gas reduction targets.
- **Joint implementation among developed countries.** Countries with emissions targets may get credit towards their targets through joint project-based emissions reductions in other such countries.

The Protocol includes additional elements of flexibility:

- **Emissions targets are to be reached over a five-year commitment period. The first commitment period will be 2008-2012.** Allowing emissions to be averaged over a commitment period helps smooth out short-term fluctuations due to economic performance or weather. Having a decade before the start of the binding period will allow more time for companies to make the transition to greater energy efficiency and/or lower carbon technologies.
- **Emissions targets include all six major greenhouse gases.** This will provide more comprehensive environmental protection while lending additional flexibility to nations and companies in meeting their targets.
- **Activities that absorb carbon, such as planting trees, can be used as offsets against emissions of greenhouse gases.** Including these so-called "carbon sinks" will encourage activities such as afforestation, reforestation, and better forestry and agriculture conservation practices.

To enter into force, the Protocol must be ratified by at least 55 countries, accounting for at least 55 percent of the total 1990 greenhouse gas emissions of developed countries. United States ratification will require the advice and consent of the U.S. Senate.

BUENOS AIRES ACTION PLAN (continued from page 1)

- The plan of action for proceeding on Kyoto's market-based mechanisms includes a list of critical operational issues raised by Parties, including:
 - Transparency in tracking transfers of emissions units;
 - Allocating risk in emissions trades; and
 - Measurement, reporting and verification issues.
- The Parties decided to continue the Activities Implemented Jointly pilot phase for emissions reduction and carbon sink activities. This will provide, in particular, the least developed and

small island states additional opportunities to develop projects and gain experience that will allow them to participate more fully in the Protocol's Clean Development Mechanism.

CARBON SINKS

- In addition to the Buenos Aires Action Plan, the Parties agreed to move forward with a process to define, measure and verify various categories of carbon sinks and have tasked the Intergovernmental Panel on Climate Change (IPCC) (an international body of over 2000 of the world's leading climate scientists and experts) with conducting a comprehensive study on land-use, land-use change, and forestry activities.
 - As part of this process, the Parties accepted the offer of the United States to host a workshop in the spring of 1999 on additional sink categories, such as those created by improved conservation and management of forests, agricultural soils, and grasslands.
 - Once the IPCC report is finished in the spring of 2000, the Parties will be in a position, at the following Conference of the Parties, to consider further decisions on the scope and use of carbon sinks under the Protocol.

DEVELOPING COUNTRY PARTICIPATION

- On November 11th, Argentina became the first developing country to announce its intention to adopt a binding emissions target for the 2008-2012 time period. Kazakhstan followed the next day with a similar pledge. While the issue of developing country participation in the Protocol remains far from resolved, these announcements signaled a clear shift in the terms of the international debate.
- The announcements by Argentina and Kazakhstan present a new challenge to the Parties. The Protocol does not now provide for nations to voluntarily assume binding emissions targets. Thus, future conferences will need to find pathways under the Protocol in order to facilitate greater developing country participation. Possibilities include a supplemental agreement that would modify the Protocol as it enters into force.
- Greater engagement in Buenos Aires on the part of developing countries was evidenced in other areas as well. One notable example was the growing interest of countries in Latin America and Africa in the Clean Development Mechanism, one of the Protocol's market-based provisions that provides incentives for investment in clean technology projects.
- Climate change is a global problem requiring a global solution. Thus, securing meaningful participation from key developing countries remains a top priority for the United States. The Administration will continue a "full-court diplomatic press" in this area.

PRIVATE SECTOR INVOLVEMENT

- Another encouraging development in Buenos Aires was the active participation of the private sector. Business representatives were involved in two roundtables on the Kyoto mechanisms and technology transfer. Private sector representatives will continue to have opportunities to participate in upcoming international meetings on a number of climate issues.

President Clinton's FY 2000 Climate Change Budget

"Our most fateful new challenge is the threat of global warming...Tonight I propose a new clean air fund to help communities reduce greenhouse and other pollution, and tax incentives and investments to spur clean energy technology."

President Bill Clinton, State of the Union address, January 19, 1999

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

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

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

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

- **Tax credits for energy efficient homes.** Consumers can receive a \$1000-2000 credit toward the purchase of a new energy efficient home; a 10-20 percent tax credit for the purchase of selected energy efficient products for their homes and buildings; and a \$1000-2000 credit for installing a rooftop solar system.
- **Tax credits for fuel-efficient cars.** The package includes tax credits ranging from \$1000-4000 for the purchase of a qualifying electric, fuel cell or hybrid vehicle.
- **Tax credits for renewable energy.** The package extends the 1.5 cent per kilowatt hour tax credit for the production of electricity from wind and biomass; expands the biomass credit to cover additional sources of biomass; and adds a 1.0 cent per kilowatt hour tax credit for cofiring coal and biomass in power plants.

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

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

- Partnership for Advancing Technology in Housing. PATH is a government-industry partnership to improve the energy efficiency of new homes by more than 50 percent and to retrofit 15 million existing homes to make them 30 percent more energy efficient within a decade. The FY 2000 budget request for building efficiency efforts, such as PATH, Energy Star, and Building America, totals \$273 million, a 59 percent increase over FY 1999 appropriations.
- Renewable energy. The President proposes \$399 million for the Department of Energy's (DOE) solar and renewable energy programs, a 19 percent increase over the amount appropriated in FY 1999. The package includes expanded efforts in key renewable technologies, such as wind, bioenergy, photovoltaics, and geothermal energy.

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

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

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

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

President Clinton's FY 2000 Climate Change Budget

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

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

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

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

Clean Air Partnership Fund

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

- ***Integrated Pollution Control.*** The Fund will stimulate integrated, cost-effective pollution control strategies. It directs new resources to state, local, and tribal governments to finance projects and programs that achieve accelerated reductions in both air pollutants, such as soot, smog, and air toxics, and in greenhouse gases.
- ***A Quicker Path to Cleaner Air.*** By providing new resources for projects that accelerate pollution reductions, the Fund will enable communities to achieve multi-pollutant clean air goals sooner and reduce greenhouse gas emissions at the same time.
- ***Technological Innovation.*** The Fund will help spur both public and private sector innovations in next-generation pollution control technology.
- ***A Magnet for Local Investment & Innovation.*** The Fund will encourage public-private partnerships to demonstrate ways to create a cleaner environment at the local level. The Fund can be used to support local revolving funds, low-interest loan programs, matching grants, and other mechanisms that will leverage the original Federal investment, greatly increasing its impact.
- ***“Win-Win” Clean Air Projects.*** The Fund will support a wide range of practical projects that will mean cleaner air, reduced greenhouse gas emissions, and real savings for taxpayers and consumers. These could include projects such as building combined heat and power facilities that put waste heat to work, reducing emissions of both sulfur dioxide and carbon dioxide; retrofitting municipal buildings to make them more energy efficient, reducing pollution resulting from electricity generation; and upgrading municipal vehicle fleets to make them more fuel efficient.

