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Climate Change Administration Related Issue Papers/Talking Points [2]

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MEETING THE CHALLENGE OF GLOBAL CLIMATE CHANGE
MARCH 1999

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

President Clinton, October 22, 1997

There is a powerful scientific rationale for taking action on global warming; taking action amounts to an insurance policy against a serious risk. There is an overwhelming consensus among the world's leading climate scientists that the earth is getting hotter and that human greenhouse gas emissions are contributing to that process. If we continue on a business-as-usual trajectory, climate models predict an increase in global temperature of about 2 to 6 degrees Fahrenheit. By way of comparison, the last ice age was only about 9 degrees Fahrenheit colder than today. Our leading scientists warn of serious consequences, like severe droughts, floods, and health problems, if global warming is ignored.

President Clinton's plan to cut U.S. greenhouse gas emissions emphasizes win-win initiatives to increase energy efficiency and develop new, cleaner energy technologies. Highlights include:

- Targeted tax incentives and increased R&D for energy efficiency and renewable energy;
- A new Clean Air Partnership Fund to support state, local, tribal, and private efforts to reduce both greenhouse gas emissions and ground-level air pollutants;
- Consultations with key energy-intensive industries to develop initiatives to cut emissions;
- Restructuring electricity industry to make electricity generation more efficient, reducing greenhouse gas emissions and saving consumers millions on their energy bills;
- Reducing Federal government's own greenhouse gas emissions by improving the energy efficiency of Federal facilities and activities and reforming procurement practices;
- Working with industry and Congress on credit for early action legislation to reward companies taking early, voluntary action to reduce their greenhouse gas emissions;
- Continued scientific research to provide a strong foundation for our climate policy.

Doing it smart: The Kyoto Protocol is based on flexibility measures that reduce costs. At U.S. insistence, the Kyoto Protocol allows emissions to be reduced where and when such reductions are cheapest. There is a two-year timetable for fleshing out key provisions of the Protocol, including international emissions trading and measures that allow U.S. companies to share credits for emissions reducing projects abroad. The United States continues to press for more meaningful participation on the part of key developing countries in meeting the challenge of climate change -- without which the Administration will not submit the Kyoto Protocol to the Senate.

The costs of meeting our Kyoto target should be modest. Even without counting the impact of domestic policies or the benefits of acting to mitigate climate change, economic modeling indicates that meeting the United States' Kyoto target would add but \$70-\$110 per year to the average family's energy bill in 2010. This increase, however, would be substantially offset by the decline in electricity prices resulting from restructuring the electricity industry, as the

Administration and others have proposed.

Tough Questions:

1A. Why should the United States jeopardize its economy taking steps to address global warming when scientists still don't agree that there's anything to worry about?

1B. It seems like the data on global warming is very mixed -- in recent months one of the original proponents of global warming (Hansen) has backed off his predictions; satellite data seems to contradict the theory; and some scientists think that we're actually headed for a new ice age. Shouldn't we wait until we get more information before we jump to conclusions and implement something risky like the Kyoto treaty?

2. Won't the economic cost of solving the alleged global warming problem devastate the U.S. economy? It's not just industry and labor that is saying this, it's the Administration's own EIA that says so.

3. Isn't the Administration's (CEA) economic analysis of Kyoto wildly optimistic?

4. Isn't the Administration's whole plan based on an the idea that we will only have to find 30% of our ghg reductions at home and can purchase the other 70% abroad? Even if this is possible, why should we want to participate in a system that essentially pays billions of dollars to Russia to do nothing?

5. Why should the United States take action to address global warming when developing nations like China and India aren't doing anything?

6. How can you think that you are going to have "meaningful participation by key developing countries" when India and China won't even begin to talk about taking on a target?

7. Why did the United States wait until a year after Kyoto to sign the Protocol and if it is good enough for the Administration to sign, why don't you submit it to the Senate?

8. Since Kyoto there seems to be a lack of momentum on global warming. Has it become a lower priority for the Administration? Where is the process going?

9. How can you honestly believe that the U.S. can achieve the Kyoto goals by the 2008-12 time frame -- at a reasonable cost -- when we have no real program to begin reducing our emissions? The Administration keeps talking about its "win-win" programs but the fact is these have not begun to put even a dent in U.S. emissions and the Administration doesn't seem to have the spine to implement any programs that have any bite to them. By the time the treaty is fleshed out and ratified -- 2001 at best -- and a real program is put in place -- 2002 at best -- isn't it true that then the cost really will be exorbitant?



Roger S. Ballentine
03/19/99 11:27:24 AM

Record Type: Record

To: Todd Stern/WHO/EOP
cc: Julie M. Anderson/WHCCTF/EOP, Meagan M. Earley/WHO/EOP
Subject: Reid Mtg

Julie's talking points are fine, but we really need first to give him the larger message:

Both Pres and VP have this among their highest priorities;

It's a difficult problem with difficult solutions;

The public believes there's a problem and they believe that Democrats can and should take the lead; it is simply irresponsible not to "own insurance";

Republicans have mis-characterized our approach and have gone back to their tried and true rhetoric about Democrats -- and Al Gore in particular -- selling out America for environmental extremism;

In fact, our climate package is about win-win programs that make environmental and economic sense regardless of climate change: helping American companies develop and deploy more energy efficient technologies and to help develop renewable energy resources will create jobs and make America more energy independent.

Yes, we have an active international diplomatic effort underway to get the Kyoto Protocol ready for ratification. We are leading the effort to include developing countries and to ensure the we have a system that will provide the maximum benefit to American companies, American farmers as we deal with this problem.

But the issues surrounding the Kyoto protocol have nothing to do with the strong domestic budget package we are proposing -- again, this is a package that will make us more energy efficient and more energy independent -- regardless of what one thinks about climate change.

As a member of the Leadership and as a key appropriations committee member, we want your thoughts on this issue.



Julie M. Anderson
03/24/99 12:48:26 PM

Record Type: Record

To: Roger S. Ballentine/WHO/EOP

cc:

Subject: landrieu

Statement for Full Committee Hearing on Climate Change

Mr. Chairman, I want to thank you for holding this hearing today. I have been hearing a lot about this issue and about the Kyoto Protocol. I believe that the threat of climate change is a serious issue. I also believe it is important that we study the potential economic impacts of taking action as well as the impacts of not taking action. As I understand it, the President has said that this treaty is a work in progress and that it is not yet ready to be submitted to the Senate. I agree with him. I have some concerns about the treaty in its current form, but I do support the President's on-going diplomatic efforts to ensure that we get developing country participation as we work to address this serious problem.

However, regardless of one's view on the Kyoto Protocol, I think we should be focusing on initiatives and programs here at home that can enjoy bipartisan support and that are wins for the economy and the environment. I believe the Administration, as part of its climate change plan, is headed in the right direction in this regard. For example, DOE is currently partnering with BC International on a facility in Jennings, Louisiana that will turn sugarcane waste into ethanol. This facility will produce about 25 million gallons of ethanol a year that can be used as a clean fuel for cars and as an industrial chemical. I think it is critical for the federal government to continue to work with industry on projects like this. We should all be able to support innovative efforts that will not only help clean our air and improve our energy security but also reduce greenhouse gas emissions.

I look forward to continuing to work with this Committee and the Administration as we look for economically and environmentally sound ways to address this critical issue.

Climate Change
June 3, 1999

Q. You talk frequently about the threat of climate change, but you haven't sent the Kyoto Protocol to the Senate for ratification, and the Administration is doing little or nothing to reduce greenhouse gas emissions. In fact, energy use and greenhouse emissions continue to rise. If the threat is so real, why aren't you doing more to address it? Could it be that the economic costs of dealing with it would be as dire as some predict?

A. The challenge of global warming is real, and we are pursuing an aggressive, common-sense strategy to meet it. The Kyoto Protocol sets strong, realistic targets for reducing greenhouse gas emissions. And, thanks to U.S. leadership, it includes market-based tools like emissions trading that will allow us to achieve those targets at the least possible cost. The Protocol is a work in progress and, as I've said before, we will not submit it to the Senate until there is meaningful participation by key developing countries. We made significant progress at the negotiations last year in Buenos Aires, where Argentina and Kazakhstan committed to take on emissions targets. Building on that progress is very much a part of our diplomatic agenda.

At the same time, we are working hard to reduce emissions here in the United States. This year's budget includes a record \$1 billion for research investments in clean, efficient energy technology. For next year, I am proposing another significant increase in our R&D budget, plus tax incentives for the purchase of energy-efficient homes, cars, and appliances. I also am proposing a new Clean Air Partnership Fund to help finance state, local, and private efforts that both reduce greenhouse gas emissions and improve air quality.

Just as important is the growing recognition within the private sector that this challenge is real, and that we can meet it in ways that create new economic opportunities. A growing number of leading corporations are voluntarily pledging to significantly reduce their emissions. We are working closely with people in industry and in Congress to encourage these efforts through legislation that rewards early, voluntary reductions in greenhouse emissions.

As for cost, many of the studies out there greatly exaggerate the cost by using worst-case scenarios instead of modeling the policies we're actually pursuing. Our economic analysis shows that meeting the Kyoto target will likely cost the average family less than \$100 a year in higher energy bills -- and that would be substantially offset by savings from the kind of electricity restructuring we are proposing. On balance, I think that's a very modest premium for insurance against some rather catastrophic consequences.

Dick
202 293 1085

Elliot J. Diring
06/09/99 06:12:50 PM

Record Type: Record

To: Roger S. Ballentine/WHO/EOP@EOP
cc: Todd Stern/WHO/EOP@EOP, David B Sandalow/CEQ/EOP@EOP
Subject: TIME TPs

- The overwhelming scientific consensus is that global warming is real – and the American public understands that. The message is getting across, despite the concerted efforts of some to cloud the issue.
- The more difficult message is that there are sensible, cost-effective things we can -- and should -- do now to avert global warming. And there are additional payoffs. For instance, energy efficiency makes good economic sense. And clean energy helps reduce harmful air pollution.
- If you look at the polling, the public does in fact support strong action to fight global warming. And if you listen to corporate leaders, more and more are not only acknowledging that global warming is real, but pledging real action to fight it. They recognize that it's both a challenge and an opportunity. [BP, Shell, IBM, etc. – he's got our paper].
- Oddly, the business community seems to be out ahead of Congress on this issue. Last year, we had to fight off a rider that would have barred federal agencies from even educating the public about the risks of global warming. And, in the end, the President secured a record \$1 billion for our energy efficiency and clean energy programs – a 25 percent increase. We're proposing another significant increase, as well as tax incentives for energy-efficient cars, homes and appliances, in next year's budget.
- There are encouraging signs on the Hill. A bill to give companies credit for early action has strong bipartisan support, and we're hopeful that it will move this session.
- In short, unless we act now, we face potentially calamitous consequences down the road. But we can meet this challenge -- we can protect future generations -- in ways that help our economy and provide other payoffs, too.



Elliot J. Diringer
06/09/99 06:23:26 PM

Record Type: Record

To: Todd Stern/WHO/EOP@EOP

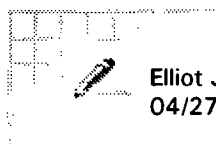
cc: roger s. ballentine/who/eop@eop, david b sandalow/ceq/eop@eop

Subject: Re: TIME TPs 

The President and Vice President deserve much of the credit for raising public awareness on this issue and they are pushing ahead with a strong, common-sense strategy for meeting the challenge head on. US leadership has been instrumental in mobilizing international efforts to meet this global challenge, and just last week the President announced another measure to help reduce domestic emissions: he directed the federal government, the largest energy consumer in the nation, to significantly improve its energy efficiency and reduce its greenhouse gas emissions.

Dick

Devan is
on line 1



Elliot J. Diring
04/27/98 04:27:54 PM

Record Type: Record

To: Todd Stern/WHO/EOP, Roger S. Ballentine/WHO/EOP

cc:

Subject: 1 minute

This work?

A recent report in the *New York Times* describes a public relations strategy being developed by some of our leading industrial companies to, it would seem, confuse and mislead the public on the rather serious issue of global warming. Evidently, these companies would recruit a handful of scientists willing to publicly challenge the conventional scientific view on climate change, and train them in public relations so they could help persuade the press, the public, and members of this member that, despite the overwhelming evidence, global warming is not real and there's no need to worry. These companies, which include some major oil firms, would devote \$5 million to this campaign.

Let's look at the science. The 1600-member [or is it 2600?] Intergovernmental Panel on Climate Change, the most authoritative scientific body to have examined the evidence, has concluded that human activity is having a discernible impact on the climate, and that global average temperature will rise 2 to 6 degrees over the next century unless something is done. Now, as is so often the case with such complex matters, there are some uncertainties in the science. For instance, we can not predict with precision just how quickly the warming will occur, or the effects in any given place. What these companies would do is exploit, and exaggerate, these uncertainties in an attempt to undermine the broader thrust of what the experts are telling us. Let's be clear: The overwhelming consensus of the world's leading atmospheric scientists is that global warming is real.

