**Heather F. Hurlburt** 05/01/2000 10:17:39 AM

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cc:
Subject: 4/30 Remarks by the President at Eastern Michigan University Commencement

Enviro section didn't get much press but seems to have gone over very well with audience. Thanks again.

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THE WHITE HOUSE

Office of the Press Secretary
(Ypsilanti, Michigan)

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For Immediate Release April 30, 2000

REMARKS BY THE PRESIDENT
AT EASTERN MICHIGAN UNIVERSITY COMMENCEMENT

Eastern Michigan University
Ypsilanti, Michigan

2:15 P.M. EDT

THE PRESIDENT: Thank you very much. I must say I was very moved by Secretary Slater's remarks. But I realize he was lifted to new heights of eloquence by being back at his alma mater. And I also realize he was once again proving the adage of Clinton's third law of politics -- whenever possible, be introduced by someone you have appointed to high office. (Laughter.) They will praise you to the skies, true or false. (Laughter.)

I must say, I was afraid, though, Rodney was about to commit -- we have been friends for many years -- I've never heard him say anything politically incorrect; I've never heard him utter a curse word; I've never heard him betray a character flaw. But I almost heard an ethnic slur today when he said he got me because I look like President Shelton. (Laughter.) All gray-haired, middle-aged Scotch-Irish guys look alike, you know. (Laughter and applause.)

I'm very proud of Secretary Slater, and you should be, too. And I'm proud of General Coburn and his leadership in the Army; and Gene Conti, who is the Assistant Secretary for Policy at our Transportation Department with Secretary Slater. We have been richly blessed by this university. And, President Shelton, I am grateful for you years of service here and for our friendship in our early years in Arkansas, when we both had less gray hair and didn't look so much alike.

I thank Mayor Archer and former governor and Ambassador Blanchard, and Representative Kilpatrick and the other Michigan officials who are here with me today. I thank my longtime friend, Jim Comer. I didn't know he was here at EMU this year until I saw him right before I came in. No American has proven so clearly as Professor Comer that all children can learn if given the right learning environment, and I am very grateful to him. (Applause.)

I thank all the distinguished Board of Regents and faculty and staff who are here. But most of all, I want to recognize the students and their parents of this, your first graduating class of the 21st century. (Applause.)

On the way in, Rodney was telling me that I would identify with a lot of you. A lot of you are first-generation college graduates. A lot of you had to work your way through school. A lot of you needed help in the form of loans and grants and work-study positions. And every one of you should be very proud of what you have achieved.

I also identify with your class because I may be the only President of the United States who ever studied here. I came here to prepare for my debates in 1992. (Applause.) And like you, I passed, and I thank you very much for the contribution you made to my education and to my years here. (Applause.)

You are graduating into a strong economy, the strongest in our nation's history. You are also graduating into a time of immense possibility -- here in Michigan and throughout the United States and, indeed, throughout the world.

One of my speechwriters wrote me a line that said, our economy is soaring higher than Swoop, the eagle. (Laughter.) He said you would know what that means. All I know is that I am grateful for the chance that the Vice President and First Lady and our administration and I have had to work to create opportunity in America and to bring us closer together in one community.

I know that a great deal of this is because we are in the midst of a profound revolution, the most sweeping since the Industrial Revolution a century ago. Information technology alone now gives us about a third of our growth, though only 8 percent of our work force is directly involved in it. It is bringing growth to every sector of our economy in a way we haven't seen since Henry Ford's first assembly line.

And I wanted to come here today to try to give you, this graduating class, some sense of the world into which you're going. You understand the opportunities, doubtless, better than I. I want you to understand the challenges, too. For economic opportunity is not an end in itself, it is a means to an end -- to further liberty, to strengthen the bonds of community, to enable you to build families and have children and enrich your lives.

Before you lies a future of unparalleled possibility. But I want you to understand today that just as at the dawn of the Industrial Age a hundred years ago -- which was symbolized by Michigan -- by Mr. Ford's assembly line and the factories of Detroit -- there are new challenges presented by this new era to

our oldest values of freedom and opportunity and community.

Theodore Roosevelt came to this campus more than a hundred years ago, at the beginning of the industrial era, when new rules were required to make sure that the Industrial Revolution worked for all our people. Without those rules, there would have been a terrible industrial divide between rich and poor, strong and weak. With those rules -- with the wage and hour laws, the child labor laws, the antitrust laws, the Federal Reserve, and later the minimum wage, workman's compensation, unemployment insurance, Social Security -- with those new rules, we built an opportunity society that produced the greatest middle class in human history; one that became even more successful and more inclusive throughout this last century with the progress of civil rights, women's rights, environmental and worker protection.

I want to say to you today that you are well-equipped for the possibilities of this new era, but we also need new rules for the Information Age to protect those old values, just as we did for the Industrial Age. For all the possibilities must be measured also against the challenges presented by this new era -- challenges to our privacy as individuals, to our pledge of equal opportunity for every member of our community, to our stewardship of the environment as citizens of the planet.

From our earliest days, part of what has made America unique has been our dedication to freedom, and the clear understanding that real freedom requires a certain space of personal privacy.

Today, as information technology opens new worlds of possibilities, it also challenges privacy in ways we might never have imagined just a few years ago. For example, the same genetic code that offers hope for millions can also be used to deny health insurance. The same technology that links distant places can also be used to track our every move on line.