Climate Change Technology Initiative: \$3.6 Billion in Tax Incentives

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

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

*Less than \$50 million.

**Total may not add due to rounding.

HOMES AND BUILDINGS

- ***Tax credit to consumers who purchase new energy efficient homes.*** To encourage the purchase of new energy efficient homes, consumers would receive a tax credit of \$1,000 for homes purchased from 2000-2001 that are at least 30 percent more energy efficient than the standard under the 1998 International Energy Conservation Code (IECC); a credit of \$1,500 for homes purchased from 2000-2002 that are at least 40 percent more efficient than the IECC standard; and a credit of \$2,000 for homes purchased from 2000-2004 that are at least 50 percent more efficient than the IECC standard.
- ***Tax credit for energy efficient equipment in new and existing homes or buildings.*** This credit will encourage the purchase of electric heat pump and natural gas water heaters, electric and natural gas heat pumps, advanced central air conditioners, and fuel cells. The credit would apply to both residential and commercial equipment. For electric heat pump water heaters, natural gas heat pumps, and fuel cells, the credit would be 20 percent of the cost of the investment, subject to a cap, for equipment purchased from 2000-2003. For all other equipment, the credit would be 10 percent of the cost of the investment, subject to a cap, at one level of efficiency (2000-2001) and 20 percent, subject to a cap, at a higher level of efficiency (2000-2003).
- ***Tax credit for rooftop solar systems.*** A 15 percent tax credit will encourage the purchase by consumers and businesses of rooftop solar systems. The maximum credit would be \$2,000 for rooftop photovoltaic systems placed in service from 2000-2006 and \$1,000 for solar water heating systems placed in service from 2000-2004.

VEHICLES

- ***Tax credits for highly efficient cars and light trucks.*** Cars and light trucks (including minivans, sport utilities, and pickups) currently account for 20 percent of greenhouse gas emissions. Tax credits for electric, fuel cell, and hybrid vehicles will help to move these highly efficient technologies from the laboratory to the highway. These technologies can significantly reduce emissions of carbon dioxide, the most prevalent greenhouse gas.
- ***Extend the current tax credit for electric vehicles and fuel cell vehicles.*** Under current law, a 10 percent credit, up to \$4,000, is provided for the cost of qualified electric vehicles and fuel cell vehicles. The credit begins to phase down in 2002 and phases out in 2005. The President's proposal would extend the tax credit at its \$4,000 maximum level through 2006.

- **Tax credits for hybrid vehicles.** The credit -- available for all qualifying vehicles, including cars, minivans, sport utility vehicles, and pickup trucks -- would be:
 - \$1,000 for each vehicle that is one-third more fuel efficient than a comparable vehicle in its class -- available from 2003-2004;
 - \$2,000 for each vehicle that is two-thirds more fuel efficient than a comparable vehicle in its class -- available from 2003-2006;
 - \$3,000 for each vehicle that is twice as fuel efficient as a comparable vehicle in its class -- available from 2004-2006; and,
 - \$4,000 for each vehicle that is three times as fuel efficient as a comparable vehicle in its class -- available from 2004-2006.

RENEWABLE ENERGY

- ***Tax credit for electricity produced from wind.*** Current law encourages the production of electricity from wind, which emits no greenhouse gases, through a tax credit of 1.5 cents per kilowatt hour (adjusted for inflation after 1992). The current tax credit covers facilities placed in service before July 1, 1999. The President proposes a 5-year extension of this tax credit.
- ***Tax credits for electricity produced from biomass.*** Biomass refers to trees, crops and agricultural wastes used to produce power, fuels or chemicals. This package of credits would:
 - **Extend current biomass credit.** This proposal extends for five years the current 1.5 cent per kilowatt hour tax credit (adjusted for inflation after 1992), which covers facilities placed in service before July 1, 1999.
 - **Expand definition of eligible biomass.** This proposal expands the definition of biomass eligible for the 1.5 cent tax credit to include certain forest-related resources and agricultural and other sources.
 - **Include cofiring biomass and coal.** This proposal adds a 1.0 cent per kilowatt hour tax credit for electricity produced by cofiring biomass in coal plants.

INDUSTRY

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

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

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

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

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

*Totals may not add due to rounding

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

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

* Totals may not add due to rounding.

BUILDINGS

- ***Partnership for Advancing Technology in Housing (PATH).*** PATH is a partnership between the Federal government and building industry to develop and deploy housing technologies to make new homes 50 percent more energy efficient and to make at least 15 million existing homes 30 percent more energy efficient within a decade.
- ***Energy Efficient Appliances and Products.*** Various DOE and EPA programs aim to promote the dissemination of energy efficient appliances and products:
 - DOE will accelerate its program to establish **energy efficiency standards for lighting and appliances.**
 - EPA and DOE's **Energy Star Products** program saves consumers money and reduces greenhouse gas emissions at the same time by promoting the use of energy efficient products -- everything from computers to refrigerators to central air-conditioning units. New funding will support the launch of new Energy Star product lines.
- ***Energy Efficient Commercial Buildings.*** DOE and EPA work in partnership with industry to research, develop, and deploy new technologies and practices to improve the energy performance of commercial buildings. Buildings in the top 25 percent in energy efficiency qualify for EPA's "**Energy Star Buildings**" label. Participants include the Empire State Building, the World Trade Center, and Chicago's Sears Tower.
- ***Energy Smart Schools.*** Announced in October 1998, this initiative cuts across several DOE programs and brings together public and private sector resources to cut schools' energy bills so that the savings can be reinvested in students and their education.

TRANSPORTATION

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

- **Light and Heavy Trucks.** Similar government-industry efforts are aimed at developing cleaner, more efficient diesel engines for both light and heavy trucks.
 - By 2002, DOE aims to develop **advanced diesel cycle engine technologies** for pickup trucks, vans, and sport utility vehicles which achieve at least a 35 percent fuel efficiency improvement relative to current gasoline-fueled trucks while meeting strict emission standards.
 - By 2004, DOE, in coordination with EPA and the Department of Defense, aims to develop **engine and vehicle technologies for heavy trucks** that will increase the fuel economy to 12 mpg from the current average of 5.3 mpg.
- **Biofuels.** Working with the Department of Agriculture (USDA), DOE will continue its work in the biochemistry of converting wood chips, grasses, agricultural wastes, and other products into ethanol and other potentially useful fuels.

INDUSTRY

- **Industries of the Future.** This DOE program works cooperatively with the nation's most energy-intensive industries -- such as aluminum, glass, chemicals, forest products, mining, petroleum refining, and steel -- on developing technologies that increase energy and resource efficiency. Promising collaborative efforts include improvements in the process of making steel, pulp and paper, and other energy-intensive products that could dramatically increase efficiency, lower greenhouse gas emissions, and improve competitiveness.
- **Industrial Combined Heat and Power (CHP) Systems.** DOE is developing new industrial CHP systems to capture thermal heat would otherwise be wasted. These systems are expected to be 15 percent more energy efficient and 80 percent cleaner than conventional power systems and cut electricity costs by 10 percent. In addition, EPA and DOE are also working to eliminate barriers to the rapid dissemination of combined heat and power technology.
- **Voluntary Industrial Partnerships.** EPA will expand its industry partnership programs, such as **Climate Wise** and the **Voluntary Aluminum Industrial Partnership**, to encourage businesses to take advantage of cost-effective emissions reductions opportunities -- including emissions of the most potent greenhouse gases, such as methane, perfluorocarbons (PFCs), hydrofluorocarbons (HFCs), and sulfur hexafluoride (SF6).