Now, this would hardly be the first attempt to obfuscate on this issue. Just recently, members of the scientific community were asked to sign a petition opposing the Kyoto treaty, and accompanying the petition was an article made up to look as if it had been published by the National Academy of Sciences. Well, it had not been published by the Academy. In fact, it had not been published in any peer-review journal. It was, in short, a statement of opinion masquerading as science. This ploy was so egregious that the Academy, in an extraordinary move, issued a declaration disassociating itself from the article and from the petition. Is this what we can expect from industry -- more pseudo-science aimed at deceiving and misleading?

I do not mean to suggest that the science is all settled. Given the stakes, it is absolutely incumbent upon us to continue to gather and analyze the data and, when warranted, alter our conclusions. But this must be an open and honest inquiry, not one clouded and tainted by the political agendas of powerful special interests. Rather than putting their millions into shameful attempts to manipulate public opinion, these companies might do better to face up to the facts

and start working on solutions.

4/30/98 p.m.

Draft Q & A's for Todd Stern, May 4, 1998**Congressional Issues**

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?

The Administration has made it clear that we will not submit the Kyoto Protocol to the Senate for its advice and consent to ratification without meaningful participation by key developing countries. We have been actively pursuing such meaningful participation over the last several months in international meetings and bilateral discussions. We have the agreement of other developed countries on the need to increase global participation in the reduction of greenhouse gas emissions. We reached agreement with Chile that developing countries should participate meaningfully in efforts to address climate change, taking on emissions targets wherever possible. We are also building partnerships with many developing countries so that they may take advantage of the latest clean technologies. We will continue to push hard on this issue in bilateral discussions around the world as part of the "full court press" announced by Secretary Albright in her Earth Day speech.

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

The Kyoto Protocol was an historic step forward, but as the President has stated, more progress is necessary with respect to the participation of key developing countries. It would be premature to submit the Protocol to the Senate before such participation is achieved.

When will the United States sign the Protocol?

The Administration has said on a number of occasions that we will sign the Protocol during the signing period -- from March 1998 to March 1999 -- but we have not yet made any decision about the precise time of signing. We will sign at the time we think is right in terms of the overall diplomatic situation. Signature would not bind the U.S. to the Protocol's requirements; that can only be done through ratification.

It appears that the Administration has not gained any new support for the Protocol in the Senate, e.g. the budget resolution language in the Ashcroft bill. Do you believe that the Administration is losing support for the Protocol?

No. As we have stated, the Protocol is a work in progress and we are making headway on a number of important issues, including developing countries. The Senate activity that you mentioned is nothing more than an attempt by those who believe that we cannot make our country

cleaner and more competitive by moving forward with programs that are pro-environment, pro-business and pro-consumer.

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

The American people understand the threats posed by global climate change and the need to take responsible actions to address these threats. We trust that if and when we have secured the meaningful participation of key developing countries and the Protocol is ready for Senate consideration that the Senate will listen to these concerns and support the Protocol.

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?

The Administration has stated on a number of occasions that we will not implement the Protocol unless and until it is ratified by the Senate. Some have argued that the Administration's proposed budget package of tax incentives and research and development investments implements the Protocol through the "backdoor." But we have stressed that these proposals, announced before Kyoto, are prudent investments which would benefit our economy, our energy security and our environment now - and so are important in their own right. That they would also reduce greenhouse gases makes them all the more compelling, particularly in helping us meet our commitments under the existing Framework Convention on Climate Change [which was ratified by the Senate].

Is the Administration in fact working on domestic legislation to implement the Protocol?

The Administration has no plans to submit legislation or regulations to implement the requirements contained in the Protocol prior to its submission to the Senate for its advice and consent. We are focusing on efforts on developing countries and on further refining important elements of the Protocol, such as emissions trading and the clean development mechanism.

Is the administration planning on doing any economic analysis of the Kyoto Protocol or the Climate Change Technology Initiative?

In March 1998 testimony to Congress, Dr. Janet Yellen, Chair of the Council of Economic Advisers explained the Administration's economic assessment of the Kyoto Protocol as well as the difficulties inherent in making such an assessment. She concluded that the net cost of our policies to reduce emissions are likely to be small, assuming those reductions are undertaken in an efficient manner and we are successful in securing meaningful developing country participation as well as rules for effective use of the flexibility mechanisms agreed to under the Protocol. Further assessment work is ongoing in and out of governments and around the globe. The Administration will continue to assess the implications of its climate change policies on the economy and the environment.

Diplomatic/Foreign Policy Issues**Has there been progress on developing countries?**

We have been actively pursuing such meaningful participation over the last several months in international meetings and bilateral discussions. We have the agreement of other developed countries on the need to increase global participation in the reduction of greenhouse gas emissions. We reached agreement with Chile that developing countries should participate meaningfully in efforts to address climate change, taking on emissions targets wherever possible. We are also building partnerships with many developing countries so that they may take advantage of the latest clean technologies. We will continue to push hard on this issue in bilateral discussions around the world as part of the "full court press" announced by Secretary Albright in her Earth Day speech.

What exactly does the President mean by "meaningful participation by key developing countries?"

Climate change is a global problem that requires a global solution. Current projections show that developing country emissions will surpass those from industrialized countries by 2030 or sooner. The problem of climate change cannot be solved unless developing countries take measures themselves to limit greenhouse gas emissions.

The U.S. will continue to work bilaterally, regionally, and multilaterally in the coming months and years to promote more active efforts by developing countries to limit their emissions. We are concentrating on key countries and on approaches that are consistent with the economic growth and development of these countries and with other environmental objectives. We will not submit the Kyoto Protocol to the Senate for advice and consent to ratification until we feel we have achieved meaningful participation from key players in the developing world.

We must also recognize that the term "developing country" encompasses a wide range of nations which are at various stages of industrialization and contribute differently to global emissions. Accordingly, there is no one-size-fits-all approach to measuring developing country participation. Clearly, a country with high GNP or one that emits a proportionally large share of global emissions should be expected to do more than one that is poor or whose emissions are negligible.

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

The President and other administration officials will be pressing climate change issues, particularly concerning the participation of developing countries, at all appropriate diplomatic occasions. [should we say anything on Albright's visit - what happened?]
 P.04.15

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

Last year in Denver, the Heads of State directly took on the issue of climate change and started a constructive dialogue. This year, we expect that the Heads of State will continue this discussion over a full range of climate issues. The heads of the environmental ministries of the G8 met last month and issued a joint communique on a number of climate issues, including the need for increasing global participation in efforts to tackle climate change.

What progress do you think must be made at Buenos Aires, and do you expect such progress to be made?

The Fourth Conference of the Parties, to be held in November in Buenos Aires, will provide an opportunity for the parties to move ahead on rules and guidelines for a number of Protocol provisions, including emissions trading and the clean development mechanism. It will also provide opportunities for further engaging developing countries in the process. We do not expect, however, to reach final decisions on all these issues at Buenos Aires. Indeed, the Kyoto Protocol is but another step in a long process of addressing climate change.

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

We believe that the flexibility mechanisms in the Protocol -- emissions trading, joint implementation and the clean development mechanism -- are critical to the ability of countries to meet their Protocol obligations. We also believe that these mechanism will only work if appropriate and workable rules and guidelines are first established. We have been working hard to identify what may be needed to make these mechanisms work and expect to continue these efforts in Buenos Aires.

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

Domestic Issues

Will the Climate Change Technology Initiative really move the country toward the target agreed in Kyoto?

The \$6.3 billion package proposed by the President in the 1999 budget should be seen as only one part of the Administration's approach to reducing emissions. Other elements that will help us move forward on emissions reductions include:

--industry-by-industry consultations, to work with industries on the best ways of moving forward together to address this challenge;

--electricity restructuring, which can remove outdated regulations and save American

consumers \$20 billion a year -- while also improving the environment;

--federal energy efficiency efforts, to improve the Federal government's own use of energy

--[domestic emissions trading, to be established in 2008, after a decade of experience in reducing emissions; this program would ensure that further cuts are achieved as cost-effectively as possible]

No one ever claimed that the \$6 billion package would get us all the way there by itself. But it is certainly a good first step in the right direction.

What are the chances that Congress will approve the budget request for the Climate Change Technology Initiative?

The tax incentives and research and development investments contained in the Climate Change Technology Initiative will promote energy efficiency and renewable energy -- longstanding priorities of this and other administrations. These goals have also enjoyed bipartisan support in Congress. These actions make sense for our economy, our energy security and our environment. As such, we believe that they will be approved by Congress. We stress, however, that we must not lose the opportunity to reach such goals through misguided concerns over "pre-implementation" of the Kyoto Protocol. The Climate Change Technology Initiative is not implementation of the Kyoto Protocol.

Without the Climate Change Technology Initiative, how would the U.S. move toward its target?

As we have stated previously, the Climate Change Technology Initiative is only one piece of our overall strategy in reducing emissions. While we believe that Congress will recognize our proposals as prudent investments in energy efficiency, we are confident that the other elements of our approach [industry consultations, electricity restructuring, federal efficiency] will lead to significant reductions in greenhouse gas emissions.

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

We believe that our electricity restructuring proposal is a well-balanced package that will reduce carbon emissions at the same time that it cuts costs to consumers by \$20 billion. Our proposal contains strong incentives to finance and improve energy efficiency and boost renewable energy use. We also expect retail competition to strengthen incentives to improve efficiency and reduce waste. We estimate that the plan will reduce carbon emissions from utilities by 25 to 40 million metric tons in 2010 -- or roughly 3 to 6 percent of projected utility emissions.

The Administration has presented its proposal on restructuring, and we are working with

the House and Senate to craft an agreed legislative package to move forward.

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

In October 1997, the President announced industry-by-industry consultations as part of the overall effort to reduce greenhouse gas emissions. The idea is to work with industries on the best ways of moving forward together to address this challenge. We are now working within the government to organize these consultations and beginning preliminary discussions with key industrial sectors.

Science

What is the Administration's view of the Seitz petition?

We believe it is imperative for the American public to get the best and most accurate picture of global climate change. The Administration is committed to using peer reviewed, carefully validated scientific findings to support our climate change policies -- for example, the findings and work of the Intergovernmental Panel on Climate Change. We do not believe that the Seitz petition measures up to these standards.

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

We have never said that El Nino was caused by global warming. However, we believe that the recent extreme weather events we have witnessed as a result of El Nino are a good indication of what we can expect in a changed climate.

Outreach

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

Climate change was part of the President's overall message in his Earth Day Speech. He has spoken on the issue often, both to the American public and to heads of state, and he will continue to do so. Most recently, he and Chilean President Frei discussed the matter and agreed on a number of important issues. He also spoke on the issue at the recent Summit of the Americas [?], and climate change will be on the agenda for the upcoming G8 Summit. Addressing climate change remains one of the President's [top] priorities.

Drafted by J. Rubin, 4/30/98

**PRESIDENT CLINTON:
BUILDING A CLEANER, MORE ENERGY-EFFICIENT FUTURE**

May 4, 1998

"Whenever we act to heal our environment, the pessimists say it will hurt our economy. But today our economy is the strongest in a generation -- and our environment is the cleanest in a generation. Whether the problem was acid rain, deadly pesticides, polluted rivers, or the ozone hole, the ingenuity of the American people has always proven the pessimists wrong. And we will do it again, working together we will overcome the threat of climate change."

President Bill Clinton

May 4, 1998

Today, President Clinton attends an event in Los Angeles, California to launch the Partnership for Advancing Technologies in Housing (PATH) -- a public-private partnership designed to dramatically improve the energy efficiency of our homes -- saving consumers money while reducing pollution that contributes to global warming.

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

- Over the next decade, PATH aims to cut energy use by 50 percent in new homes, and by 30 percent in 15 million existing homes.
- By 2010, PATH will save consumers \$11 billion in energy costs and reduce annual carbon emissions by nearly 24 million tons -- the amount produced each year by 20 million cars.

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

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

- Federal partners, led by the Department of Housing and Urban Development and the Department of Energy, commit to support research and provide leadership and technical assistance.
- Industry partners commit to fund research, bring advanced products to market, share information and work with government to demonstrate new technologies.
- State and local government partners commit to streamline approval processes so

new technologies are rapidly deployed and devote resources to local pilot projects.

Tax Incentives For Energy Efficiency. To further promote energy efficiency and clean energy technologies, the President's Fiscal Year 1999 budget proposes a five-year \$6.3 billion package of tax incentives and research investments. Included are \$200 million in tax credits for the purchase of ultra-energy-efficient homes and \$1.4 billion in tax credits for the purchase of energy-saving heating and cooling systems and other major appliances. The budget also proposes \$200 million next year to accelerate R&D for appliances and construction.