In this Information Age, we can't let new opportunities erode old fundamental rights. We can't let breakthroughs in technology break down walls of privacy. Our response to this challenge will affect the lives of every single member of this graduating class and the lives of your children.

We are working with the Internet industry to raise privacy standards. In the last year alone, the share of commercial websites with privacy policies has risen a lot, and we will do more. But, as my wife has said many times, some of these privacy issues presented by information technology are so sensitive they must have the protection of law.

We have taken steps to protect the privacy of children on-line, preventing websites from collecting information from children without a parent's permission. I proposed the first set of national standards to protect the privacy of on-line medical records, to ensure that your personal health information doesn't fall into the wrong hands. (Applause.) You shouldn't have to worry that your employer is looking at the medications you take or the ailments you have.

Today, I'd like to ask you to think about the challenge to our financial privacy coming out of the Information Revolution. We are moving from cash to electronic transactions. A bank is no longer just a bank, it's often linked with an insurance firm, a broker, a travel agency. All this helps to give us added convenience, lower prices and more choices. But it's also forcing us to redefine financial privacy for the Information Age and to rewrite the rules that go with it.

There was a time when protecting your financial privacy meant safeguarding your passbook. Today a financial record isn't just about what you're worth, it can paint a picture of who you are. Every time you write a check, use an ATM, make a purchase with a credit or debit card, there is a record -- a record that technology can sort and track -- what dish you ordered at a restaurant, what clothes you bought at the mall -- that makes it easier for others to mine all of that information for their own profit.

We've taken some historic steps to stop information about your personal spending habits from being shared without your permission. But even today the law doesn't prevent firms within a financial

conglomerate from sharing information with each other. In other words, the life insurance company could share information about your medical history with the bank without giving you any choice in the matter. The bank could share information from your student loans and your credit cards with its telemarketer, or its broker, again, without giving you any choice. I believe that is wrong. (Applause.)

Today I present a plan to protect the privacy of Americans' financial records. I challenge Congress to act on it this year. Because your information doesn't belong to just anyone; every consumer and every family deserves choices about how their personal information is shared.

First, before you financial information is shared between two affiliated companies, say, a credit card company and an insurance company, you would get notice, and you could say no. Second, for the most sensitive type of information, I think there should be an extra level of protection. As more banks and insurance companies merge, lenders could gain access to private medical information and many insurance records. But no one should have to worry that the results of their latest physical exam will be used to deny them a home mortgage or a credit card. Under my plan, you'd get to say no. (Applause.)

Third, we would add that same safeguard to the information that makes up your personal spending identity, such as the list of every purchase you've ever made by check or debt or credit card, everything you buy. Again, that information could be shared only if you say yes.

And finally, to make sure you have control over the comprehensive records that financial institutions may assemble about you, we'll make sure you have access to those records and the right to correct mistakes in them. We must be able to enjoy the benefits of technology without sacrificing our privacy, to maximize the promise of the Information Age and still protect our individual liberties.

Our national character also requires new rules for the Information Age that recognize opportunity for all, now means access to technology for all. Just as we closed the industrial divide in the 20th century, we must now close the digital divide in the 21st century. (Applause.)

You know, if you're educated for the Information Age, who you are and where you are don't matter as much anymore. I have seen that with people in the poorest villages of the world, logging onto the Internet and getting an education, getting information once available only in textbooks, learning how to take care of their children, learning how to start new businesses.

But if who and where you are don't matter so much, what you know and what you can do matter more than ever. That's why this degree and what you learned here is so important. That's why technology education is so important. Technology in this new era will either erase lines that divide us or widen them. The Internet and computers make it possible for us to lift more people out of poverty faster than at any time in history, but it will not happen by accident. Many of you have learned this lesson in your own lives.

Todd Pasquale, of the College of Arts and Sciences, wasn't going to let anything stop him from earning his degree today -- not even navigating his wheelchair through the Michigan snows. Thanks to EMU On-Line, he took his winter courses at home. Now, he plans to give back to the community by working as a counselor to people in prisons, because he could access technology. Let's give him a hand. (Applause.)

Randy Short went back to school after her husband died, leaving her to raise three sons alone. Today, she earns a Masters degree with honors in website design. She hopes to start her own business and she wants to help teach women to use computers. She has already given those women a lesson for all of us about the value of making sure technology education is accessible to every American. Give her a hand. (Applause.)

Today, I ask all of you to join me in reaching out to all the others across America who need these

tools to build their future. When Vice President Gore and I started hooking up schools to the Internet there were only about 16 percent of our schools who had a connection in 1994; today, 95 percent do. But I was on an Indian reservation in northern New Mexico the other day, introduced by a brilliant young girl of 13 who had just won a computer in a contest, who could not hook it up to the Internet because her home did not have a phone. Seventy percent of the homes on her Navajo reservation did not have a phone. We have to bring telephone service to everybody, and then make the Internet as common as telephone usage is in every home, every business and every school in the United States of America. We owe that to our future. (Applause.)

We must create incentives for America business to invest in people and places in danger of being left behind -- left behind in their economies and their education of their children, in information infrastructure and special technologies for people with special needs. That's what our efforts to build bipartisan support for opening America's new markets and closing the digital divide are all about.

The third thing I want to mention is that the revolution in technology and communications means our lives are bound up more than ever with people far away from us with whom we now are in instant contact. Our community of values and interest spans the globe. Events half a world away can have an impact on us here, just as what we do has an impact on people who live thousands of miles from our borders, in ways large and small. I have a cousin in Arkansas who plays chess once a week on the Internet with a man in Australia. Doubtless, there are many stories like that in this room today.