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

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

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

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

ELECTRICITY

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

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

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

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

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

- **Wind Power.** DOE will continue developing a next-generation wind turbine able to produce power at 2.5 cents per kilowatt-hour in good wind regions, accelerate R&D on critical components, and accelerate testing and field validation.
- **Hydrogen.** DOE will accelerate research on low-cost hydrogen production and storage, prerequisites to the widespread use of hydrogen as a fuel.
- **High Temperature Superconductivity.** DOE supports industry-led projects to capitalize on recent breakthroughs in superconducting wire technology, aimed at developing devices such as advanced motors, power cables, and transformers. These technologies would allow more electricity to reach the consumer without an increase in fossil fuel input.

CARBON SEQUESTRATION

- **R&D for Sequestration.** Research initiatives are being funded to find ways to sequester (store) carbon. Examples include:
 - **Enhancing Forest and Farmland Sinks.** The Forest Service, in conjunction with other USDA agencies, will spend \$6 million for R&D and demonstration projects for optimizing forest, farmland, and rangeland carbon sinks. The focus of such projects will include storage of carbon in forest soils and increased durability and use of wood products to sequester carbon.
 - **Enhancing natural geological and oceanic processes.** DOE will support research into the feasibility of capturing and storing carbon dioxide in underground geological structures and in the deep ocean.

Other Climate-Related Investments

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

- ***Cleaner Coal and Natural Gas.*** The FY 2000 budget includes \$209 million to support the Department of Energy's (DOE) aggressive R&D effort to develop next-generation technologies for the combustion and use of coal and natural gas. For example, research and development of two new coal combustion technologies -- integrated gasification combined cycle and pressurized fluidized bed combustion -- could lead to ultra-high efficiency coal plants with dramatically lower greenhouse gas emissions.
- ***Low Income Weatherization and State Energy Grants.*** These DOE programs facilitate energy efficiency investments at the State and local level. The **Weatherization Assistance Program**, for example, delivers energy conservation services, such as insulation, to low-income Americans, reducing energy costs for consumers, improving health and safety, and reducing carbon emissions. The total FY 2000 budget request for these two programs is \$191 million -- a \$25 million increase over FY 1999 appropriations.
- ***Agricultural & Forestry Conservation Programs.*** Many Department of Agriculture conservation programs have the co-benefit of reducing carbon emissions resulting from agriculture and forestry and enhancing the ability of "sinks," such as forests and farmlands, to sequester or store carbon. This includes programs such as the **Conservation Reserve Program**, the **Environmental Quality Incentives Program**, and the **Farmland Protection Program**. In general, these programs assist farmers, ranchers, and other landowners in conserving and improving soil, water, and other natural resources associated with rural land.

U.S. Global Change Research Program

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

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

- ***Carbon Cycle Initiative.*** The FY 2000 budget request establishes a new multi-agency initiative to improve our understanding of how carbon cycles between the atmosphere, the oceans, and land. Included in this request are funds to study the role of farms, forests, and other natural or managed lands in capturing carbon. Such carbon "sinks" may provide the U.S. and other nations with new tools for offsetting greenhouse gas emissions. The initiative includes \$10 million in new funding for the Department of Agriculture (USDA) and \$5 million for the Department of Energy.
- ***Soil Carbon Inventory.*** The FY 2000 budget request includes \$14 million (an increase of \$12 million from FY 1999 appropriations) to significantly expand efforts to conduct a comprehensive scientific inventory of carbon stored in U.S. soils and to develop methods to predict how soil carbon levels would be affected by different practices and policies. The inventory will be conducted by USDA's Natural Resources Conservation Service.
- ***3-Dimensional Mapping of Forests.*** The FY 2000 budget provides funding to launch NASA's Vegetation Canopy Lidar, which, for the first time, will give scientists a three dimensional view of the Earth's forests to help determine the contribution of forests in sequestering atmospheric carbon.
- ***Consequences of Climate Change.*** The FY 2000 budget provides funding to complete a report on the first national assessment of the potential consequences of climate change on the United States. The report will identify potential impacts on key economic sectors and geographic regions, mitigation and adaptation strategies, and provide technical information for policy makers.
- ***Regional Variability.*** The FY 2000 budget request includes funding to help scientists examine climate change and variability on a regional scale. Supported in part by the Administration's new Information Technology Initiative, the funding will help improve U.S. computer capabilities to run the complex models required to understand the effects of climate change and variability at the regional level.

Agriculture and The President's FY 2000 Climate Change Budget

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

SEQUESTRATION

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

- ***Demonstration Projects and New R&D.*** The Forest Service, the Agriculture Research Service and the Natural Resources Conservation Service will launch new R&D and demonstration projects to optimize farmland, rangeland, and forest carbon sinks.
- ***Carbon Cycle Initiative.*** The FY 2000 budget request establishes a new multi-agency initiative to improve our understanding of how carbon cycles between the atmosphere, the oceans, and land. Included in this request are funds to study the role of farms, forests, and other natural or managed lands in capturing carbon. Such carbon "sinks" may provide the U.S. and other nations with new tools for offsetting greenhouse gas emissions. The initiative includes \$10 million in new funding for USDA and \$5 million for DOE.
- ***Soil Carbon Inventory.*** The FY 2000 budget request includes \$14 million to significantly expand efforts to conduct a comprehensive scientific inventory of carbon stored in U.S. soils and to develop methods to predict how soil carbon levels would be affected by different practices and policies.

BIOENERGY

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

- ***Biomass Power and Fuels.*** DOE and USDA will continue developing, testing, and demonstrating high-yield, low-cost biomass feedstocks; testing and demonstrating biomass cofiring with coal; and seeking to produce alternative fuels, such as ethanol, from biomass.
- ***Advanced Biomass Technologies.*** This year, DOE, USDA and other Federal agencies and private partners will launch a national partnership to develop advanced integrated biomass technologies.
- ***Biomass Tax Credit.*** The President's tax package proposes to extend for 5 years the current 1.5 cent per kilowatt hour tax credit for electricity produced from biomass. The proposal also expands the types of biomass eligible for the credit to include certain forest-related, agricultural and other resources. Finally, the package includes a 1.0 cent per kilowatt hour tax credit for electricity produced by cofiring biomass in coal plants.

FILE
TP₅

Talking Points on Analysis by Charles River Associates

The Charles River Associates' (CRA) June assessment of the Administration's economic analysis of Kyoto says that the costs would be higher than the Administration's estimates, under more "realistic assumptions." However, these "realistic" assumptions ignore the real specifics of the Kyoto Protocol and of the President's policy. Moreover, some other claims by CRA are unfounded and/or unresolved.