MEETING THE CHALLENGE OF GLOBAL CLIMATE CHANGE

MARCH 1999

Global climate change is one of our greatest environmental challenges. The great weight of scientific authority suggests that this problem is real and that the threats it poses -- such as increasingly frequent and severe storms and droughts, potential increases in respiratory and infectious diseases, and rising sea levels -- are too serious to ignore. In essence, we need to take out an insurance policy with reasonably priced premiums.

That is why Clinton Administration is working hard at home and abroad to meet the challenge of climate change. Domestically, we are working to implement the President's balanced, reasonable plan of win-win initiatives to reduce greenhouse gas emissions. Internationally, we are continuing efforts to fill in key details of the Kyoto Protocol and to encourage the meaningful participation of developing countries in efforts to address global warming.

THE SCIENCE OF CLIMATE CHANGE

Greenhouse gases in nature trap heat from the sun to 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 the burning of fossil fuels and deforestation, the concentration of carbon dioxide, or CO₂ (the principal greenhouse gas), has increased 30% since preindustrial times. If we continue on a business-as-usual trajectory, this concentration is expected to reach almost twice current levels by 2100 -- a level not seen in 50 million years. Climate models project that this will lead to an increase global temperature of about 2 to 6 degrees Fahrenheit. By way of comparison, the last ice age was only about 9 degrees Fahrenheit colder than today.

Over the past year, new data from tree rings, ice melts, boreholes, and satellites have reinforced the broad scientific consensus that global warming is well underway. Studies have shown that the 20th century has been the warmest century in the past 1200 years; the 1990s have been the warmest decade in that period; and 1997 and 1998 have been the warmest years.

POTENTIAL IMPACTS OF CLIMATE CHANGE

Scientists predict a range of likely effects from global warming:

- **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. The incidence of asthma and other respiratory illnesses, particularly among children and the elderly, is expected to increase from the additional smog caused by warmer temperatures.
- **Extreme weather.** As temperatures increase, so does the rate of evaporation. This acceleration of the hydrologic cycle is projected to increase the frequency and intensity of extreme weather events such as floods and droughts. Last year's El Nino offered us a window on the type of extreme weather that global warming may bring -- droughts and

floods in Texas, drought-driven fires in Indonesia, Florida and Mexico, and devastating floods in China and Bangladesh.

- ***Sea level rise.*** Scientists project that sea level will rise by an additional 6 to 37 inches by 2100. A 20-inch rise could inundate 7,000 square miles of the U.S. coastline, with Florida and the Gulf Coast at greatest risk. Changes in rain and snowfall could affect water supplies and water quality, posing threats to irrigation, fisheries, and drinking supplies.
- ***Agricultural impacts.*** Given the requisite time and resources to adapt, total world food production is not expected to be altered substantially by climate change. However, changes in growing seasons, water availability, soil moisture, and precipitation are expected to cause significant regional shifts in food productivity, with decreases in food production in many of the world's poorest regions.
- ***Damage to natural ecosystems.*** During the next century, the geographical range of forests is expected to move several hundred miles north at a pace that exceeds the ability of many tree species to migrate. The Northeast United States may lose its beech trees and sugar maples. Western conifer forests will likely shrink.

PRESIDENT CLINTON'S DOMESTIC 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** -- a vigorous program of tax incentives and investments aimed at increasing energy efficiency and spurring the broader use of renewable energy. The FY 1999 appropriations represented a 25% increase for these programs over the prior year. The President's FY 2000 budget proposes a still more accelerated effort.
 - The **tax incentive package** contains \$3.6 billion over five years (\$383 million for FY 2000) for consumers who purchase energy efficient products and for producers of energy from renewable sources. Highlights include: a tax credit of up to \$2,000 for energy efficient new homes; a 10-20% credit for selected energy efficient products for homes and buildings; a credit of up to \$2000 for rooftop solar systems; a credit of up to \$4000 for qualifying electric, fuel cell or hybrid vehicles; extension of the current 1.5 cent/kilowatt hour tax credit for the production of electricity from wind and biomass; an expansion of the biomass credit to cover additional sources of biomass; and a 1.0 cent/kilowatt hour tax credit for cofiring coal and biomass in power plants.
 - The **investment package** contains nearly \$1.4 billion in FY 2000 to research, develop, and deploy clean energy technologies for the four major carbon-emitting sectors of the

economy -- buildings, transportation, industry, and electricity. This represents a 34 percent increase over the amount appropriated in FY 1999. Highlights include: increased funding for the *Partnership for a New Generation of Vehicles*, a government-industry effort to develop cars that get up to three times the fuel efficiency of today's cars; the *Partnership for Advancing Technology in Housing*, which aims 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; and research partnerships for key renewable energy technologies, such as solar, wind, bioenergy, photovoltaics, and geothermal energy.

- ***Clean Air Partnership Fund.*** The President's FY 2000 budget also proposes \$200 million for the creation of a new Clean Air Partnership Fund to support state, local, tribal, and private efforts to reduce both greenhouse gas emissions and ground-level air pollutants. Through grants to state and local governments the Fund will help finance projects that go beyond legal requirements and enable communities to achieve clean air goals sooner. It will also stimulate cost-effective pollution control strategies, spur technological innovation, and leverage substantial non-Federal investment in improved air quality.
- ***Industry consultations.*** The President's plan also involves building partnerships with key energy-intensive industries to develop sector-by-sector initiatives to cut emissions. These partnerships are identifying opportunities for working together to remove barriers to the development and widespread use of energy efficient technologies and practices.
- ***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 would introduce competition to provide a profit incentive for generators to produce more electricity with less fuel and to improve energy efficiency. It also includes a renewable portfolio standard to increase the use of electricity from renewable sources and a Public Benefits Fund to spur greater investment in energy efficiency and renewables.
- ***Federal energy use and procurement.*** The President's plan seeks to substantially reduce the Federal government's own greenhouse gas emissions by improving the energy efficiency of Federal facilities and activities and 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 also set an important example for the private sector.
- ***Credit for Early Action.*** The Administration is working closely with industry and Congress on legislation to reward companies taking early, voluntary action to reduce their greenhouse gas emissions or increase carbon sequestration.
- ***Domestic emissions trading.*** The President has proposed a domestic emissions trading system to begin by 2008. Emissions trading would achieve a national greenhouse gas target at the lowest possible cost. The U.S. has used emissions trading successfully to reduce the pollution that causes acid rain -- exceeding environmental objectives at about 50% the

expected cost.

- ***Scientific research.*** The Administration is continuing its strong support for the U.S. Global Change Research Program. This program provides a strong science foundation for policy decisions as it furthers our understanding of human and naturally induced changes in the Earth's environment and assesses the likely consequences of global warming. A new research project, the *Carbon Cycle Initiative*, will seek to deepen our understanding of carbon "sinks," such as forests and farmlands.

DIPLOMATIC AGENDA

U.S. leadership ensured that the international climate change agreement reached at Kyoto, Japan in December 1997, brought the power of the free market to bear in protecting the global environment. The Protocol includes strong, realistic emissions reduction targets and U.S. proposals for flexible, market-based mechanisms to achieve them.

- ***Emissions targets.*** The flexibility the U.S. negotiated into the emissions targets include a multi-year time frame (2008-2012), giving our economy and our technologies more time to adapt; differentiated targets for developed countries; coverage of all six greenhouse gases and of so-called "sinks" -- activities that absorb carbon dioxide, such as afforestation, reforestation, and better forestry and agricultural conservation practices.
- ***Flexible market mechanisms.*** The Protocol includes key market mechanisms that will provide companies with real flexibility in how they achieve emissions reductions, including international emissions trading and the Clean Development Mechanism (CDM). Trading among countries that have taken on targets can dramatically cut the cost of reducing emissions. The CDM will allow U.S. companies to gain low-cost emissions credits through emissions-cutting, clean technology projects undertaken in developing countries.
- ***Meaningful participation by developing countries.*** President Clinton has called for more meaningful participation on the part of key developing countries in reducing greenhouse gas emissions. He has made clear that he will not submit the Kyoto Protocol to the Senate until such participation is achieved.

At the November 1998 UN climate change conference in Buenos Aires, the parties agreed to a two-year timetable for filling in the key details of the Kyoto Protocol in areas such as emissions trading. Buenos Aires also saw a significant breakthrough on the issue of developing country participation as Argentina and Kazakhstan became the first developing countries to announce their intention to take on a binding emissions target for the 2008-2012 time period.

ECONOMIC COST OF KYOTO

The Administration's economic analysis of the Kyoto Protocol concludes that the cost to the United States of meeting our Kyoto target for reducing greenhouse gases should be modest. Even without counting the impact of domestic policies or the benefits of acting to mitigate climate change,

estimates derived from economic modeling suggest an emissions price in the range of \$14 to \$23 per ton of greenhouse gases. In 2010, that would translate into an increase of \$70 to \$110 per year for an average family's energy bill. This increase, however, would be substantially offset by the decline in electricity prices resulting from restructuring the electricity industry, as the Administration and others have proposed.

Noted economists have estimated the environmental, health, and economic costs of global warming projected to occur over the next century to be 1% of GDP or more -- over \$80 billion a year in today's dollars. In the short term, the 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.

CONCLUSION

For the past 25 years, efforts to protect the environment, whether by cleaning our air and water, eliminating acid rain or closing the ozone hole, have been repeatedly assailed as a threat to our economy. Yet today we have the cleanest environment in a generation and the strongest economy in a generation. President Clinton's balanced approach to the challenge of climate change will allow us to grow the economy and protect the environment at the same time.

MEETING THE CHALLENGE OF GLOBAL CLIMATE CHANGE

MARCH 1999

Global climate change is one of our greatest environmental challenges. The great weight of scientific authority suggests that this problem is real and that the threats it poses -- such as increasingly frequent and severe storms and droughts, potential increases in respiratory and infectious diseases, and rising sea levels -- are too serious to ignore. In essence, we need to take out an insurance policy with reasonably priced premiums.

That is why Clinton Administration is working hard at home and abroad to meet the challenge of climate change. Domestically, we are working to implement the President's balanced, reasonable plan of win-win initiatives to reduce greenhouse gas emissions. Internationally, we are continuing efforts to fill in key details of the Kyoto Protocol and to encourage the meaningful participation of developing countries in efforts to address global warming.

THE SCIENCE OF CLIMATE CHANGE

Greenhouse gases in nature trap heat from the sun to 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 the burning of fossil fuels and deforestation, the concentration of carbon dioxide, or CO₂ (the principal greenhouse gas), has increased 30% since preindustrial times. If we continue on a business-as-usual trajectory, this concentration is expected to reach almost twice current levels by 2100 -- a level not seen in 50 million years. Climate models project that this will lead to an increase global temperature of about 2 to 6 degrees Fahrenheit. By way of comparison, the last ice age was only about 9 degrees Fahrenheit colder than today.

Over the past year, new data from tree rings, ice melts, boreholes, and satellites have reinforced the broad scientific consensus that global warming is well underway. Studies have shown that the 20th century has been the warmest century in the past 1200 years; the 1990s have been the warmest decade in that period; and 1997 and 1998 have been the warmest years.

POTENTIAL IMPACTS OF CLIMATE CHANGE

Scientists predict a range of likely effects from global warming:

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

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BACKGROUND FOR TESTIMONY ON CLIMATE CHANGE

May 19, 1998

President Clinton is committed to addressing the problem of global climate change while maintaining a strong economy. President Clinton has said that we can take steps to avert the grave dangers of climate change, while keeping our economy healthy and strong.

The Kyoto Protocol is a form of insurance against a serious environmental threat. It is difficult to put a price tag on the cost of doing nothing to address the problem of climate change. But researchers have nonetheless developed troubling cost estimates of not acting -- ranging in the tens of billions of dollars per year for the United States. And, these estimates do not even fully reflect the value of the insurance against the unknown risk of large-scale and potentially irreversible catastrophic events, such as a weakening of the Gulf Stream.

Doing it smart: The Kyoto Protocol is based upon measures that reduce costs. The least-cost approach to controlling climate change is to reduce emissions where and when such reductions are cheapest. Dr. Yellen's testimony highlights the substantial cost reductions that are associated with international emissions permit trading, joint implementation by Annex I countries, the Clean Development Mechanism, and other aspects of the Kyoto Protocol. Because of U.S. insistence, the Kyoto Protocol includes many such cost-saving provisions -- and economic analyses that ignore these provisions do not accurately reflect the economic impact of the Kyoto Protocol. The Administration also supports federal electricity restructuring legislation that could achieve modest emissions reductions and will provide consumers with substantial savings on their energy bills.