We need a new level of international cooperation and new rules that deal with the most significant challenge of our common humanity -- the environmental challenge posed by global warming. Scientists tell us -- (applause) -- scientists tell us the temperature is now rising four degrees a century. To anyone who has lived through a Michigan winter, that might not sound so bad. (Laughter.) But the scientists also say that a significant degree of this climate change is due to human activity, specifically to putting more greenhouse gases into the atmosphere, from the burning of coal and oil. And, if it goes unchecked, the consequences will be dramatic -- rising temperatures can melt polar icecaps, which lead to rising oceans that could swallow thousands of miles of our own coastlines and bury island nations.

Changing weather would devastate our farmlands. We would have both more droughts and more violent storms and floods. Hotter weather could both cause more rapid evaporation of inland water systems and a drought which replenishes them less.

Think about the Great Lakes, where water levels are falling faster than ever recorded. They have fallen almost three feet in just two years. They may fall much more in the next 30. That would be a disaster for industry and for all living things dependent upon the lakes. And that is why I've asked Congress to fund our efforts to find out why the water is falling, to restore the Great Lakes waterways, to improve our stewardship of this vital resource. (Applause.)

Now, for most of the 20th century, economic growth did require burning more fossil fuels -- more coal and more oil -- which released the greenhouse gases, caused the pollution and heated the atmosphere. Because of that, many people still believe that we must choose between two vital values -- preserving our environment and making our economy grow. Thankfully, in the digital economy, that is simply not true anymore. It is now possible to grow an economy and improve the environment at the same time. New technologies make it possible to reduce harmful emissions as they make the economy more efficient and stronger.

Scientists right here at EMU are making environmentally friendly paints out of soybeans. Michigan, the home of the automobile, is now the home of cutting-edge research into cars and trucks of the 21st century that will get much higher mileage. And soon, vehicles developed here, in partnership with the federal government, will use alternative and biofuels, which could get the equivalent of 100 miles or more to a gallon of gasoline. (Applause.)

These technologies are good for the planet and good for the bottom line, but we must embrace them. And I say this very seriously: It takes at least 50 years for greenhouse gases emitted into the atmosphere to dissipate. The class -- this class, graduating today, it is your children and your grandchildren that will feel the harshest effects of our neglect in meeting this challenge. But if you don't do it, your children may not be able to do it for you because of the time delay. And it is no good saying that someone else should do it. We are the world's largest emitter of greenhouse gases because we're the richest country; but soon China and India will surpass us. We must show them that they can grow even faster by following a different path, but first we must set a good example.

I have implored the Congress to adopt legislation to increase research and development in this area, and to give significant tax incentives for people to produce products that emit less greenhouse gases and for people to buy them. It is a big challenge for you. You can have all the computers and all the money in the world, and if we squander God's environment, it won't be worth very much. I urge you to meet this challenge. (Applause.)

Let my say in closing I am very optimistic about the new century. It will bring us more advances and answer more questions than any period in human history. We'll be able to store all the information in the Halle Library in a device the size of a sugar cube. We'll have microchips that stimulate the spine in such a way that people now paralyzed will be able to stand up and walk. I believe we will even learn what's in the black holes in the universe. But we must not be so dazzled by the bright promise of technology that we lose sight of the fundamental lesson. We must bring to bear our basic values on each new development in human history in order to assure that it works for the public good, and maintains America's values of liberty and community. That is the noble challenge that you face.

Henry Ford once defined obstacles as those frightful things you see when you take your eyes off the goal. I hope your goal will be a 21st century American community that derives every benefit from technology while holding fast to our oldest values. I hope you will not take your eyes off of it. I hope you will embrace it and work for it. IF you do, you will achieve it. And you will live in history's most exciting, prosperous and humane era. That is what I wish for you.

Congratulations, good luck and Godspeed. (Applause.)

END 2:43 P.M. EDT

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**Potential Deliverables/Talking Points for Eastern Michigan Speech**

Budget

1. $500,000 in USGS 2001 Budget for Great Lakes Initiative (not announced) – details already sent to Heather from Rosina.

2. Lake Ontario – Joint Commission – details already sent to Heather from Rosina.

3. $50 million in EPA 2001 Budget to help restore Great Lakes. Proposed initiative would provide matching grants to state and local governments to clean up contaminated sediments, control stormwater, restore wetlands, acquire greenways and buffers, and control polluted runoff. Funds awarded through a competitive grant process. State and local governments would be required to provide at least 40 percent of the project costs, resulting in a total investment of more than $80 million.

Biomass/Bioenergy – using agricultural and forestry waste products and fast-growing crops for producing fuels, products, and electric power can reduce greenhouse gas emissions and other pollutants, strengthen the farm economy and enhance energy security. The President's Executive Order 13134 aims to triple U.S. use of bioenergy and bioproducts by 2010.

The Michigan Biotechnology Institute (MBI) International is a private, non-profit technology research and business development corporation. They are affiliated with the Michigan State University, and have created 10 new spin-off companies in the state. MBI International receives grants from DOE, USDA and EPA, and develops commercially-viable biobased industrial materials from agricultural feedstocks. For example:

- MBI International has developed a process to capture and utilize two by-products of the ethanol production process -- glucose and CO2 (a greenhouse gas) -- which it uses to produce succinic acid. The succinic acid is then used to produce a biobased polymer that is a plastic stronger than steel. (DOE grant used to develop this process). The process helps to make the production of ethanol a more viable process.