- **"Realistic" Trading Assumptions.** CRA claims that without trading, the costs of complying with our Kyoto target would be higher. This is precisely why the Administration advocated and won international trading and other flexibility mechanisms in the Kyoto Protocol and is insisting on meaningful participation by developing countries. Assessments purportedly of the Kyoto Protocol that exclude trading, or assume trading constraints, are neither analyses of the Protocol nor of the Administration's position on implementing the Protocol. We are pleased to see that the CRA model, given the relevant assumptions, does generally replicate the low price effects estimated with Pacific Northwest Laboratories' SGM Model and in the Administration's economic analysis.
- **Measurement of Economic Costs.** CRA claims that the Administration's assessment of economic costs underestimates the true costs to the whole economy. First, it should be noted that this claim only concerns the definition and calculation of total resource costs given a specific permit price -- the argument does not address the estimated effects on prices. Second, CRA does not provide any specific demonstration or intuition as to what the indirect costs are, or why the direct and indirect costs would be several times higher than what is evident in the measurement of direct costs. Finally, the issue of calculating costs with energy models is a part of an ongoing debate in the economic modeling community; so the CRA conclusion, while meriting further intellectual inquiry, should not be considered representative of a definitive consensus.
- **"Rapid" replacement of coal plants with natural gas plants.** CRA claims that the Administration assumes extremely rapid replacement of coal-fired plants with natural gas plants by 2008. This is not true. The Administration's estimates of natural gas consumption and coal consumption, relative to what they would be without any efforts to reduce greenhouse gas emissions, rebut this claim. With permit prices of \$14 to \$23/ton, natural gas consumption is roughly equal to what it is projected to be otherwise, while coal consumption, though somewhat lower than it would otherwise be, is still higher than present consumption. Thus there is no rapid reduction of coal-fired capacity.
- **Technology Assumption.** CRA in May 19 testimony had erroneously guessed that the Administration's analysis must have employed "free lunch" technology optimism. The Administration analysis uses the default assumption about energy efficiency improvement used by the modelers who developed the Second Generation Model. The assumption is based on the projected energy consumption in EIA's Annual Energy Outlook.

Climate Change Message

Climate change is a serious problem for us, our children and our grandchildren. The President is committed to taking responsible action to confront the threat that climate change poses. The United States will support international agreements that set realistic goals and that require participation by all countries -- industrial and developing. At home, we support flexible, market-based reforms based on the principle that vigorous economic growth and protection of the earth must go hand in hand. It is up to us not only to prepare our children for the world of the 21st century, but to protect that world for our children.

Climate Change Talking Points

The Need for Action

- There is now scientific consensus that (1) greenhouse gases are rapidly building up in the atmosphere; (2) that these increased concentrations will change our climate; and (3) that these changes may have serious adverse and disruptive consequences. Even those who would question whether climate change is *already* occurring recognize the truth of this fundamental proposition.
- In addition, the scientific evidence is clear and compelling that human activity -- notably increasing use of fossil fuels -- has in fact started to change the global climate. More than 2,600 of the world's leading scientists have said that "human-induced global climate change is underway" and that continued increases in emissions of carbon dioxide and other greenhouse gases "commits the earth irreversibly to further global climatic change and consequent ecological, economic and social disruption."
- Scientists agree that global warming and disruptions in the world's climate could seriously harm human health -- projections include an additional 50 million cases of malaria per year; increase the incidence and intensity of devastating floods and droughts; raise sea levels enough to inundate 9000 square miles along the U.S. coastline; decrease food production in some of the world's poorest nations; and threaten the survival of many plant and animal species.
- In December, more than 160 nations, including the United States, will meet in Kyoto in an effort to complete negotiations on a new international climate change agreement.

International Agreements -- Background and Principles

Background

- The new climate change convention will replace a 1992 agreement adopted at the Earth Summit in Rio. That agreement included *non-binding* commitments to reduce greenhouse gas emissions.
- The industrialized nations, including the United States, agree that the new convention should require them to set and reach *binding* commitments and timetables for reductions in greenhouse gas emissions.
- Members of the European Union and other industrialized countries have proposed that by the year 2010, developed nations agree to reduce their greenhouse gas emissions to a level 15 percent below 1990. The United States believes that target is unrealistic but we have not yet proposed our own target or timetable.

Principles

- The Clinton Administration is committed to rapid action to reach an agreement that is balanced, strong and cost-effective in time for the December meeting in Kyoto, Japan.
- The United States will only support an agreement that requires all nations to participate in a common solution to the global problem of climate change. Like other industrialized nations, we realize that our responsibility for large proportions of current emissions requires us to agree in Kyoto on binding targets for reductions. But any agreement must also require developing nations to commit to appropriate action. [Note: By the year 2035, scientists estimate that emissions from developing countries will exceed those of developed nations.]
- The Clinton Administration is committed to reaching an agreement that establishes realistic targets and timetables for reduced emissions. The United States will only make commitments that the President believes our nation can reach without slowing economic growth or damaging the economy.
- The United States believes that an agreement should be based on flexible, cost-effective methods to reduce emissions of greenhouse gases. Specifically, the United States proposal calls for “emissions trading” among industrialized nations and so-called “joint implementation,” which will allow developed and developing countries to work together to reduce emissions on specific energy projects. These measures will provide strong incentives to achieve the greatest possible emission reductions at the lowest possible cost.

Domestic Policy – Background and Principles

Background

- The United States has 4 percent of the world’s population and is currently responsible for more than 20 percent of the world’s carbon dioxide emissions. Emissions produced by buildings, industry and transportation each account for roughly one-third of that total. Despite efforts to reduce emissions through federal programs and voluntary partnerships, U.S. emissions of carbon dioxide and other greenhouse gases substantially exceed 1990 levels. (We are not alone; almost all industrialized nations will fail to meet the non-binding pledge in the Rio agreement to reduce emissions to 1990 levels by the year 2000.)
- Current Clinton Administration programs to reduce emissions of greenhouse gases include a partnership with Detroit to triple fuel efficiency of passenger cars; pilot projects to help farmers and industry convert crops to liquid and gaseous fuels; and a Department of Energy program to add one million solar energy systems to buildings by the year 2010.

Principles

- President Clinton is committed to responsible, balanced action to confront the threat of climate change. The Administration rejects both extremes of the climate change debate: those who want to take drastic actions that would severely disrupt our economy and those who dismiss the scientific evidence and say we need not act.
- President Clinton will only take actions that preserve our vigorous economic growth. The Administration believes -- and has demonstrated -- that environmental protection and economic growth can and should go hand in hand. More than 2000 economists, including eight Nobel Laureates, have concluded that there are policy options "that would slow climate change without harming American living standards, and these measures may in fact improve U.S. productivity in the longer run."
- The Clinton Administration will emphasize solutions based on flexible, market-based policies, not government regulation. These programs include emissions trading within the United States.
- The Clinton Administration will invest in research and development to promote technologies that reduce the emissions that cause climate change, save energy, and reduce our dependence on foreign oil. We will work to help American industry increase its role as the world leader in developing environmental technology.