Conclusion: Costs will be modest, even without accounting for benefits of electricity restructuring or the value of insurance against a serious environmental threat. With effective mechanisms for international emissions permit trading, joint implementation, and the Clean Development Mechanism, as well as meaningful developing country participation and flexible timetables, the Administration's overall assessment is that the economic cost to the United States will be modest.

This conclusion is not entirely dependent on, but fully consistent with, formal model results. Despite the limitations of any single model in assessing the economic impact of the Kyoto Protocol, economic model results are fully consistent with this conclusion. For example, given the factors, such as international permit trading, delineated above, but excluding the benefits of reducing emissions and the impact of electricity restructuring, estimates derived using the Second Generation Model (SGM) suggest that the resource costs of attaining the Kyoto targets for emission reductions might amount to just \$7 to \$12 billion per year in 2008 to 2012 -- or just 0.1 percent of projected GDP.

Modest impact on family energy costs. With a successful international trading regime, the SGM-based estimate suggests an emissions price in the range of \$14 to \$23 per ton of carbon equivalent. Not including the impact of Federal electricity restructuring, that would translate into an increase in the average family's energy bill of between \$70 - \$110 per year in 2010. But, the energy price declines from Federal electricity restructuring would likely be enough to offset the impact described above -- so that the net effect on family energy bills, of the Administration's policies, including the impact of electricity restructuring, would be negligible in 2010.

Cost estimates do not reflect \$6.3 billion package of insurance against the environmental threat. The figures cited in Dr. Yellen's testimony exclude not only climate and non-climate benefits, but also such cost-mitigating factors as carbon sinks and increases in energy efficiency from the President's \$6.3 billion climate change initiative.

BACKGROUND FOR TESTIMONY ON CLIMATE CHANGE

March 4, 1998

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Doing it smart: The Kyoto Protocol is based upon measures that reduce costs. The least-cost approach to controlling climate change is to reduce emissions where and when such reductions are cheapest. Dr. Yellen's testimony highlights the substantial cost reductions that are associated with international emissions permit trading, joint implementation by Annex I countries, the Clean Development Mechanism, and other aspects of the Kyoto Protocol. Because of U.S. insistence, the Kyoto Protocol includes many such cost-saving provisions -- and economic analyses that ignore these provisions do not accurately reflect the economic impact of the Kyoto Protocol. The Administration also supports federal electricity restructuring legislation that could achieve modest emissions reductions and will provide consumers with substantial savings on their energy bills.

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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 homeowners

U.S. DOMESTIC CLIMATE CHANGE PROGRAM (continued)

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 select 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.

- **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.
- **WasteWiSe.** WasteWiSe 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 WasteWiSe 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 WasteWiSe 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.

U.S. DOMESTIC CLIMATE CHANGE PROGRAM (continued)

- **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.)

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.

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.

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.

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.

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.

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.

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 automakers 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.

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.

CLIMATE CHALLENGE (continued)

- ***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.

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.

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.

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.

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.

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.

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.

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.

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.

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.

WASTEWISE (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.

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.

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.

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 \$1.7 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.

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.

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.

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 (OECPP) 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 OECPP 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.

THE WHITE HOUSE

WASHINGTON

October 31, 1998

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MEMORANDUM FOR THE PRESIDENT

FROM: TODD STERN *TS*

SUBJECT: Climate Change Weekly Report

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Diplomatic

Climate change negotiators from around the world are traveling to Buenos Aires. The fourth conference of parties to the climate treaty opens Monday, November 13, through Friday, November 13. I have done a separate memo for you on Buenos Aires, and will send it up Monday.

An important part of our strategy at Buenos Aires will be to emphasize our commitment to domestic actions to reduce greenhouse gas emissions. This is important because countries that criticize our position on emissions trading -- including the EU and many developing nations -- routinely claim that the U.S. intends to buy all its emission reductions from abroad, rather than taking action at home. To counter these claims, we have prepared a 46-page handout that will go to the press, all foreign delegations, and other interested observers detailing a broad range of domestic initiatives that we have underway to combat global warming. The package includes an executive summary and 23 separate fact sheets on initiatives undertaken between 1993 and 1998. I have attached a copy so you can see what it looks like.

Communications

Buenos Aires. We worked with press and did several set-up speeches to prepare for Buenos Aires this week and to make sure that expectations for the Conference are moderate. On Monday, Secretary Richardson spoke at the opening session of the three-day Earth Technologies Forum, a large conference jointly sponsored by, among others, the International Climate Change Partnership (a centrist group of large U.S. corporations), and EPA. I spoke at the awards dinner for the Forum on Tuesday night. Stu Eizenstat delivered a pre-Buenos Aires speech to the Center for National Policy (the group formerly headed by Madeleine Albright) on Wednesday morning. I also met or talked with reporters or editorial writers for the *New York Times*, *Washington Post*, and *Wall Street Journal* this week, and meet with *USA Today* on Monday. Stu did a general press briefing at the State Department as well.

We have also done briefings in the last two weeks for key businesses and labor organizations, environmental groups and farm groups, as well as several Hill briefings.

On Wednesday, the *Financial Times* ran an op-ed on emissions trading by Stu Eizenstat and

Carol Browner, which we prepared in order to make the case for trading to a European audience. We also prepared a more general op-ed by Stu for the American audience and seeking to have it placed for early this week.

Other. On Tuesday, the Vice President did an event with GM, Monsanto and BP and the World Resources Institute. Earlier that morning, these three companies and WRI had held a their own news conference announcing joint principles for taking action on climate change. At the Vice President's event, he also received from the President's Council on Sustainable Development a set of principles on giving companies credit for early action to reduce emissions. Coverage of both the WRI/corporate event and the VP's event was very positive.

On Friday, the *Wall Street Journal* ran a good piece on the gradual weakening of the hard-core corporate opposition to taking action on global warming.

Science

An article in *Nature* (29 Oct) predicted that an amount of carbon-free energy greater than today's total industrial energy consumption will be needed by 2050 if we wish to stabilize greenhouse gas concentrations in the atmosphere at around double the pre-industrial level. (The preindustrial level was a little less than 280 ppm; we're now at around 360 ppm; doubling is generally considered to be 550 ppm.) The authors argue that production of this much carbon-free energy will require significantly increased investments in energy R&D today, and that such investments should be pursued—perhaps internationally—"with the urgency of a Manhattan project or an Apollo program."

cc: Vice President
Sandy Berger
John Podesta
George Frampton
Leon Fuerth
Ron Klain
Jack Lew
Neal Lane
Gene Sperling
Jim Steinberg
Janet Yellen

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

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

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.

- ***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.)

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.

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.

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

FACT SHEET ON ELECTRICITY RESTRUCTURING

N O V E M B E R I 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.

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.

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.

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 automakers 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.

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.

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.

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

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.

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.

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.

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.

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."

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.

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.

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

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.

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).

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).

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.

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.

PRESIDENT CLINTON'S CLIMATE CHANGE PROPOSAL

October 22, 1997

Global climate change is the premier environmental challenge and opportunity of the 21st century, and the risks it poses justify sensible preventive steps. Addressing this issue is one of the United States' greatest imperatives, for this and future generations. Recognizing the solid foundation of climate science, President Clinton is committed to strong and sensible action to reduce greenhouse gas emissions -- including realistic and binding emissions targets.

Key elements of President Clinton's climate change proposal include:

- **Binding Targets to Reach 1990 Emissions Levels by 2008-2012 and Reductions Below 1990 Levels in the 5-Year Period That Follows.** A critical component of the President's comprehensive framework is a realistic, achievable, and binding target of reducing greenhouse emissions to 1990 levels by 2008-2012 and reductions below 1990 levels in the 5-year period that follows.
- **\$5 Billion Program of Tax Cuts and R&D for New Technologies.** To spur energy efficiency and the development of new technologies, the President proposes a major new package of tax cuts and R&D spending amounting to \$5 billion over five years.
- **Industry-by-Industry Consultations and Early Credit.** The Administration challenges key industries to prepare plans over the next 9 months on how they can best reduce emissions. To provide an incentive for near-term actions to cut emissions, the President is committed to ensuring appropriate rewards for firms that act early.
- **Developing Countries Must Participate.** Climate change is a global problem, and requires a global solution. That's why the United States has spear-headed joint implementation projects, and the President has committed that the United States will not adopt binding obligations without developing country participation.
- **Broad-Based Domestic and International Emissions Trading System Begins After A Decade of Experience Has Accumulated.** The President is committed to a market-based emissions trading system, both domestically and internationally, that will harness the power of the market to reduce emissions to 1990 levels by 2008-2012. The trading system would begin after a decade's worth of experience with tax incentives, R&D, early credit, electricity restructuring, Federal efforts, and other measures.

BINDING TARGETS: The U.S. binding target is realistic: It seeks to return U.S. emissions to 1990 levels in the period 2008-2012 and reduce them further thereafter. We reject the European proposal for more stringent early reductions, as well as the "do-nothing" approach of some interests. The target is achievable: By providing incentives for early action to reduce emissions, attacking domestic energy inefficiencies, and putting in place a market-based emissions trading system, we can reach 1990 levels in the proposed time frame with minimal economic costs. And it is meaningful: Achieving 1990 levels in the period 2008-2012 would amount to almost a 30 percent reduction off a business-as-usual path, an important first step on the road toward stabilizing greenhouse gas concentrations in the atmosphere.

SOLID PRINCIPLES: The President's five climate change principles include: that the policies should be guided by science, rely on market-based, common-sense tools, that we should seek win-win solutions, that global participation is essential to addressing the global problem of climate change, and that we must have regular common-sense reviews of the economics and science of climate change.

SOUND AND SENSIBLE THREE-STAGE APPROACH: Reflecting his five key principles, the President's plan includes three stages: Stage 1 includes priming the pump through programs such as R&D, tax incentives, incentives for early action, and Federal leadership, and industry consultations. Stage 2 builds upon the first stage by including a review and evaluation in preparation for the permit trading system. Stage 3 -- which does not occur for a decade -- involves meeting binding targets through a domestic and international emissions trading program. The President is committed to working with labor and Congress to insure that we give proper assistance to any workers dislocated by the changes in energy usage inherent in any climate change plan.

INITIAL ACTION PLAN: The President's immediate action plan includes 9 elements:

1. *\$5 Billion in Tax Cuts and Federal R&D:* To spur energy efficiency and encourage the development and deployment of lower-carbon energy sources, the Administration supports a major new package of tax cuts and R&D spending amounting to \$5 billion over five years.
2. *Credit for Early Action:* To provide an immediate incentive for near-term actions, the President is committed to ensuring that firms acting early are rewarded appropriately.
3. *Industry-by-Industry Consultations:* The Administration challenges key industry sectors to prepare plans over the next 9 months on how they can best reduce emissions.
4. *Encouraging the Use of Energy-Efficient Products:* The President will complement his tax incentives, commitment to early action credit, and industry consultations by engaging in a broad-based effort to expand the use of *existing* energy-efficient technologies.
5. *Federal Procurement and Energy Use:* The Department of Energy will spearhead a comprehensive effort to reduce greenhouse gas emissions from Federal sources.
6. *Electricity Restructuring:* To deliver a significant downpayment on emission reductions, while saving consumers billions, we will pursue a bold plan for electricity restructuring.
7. *Setting a Concentration Goal:* The United States supports developing a specific, long-term concentration goal with the assistance of the National Academy of Sciences and other bodies.
8. *Bilateral Dialogues:* In addition to pursuing agreement in Kyoto, the Administration will pursue bilateral dialogues with key developing countries to promote clean energy.
9. *Economics and Science Reviews:* The President proposes regular scientific and economic reviews. These reviews will ensure that policy-makers have the best possible information on climate change.

WIN-WIN: There are numerous win-win solutions to reducing carbon emissions. For example, a breakthrough in fuel cell technology announced yesterday will clear the way toward developing cars that are three times as efficient as today's models -- cutting pollution while also cutting driving costs.