- Michigan State University and MBI, International in Lansing are conducting regional testing of fast-growing species of poplar trees and switchgrass which can be harvested and used to produce fuels, products and electric power.

- The two institutions are also developing new processes to convert agricultural commodities such as corn and hay into valuable chemicals, plastics and fuels. One process that Michigan State and MBI, International are developing may help make it possible to produce fuel ethanol very inexpensively from grasses, hays and crop wastes.

Additionally, MBI International has developed a bioremediation technology to clean up PCB's in sediments, and has a field trial underway in Michigan.

*(Note that the Appropriations Conference Report has $3 million earmarked for MBI, Inc., with Senator Daschle one of the strong supporters. Secretary Richardson had put a hold on all earmarked funds, which has very recently been released. The funds do not appear to be "announceable" though as Hill language requires that the Hill must approve the spending plan in advance of any release of funds, which has not yet been moved to the Hill for approval).*

A leading Michigan company, Dow Chemical, in collaboration with Cargill, Inc. of Minnesota, is building a new $300 million dollar facility to produce versatile, high performance, biodegradable plastics from corn starch.

Detroit Edison owns a biomass energy company which uses landfill gas to generate electricity (20 plants in 14 states).

DOE is partnering with Central Michigan University in Mount Pleasant, MI to research using residues from sugar beet processing for conversion to ethanol.

Michigan Green Technology Businesses/Exports

[Call/email in to Allan Bowser at DOC]

Photovoltaics -- There are several innovative solar energy companies in Michigan. Energy Conversion Devices (ECD) and United Solar Systems Corporation (USSC) (Troy, MI) make innovative thin film solar cells that can be layered onto sheet metal or even embedded on roofing shingles for use producing electricity. ECD/USSC announced an $84 million strategic alliance with N.V. Baekert S.A. of Belgium on April 4th to build a new solar cell manufacturing plant with an annual capacity of 25 million watts. ECD/USSC produced an estimated 3 million watts of solar cells in 1999, and much of their product is exported. The President's proposed International Clean Energy Initiative will help support exports of solar cells to developing and transition countries, supporting technology development, opening markets, and assisting exports.

Solar Thermal -- STM Corporation (Ann Arbor) is developing 25 kWatt parabolic dish-stirling engine systems (the parabolic dish concentrates sunlight on a small area to heat a fluid to high temperatures which then expands and drives an engine connected to a generator) for distributed power applications. The dish/stirling system is designed to run on solar energy during the day and on landfill gas at night.

Natural Gas -- CMS Energy, Dearborn, is developing a 660 MW generating plant in Ghana using two oil fired turbines which are convertible to natural gas. USAID is assisting the Chevron consortium construction of a natural gas pipeline in West Africa. This pipeline will enable productive use of natural gas, including much of that which is currently flared into the atmosphere because there is no means of getting it to potential customers. When this pipeline infrastructure is built, it will allow use of gas at the CMS Energy site, reducing the flaring of gas and the emission of greenhouse gases, and it will save the oil for higher-value uses such as transport. The President's International Clean Energy Initiative will develop clean energy technologies, open international energy technology markets, and help support exports for companies such as CSM.

Green Power

Traverse City Light & Power was the first utility in US to offer green pricing option to support the use of renewables to generate electricity. Wind turbines up and running since at least 1996 – concept introduced to customers before that (still checking on year). Customers pay a premium to purchase 100% of their power from wind turbines – there have been customers on wait list for this program since it began.

In January 1999, Great Lakes Energy Cooperative, which serves more than 100,000 customers in 24 counties in Michigan, announced that it was studying a proposal to construct a single, large wind turbine in northern Michigan, similar to the project developed by Traverse City Light and Power in 1996.

Detroit Edison (DTE) has been an active participant in the Administration's Climate Challenge program to voluntarily reduce, avoid, or sequester ghg emissions. The company posts a summary of its ghg reduction activities on its web site; the public can see how the company's actions have increased over time.

In 1996, DTE became the first utility in the nation to provide customers with solar power through its grid from a central facility. Residential customers agree to pay an small additional charge to have solar power supply part of their electricity needs. Detroit Edison, the Utility Photovoltaic Group, and the Department of Energy have joined in an effort to encourage new solar energy systems and help commercialize the use of solar electricity by US utilities. They also sponsor "SolarSchools" where commercial businesses sponsor solar energy service and educational curriculums at local elementary schools – and they are expanding this program into other states.

DTE founded Plug Power as a joint venture in 1997 to develop and test proton exchange membrane fuel cells. Fuel cells are energy machines for homes that increase efficiency and reliability, and are virtually pollution-free – and provide a home's complete electricity. Plug Power's mission is to make and sell one million systems – in the US and worldwide.

DTE is a strong supporter of distributed generation technologies: renewables, fuel cells, microturbines, etc, that put small electrical generators at sites where the power is most needed. This helps the environment, but also strengthens the reliability of the electric grid.

DTE is also investing in highly efficient superconductor technology. A superconducting power cable will supply electricity to a Detroit downtown area scheduled for redevelopment in a partnership between DOE, Detroit Edison, Pirelli Cables, Los Alamos, and Electric Power Research Institute. Such cables can carry 3 to 5 times the power of same-sized conventional cables, without energy losses due to electric resistance. Cable installation is planned for 2000.