Conclusion

- Whenever the security of our people has been threatened, the United States has led the world to action. Climate change poses a threat to all people -- one that is not immediately apparent today but will grow in severity and significance in years to come. The world must act. And the United States must lead. The President has made it clear that he intends to do so and has committed himself both to develop balanced, flexible policies to accomplish our aims and to lead a major effort to educate the public about the importance of this issue -- an effort that will culminate in a White House Conference on Climate Change in early October. It is the challenge and the commitment of this Administration to continue promoting prosperity as we protect the environment.

TP/QA
Notebook

Q: How does the new U.S. target of 7% below 1990 levels by 2008-2012 relate to the President's announced position?

A: This new position is very similar to the President's announced position, because it is based on a redefined measure of net emissions. Previously, our target was based on the 1990 levels of a comprehensive basket of all six greenhouse gases, and it netted out the change in "sinks", or carbon-absorbing human activity. The new target uses instead a 1995 baseline for the three hydrofluorocarbons; with this new baseline, we can reduce to 1% below baseline emissions by 2008-2012 at the same level of effort as our announced position. The new target also does not net out the change in sinks, but rather only counts a limited set of sinks in the 2008-2012 period. Due to the slowing pace of reforestation in the U.S., our sinks are falling over time, so that by not netting out the change in sinks we make it much easier to meet a given target; with this new definition, we can reduce to 3% below baseline emissions by 2008-2012 at the same level of effort as our announced position. Thus, with this new definition, we can reach a reduction of 4% below 1990 levels with no new effort, so that our 7% reduction "on paper" is really, at most, a 3% increase in effort relative to the President's announcement. Moreover, while there is some ambiguity at this time over what the limited set of sinks that are included means for the U.S., our target is likely to be even easier to hit by benefitting from the sinks that do take place in the budget period. Thus, our final position is a reduction of, at most, 3% from our announced position, and probably less.

Q: Doesn't this outcome represent a "cave" by the U.S. to the international community that wanted much steeper emissions reductions?

A: Absolutely not. Consider that the going in position of the E.U. was a 15% emissions reduction by 2006-2010. Thus, under their plan we would not only have had to effect much steeper reductions, we would have had to accomplish this goal much earlier. In fact, we emerged with a target that was roughly similar to the President's announced target and timetable. That we were able to bridge such an enormous gap with relatively little sacrifice on the part of the U.S. is a testimony to our skilled team of negotiators. Moreover, we also emerged from these negotiations with key flexibility provisions that had originally been proposed by much of the developed and developing world: emissions trading and the Clean Development Mechanism. It is even more impressive that we were able to achieve these gains with almost no sacrifice on our target and timetable.



Reading
TP Notebook
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White House Climate Change Task Force

734 Jackson Place, N.W. - Washington, DC 20503

FAX

456-5334

To: Todd Stein CC: Antholis, Director - 456-2710

Organization/Title:

Fax: 456-2215 Phone:

Pages (including cover): Date:

From: Jim Rubin

Phone:

Message:

Here's a draft set of Q's for you, based on my conversation w/ Bill + Elliot. I will review prior Q's + A's in your office to tighten these up + develop answers - but I thought you might want to see these before you leave for an idea on what to add, what kind of answers to have.

Jim Rubin

Fax Todd Stern
456.2702

Draft Q & A's for Todd Stern, April 29, 1998

Congressional

In view of the apparent growing opposition in Congress [and in the editorial pages] to the Kyoto Protocol, is the administration making any progress toward securing Senate ratification of the Protocol?

Will the President submit the Protocol for Senate ratification before the end of his term?

Do you think the Protocol will stand a chance in the Senate?

Have you built up any support in Congress over the Protocol?

Has the administration made any progress in the recent Congressional hearings on the Kyoto Protocol and climate change in general?

What is the administration's view of the concerns expressed by some members of Congress about what they claim to be "pre-implementation" of the Protocol?

[Sandalow to draft signing Q&A]

Diplomatic

Has there been progress on developing countries?

Will the President take up this issue in his June trip to China?

Will climate change be a topic at the G8 Heads of State?

What progress do you think must be made at Buenos Aires, and do you expect such progress to be made? [developing countries, flexibility]

Will the administration still seek Senate ratification if it does not succeed in establishing workable rules for its flexibility mechanisms at Buenos Aires?

[we will identify further potential questions from any statements made by recent signatories to the Protocol, e.g. EU countries]

Domestic

Will the CCTI really move the country toward the target agreed in Kyoto?

What are the chances that Congress will approve the budget request for the CCTI?

Without the CCTI, how would the U.S. move toward its target?

Will the administration's electricity restructuring proposal lead to reductions in greenhouse gases?
What is the status of that proposal?

What is the status of the industry-by-industry consultations?

Science

What is the administration's view of the Sietz petition?

Has the administration been suggesting that the recent El Nino events were connected to global warming?

Outreach

Why hasn't the President made any recent announcements on climate change, particularly at his recent Earth Day Speech?

Climate Change: Basic Background

"The science is clear and compelling. We humans are changing the global climate. Concentrations of greenhouse gases in the atmosphere are at their highest levels in more than 200,000 years, and climbing sharply....Here in the United States, we must do better....In order to reduce greenhouse gases and grow the economy, we must invest more in the technologies of the future. I am directing my Cabinet to work to develop them. Government, universities, business and labor must work together....[I]n order to do our part, we have to first convince the American people and the Congress that the climate change problem is real and imminent."

-- President Bill Clinton
United Nations, June 26, 1997

Why is Climate Change on the Agenda Now?

In less than five months, the world's nations will convene in Kyoto, Japan to set binding greenhouse gas emission limits for developed nations. This meeting, called the Third Conference of the Parties, will follow critical negotiating sessions to be held in Bonn, Germany over the next several months.

The Kyoto Conference is the culmination of a process that began in 1992 at the United Nations Conference on Environment and Development in Rio de Janeiro (the "Rio Summit"). The Rio Summit produced the Framework Convention on Climate Change (the "Framework" or "FCCC"), to which 165 nations are presently parties.

Under the Rio Framework, developed nations agreed to a *non-binding* goal of lowering their emission of greenhouse gases to 1990 levels by the year 2000. Nearly every developed nation, including the U.S., will fail to achieve this goal.

In 1995, the parties to the Rio Framework met in Germany (the "First Conference of the Parties") and negotiated the Berlin Mandate. Under the Mandate, the parties agreed (i) that they would continue to pursue the Rio Framework's goals, (ii) that the developed nations should negotiate a "follow-on" agreement, which would cover the post-2000 period, and (iii) that there would be no new commitments for developing nations, though developing nations would be required to advance implementation of commitments they made in Rio.