INITIAL CLIMATE CHANGE ACTIONS

October 22, 1997

President Clinton has proposed nine immediate actions to begin addressing climate change:

- 1. Tax Cuts and Federal R&D:** To spur energy efficiency and the development of lower-carbon energy sources, the Administration supports a major new package of tax cuts and R&D spending amounting to \$5 billion over five years. Many of the ideas from the recent report of the President's Committee on Science and Technology (PCAST) will be considered in constructing this package.
- 2. Credit for Early Action:** To provide an immediate incentive for near-term actions to cut emissions, the Administration is committed to ensuring that firms which act early are rewarded appropriately. We will work with companies to build a program that appropriately rewards those who take prompt and early actions before the beginning of the mandatory emissions budget period in Stage 3.
- 3. Industry-by-Industry Consultations:** The Administration challenges key industry sectors to prepare plans over the next 9 months on how they can best reduce emissions, including how the Federal government can remove regulatory hurdles that discourage energy efficiency. The Administration will work in partnership with industry to develop sensible efficiency standards in a variety of areas.
- 4. Encouraging the Use of Energy-Efficient Products:** As the Department of Energy's 5-Labs study illustrates, many existing technologies produce win-win solutions to reducing carbon emissions -- but nonetheless are still not widely used. The President is committed to expanding their reach. He will therefore complement his other programs by engaging in a broad-based effort to expand the use of *existing* energy-efficient technologies -- while also spurring the development of *new* technologies.
- 5. Federal Procurement and Energy Use:** To reduce greenhouse gas emissions from Federal sources, DOE will spearhead a comprehensive effort that includes expanded performance contracting to make Federal buildings more energy-efficient, improved Federal procurement of energy-efficient technology, and partnerships to improve the energy efficiency of Federal aircraft, ships and vehicles. Federal agencies will also be called upon to assess emissions in major initiatives.
- 6. Electricity Restructuring:** To spur further efforts to clean our air and deliver a downpayment on greenhouse gas emission reductions, while saving consumers billions, we will pursue a bold plan to restructure the energy sector. It is time to change the rules that are often more than 70 years old -- stifling innovations that can save money and impede newer, cleaner technologies.
- 7. Setting a Concentration Goal for Greenhouse Gases in the Atmosphere:** The goal of the existing climate treaty is to stabilize concentrations of greenhouse gases, but the specific concentration has never been defined. The U.S. supports developing a specific, long-term goal, with the assistance of the National Academy of Science and other appropriate bodies.
- 8. Bilateral Dialogues:** In addition to pursuing agreement in Kyoto, the Administration will pursue bilateral dialogues with key developing countries to promote clean energy.
- 9. Economics and Science Reviews:** The President proposes regular scientific and economic reviews, to ensure that policy-makers have the best possible information on climate change.

BACKGROUND INFORMATION

INDEX

Title

1. President Clinton's Climate Change Proposal
2. Initial Climate Change Actions

Background Information

3. President Clinton's Five Climate Change Principles
4. President's Three-Stage Plan on Climate Change
5. Comprehensive Framework for Effective, Sensible Action
6. Fact Sheet on International Emissions Trading
7. Fact Sheet on Joint Implementation
8. Fact Sheet on Electricity Restructuring
9. Fact Sheet on Federal Energy Management
10. Fact Sheet on U.S. Global Change Research Program
11. Fact Sheet on PNGV
12. Fact Sheet on Fuel Cells
13. Fact Sheet on PATH
14. Fact Sheet on Potential Industry Sector Savings
15. Fact Sheet on Potential Building Sector Savings
16. Fact Sheet on Potential Transportation Sector Savings

PRESIDENT CLINTON'S FIVE CLIMATE CHANGE PRINCIPLES

October 22, 1997

Global climate change is the premier environmental challenge and opportunity of the 21st century, and the risks it poses justify sensible preventive steps. Addressing this issue is one of the United States' greatest imperatives, for this and future generations. Recognizing the solid foundation of climate science, President Clinton is committed to strong and sensible action to reduce greenhouse gas emissions -- including realistic and binding emissions targets.

President Clinton's climate change plan is based on **five key principles**:

- **Guided by science.** The vast majority of the world's scientists have concluded that if the countries of world do not work together to cut greenhouse gas emissions, temperatures will rise and disrupt the global climate. Indeed, most scientists say this process has already begun. But there is much we still don't know about how the climate and human health will react to increased greenhouse gas concentrations. That's why the President's plan includes regular science reviews, to ensure that our policies are guided by the best science available.
- **Market-based, common-sense tools.** We have learned that the costs of protecting the environment is substantially lower if we harness the power of markets to do so. That's why the President's plan emphasizes flexible and market-based mechanisms. His plan includes a domestic and international permit trading system for greenhouse gas emissions, similar to the highly successful permit trading system that has dramatically cut acid rain at a fraction of the predicted cost.
- **Seek win-win solutions.** There are a multitude of win-win solutions to reducing carbon emissions, that can improve our energy efficiency and save consumers money. For example, a breakthrough in fuel cell technology announced yesterday will clear the way toward developing cars that are twice as efficient as today's models -- cutting pollution while also cutting driving costs. The President believes that we must seek such win-win solutions to addressing climate change.
- **Global participation.** Climate change is a global problem, and requires a global solution. A ton of carbon emitted in Argentina has just as much effect on the global climate as a ton of carbon emitted in the United States -- and within the next few decades, emissions from developing countries are expected to exceed those from developed countries. And many win-win opportunities exist to reduce greenhouse gas emissions in developing countries. That's why the United States has spear-headed joint implementation projects and the President has committed that the United States will not adopt binding obligations without developing country participation.
- **Common-sense economic reviews.** Our knowledge of the challenges and opportunities we face will grow over time. Therefore, the President is calling for regular 5-year economic reviews and updates, to ensure that policy-makers, both in the Administration and in Congress, have the best possible information on how the economy is responding to the effort to address climate change, how other countries are performing relative to their own commitments, and how the climate is changing in response to human activities.

THE PRESIDENT'S THREE-STAGE PLAN ON CLIMATE CHANGE

October 22, 1997

Reflecting his five key principles, the President's plan will proceed in three stages:

- **Stage 1: Priming the Pump Through R&D, Tax Incentives, Incentives for Early Action, Federal Leadership, and Industry Consultations.** The first stage of the President's package includes a 9-point action plan -- including \$5 billion in tax incentives and spending for R&D and energy efficiency, incentives for early action, a set of Federal government energy initiatives, and industry-by-industry consultations to explore their best ideas on how to reduce emissions in a cost-effective manner (including market-oriented standards for energy efficiency). The first economic review would occur near the end of Stage 1.
- **Stage 2: Review and Evaluation.** The second stage, which would begin around 2004, will build upon the programs adopted in Stage 1, by including a review of our progress and an evaluation of next steps as we move toward a market-based permit trading system for carbon emissions. During this second stage, the details of the permit system would be refined and perhaps tested. Such a permit system is similar in concept to the one that dramatically cut acid rain emissions -- although the scale would be significantly larger than the current acid rain program. The second economic review would occur near the end of Stage 2.
- **Stage 3: Meeting Binding Targets Through Domestic and International Emissions Trading Program.** In the third stage, we would reduce emissions to 1990 levels by 2008-2012, and below 1990 levels in the 5-year period after that, through a market-based domestic and international emissions trading system. Before beginning this third stage, the second economic update and review would allow Congress and the President to evaluate how the economy had responded to a decade's worth of experience in the first two stages of the President's plan. The President is committed to working with labor and Congress to insure that we give proper assistance to any workers dislocated by the changes in energy usage inherent in any climate change plan.

This three-stage program recognizes the long-term nature of the effort to address climate change in three ways:

- By adopting a graduated approach to emissions reductions, it allows us to exploit the tremendous opportunities for win-win reductions first.
- By adopting a system of regular scientific and economic updates and reviews, it allows us to monitor our progress and re-assess our success in reducing emissions, the state of scientific knowledge, and how the economy is responding to our efforts. Only after we have accumulated ten years of experience with the first two stages of the program would we enter the internationally binding period.
- By insisting that the United States will not adopt binding obligations without developing country participation and by emphasizing the importance of an international trading system and joint implementation, we take advantage of low-cost reduction possibilities wherever they occur -- either here or abroad.

COMPREHENSIVE FRAMEWORK FOR EFFECTIVE, SENSIBLE ACTION

October 22, 1997

GREENHOUSE GAS EMISSION REDUCTION TARGET

Under the current international climate change agreement (signed in Rio de Janeiro in 1992), industrialized countries accepted a non-binding emissions reduction goal. Most nations, including the United States, will fall short of meeting it. This fact, coupled with better scientific evidence on the seriousness of the climate change threat, led the U.S. to propose last year that a new agreement set binding limits on emissions. The proposed U.S. emissions target is designed to provide important environmental gains while maintaining strong economic growth. It is:

- **Realistic.** Seeks to return U.S. emissions to 1990 levels in the period 2008-2012 and reduce them further thereafter. Rejects European proposal for more stringent early reductions, as well as the “do-nothing” approach of some interests.
- **Achievable.** By providing incentives for early action to reduce emissions, attacking domestic energy inefficiencies, securing flexible international implementation mechanisms, and putting in place a market-based domestic emissions trading system, the U.S. can reach 1990 levels in the proposed time frame with minimal economic costs.
- **Meaningful.** Achieving 1990 levels in the period 2008-2012 would amount to almost a 30 percent reduction off a business-as-usual path, an important first step on the road toward stabilizing concentrations of greenhouse gases in the atmosphere. Emissions accounting will include all greenhouse gas sources and sinks (including reforestation).

FLEXIBLE, MARKET-BASED IMPLEMENTATION

Just as the effects of climate change will be felt globally, so too are the causes of climate change global in nature. Greenhouse gas emissions do equal harm to the atmosphere whether they come from a coal plant in China or a bus in Boston. For this reason, any regime to reduce greenhouse gases must be global. It must also allow all nations the ability to seek out the most efficient way of reducing emissions so that the greatest gains are achieved at the least cost. For these reasons, the United States strongly supports the inclusion in a new climate change agreement of two innovative, flexible mechanisms for reducing emissions:

- **International Emissions Trading --Using Markets to Lower Costs.** The principle of emissions trading is to use the efficiency of the market place to achieve environmental objectives at the lowest possible cost. Under an international emissions trading regime, a country (or firm) would be able to meet its emissions reduction target by reducing pollution itself, purchasing reductions from another country (or firm) that was able to achieve excess gains, or some combination of both.
- **Joint Implementation --A Global Solution to Low-Cost Reductions.** Joint Implementation (JI) is an innovative, market-based approach for addressing global climate change that uses international partnerships to achieve low-cost reductions in greenhouse gas emissions. Under JI, a company in the United States invests in a project which reduces emissions in another country and uses those reductions as a less expensive means of meeting its own target.

PARTICIPATION OF DEVELOPING COUNTRIES

In addition to its non-binding emissions reduction aim for developed countries, the Rio climate change agreement required all countries to take policies and measures to reduce emissions. Many developing countries have made real strides, through, for example, reducing energy subsidies. Nevertheless, given that developing country emissions will eclipse those from the developed world within several decades, these countries need to do more. Accordingly, the U.S. calls on developing countries to strengthen their existing commitments and to agree that their obligations must increase over time to include binding emissions limits. Our principles include:

- **Global Participation.** All countries must participate. Every nation would be required to take meaningful actions to limit emissions. The U.S. will not assume binding obligations until developing countries agree to participate meaningfully in the challenge of addressing climate change.
- **Equity.** The obligations of poorer and less developed countries should take into account their state of economic development and their relative contribution to the climate change problem.
- **Assistance.** While insisting that developing countries take meaningful actions to address climate change, the U.S. recognizes that many of these countries face significant development challenges that hamper their ability to reduce emissions. President Clinton is reemphasizing his commitment to working with these nations to help build more sustainable energy futures. This includes a \$1 billion package of assistance from USAID and a renewed commitment to provide financial assistance through the Global Environment Facility, as well as our pathbreaking joint implementation proposals.

FACT SHEET ON INTERNATIONAL EMISSIONS TRADING

October 22, 1997

Description

The principle of emissions trading is to use the efficiency of the market place to achieve environmental objectives at the lowest possible cost. Under an international emissions trading regime, a country (or firm) would be able to meet its emissions reduction target by reducing pollution itself, purchasing reductions from another country (or firm) that was able to achieve excess gains, or some combination of both.

Given an effective international regime, emissions trading provides a powerful incentive for nations to reduce below the amount required and then sell excess reductions to others who in turn avoid more costly actions. The U.S. has proposed that emissions trading be permitted among all countries that agree to a binding emissions target.

How it would work

Consider a simplified example for how international emissions trading might work. Country A and Country B must reduce emissions by 100 tons each. It might cost each country \$1,000 to reduce 100 tons individually for a total cost of \$2,000. However, if Country A could reduce its emissions by 200 tons for a total cost of \$1,500 and sell half of these reductions to Country B, the overall target would be achieved for \$500 less, a savings of 25 percent.

U.S. experience

Emissions trading is being used successfully at the domestic level to reduce sulfur dioxide emissions (which cause acid rain) under the Clean Air Act. Achieving targeted reductions was originally estimated to cost \$5 billion annually if traditional controls had been required and \$4 billion with emissions trading. A GAO estimate after the initial stage of emissions trading now puts the cost at \$2 billion per year, or 60 percent below the original estimate with pollution reductions significantly ahead of schedule. Emissions trading has also been successful in cutting the costs of phasing out leaded gasoline and in curbing the production of chlorofluorocarbons which deplete the ozone layer.