The Michigan Public Service Commission has a regulatory partnership with the Georgian (the country in the NIS) Energy Regulatory Commission. [trying to find out details]

PNGV

[Randy checking]

21st Century Truck Initiative – see paper released last week in connection w/VP announcement.

Michigan Voluntary Program Partners

Eastern Michigan University is a partner in EPA's Green Lights program (not ENERGY STAR Buildings)

AF Smith Electric, in Ypsilanti, is and EPA/DOE Energy Star Buildings participant (super energy-efficient buildings qualify for the Energy Star Buildings Label)

Recycling -- For the first Earth Day in 1970, volunteers from Washtenaw County helped form the Ecology Center of Ann Arbor and its first program, "Recycle Ann Arbor." Recycle Ann Arbor began residential curbside collection in 1977. It is still going strong today due to the efforts of the people of this community. Ann Arbor now has a waste diversion rate of around 50 percent, one of the highest in the nation. Ypsilanti and the rest of Washtenaw County have bold plans to increase their overall rates to 42% in five years and 52% in ten years. Recycling reduces carbon dioxide emissions in two main ways: 1) by diverting waste from incinerators, and 2) because products made from recycled materials use less energy to manufacture. **It is estimated that in 1998 alone, the waste reduction and recycling efforts in Ann Arbor and Ypsilanti prevented the emission of as much as 38,000 metric tons of carbon dioxide. This savings offset the emissions of around 19,000 offset the emissions of around 19,000 average American households.**

Export Credit

[David G.]

Michigan Specific Science Factoids

1. Over the next 40 years, global warming is projected to cause Great Lake water levels to drop 2 to 5 feet below average levels. Details already sent to Heather from Rosina.

Rosina M. Bierbaum 04/27/2000 12:01:30

Record Type: Record

To: John D. Gibson/WHCCTF/EOP@EOP, Paul Bledsoe/WHCCTF/EOP@EOP

cc: Heather F. Hurlburt/WHO/EOP@EOP
Subject: Contribution on Great Lakes for POTUS Speech in Michigan on 4/30

Here's our contribution to the speech--it ties the current water level drops to future climate changes and describes the 3 programs. Let me or Mark Anderson or Ted Parson know if you need more--we're all at 6-6202. Thanks, Rosina

---------- Forwarded by Rosina M. Bierbaum/OSTP/EOP on 04/27/2000 12:02 PM----------

Mark T. Anderson
04/27/2000 11:48:28 AM

Record Type: Record

To: Rosina M. Bierbaum/OSTP/EOP@EOP

cc: Edward A. Parson/OSTP/EOP@EOP, Mark T. Anderson/OSTP/EOP@EOP
Subject: Contribution on Great Lakes for POTUS Speech in Michigan on 4/30

**Suggested text:**

Michigan, the United States and Canada are blessed with a premier natural treasure-- The Great Lakes. We can celebrate the progress we have made working with our Canadian partners and local governments to clean up the Lakes by reducing contamination and restoring fish populations. As an example, I understand that trophy-sized coho salmon are now being caught in surprising numbers.

But now the Lakes are facing a new peril. As you know, water levels have declined rapidly over the last 3 years, setting record lows for the last 35 years. I'm told that we may see levels in Lakes Michigan and Huron later this year that we have never seen since we started measurements in 1860. These low levels have resulted from lower precipitation and higher average air temperatures that have kept the Lakes from freezing over in the winter. Without ice cover, the Lakes lose water to evaporation all year long.

Although we cannot attribute today's low levels solely to the effects of global climate change, we can, however, get an appreciation of what the future might hold. Water level declines of 1 to 6 feet for the Great Lakes are projected by climate change models to occur within the next three decades.

Low water in the Great Lakes will bring diverse impacts to Michigan and the upper Midwest. some of which we have begun to experience this year:

- Loss of harbors, docks, ramps, and boat slips;
- Light loading of commercial lake shipping, by 4% on average, in order to reduce drafts;
- Cancellation of two island ferry services in northern Michigan, because of insufficient depth in harbor entrances;

- A surge in dredging. Permit applications increased 30% in 1999, 40% in the first three months of 2000 – carrying both high financial cost, and significant environmental costs from raising contaminated sediments.

The importance of the Great Lakes to Michigan and the economy of this region is clear. To assist this Michigan and this region, I have requested funding from Congress for 3 new programs in fiscal year 2001.

I have asked the US Geological Survey to begin a Great Lakes Initiative this October. This Initiative will begin to define the linkage between Lake Michigan's watershed and changes within the lake itself. ($0.5 million)

I've requested $2.15 million for the International Joint Commission, which will be matched by the Canadians , for a Study of the Lake Ontario/ St. Lawrence River. This project will review and examine the regulation of Lake Ontario outflows, including the impacts of lower lake levels that are expected as climate changes.

These two programs are in addition to the $50 million , announced by Vice-President Gore in January, to help Great Lakes Communities restore the beauty and livability of these national treasures. These funds will be awarded by the Environmental Protection Agency for projects to restore and protect the 43 identified "areas of concern". State or local governments will provide at least a 40% match, resulting in a total investment of $80 million.

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[Note: I was contacted by an International Joint Commission member (Jerry Galloway) who expressed concern about whether the POTUS would say anything about selling Great Lakes water. Apparently the VPOTUS was in the area and made a strong statement that freshwater from the Great Lakes would not be allowed to be exported.