In 1996, the parties met again at Geneva, Switzerland (the "Second Conference of the Parties"). There, the United States called for a binding agreement on greenhouse gas emissions in the post-2000 period. The Administration now intends to conclude such an agreement in December in Kyoto.

The Science is Compelling.

Greenhouse gases. Scientists have long understood that greenhouse gases in nature (principally water vapor, carbon dioxide, methane and nitrous oxides) keep the Earth's temperature an estimated 60 degrees Fahrenheit warmer than it would be absent such gases, thus sustaining our existence on the planet.

As a result of human activities, the concentration of greenhouse gases have increased markedly since the Industrial Revolution. The concentration of CO₂ -- which accounts for about 85% of all greenhouse gases -- has increased 30% since preindustrial times from 280 to 360 parts per million. Current projections indicate that, unless action is taken, atmospheric concentrations of CO₂ will dramatically increase in the next century to over 700 ppm -- which would be the highest level of CO₂ in 50 million years.

Scientific consensus. There is no serious scientific debate about the proposition that (1) greenhouse gases are rapidly building up in the atmosphere; (2) that these increased

concentrations will change our climate; and (3) that these changes may have serious adverse and disruptive consequences. Even those who would question whether climate change is *already* occurring recognize the truth of this fundamental proposition. During the next century, if we continue on a business-as-usual trajectory, climate models project an increase in global temperature of about 2-6.5° F -- a rate of warming faster than at any time in the last 10,000 years. By way of reference, a cooling in average temperatures of just 9° F brought on the last ice age.

In addition, the scientific evidence is clear and compelling that human activity -- notably increasing use of fossil fuels -- has in fact started to change the global climate. The UN-sponsored Intergovernmental Panel on Climate Change (the "IPCC"), concluded in 1995 that "the balance of evidence suggests that there is discernible human influence on climate change." Some 2600 of the world's leading scientists have publicly endorsed the IPCC's findings, saying that "[h]uman-induced global climate change is under way." The scientists observed that "further accumulation of greenhouse gases commits the Earth irreversibly to further global climatic change and consequent ecological, economic and social disruption." Among the evidence consistent with the view that climate change is already occurring:

- Average global temperature has increased by almost 1.0° F in the past century;
- The ten warmest years of the century have occurred since 1980, and 1995 was the warmest year on record;
- The 1980s were the warmest decade on record;
- Sea level has risen 4-10 inches in the past century.
- U.S. rainfall has increased 6% over the last century, an amount of water equal to half the yearly flow the Mississippi river;
- At the same time, increased evaporation has caused some areas, such as the Great Plains, California, Texas and Maine, to get drier.
- Mountain glaciers are melting worldwide. For example, Glacier National Park has lost 70% of its glacial area in the last 100 years.

The impact of a business-as-usual increase in greenhouse gas concentrations. The impacts could be very serious as CO₂ concentrations reach and exceed two times preindustrial levels:

- **Human Health:** Warmer temperatures are projected to increase fatalities from heat stress of the kind that killed 400 in Chicago in 1995 and expand the geographic ranges for diseases like malaria and dengue fever. Fifty to eighty million more cases of malaria alone are projected worldwide.
- **Extreme weather:** The change in the planet's water cycle is projected to lead to increased frequency and intensity of extreme weather events such as floods and drought.
- **Sea Level Rise:** Sea level is projected to increase by an additional 6-38 inches by 2100. Scientists' "best guess" estimate of a 20-inch rise would inundate 9,000 square miles of the United States, with Florida and the Gulf Coasts most at risk.

- **Agricultural Impacts:** Changes in growing seasons, water availability, soil moisture and precipitation could cause significant regional shifts in food productivity, with decreases in food production in many of the world's poorest regions.
- **Natural ecosystems will be degraded:** For example, during the next century the geographical range of forests is expected to move several hundred miles north exceeding the ability of many forests to migrate. The northeast may lose its beech trees and sugar maples. Western conifer forests will likely shrink.

Some Key Facts About Emissions.

- Climate change is a global issue, requiring a global response. While developed countries have contributed 75 percent of total greenhouse gas emissions since the beginning of the Industrial Revolution, by 2035, emissions from developing countries are expected to exceed those from developed countries.
- The United States, with only 4% of the world's population, is responsible for more than 20% of global emissions. U.S. per capita emissions are roughly 50% greater than the OECD average and eight times that of China.
- CO₂ emissions account for about 85% of all US greenhouse gas emissions, and fossil fuel combustion makes up 99% of U.S. CO₂ emissions.
- 1995 CO₂ emissions in the United States were divided equally among the three major end uses: buildings (35%), industry (34%), and transportation (31%).
- Current carbon emissions in the United States by fuel type are: petroleum (42%), natural gas (23%), and coal (35%)

Climate Change Can Be Addressed Without Hurting the Economy

The President's remarks to the Business Roundtable: "I have devoted my passion and the best ideas I could come up with to try to get this country in good shape economically and socially. But I do believe it is folly for us to believe that we can go into the next century without a strategy that says we're going to be responsible and we're going to do our part and lead the world on environmental issues . . . Let's find a way to preserve the environment, to meet our international responsibilities, to meet our responsibilities to our children, and grow the economy at the same time."

The economists agree. More than 2400 economists, including eight Nobel laureates, have publicly declared that, if implemented properly, emission reductions "would slow climate change *without harming American living standards*, and these measures may in fact improve U.S.

productivity in the longer run.”

Our international policies. The United States has proposed a three-part framework for achieving a stronger, more cost-effective and comprehensive treaty:

- **Binding Emission Targets.** To help guarantee the effectiveness of global efforts to reduce greenhouse gas emissions, the U.S. will promote binding targets for developed nations to reduce their emissions. Almost all developed nations, including the United States, will fall well short of the non-binding goals in the 1992 Rio Convention.
- **Flexibility.** To ensure that emission reductions are pursued in the most cost-effective manner, the Administration supports proposals for maximum flexibility, such as allowing the trading of emission permits among developed nations and allowing so-called “joint implementation,” under which developed and developing countries work together on specific energy projects to reduce emissions. These measures can provide strong incentives to achieve the greatest possible reductions at the lowest possible cost.
- **Participation of Developing Countries.** Climate change is a global problem that requires all nations to commit to appropriate action. While it is proper for industrialized nations to take the first steps, the developing countries -- whose emissions are projected to catch up with those of the developed world by 2035 -- must be part of the solution. The U.S. proposal calls on developing countries to advance their existing commitments under the 1992 Convention; and to agree to a subsequent negotiation in which, by 2005, they will accept binding targets and agree on a mechanism allowing “graduation” from developing country status to developed country status.

Our domestic policies. The President has not yet endorsed any emissions target or timetable, and specific policies to implement a target and timetable are still being developed. But the Administration’s policy work is guided by certain broad principles.