Cost savings

According to the 1997 Economic Report of the President, international emissions trading for carbon dioxide could lower the cost of reductions by 50 percent below the minimum achievable using purely domestic programs.

FACT SHEET ON JOINT IMPLEMENTATION

October 22, 1997

Description

Joint Implementation (JI) is an innovative, market-based approach for addressing global climate change that uses international partnerships to achieve low-cost reductions in greenhouse gas emissions. Under JI, a company in the United States invests in a project which reduces emissions in another country and uses those reductions as a less expensive means of meeting its own target. The U.S. has proposed that a formal regime that gives credit for JI projects be part of a new climate change agreement.

How it would work

Consider the example of a project announced today as part of a pilot program on joint implementation instituted by the United States. Two U.S. companies (Solar Electric Power and Light of Washington, D.C. and Trexler and Associates, Inc of Oak Grove, Illinois) will work with Renewable Energy Services Company of Asia, Ltd. to market and install 812,000 solar home systems in Sri Lanka. These systems will replace the use of kerosene lamps for lighting and the use of diesel-electric charging of lead-acid batteries for powering small home appliances. The result will be a 1.5 million metric ton reduction in greenhouse gas emissions and cleaner energy for tens of thousands of people.

U.S. experience

Under the U.S. pilot program on JI (formed under the existing climate change convention), 28 projects have been approved in 12 countries, including Costa Rica, Bolivia, the Czech Republic, and Russia. These projects span a range of technologies, including solar, geothermal, and wind power; fuel switching for district heating; biomass energy; and reforestation. U.S. companies and organizations already participating include Commonwealth Edison, Wisconsin Electric Power, Kenetech Windpower, Sealweld Corp., American Electric Power, PacificCorp, Detroit Edison, Clean Air Coalition, and many others.

Benefits

Lower costs: JI provides a strong incentive for companies and countries to search the globe for the lowest cost ways of reducing greenhouse gas emissions.

Expanded exports of U.S. technology: The enormous potential for JI projects around the world creates major opportunities for the increased sale of U.S. energy efficiency and alternative energy technologies.

Technology transfer: Increased reliance on more energy efficient technologies and less carbon-intensive energy alternatives will help developing countries meet their growing energy needs with more environmentally sustainable solutions.

FACT SHEET ON ELECTRICITY RESTRUCTURING

October 22, 1997

As part of his climate change initiative, President Clinton announced his support for appropriately crafted electricity restructuring legislation that will save consumers billions of dollars while reducing carbon emissions.

Description

The electricity sector is our nation's most capital intensive industry -- and has sales of over \$200 billion. Under electricity restructuring, competition would be the primary mechanism to set electricity generation prices. Utilities would open up their distribution and transmission wires to all qualified sellers. The transmission and distribution of electricity would continue to be regulated because they will remain monopolies for the foreseeable future. The system would be restructured, not deregulated. Done correctly, this process can save consumers in their utility bills and reduce carbon emissions. A properly structured retail competition system can deliver electricity more efficiently, and just as reliably, as our present system of regulated monopolies.

Cost savings

Most experts are confident that restructuring will reduce the cost of electricity, although there is a diversity of views over the potential size of the savings. Because the industry is so large, even modest savings represent billions of dollars. DOE economists estimate potential savings of \$20 billion a year, which would mean average direct savings of about \$100 a year to a typical family of four and indirect savings to such a family through lower cost goods and services of about another \$100 a year. Other studies predict far larger savings.

Carbon reductions

With appropriate market-based provisions, electricity restructuring legislation could reduce carbon emissions by creating incentives to produce and use electricity more efficiently and with less pollution. As emphasized at the White House Conference on Climate Change, two-thirds of the energy used to produce electricity is currently wasted. Restructuring should introduce incentives for reducing this waste heat. Restructuring legislation could also include other provisions -- such as various incentives and mandates to promote energy efficiency and renewable energy -- that offer potential carbon savings.

Next steps

The Administration looks forward to working with interested parties on crafting comprehensive electricity restructuring legislation.

FACT SHEET ON FEDERAL ENERGY MANAGEMENT

October 22, 1997

Aggressive energy management can substantially reduce carbon emissions from the activities of the Federal government, which has the nation's largest energy bill at almost \$8 billion per year. Significant strides have already been made --energy consumption per square foot in Federal buildings is down 15 percent and energy use in civilian and military vehicles is down about 27 percent from 1985 levels. However, we can do much more.

The initiatives below will reduce Federal emissions of greenhouse gases through enhanced focus on energy efficiency and renewable energy. They address areas which can deliver the greatest energy savings, best leverage private sector funding and improve the Federal procurement system.

1. Expand Energy Savings Performance Contracting

- Expand use of Energy Savings Performance Contracts. ESPC uses private investment capital and expertise to accomplish energy and cost saving projects in Federal facilities. When a private sector firm which has invested in federal energy efficiency improvements is fully repaid from its share of the delivered savings, all additional savings accrue to the government. Streamlined ESPC contracts put in place by DOD and DOE are beginning to speed large investments in energy projects at Federal facilities. However, use of ESPC's is still limited in the Federal government. The Office of Management and Budget will lead an effort to increase their use. It will include new policy and budget guidance for agencies. ESPC authority can also be extended to other areas including:
 - *Leased Federal buildings.* These include buildings where the Government either pays for the energy use directly or in other building where ESPC can provide a better lease for the Government.
 - *Federal mobility.* There may be great potential for energy savings from more efficient energy use in aircraft, ships and vehicles.
 - *Water conservation.* Water conservation projects save energy because each gallon contains energy from pumping, heating, chilling or treatment.
 - *Non-federal facilities* where the Government makes indirect payment of energy expenses. These include, for example, National Guard facilities which the state owns but where the Federal Government covers utility expenses and public housing facilities which are Federally supported but owned by public housing authorities.
 - *State and local government facilities.* Federal energy experts can help transfer ESPC techniques to state and local governments so they can access this important approach to energy efficiency.

2. Improve Federal Procurement of Energy Efficient Technology

- *Accelerate the development of Product Energy Efficiency Recommendations.* These cover products that are in the top 25 percent of their class for energy efficiency or have Energy Star ratings, for example electric motors and air conditioning chillers. They provide a guide to Federal purchasers

of the energy efficiency level to request in a specification or procurement.

- *Establish as standard practice, the purchase of energy efficient products for Government use.* Traditionally, federal purchases have been based on lowest price, ignoring the substantial savings many energy efficient products can achieve over their life. The Executive Office of the President will lead an interagency team to streamline and update Executive Orders and procurement practices to encourage the acquisition of these products. Use of alternative contracting vehicles to acquire energy-efficient products will be encouraged, and purchase of products in the top 25 percent of class for energy efficiency or conforming to Energy Star standards will become standard practice, subject to necessary exceptions. The initiative will be augmented by publication of a “best practices” buying guide and expanded training of purchasing decision-makers.
- *Use consolidated purchasing to stimulate markets and lower prices.* Consolidated Federal purchasing can stimulate commercial markets for new and emerging products which offer greater energy efficiency, lower operating costs, and sales opportunities for small businesses that produce these products.
- *Increase Federal procurement of renewable energy.* In states that have implemented retail competition in their electricity industry, Federal facilities will work with their suppliers to ensure that the facilities purchase competitively supplied non-hydro renewable energy at levels equivalent to the percentage specified in that state’s retail competition legislation.
- *Report Federal Agencies’ Contributions to Reduction of Carbon Emissions.* This initiative will develop an appropriate measurement methodology to convert currently available data on Federal energy use to carbon emissions to aid national carbon reduction efforts.

3. Building for the 21st Century

- *Establish a new level of excellence for Federal building construction and renovation that incorporates energy efficiency, quality, affordability, and sustainability.* By using the latest construction techniques and tapping the knowledge of the building community and local partners, agencies will work to ensure that new Federal buildings achieve energy efficiency increases of 30-50 percent by 2000 as compared to existing facilities. This will be accomplished through a “whole building” approach that treats buildings as integrated systems rather than a series of independent component selections.
- *Deploy solar technologies in Federal buildings.* Show Federal leadership by installing solar photovoltaic and solar thermal systems on 20,000 Federal roofs by 2010 in support of the President’s ‘Million Solar Roof Initiative’. Utilize alternative financing methods to provide the rapid infusion of investment necessary to support the cost-effective installation of these systems.
- *Expand the use of combined heat and power generation at Federal facilities.* Combined heat and power makes greater use of the waste heat produced in the generation of electricity.
- *Use biomass fuels in Federal boilers.* Biomass would come from agricultural and wood waste and methane from landfill and treatment plant operations.
- *Expand public awareness of energy efficient technologies.* By showcasing energy efficient and

renewable energy technologies at National Parks, Federal offices, embassies, military bases, and other facilities the public will be more aware of their potential to reduce pollution and lower costs.

- *Seek increased resources for civilian agency staffing to expand energy management activities and complete energy efficiency projects.* In recent years, budgets for energy management in several key agencies have been cut by more than 80 percent. These Federal appropriations often provide the most cost-effective funding for Federal energy efficiency projects.

4. Improve Aircraft, Ship, and Heavy Vehicle Fuel Efficiency

- *Public-Private partnerships to improve the energy efficiency of Federal aircraft, ships and vehicles.* Energy use in Federal aircraft, ships and vehicles, predominantly in the military services, is responsible for 43 percent of the \$8 billion Federal energy bill. This initiative would improve the energy efficiency of main propulsion systems, with particular emphasis on medium and heavy diesel engines and high performance turbine technology. The initiative -- designed along the lines of the Partnership for a New Generation of Vehicles -- would involve a partnership between Federal agencies and the private sector. Advances under this initiative will have significant application in commercial markets. In addition, the initiative will focus on near-term energy efficiency opportunities such as lighting retrofits on ships.
- *Increase the use of alternative fueled vehicles (AFVs) in the Federal fleet.* Federal agencies are increasing the use of alternative fuel vehicles which, among other things, helps reduce emissions of greenhouse gases. This initiative would enhance the focus of the current program on AFVs such as electrics, hybrid-electrics, natural gas and renewable-fueled vehicles.

5. Greenhouse Gas Assessments

- Federal agencies will be required to assess their greenhouse gas emissions in major actions they undertake.

FACT SHEET ON U.S. GLOBAL CHANGE RESEARCH PROGRAM

October 22, 1997

Background: The U.S. Global Change Research Program (USGCRP) is a National Research Program conducted under the auspices of the National Science and Technology Council (NSTC) Committee on Environment and Natural Resources. The NSTC is a cabinet-level council established by President Clinton in November 1993 to coordinate Federal science and technology efforts. The program's fundamental purpose is to increase understanding of the Earth system, and of human and naturally induced changes in the Earth's environment, and thus provide a sound scientific basis for decision making on global change issues. The USGCRP began as a Presidential Initiative, and was codified by the Global Change Research Act of 1990. The overall FY 1997 USGCRP budget was \$1.81 billion.

The core program of the USGCRP is focused on four key scientific areas:

- *Seasonal to Interannual Climate Variability:* The development and refinement of forecasts of seasonal and interannual climate variability, including study and prediction of the El Niño phenomena.
- *Climate Change Over Decades to Centuries:* Analysis and projection of the effects of long-term climate change on natural resources, public health, and socio-economic sectors.
- *Changes in Ozone, UV Radiation, and Atmospheric Chemistry:* Research on the causes, rate, magnitude, and human health and ecological consequences of changes in stratospheric ozone, UV radiation, and atmospheric chemistry.
- *Changes in Land Cover and Terrestrial and Aquatic Ecosystems:* Research on the causes and consequences of land-cover changes, and on basic processes governing the functions and structure of terrestrial, aquatic, and marine ecosystems.

New Research Directions: Global change research is providing the information about the changing Earth system, and in particular, about climate change, that is needed to achieve a sustainable future. New research efforts include:

- *A National Assessment of Climate Change Impacts* to aggregate information across regions and sectors, analyze national-scale consequences, and support development of mitigation and adaptation strategies.
- *Improved Regional-scale Analyses*, including regional estimates of the rate and magnitude of climate change, analyses of the environmental and socio-economic consequences of climate change in the context of other stresses, and integrated assessments of the implications for society and the environment of climate change.
- *Regional Workshops* to examine the vulnerabilities of various regions of the United States to climate change.

FACT SHEET ON PNGV

October 22, 1997

Announced at the White House on September 29, 1993 by President Clinton, Vice President Gore, and the CEOs of the domestic auto makers, the Partnership for a New Generation of Vehicles (PNGV) is a partnership between the U.S. Federal government (7 agencies and 20 federal laboratories) and Chrysler, Ford, and General Motors that aims to strengthen America's competitiveness by developing technologies for a new generation of vehicles. Its programs include research support for over 350 automotive suppliers, universities, and small businesses.