Note: Low water levels in the three Central Great Lakes – Michigan, Huron, and Erie – have attracted widespread news coverage over the past two weeks. Stories have appeared in the Detroit Free Press (April 6 and 11), the Chicago Tribune (April 9), the Washington Post (April 3), USA Today (April 24), and many regional papers.

Rosina M. Bierbaum 04/25/2000 06:06:20

Record Type: Record

To: Paul Bledsoe/WHCCTF/EOP@EOP

cc:

Subject: President's request for funding of Great Lakes Study

The President has requested in his FY01 budget, $2.15 million for the International Joint Commission (IJC) to review the regulation of water levels and outflows in Lake Ontario and the St. Lawrence River. The Plan of Study will examine in detail the alternatives for managment including the impacts of climate change. FY01 is the first year of a 5 year, $10.1 million dollar study.

**gf@ebiusa.com (Grant Ferrier)**
04/26/2000 07:36:27 PM

Record Type: Record

To: Paul Bledsoe/WHCCTF/EOP

cc:
Subject: EBJ interview

---

Paul,

confirm for Tuesday May 2 at 3 pm EDT

adapt Qs as you see fit for jeff or
ask where you want more specificity...

Grant

TO: Paul Bledsoe for Jeff Seabright
FROM: Lyn Thwaites of EBJ

Below is our working list of questions for our requested interview with Mr. Seabright. Please let me know an appropriate time.
619-295-7685 ext.11

Climate Change Issue Questions:

1. Realistically what policies do you see coming out for climate change (CC) policy and when....
Will these be global, regional, national, developed vs. developing nations?

characterize how opinion in the following communities have evolved in the past 5-10 years:
scientific
governments (nations & regional variance as well)
business
NGOs
the public

2. Describe the following and their implications:
tradeable emissions credits
joint implementation
clean development mechanism
emissions quotas & limits with reg. enforcement
voluntary standards
any other mechanisms under discussion?

Give some examples of how you see these working...

3. How large an issue will climate change be for business in this decade? What do you think the

significant economic impacts will be and when will they be felt... and by who:

oil companies
car companies
consumer good manufacturers
federal government
city governments
environmental companies (consultants and equip vendors and tech developers)
the people

4. What business opportunities do you see arising from CC policy

renewable energy
banking/trading credits
carbon sequestration or other financial plays
CDM investments
energy efficient devices/process engineering
demand side mgmt for utilities/end-users
broader power mgmt (integrated generation, trans, retail)
investor opportunities?
other?

5. explain how technology development pertaining to CC could be a major factor in determining international economic and technology competitiveness for years to come

6. what effect will election 2000 have on CC issues for govt & biz...

7. what are obstacles to CC policy development
dev'd vs. dev'g nations
euro gov'ts & US ind... euro ind & US gov't?
financial hurdles by generators on costs
entrenched interests

will policy be implemented & enforced by a global entity? UN etc.?
or will business play a larger role...

how is CC effecting planning for new power generation assets already (US and Intl) and how quickly is and will this change?

1. How much of your sales are environmental; and which sectors are they in? What are your products/services? What percentage of environmental sales are exports? What is typical product of project size?

Recent growth of environmental sales and exports in 1999, 1998, etc.? Any remarkable sales trends, up or down in product or a region, or holding steady in changing market?

How much detailed percentage breakdown of sales/profits/growth information can you give: Specific country or regional breakdowns?

2. Which regions are you concentrating marketing on? Are general economic conditions a strong influence, or is the market for your company more insulated?
Which regions are most promising--and which might become discouraging?
How can you tell when it would be wise to invest--or disinvest? What sort of time-frame do you consider for foreign investment decisions? (longer than domestic business development efforts?)

3. Are your foreign markets driven more by regulation or by economics? does this vary by segment (water vs. air vs. clean-up etc.)

Is the battle between industry and environmental imperatives moving in any particular direction in different parts of the world?

4. Any switches in the organization of your company for global activities? Reasons for the changes, if any? How important is it to establish localized subsidiaries? Or joint ventures, or partnerships?

How important is it to have centralized or decentralized management across the globe? Has there been any changes in efficiency due to communications, data sharing or other improvements?
What about e-commerce... Can engineers/designers work on projects stateside or anywhere and limit the need to move people?

5. Are there any particular regional or global developments to remark upon? Which environmental drivers are most sensitive to local economic conditions? Is it useful to try to 'sell the case' for environmental technology in regions that may not have been receptive before?

6. What difficulties do you have penetrating foreign markets? Protectionism, import restrictions, need to partner with local firm? How about competing with other foreign firms in certain countries?
Are alien business practices confounding to your expansion?

7. How many government hurdles to jump for establishing in foreign markets? Ownership problems?
The hiring of local talent--technicians and/or labor?
Does the ease of global capital transfers affect your ability to conduct business? Are there any restrictions on repatriation of profits or investments? Any problems with currency translation, and hedging exposure--or are contracts in US$?

8. Are customer types changing? Can you give a customer breakdown by percentage, and comment on significant individual customers? which of these "funders" provides most business in which countries?
Customer categories: Municipalities, state governments, fed'l/natl govts, multinational firms, local industry, international agencies, subcontractor/partner for other firm, others?

9. Does the size of your firm present any problems in expanding overseas, or retaining the business that you have established there?

Do some countries or regions require a captial or size threshold to conduct business. Are there cases where smaller firms have an advantage?

For equipment: do you use a distributor or local rep?