- President Clinton is committed to responsible, balanced action to confront the threat of climate change. The Administration rejects both extremes of the climate change debate: those who want to take drastic actions that would severely disrupt our economy and those who dismiss the scientific evidence and say we need not act.
- President Clinton will only take actions that preserve our vigorous economic growth. The Administration believes -- and has demonstrated -- that environmental protection and economic growth can and should go hand in hand.
- The Clinton Administration will emphasize solutions based on flexible, market-based policies, not government regulation. These programs include emissions

trading within the United States.

- The Clinton Administration will invest in research and development to promote technologies that reduce the emissions that cause climate change, save energy, and reduce our dependence on foreign oil. We will work to help American industry increase its role as the world leader in developing environmental technology.

The Administration Has a Strong Record to Build Upon.

Over the last four and a half years, the Administration has built a strong climate change record.

The Climate Change Action Plan (CCAP). CCAP began in 1993 with a goal of returning total U.S. greenhouse gas emissions to their 1990 levels by the year 2000. Although the CCAP will fall well short of this goal, CCAP programs will result in emissions reductions of about 76 million metric tons of carbon-equivalent by the year 2000.

The plan includes some 50 initiatives covering major sectors of the U.S. economy. It addresses energy demand, energy supply, and forestry. Agency participants include DOE, EPA, and USDA. The CCAP includes measures to reduce all significant greenhouse gases in all sectors of the economy. It is a voluntary program that relies on partnerships and cooperation between the public and private sectors in developing new low-emissions, high-efficiency technologies.

Because of lower-than-expected fuel prices and higher-than expected economic growth and electricity demand, overall emissions growth has outstripped the emissions reductions achieved by CCAP. Additionally, Congress has made significant reductions (about 40% in recent years) in CCAP's funding, thus preventing full implementation of some of CCAP's initiatives.

Federal energy consumption. The Energy Policy Act of 1992 and Executive Order 12902 challenge Federal building managers to reduce energy consumption by 20% per square foot by 2000, and 30% by 2005, relative to a 1985 baseline. With declining Federal resources available, the Federal Energy Management Program is emphasizing the use of private-sector investment through energy-saving performance contracting and utility financing of energy efficiency to meet these goals. The combination of Federal funding and anticipated private sector funding of up to \$4.3 billion through 2005 should make these goals attainable.

Partnership for a New Generation Vehicle (PNGV). Although the fuel economy of cars has nearly doubled in the last 25 years, Americans travel more than twice as many miles today as we did in 1970, with a net result of increased fuel consumption and increased greenhouse gas emissions from personal vehicles. While technology has reduced many of the emissions from automobiles, CO₂ emissions are the exception.

The PNGV program joins the big three U.S. automakers, Federal agencies and many suppliers of materials and equipment in an effort to develop a more efficient automobile. The program's goal

is to triple the fuel efficiency of passenger cars with no decrease in comfort or safety.

Partnership for Advancing Technologies in Housing (PATH). Energy use in buildings is responsible for about a third of U.S. greenhouse gas emissions, and rising. Major improvements can be made in the quality of housing, while reducing energy use by 50% or more and lowering costs. The PATH initiative will bring together building suppliers, assemblers, insurance companies, and state and local regulators to explore and demonstrate how innovation in construction markets can achieve environmental goals with an affordable, attractive product. Discussions are underway with jurisdictions in Colorado, Florida and California. HUD, DOE, and NIST are playing major roles.

Biomass Energy Initiative. The biomass energy initiative involves converting agricultural crops to liquid and gaseous fuels. The Departments of Energy and Agriculture are now working with private companies to improve technologies and to demonstrate the potential for such power projects to aid rural development. The initiative has sponsored pilot projects in New York, Minnesota and Iowa.

Million Solar Roofs Initiative. DOE will lead an effort to place one million solar energy systems on U.S. roofs by the year 2010, by using existing Federal grants, procurement, and other programs, and by working with local communities, businesses, governments, and utilities to increase sales of solar energy systems. By 2010, this initiative could avert carbon dioxide emissions equivalent to those of 850,000 cars and will produce the same electrical generating capacity as several coal-fired power plants.

The President's Committee of Advisors on Science and Technology (PCAST). The President directed PCAST to conduct a review of national energy R&D policies, which would assess their adequacy and "ensure the United States has a program that addresses its energy and environmental needs for the next century." PCAST will present its recommendations on publicly-supported R&D, incentives for private energy R&D, and commitments to international energy R&D, by October 1, 1997.

Regional Climate Change Workshops. The White House Office of Science and Technology Policy and the U.S. Global Change Research Program are sponsoring a series of workshops to examine the vulnerabilities of various regions of the United States to climate variability and climate change and to gather information across regions to support national scientific assessment (called for in the Global Change Research Act of 1990). Eighteen workshops with the full involvement of relevant stakeholders are being held in different regions of the country.

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The Kyoto Protocol on Climate Change State Department Fact Sheet January 15, 1998

BACKGROUND

- At a conference held December 1 - 11 1997, in Kyoto, Japan, the Parties to the UN Framework Convention on Climate Change agreed to an historic Protocol to reduce greenhouse gas emissions by harnessing the forces of the global marketplace to protect the environment.
- The Kyoto Protocol in key respects – including emissions targets and timetables for industrialized nations and market-based measures for meeting those targets – reflects proposals advanced by the United States. The Protocol makes a down payment on the meaningful participation of developing countries, but more needs to be done in this area. Securing meaningful developing country participation remains a core U.S. goal.

EMISSIONS TARGETS

- A central feature of the Kyoto Protocol is a set of binding emissions targets for developed nations. The specific limits vary from country to country, though those for the key industrial powers of the European Union, Japan, and the United States are similar – 8% below 1990 emissions levels for the EU, 7% for the U.S., 6% for Japan.
- The framework for these emissions targets is based largely on U.S. proposals:
 - **Emissions targets are to be reached over a five-year budget period as proposed by the U.S., rather than by a single year.** Allowing emissions to be averaged across a budget period increases flexibility by helping to smooth out short-term fluctuations in economic performance or weather, either of which could spike emissions in a particular year.
 - **The first budget period will be the U.S. proposal of 2008-2012.** The Parties rejected proposals favored by others, including budget periods beginning as early as 2003, that were neither realistic nor achievable. Having a full decade before the start of the binding period will allow more time for U. S. companies to make the transition to greater energy efficiency and/or lower carbon technologies.
 - **The emissions targets include all six major greenhouse gases.** The EU and Japan initially favored counting only three gases – carbon dioxide, methane, and nitrous oxide. Ensuring the inclusion of the additional gases (synthetic substitutes for ozone-depleting CFCs) that are highly potent and long-lasting in the atmosphere provides more comprehensive environmental protection and lends more certainty concerning the treatment of the additional gases.

- **Activities that absorb carbon, such as planting trees, will be offset against emissions targets.** The treatment of these so-called “sinks” was another controversial issue at Kyoto. Many countries wanted sinks to be excluded. The United States insisted that they be included in the interest of encouraging activities like afforestation and reforestation. Accounting for the role of forests is critical to a comprehensive and environmentally responsible approach to climate change. It also provides the private sector with low-cost opportunities to reduce emissions.