PNGV's long-term goal is to develop production prototypes of an attractive, affordable car that can meet all applicable environmental and safety times and achieve up to three times the fuel efficiency of a comparable automobile sold today. This would mean that a typical midsize car would be able to achieve 80 mpg. The partnership also aims to (i) improve automotive manufacturing, and (ii) introduce efficiency technologies into production vehicles as soon as they are economically justified.

There are numerous reasons for pursuing PNGV, including:

- **Environmental:** Automobiles are a major contributor to atmospheric carbon dioxide, a major greenhouse gas. Already, concentrations of carbon dioxide are 25 percent higher than pre-industrial levels and are expected to double within the next century. Since the number of registered vehicles in the United States is expected to climb from 194 million in 1993, to as many as 270 million in 2010, PNGV's success is critical to any program of controlling US and world greenhouse gas emissions. It will also result in low cost methods for controlling the emissions that contribute to urban air pollution.
- **Reducing U.S. Dependence on Foreign Oil:** The United States currently imports 50 percent of the oil we consume -- this share is expected to grow to more than 60 percent by 2010. Petroleum imports make up ten percent of our country's import inventory and account for a large chunk of the nation's trade deficit. This dependence on foreign oil makes the United States vulnerable.

PNGV Status Report: The industrial partners are now in the process of selecting technologies that will be included in concept vehicles that will be completed by the turn of the century. The federal agencies are working to revise their research priorities to support both technologies that can be incorporated in production prototypes for 2004 and that can be integrated into even more advanced vehicles that would be designed in later years.

The goal of the program, while extremely ambitious, still seems possible given the advances in key technology that have been achieved during the life of the program. These include advances in production of low-cost, light-weight materials for the vehicle body and frame; electrical control systems, batteries; and compact, inexpensive fuel cells -- including the new technology for using gasoline to power fuel cells announced yesterday; and, advanced internal combustion engines for use in hybrid vehicles.

FACT SHEET ON FUEL CELLS

October 22, 1997

THE BREAKTHROUGH: A gasoline-powered technology that would allow you to double the fuel efficiency of a car and emit half the greenhouse gases and virtually no other air pollution. For the first time, gasoline was used to produce electricity from a pollution-free fuel cell, allowing the use of the existing gasoline infrastructure. Previously, fuel cells have been powered by hydrogen or methanol, which are less convenient for use in cars.

The Department of Energy, together with Los Alamos National Laboratory, and A.D. Little, have developed a breakthrough fuel processor, which can extract hydrogen from gasoline and other fuels such as ethanol and natural gas. Last week, this fuel processor was combined with a fuel cell from Plug Power to demonstrate for the first time that a fuel cell electric car could be fueled by gasoline or ethanol. This eliminates the limited driving range and lengthy recharging times associated with electric cars that run on batteries.

WHAT IS A FUEL CELL: The fuel cell converts the chemical energy of a fuel directly into usable electricity and heat without combustion. Fuel cells are similar to batteries in that both produce a direct current by means of an electrochemical process, but fuel cells can operate indefinitely as long as fuel is supplied to them. Fuel cells can provide power for cars and other applications, such as electricity and hot water for buildings.

The Department of Energy working with its partners has brought down the cost of proton exchange membrane (PEM) fuel cells by a factor of twenty in the last ten years. Continued R&D, coupled with the economies of scale from mass production of fuel cells as they enter the marketplace, should allow us to maintain this pace of cost reduction for another decade.

PARTNERSHIP FOR A NEW GENERATION OF VEHICLES (PNGV): The fuel cell breakthrough was accomplished as part of President Clinton's PNGV initiative, an innovative partnership between the government, the national laboratories, the big three automakers, and their suppliers. PNGV's goal is to develop a family-sized vehicle with triple the fuel efficiency of today's cars, without compromising cost or convenience.

POTENTIAL GREENHOUSE GAS REDUCTIONS: One-third of the nation's carbon dioxide emissions comes from the transportation sector, primarily cars. Fuel cell technology alone can directly double fuel efficiency and cut carbon dioxide emissions in half. In combination with other PNGV advances, such as lightweight materials and regenerative braking, fuel cells will allow a tripling of fuel efficiency and a further reduction in greenhouse gas emissions. Powering the fuel cell with renewable fuels, such as ethanol, could eliminate automotive greenhouse gas emissions entirely in the long run. The buildings sector also generates one-third of the nation's emissions of carbon dioxide. A building that uses the electricity and hot water from a fuel cell fueled by natural gas would have about half of the greenhouse gas emissions of the average building today. Plug Power expects to introduce fuel cells for homes and other buildings in 2000 that will provide electricity for less than the current residential rate. By 2010, fuel cells in buildings could be providing emissions savings of five million metric tons of carbon.

FACT SHEET ON PATH

October 22, 1997

What is PATH? We are working to develop a partnership for 21st century housing bringing together government and industry to develop, demonstrate and deploy housing technologies, designs and practices that can significantly improve the quality of housing without raising the cost of construction. The **Partnership for Advancing Technologies in Housing** includes government (DOE, HUD, EPA, Labor, Commerce, FEMA, and DOD) and industry working together develop, demonstrate and deploy housing technologies and practices so that homes can be built cheaper, more environmentally sustainable, more disaster resistant, and provide a safer working environment.

PATH has a five-part approach:

- Industry-driven research on new technologies and practices
- Working with industry on pilot programs building thousands of marketable houses
- Streamlining of federal, state and local codes and regulations
- Judicious use of existing authority on standards
- Information campaign to influence consumer demand

R&D: Support more funds for accelerated research and demonstration of inexpensive, highly efficient, highly attractive housing. Link with million solar roofs program.

Standards: The success of PATH will in some part be based on utilizing existing authorities on standards for a select few products that have the potential for great savings. There are five appliance/products currently under review by DoE; Clothes Washers, Ranges/Ovens, Ballasts, Residential water heaters, transformers. Of these, the Clothes Washers and Water Heaters seem to have greatest potential.

Creating Markets: The key to making the Partnership successful will be the ability to create markets and consumer demands for homes that meet the PATH goals. The Partnership will work with states and communities to help them understand the benefits of building these homes, and the opportunities it affords the communities for economic growth. The Partnership will attempt to gain agreements between communities that PATH homes can go through an expedited permitting process.

Education and Outreach: Marketing the benefits of these homes to consumers and to encourage consumers to begin to ask for homes that are built to the quality level of >PATH= homes. This will need to be an intensive campaign of getting the message out to communities, builders and developers. This will provide incentives for more and more builders to want to build these homes.

Pilots: The pilots will play an important role in the success of PATH. The pilot sites will begin of developing the markets and demonstrate the feasibility of the homes. The pilot sites can also act as training sites for builders and community leaders to learn about the benefits of the technologies and as a classroom for training on how to use the technologies. Sites under consideration are Stapleton Airport, Denver (Redevelopment of old airport site near downtown) and Florida (Working with the State to link energy and environment to disaster resistance and affordability).

Regulatory Streamlining: Working with states and communities on making the code approval process more efficient and less time consuming.

FACT SHEET ON POTENTIAL INDUSTRY SECTOR SAVINGS

October 22, 1997

The industrial sector produces approximately one-third of total U.S. emissions. We can cut emissions substantially in this sector through the right mix of tax incentives, accelerated research and development, electricity restructuring, and environmental regulatory reinvention. According to a recently released report from five of the nation's energy laboratories, programs such as the ones below can reduce emissions in the industrial sector in 2010 by 28 million metric tons even with no increase in energy prices.

Increasing Energy Efficiency: Energy audits encourage systematic approaches to energy efficiency that typically have high yields. Southwire Corporation, a large manufacturer of wire, rod, and cable, cut their use of natural gas by 60 percent and cut electricity use by 40 percent per pound of product produced. Motors consume 70 percent of industrial electricity used, and there is room for improving their efficiency. The Greenville Tube Company, for example, increased productivity by 15 percent, increased energy efficiency by 30 percent, reduced scrap by 15 percent, and achieved \$77,000 per year savings -- a 6 month payback -- by improving the efficiency of their motors.

Cogeneration (Combined Heat and Power): New technologies available in the industrial sector will allow us to capture the waste heat the U.S. now throws away. With the right policies, industrial cogeneration of natural gas or biomass could cut annual carbon emission significantly by 2010. Advanced turbines developed by DOE with industry will be available in three years (orders are already being taken). They have an overall efficiency of 80 percent to 90 percent, produce steam together with low-cost electricity and significantly reduce NOx emissions. These turbines can run on natural gas or biomass. Some industries have their own low-cost biomass feedstocks (for example, black liquor gasification in the pulp and paper industry), which makes possible cogeneration with nearly zero carbon emissions.

Expanding Industries of the Future: The seven most energy-intensive industries—steel, aluminum, petroleum refining, chemicals, pulp and paper products, glass, and metal casting—account for about 80 percent of the carbon emissions in U.S. manufacturing and more than 90 percent of the hazardous waste. Industry, partnering with the Department of Energy, has developed long-term visions of energy-efficient, low-polluting, highly competitive "Industries of the Future" as well as technology roadmaps to identify an R&D and deployment pathway to achieving the vision. Visions typically foresee annual energy efficiency improvements of 1.0 percent to 1.5 percent for two decades.

FACT SHEET ON POTENTIAL BUILDINGS SECTOR SAVINGS

October 22, 1997

The buildings sector also produces approximately one-third of total U.S. emissions. There is substantial opportunity to improve the energy efficiency of our buildings and the appliances in them. Many of these technologies improve the quality of service delivered (i.e. higher quality lighting), and have also been documented in a number of cases to improve productivity. According to a recently released report from five of the nation's energy laboratories, programs such as the ones below can reduce emissions in the buildings sector in 2010 by 25 million metric tons even with no increase in energy prices.

Standards: Substantial carbon emissions reductions in 2010 can be achieved through existing authority of the Department of Energy to establish market-oriented efficiency standards for appliances, such as refrigerators and air conditioners. The Department of Energy uses a consensus-based approach in which manufacturers, environmentalists, consumer advocates, and the states work together to develop applicable standards.

Voluntary Programs: Significant carbon reductions in 2010 could also be achieved by expanding voluntary programs such as the joint EPA-DOE Energy Star program. Energy Star labeling has already transformed a number of markets. For example, it has cut the energy used by computers, monitors, and printers by 50 percent at virtually no incremental cost. It is now being extended to dozens of other products.

Adopting Best Electricity Engineering Practices: Electronic equipment consumes electricity in stand-by mode (even when not being used) generating 12 MMTs of carbon emission each year. Preliminary analysis suggests that 80 percent of that could be saved through adopting best engineering practices without reducing service.

Research and Development: Designing buildings with advanced technology can reduce energy consumption by 25 to 50 percent without increasing the building's initial cost. The extra cost of some of the energy-efficient equipment is offset by the smaller required heating and cooling system.

Combined Heat and Power: As in industry, we can reduce the carbon intensity of the buildings sector by accelerating the use of combined heat and power (CHP). Two CHP technologies—small turbines and proton-exchange membrane (PEM) fuel cells—can convert natural gas to useful energy with 80 to 90 percent efficiency, significantly cutting carbon emissions from a building.

FACT SHEET ON POTENTIAL TRANSPORTATION SECTOR SAVINGS

October 22, 1997

The transportation sector produces approximately one-third of total U.S. emissions. According to a recently released report from five of the nation's energy laboratories, programs such as the ones below can reduce emissions in the transportation sector in 2010 by 73 million metric tons even with no increase in energy prices.

High Efficiency Cars And Light Trucks: The goal of the President's Partnership for a New Generation of Vehicles is to produce cars that are three times more efficient than current vehicles with no compromise in size, safety, comfort or cost. The objective is a production prototype vehicle with a fuel efficiency of 80 mpg in 2004 and commercial availability soon after. A variety of efficient technologies such as hybrid vehicle design, advanced engines, regenerative braking and lightweight materials are under development. These technologies are also applicable to light trucks and sport utility vehicles, so that a PNGV for these heavier passenger vehicles is quite possible with an expanded research effort.

High efficiency heavy trucks: Ongoing federal R&D on advanced diesel engines and lightweight materials have the potential to substantially reduce carbon emissions from heavy trucks. These technologies are projected to be available by about 2003 and be quickly adopted by trucking manufacturers since energy is a major cost component of freight transportation (a truck typically gets 7 to 8 miles per gallon while traveling over 50,000 miles a year).

Advanced Efficient Aircraft and Rail: Ongoing federal R&D on advanced aircraft engines, improved airframes, and air traffic control have the potential to improve aircraft energy efficiency by 35 percent, with an additional increment of carbon emissions reductions achieved by increasing the efficiency of trains.