10. How did you get into iinternational business in the first place? And how did you decide which areas to concentrate on, and which to avoid? And was this decision based on the perceptions about specific markets in specific countries?

Is there less price pressure or sensitivity abroad than at home just now?

Does privatization have a big effect on your outlook? Are privatized firms less or more interested in buying your products or services?

11. Could you comment on the the competition? Generally, on the Germans, French, British, Canadians, Dutch, etc. and specifically on individual firms.

12. What US government programs can help US environmental companies be more successful in exporting and overseas business...
will a stronger private/public partnership approach work?...
or what does it really take for a global environmental firm to be successful.

Please feel free to elaborate on these questions. They are meant to give rise to particularly noteworthy commentary about your company. As much detail as possible on breakdown figures for regions and customers would be greatly appreciated.

Vera, Thanks for the response.
Below is a longish shopping list of questions for Sam....
not too imposing of course.... we may add some more
about remediation or govt programs as well...

Please review and repond... either by rattling off some
answers to the easy ones... which we can turn into a
Q&A format... or we can set up an interview with me
or Lyn here at some point.

Questions for EBJ's executive Q&A

Your company

1. What has been the general direction of your business and your overall strategy the past couple years: Growth, consolidation/integration, globalization, focus on earnings, etc.

2. With the future of traditional environmental market drivers in question, how are you positioning your company for the future?
Do you still consider and position yourself as an environmental firm or have you found a preferable tag?
What environmental drivers are strongest now... liability, property values, compliance, etc.
How do you deal with the issue of sustainability or resource productivity? Are any customers buying services driven by the pursuit of sustainability? Who, where and why?
How can you use ISO 14000 and other non-reg or quasi-reg initiatives to drive investment in environmental improvement?

3. What are total revenues in the past couple years; and how does your business break down by:
customer (private vs. public; utilities, chemical, petroleum, government, etc.)
by service type (assessments, design, construction, info systems, SEM, P2, etc.)
by media type (haz waste mgmt, remediation, water, wastewater, air, etc)
international vs. domestic (which countries and where is growth and why?)

4. Where do you see growth opportunities in the short term... in the long term in these areas.

5. What is your company's revenue mix in private vs. public sector now?
What is your target for this in the long term and how do you get there?

6. What new areas are you looking at for developing business practice areas?

7. How are the traditional environmental C&E firms evolving into more integrated services providers and how has your company approached this? i.e. getting into recurring revenue streams not event business, outsourcing, novel
contract mechanisms with shared risk, etc.

8. What are other potential areas for diversification?
Are there real opportunities in outsourcing EH&S functions for private companies?
What about wastewater?
What about municipalities and privatization?
What about informations systems and e-commerce?

9. What new large contracts of note has your company been involved in the past two years?

10. What percentage of your total business is outside the United States now?
What is your international strategy or in what areas do you seek to expand, regionally and technically and with what customers?
How can we work better with the US government to enhance competitiveness of U.S. companies in overseas markets?

11. What is the overall size and growth goals in your strategic plan.
What growth do you forecast?
for your company... for the environmental C&E industry?

Owner transitions, Consolidation and M&As

12. How many acquisitions have you done in the past year; 3 years; 5 years?
How much added revenue does this represent?

13. What has been the major objective behind your M&A approach?
diversification of service/product; diversification of customer base;
revenue growth or marketshare; geographic expansion; scale efficiencies
buying distressed companies

14. Has acquisition activity increased in your segment? has it peaked? will it increase?
are there enough companies left of significant size to acquire?

15. What is driving consolidation?
are owners liquidating? or getting out of the business?
tough market conditions driving out smaller cos?
big companies on the prowl with cash/equity?
financial issues of public market multiples or economies of scale?

16. How have valuations changed over time? when did they peak? are they at bottom?
What ratios or multipliers do you typically see in your segment (deal price/annual sales, EBIT ratios, ROI or IRR targets for the buyer, etc.) Do you use cash or equity?

17. How did you identify the company? How long was the process to a deal? Why did they sell? Why did you buy? What are synergies?(details on transaction and company in question if possible).

18. How do you deal with integration? How long does it typically take? How do you approach cross-selling opportunities?

19. Any lessons learned from previous deals? on: valuations? structure? incentives?

20. What is the ownership of your company (internal vs. public float)? Has it changed over time?

21. With the big M&As in the segment, do you believe the market will evolve into 5 or 6 C&E companies in $1- $2 billion range and many small firms? What's another scenario?

---

Grant Ferrier
President & CEO, Environmental Business International Inc.
Editor, Environmental Business Journal
Editor, Nutrition Business Journal
Chairman, Environmental Industry Coalition of the United States
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http://www.nutritionbusiness.com

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[date]

**MEMORANDUM FOR**
**THE SECRETARY OF COMMERCE**
**THE SECRETARY OF ENERGY**
**THE SECRETARY OF STATE**
**THE SECRETARY OF TREASURY**
**THE UNITED STATES TRADE REPRESENTATIVE**
**THE ADMINISTRATOR OF THE ENVIRONMENTAL PROTECTION AGENCY**
**THE ADMINISTRATOR OF THE AGENCY FOR INTERNATIONAL DEVELOPMENT**
**THE DIRECTOR OF THE TRADE AND DEVELOPMENT AGENCY**
**THE PRESIDENT OF THE OVERSEAS PRIVATE INVESTMENT CORPORATION**
**THE PRESIDENT OF THE EXPORT-IMPORT BANK**
**THE DIRECTOR OF THE OFFICE OF MANAGEMENT AND BUDGET**
**THE DIRECTOR OF THE OFFICE OF SCIENCE AND TECHNOLOGY POLICY**

**SUBJECT: Promoting Clean Energy Technologies in Developing Countries**

Energy use by developing countries is expected to double between 1990 and 2020, and almost quadruple by 2050, accounting for three-fourths or more of the increase in global energy use by 2050. Advanced, efficient, and low-polluting energy technologies can provide the energy services needed in developing countries over the next half-century, sharply reducing emissions of both air pollutants and greenhouse gases. At the same time, these markets offer important opportunities to create new export revenue streams for U.S. companies and high-value U.S. jobs.