Is the target the United States agreed to actually 7% lower than what the President proposed in October?

No. The 7% target represents at most a 3% real reduction below the President’s initial proposal of reducing greenhouse gases to 1990 levels by 2008-2012. The remaining 4 percentage points result from certain changes in the way gases and sinks are calculated and do not reflect any increase in effort as compared to the President’s original proposal.

- **Changing the baseline for the three synthetic greenhouse gases from 1990 to 1995 accounts for about 1% of the 7% reduction.** Use of these three gases has grown since 1990, so that permitting a 1995 baseline allows for a higher overall baseline than the Administration assumed last October when the President announced his goal of reaching 1990 levels by 2008-2012. Making reductions to meet a higher baseline is of course easier than making reductions to meet a lower baseline. Had the United States maintained the same level of effort assumed by the President in October, and no other factors had changed, the shift to a 1995 baseline for the three synthetic gases would, alone, have transformed the President’s goal of 1990 levels into a goal equivalent to 1% below 1990 levels.
- **Altering the accounting method for carbon-absorbing activities, such as planting trees, accounts for about 3% of the 7% reduction.** The President’s original goal assumed that the 1990 baseline would be lowered by carbon-absorbing activities, but under the method agreed in Kyoto, such activities do not lower the 1990 baseline. Because the 1990 level baseline is thus higher under the Kyoto agreement, the U.S. target becomes somewhat less stringent. Specifically, had the U.S. maintained the same level of effort assumed by the President in October, and no other factors had changed, the shift in the accounting method for carbon-absorbing activities would, alone, have transformed the President’s goal of 1990 levels into a goal equivalent to at least 3% below 1990 levels. (As noted above, certain carbon-absorbing activities will count against emission reduction commitments in the budget period.)

INTERNATIONAL EMISSIONS TRADING

- The United States prevailed in securing acceptance of emissions trading among nations with emissions targets. This free market approach, pioneered in the U.S., will allow countries to seek out the cheapest emissions reductions, substantially lowering costs for the U.S. and others.

- Under an emissions trading regime, countries or companies can purchase less expensive emissions permits from countries that have more permits than they need (because they have met their targets with room to spare). Structured effectively, emissions trading can provide a powerful economic incentive to cut emissions while also allowing important flexibility for taking cost-effective actions.
- The Kyoto Protocol enshrines emissions trading. Rules and guidelines – in particular for verification, reporting, and accountability – are to be discussed at the next meeting of the Parties at Buenos Aires in November 1998.
- The inclusion of emissions trading in the Kyoto Protocol reflects an important decision to address climate change through the flexibility of market mechanisms. Led by the United States, the Conference rejected proposals to require all Parties with targets to impose specific mandatory measures, such as energy taxes.
- The United States also reached a conceptual agreement with a number of countries, including Australia, Canada, Japan, New Zealand, Russia and Ukraine, to pursue an umbrella group to trade emissions permits. Such a trading group could further contribute to cost-effective solutions to this problem.

JOINT IMPLEMENTATION AMONG DEVELOPED COUNTRIES

- Countries with emissions targets may get credit towards their targets through project-based emission reductions in other such countries. The private sector may participate in these activities.
- Additional details may be agreed upon by the Parties at future meetings.

CLEAN DEVELOPMENT MECHANISM

- Another important free market component of the Kyoto Protocol is the so-called “Clean Development Mechanism” (CDM). The CDM embraces the U.S. proposal for “joint implementation for credit” in *developing* countries.
- With the Clean Development Mechanism, developed countries will be able to use certified emissions reductions from project activities in developing countries to contribute to their compliance with greenhouse gas reduction targets.
- This Clean Development Mechanism will allow companies in the developed world to enter into cooperative projects to reduce emissions in the developing world – such as the construction of high-tech, environmentally sound power plants – for the benefit of both parties. The companies will be able to reduce emissions at lower costs than they could at home, while developing countries will be able to receive the kind of technology that can allow them to grow more sustainably. The CDM will certify and score projects. The CDM can also allow developing countries to bring projects forward in circumstances where there is no immediate developed country partner.

- Under the Clean Development Mechanism, companies can choose to make investments in projects or to buy emissions reductions. In addition, Parties will ensure that a small portion of proceeds be used to help particularly vulnerable developing countries, such as island states, adapt to the environmental consequences of climate change.
- Importantly, certified emissions reductions achieved starting in the year 2000 can count toward compliance with the first budget period. This means that private companies in the developed world will be able to benefit from taking early action.

DEVELOPING COUNTRIES

- Various Protocol provisions, taken together, represent a down payment on developing country participation in efforts to reduce greenhouse gas emissions:
 - Developing countries will be engaged through the Clean Development Mechanism, noted above.
 - The Protocol advances the implementation by *all* Parties of their commitments under the 1992 Framework Convention on Climate Change. For example, the Protocol identifies various sectors (including the energy, transport, and industry sectors as well as agriculture, forestry, and waste management) in which actions should be considered in developing national programs to combat climate change and provides for more specific reporting on actions taken.
- Developing countries may, as a prerequisite for engaging in emissions trading, voluntarily assume binding emissions targets through amendment to the annex of the Protocol that lists countries with targets. The Kyoto Protocol does not include a separate article for nations to voluntarily assume binding emissions targets.
- Securing meaningful participation from key developing countries remains a priority for the United States. The Administration has stated that without such participation, it will not submit the Kyoto Protocol to the Senate for advice and consent to ratification.

MILITARY EMISSIONS

- The Kyoto Protocol achieves the objectives identified by the Department of Defense where international agreement was necessary to protect U.S. military operations.
 - Emissions from “bunker” fuels (for international maritime or aviation use) are exempted from emissions limits.
 - Emissions from multilateral operations pursuant to the United Nations Charter are exempted from emissions limits. This includes not only multilateral operations expressly authorized by the UN Security Council (such as Desert Storm, Bosnia, Somalia) but also multilateral operations not expressly authorized that are nonetheless pursuant to the UN Charter, such as Grenada.

- Countries may decide, among themselves, how to account for emissions relating to multilateral operations (for example, U.S. training in another NATO country). This provision avoids the need to use emissions trading to allocate such emissions.

COMPLIANCE AND ENFORCEMENT

- The Protocol contains several provisions intended to promote compliance. These include requirements related to measurement of greenhouse gases, reporting, and review of implementation.
- The Protocol also contains certain consequences for failure to meet obligations. For example, as a result of a U.S.-proposed provision, a Party not in compliance with its measurement and reporting requirements cannot receive credit for joint implementation projects.
- Effective procedures and a mechanism to determine and address non-compliance are to be decided at a later meeting. For both environmental and competitiveness reasons, the United States will be working on proposals to strengthen the compliance and enforcement regime under the Protocol.

ENTRY INTO FORCE

- The Kyoto Protocol will be open for signature in March 1998. To enter into force, it must be ratified by at least 55 countries, accounting for at least 55 percent of the total 1990 carbon dioxide emissions of developed countries. U.S. ratification will require the advice and consent of the Senate.