Low-Carbon Fuel: Government-industry R&D partnerships have brought the cost of ethanol from cellulosic waste (such as crop waste) and dedicated crops (such as switchgrass) from \$3.60 per gallon in 1980 to \$1.20 per gallon today. Such fuels are carbon neutral because the crops capture carbon dioxide when they grow and release it during combustion.

President Clinton's Domestic Plan for Reducing Greenhouse Gas Emissions

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 a vigorous program of tax cuts and research and development aimed at cutting greenhouse gas emissions. 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 fuel efficient cars 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 limit) 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 a New Generation of Vehicles, a government-industry effort to develop highly-efficient cars, and the Partnership for Advancing Technologies 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.

On May 4, President Clinton announced one important new 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 tons -- the amount produced by some 20 million cars.

In another recent government-industry development, the Environmental Protection Agency and the Department of Energy extended their joint **Energy Star** program to commercial buildings that achieve a 30% reduction in energy use. The Energy Star program allows manufacturers of selected energy efficient products to promote their products with an "Energy Star" label. Among the major buildings that have already signed up for the Energy Star building program are the Empire State Building, World Trade Center, and Chicago's Sears Tower.

- ***Federal energy use and procurement.*** A third element of the President's plan is to substantially reduce 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 would be 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. Future work will build on existing efforts to reduce energy use in Federal buildings by 30% below 1985 levels by 2005. The federal government is making progress towards that goal, having already reduced its energy consumption by almost 24% below 1985 level. But much more can be done.
- ***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 renewable portfolio standard to increase the use of electricity from renewable sources and a \$6 billion/year Public Benefits Fund to spur greater investment in energy efficiency and renewable resources.
- ***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 U.S. has used emissions trading successfully to reduce the pollution that causes acid rain -- exceeding environmental objectives at costs far lower than anticipated.

TALKING POINTS RE CLIMATE TAX/R&D PACKAGE

- Our credibility on climate will be severely damaged if we don't make a major push to get this package, including the tax piece, enacted as soon as possible. This is particularly true in light of the criticism we received from enviros/press about talking big on electricity/climate and not delivering. This could be put in the same category unless we're seen as working this as a high priority.
- Republicans will go after this, and we need to hit back hard to make clear that it's an anti-environment, extreme attack -- The Senate budget resolution already took a swipe at the 6 billion package, state that the budget would not include any measures to implement the Kyoto treaty. We need to hit back hard on any suggestion that this is "backdoor implementation" (it's hardly backdoor or mandatory, and much of the R&D has been done for years, we're just stepping up the level of spending to accelerate results); or that Republican attacks on this package are anything other than anti-environment action.
- Democrat leadership is supportive of this R&D/tax package -- it's included in the unity agenda for the event on earth week.
- The R&D pieces are usually effectively worked w/ committee staff by agencies and affected industries, who have been working this for years, but we need to do a better job of coordination of those efforts, and of making sure that industry understands these projects could be at additional risk due to their inclusion in a climate package.
- We need an aggressive strategy on the tax piece -- it cannot wait for overall budget summit or for a more general tax package. Many of these tax provisions are supported by affected industries as well as the Administration, and should not be difficult to pass. We need a review by leg affairs here and in agencies, w/ Treasury, about how to pass each piece, and need to be willing to move forward on individual pieces as they're ready to go. (There may be some overall budget reason not to do this, but if so we need to understand what it is, and what the timing is. In any event, we need to have a strategy for building support on the Hill for individual tax provisions so that when the budget strategy permits we're good to go.)
- Car tax provision may be an exception b/c domestic industry not on board. (Foreign companies and enviros generally supportive). We're continuing to work w/ domestic companies individually, and may be able to make some progress. May want to consider high level calls to industry leaders as we get closer. We should reassess this in a week or two, but it should NOT languish. We cannot be seen as giving this up b/c domestics want delay. This is particularly true if we don't fight hard to keep the CAFE rider off DOT appropriations this year. (This should also be discussed -- it's in the House version and not in the Senate. Gorton opposes the rider, and would help us. Not sure an aggressive strategy on this is the right one, but if we don't work it we've GOT to work the car tax. We need to think about a deadline for working w/ companies, and if no progress be willing to publicly criticize them for this outrageous position.

- Next steps -- a team needs to be assigned to work the legislative side of this. We need legislative language on tax ready to go to Hill, and we need to assign people to work the Hill on each piece of the package. For example, Homebuilders have endorsed efficient buildings piece, as have a number of industries and enviros. It could pass quickly, as could most of the others. Car tax is an exception, as noted above.

Talking Points
Sustainable Energy Coalition Meeting
on the
Climate Change Technology Initiative
April 17, 1998, 3:00pm

- As Katie stated, the Climate Change Technology Initiative is an important part of the President's plan to address global warming and is an important part of the President's FY99 budget request.
- But let's be clear, achieving any portion of the R&D program or tax incentives in Congress will not be easy. It will take heavy lifting. Just look at the Senate Budget Resolution.
- I also want to be clear that the Administration is working hard to ensure passage of the R&D spending in the President's budget request. The Agencies are working with their appropriators to gain support for their portions of the climate change programs and in a moment I'll let DOE and EPA describe for you what they are hearing from the Hill.
- But all of you can play an important part of this effort and we are interested in knowing what you are hearing.
- The tax incentive portion of the President's budget is no less important. I will let Treasury give you more detail about the tax package in a moment.
- But I want to be very clear about one thing: the fact that the Administration has not forwarded legislative language to the Hill does NOT indicate a lack of support for these incentives.
- The Administration sent to Congress detailed specs on each of the 9 climate change incentives. As Karl can tell you, Treasury often does not draft legislative language. Rather they work with individual members to draft the provisions.
- Our decision not to follow up with a legislative language package reflects a strategic judgment that we are better off working with Members and retaining flexibility on how to move the incentives: as one big package or moving pieces individually.
- We want to continue to strategize as we go along, understanding that the issue of offsets could be contentious. However, we agree that now is the time to pick up the pace on pushing for these incentives.

- Therefore, White House Leg. Affairs, Treasury and the Task Force have begun to set up meetings with members and staff of the Finance and Ways and Means Committees starting next week. Any information this group may have on which members may be interested in championing pieces of the tax package would be very useful.

Anti-Lobbying Act

Budget

- 11 Resolutions - Both Houses

~~Quesada~~

- Noise/offensive - Dear Colleagues

- Roth/Chafee

- Bing/Jeffords

- Bumpas (?)

- Waxman/Pallone

- Franks/Medhan

- Roemer(?)

- Approps - committee by committee (offset problems)

- Taxes - aligning horses - wait for vehicle

David Gardner EPA

Dan Meagher DOE

Karl Sholtz (Treas)

one of those 'resources'

- Recently in these pages, Sen. Hagel **cast doubt on the wisdom** of the Kyoto climate change agreement. His critique is misplaced. It seems to flow from a belief that there is no real problem -- certainly not one that requires significant action. **Sen. Hagel's questions about the treaty require an answer, but the core questions are whether taking action against climate change makes sense, and whether Kyoto represents a solid first step.**
- Atmospheric concentrations of carbon dioxide are currently about 30% above pre-industrial levels, the highest in at least 200,000 years. Unless we change course, concentrations in 2100 are predicted to reach levels not seen in more than 50 million years. According to predictions by the authoritative Intergovernmental Panel on Climate Change -- composed of 2500 scientists worldwide -- this would push global average temperatures up by 2-6.5 degrees F. By comparison, the last ice age was only about 9 degrees F colder than today.
- The IPCC assessment -- reflecting the mainstream view of over 2000 climate scientists -- states that "climate change is likely to have wide-ranging and mostly adverse impacts on human health, with significant loss of life." Potential impacts include sea level rise, the spread of infectious disease, extreme weather events (such as droughts and floods), loss of forest cover and shifts in agriculturally-productive regions.
- This winter, El Nino has been giving Americans from California to Florida to Maine a bitter preview of the kind of severe weather we could expect in the warmer, wetter world that climate change would bring. Scientists **have not determined the precise relationship between climate change and El Nino**, but they do say that El Nino is producing the kind of weather we could anticipate from climate change.
- Of course there are uncertainties about the impacts of global warming, but what we know is more than enough to warrant prudent action. The Kyoto Protocol is like an insurance policy, with modest premiums to protect our children and grandchildren.
- That is why the U.S. pushed for a strong Kyoto agreement, and that is why we must begin acting now to reduce our emissions of greenhouse gases.
- The Kyoto Protocol represents an important first step that is clearly in the best interests of the United States. The United States went to Kyoto with three objectives: realistic binding targets; flexible, cost-effective mechanisms for meeting them; and developing country participation. We achieved the first two -- indeed, the U.S. blocked proposals for steeper cuts that could not be achieved and insisted on market-based mechanisms like emissions trading. And the Administration has made clear it is absolutely committed to achieving the third objective before submitting the protocol for Senate ratification.
- Hagel raises five specific concerns. First, he objects that the protocol establishes no binding emissions limits for developing countries. **This much is true, and the Administration has made clear that it will not submit the treaty for ratification until**

meaningful participation by developing countries is secured. But instead of simply walking away from this agreement -- as Sen. Hagel would have us do -- we should lock in Kyoto's substantial achievements and work to bring developing countries along.

- **We should also recognize that a very positive step was taken at Kyoto on this issue. Kyoto contains a major down payment in the form of a "Clean Development Mechanism" -- a market-based way of encouraging companies in industrial countries to invest in clean energy projects in the developing world, or to offset their carbon emissions in the U.S. by planting trees in developing nations.**
- Second, Sen. Hagel claims the protocol will bring economic chaos. However, the studies he cites ignore **market mechanisms such as emissions trading** that were built into the Protocol at the insistence of the U.S. that will help minimize the costs of cutting emissions. The Chair of the President's Council of Economic Advisors testified recently that if the Protocol is implemented in the right way, the rise in the average family's energy bill could be in a range of \$70 to \$110 a year in 2010; and that much of this may be offset by savings resulting from deregulation of the electricity market.
- Third, Sen. Hagel **fears** that an "international bureaucracy" would set price controls and ration energy use in the United States. In fact, U.S. negotiators successfully opposed "harmonized" or uniform policies, **such as common energy taxes**. Instead, the Protocol leaves nations free to decide for themselves how best to achieve their targets, while calling for detailed reporting and reviews to assure that each is living up to its commitments. The sovereignty of the United States, and every other nation, is fully protected.
- Fourth, Sen. Hagel suggests that the Protocol threatens our military readiness. In fact, our military leaders are fully satisfied that the agreement in no way undermines national defense. Our armed forces were well represented on our negotiating team in Kyoto, which sought and achieved all of their national security objectives. **As a result, the Kyoto Protocol assures that major military operations and training will not be limited by emission reduction goals.** It does so in three ways: by specifically exempting bunker fuels **used for international shipping and air transport, such as fuels used in the successful air raid on terrorist camps in Libya**; by exempting emissions from **multilateral operations specifically authorized by the UN Security Council, such as Desert Storm, Bosnia, and Somalia**; and by exempting emissions from operations **where the U.S. acts under its own authority, pursuant to the UN Charter, such as in Grenada**. In addition, President Clinton has said that he expects that any future U.S. domestic implementation of **Kyoto will not hamper readiness by limiting U.S.-based training and weapons systems.**
- Finally, Senator Hagel contends that the "best argument against the Kyoto Protocol is that it will do virtually nothing to slow the growth of greenhouse gases in the atmosphere." At Kyoto, industrialized nations pledged to reduce emissions more than 5 percent below 1990 levels by 2008-2012. That will be a significant achievement.
- It is true that emissions from developing countries will grow rapidly early in the next

century. That is why President Clinton has said that developing countries must meaningfully participate if we are going to address this problem.

- The U.S. and other industrialized countries will need to work hard over the next several years to demonstrate to developing nations why addressing climate change is in their interest. Developing nations stand the most to lose from a warmer world -- one with more violent and unpredictable weather, and one where tropical diseases are more likely to migrate. And these nations stand the most to gain by choosing energy paths that avoid the kinds of pollution that our own nations faced earlier this century.
- Perhaps the biggest leverage the U.S. has in this effort is that President Clinton agrees with the position laid out by the U.S. Senate last summer. He has stated emphatically that the U.S. will not be bound by Kyoto commitments until the meaningful participation of key developing countries is secured. This is significant leverage in making sure that the solution for climate change becomes a global one.
- Climate change is a problem that has been a long time in the making -- it will take time to turn it around. That is why it is so absolutely vital that we begin now. Kyoto is not the final answer, but it lays a foundation. Delaying will only make the job harder. Discarding the effort entirely would be a failure of our responsibility to our children and grandchildren.