Accordingly, it shall be the goal of the United States Government to:

- Coordinate, simplify, and streamline Federal government programs and policies that assist U.S. companies and institutions that seek to export clean energy technologies and services to developing and transition countries, invest in clean energy projects in such countries, and develop markets in such countries for clean energy technologies and services;

- Pursue policies and programs which will result in the doubling of U.S. exports of and investments in clean energy technologies and services to developing and transition countries from the current level of $5 billion to $10 billion by 2005; and,

Consistent with these goals, I hereby direct as follows:

1. There is established a Clean Energy Technology and Trade Working Group (the "Working Group") of the Trade Promotion Coordination Committee (TPCC). The Working Group shall consist of designees of the Secretaries of Commerce and Energy, the Administrator of the Environmental Protection Agency, the Agency for International Development, the Director of the Trade and Development Agency, the Director of the Office of Science and Technology Policy, and of the Presidents of the Overseas Private Investment Corporation and the Export-Import Bank, and of the heads of other relevant agencies as may be appropriate to

further the goals and policies of this memorandum. Designees shall be senior officials who report directly to the agency head (Assistant Secretaries or their equivalent).

(a) The Working Group shall report directly to the Secretary of Commerce, the Secretary of Energy, and the Administrator of the Agency for International Development who, collectively, shall be responsible for oversight of the Working Group.

(b) The Working Group shall prepare annually a report detailing progress towards the goals set forth in this memorandum and outlining the means by which agencies represented in the Working Group will coordinate their policies, programs, and budgets over the coming year to best pursue the policies and goals set forth herein. This report shall be referenced as an element of the annual report on the National Export Strategy prepared by the TPCC and submitted to Congress pursuant to 15 U.S.C. 4727(f) as amended by P.L. 106-158, sec. 7. The Working Group shall also contribute to the annual TPCC budget recommendations memorandum submitted to the Office of Management and Budget.

(c) The Working Group shall serve as the primary coordinating forum for relevant federal programs and activities on international clean energy technology promotion and trade, as well as federal research and development efforts specifically supporting such promotion and trade, with a view towards ensuring that federal efforts in each of these areas are consistent and mutually supportive. Accordingly, the Working Group shall also incorporate the work of the National Science and Technology Council Working Group on International Energy established by my memorandum of September 15, 1999 to make recommendations on implementation of the report of the President's Committee of Advisers on Science & Technology (PCAST), *Powerful Partnerships: The Federal Role in International Cooperation on Energy Innovation.*

2. The Working Group shall, within 120 days of this memorandum, prepare a strategic plan outlining and assessing options for better coordinating their respective agency programs and policies to best fulfill the policies and the goals set forth in this memorandum. This plan shall serve as the basis for the first annual report discussed above.

   In preparing this strategic plan, the Working Group shall:

   (a) identify key energy technology markets in developing and transition countries for clean energy technologies building on market studies already completed by existing groups, such as the Environmental Trade Working Group of the TPCC. The plan will focus on countries and regions that offer significant opportunities for clean energy technologies, have attractive investment environments, and span the world's regions and peoples, including, but not limited to, energy markets in Brazil, China, India, Indonesia, Mexico, and South Africa;

   (b) identify and implement ways to simplify and streamline relevant agency programs and policies that assist U.S. companies and institutions seeking to: engage in the export of clean energy technologies and services to developing and transition

countries; invest in clean energy projects in such; and/or, stimulate the development of markets in such countries for clean energy technologies and services. The Working Group should explore all reasonable means to ease the use of these programs by prospective clients and stakeholders, including, but not limited to:

(1) establishing a Global Clean Energy Partnership Program to which the relevant agencies would provide resources on a best-efforts basis from within existing appropriations ceilings and planning levels and which would serve as a single point of entry to relevant programs for prospective clients and stakeholders;

(2) developing and employing innovative information technologies, Internet resources, and other "virtual" management and coordination tools to better serve those in the private sector seeking information and assistance and fostering the creation of networks among stakeholders;

(3) facilitating market-based approaches to the transfer of environmentally sound, cost-effective and commercially practicable technologies, practices, and processes that avoid, control, reduce, or sequester anthropogenic emissions of greenhouse gases to developing countries and economies in transition who are Parties to the United Nations Framework Convention on Climate Change.

(c) seek to ensure that the energy technology research and development programs of agencies represented in the Working Group are focused to meet the actual needs of emerging energy markets in developing and transition countries and are coordinated with the policy goals of agency trade and investment promotion programs with respect to such markets;

(d) consider and make recommendations for modifying existing, relevant agency programs in fiscal year 2002;

(e) consider and make recommendations for legislation for modifying these programs or creating new programs and authorities, if needed;

(f) work closely with the Departments of State and Treasury to assess options for engaging broadly with export credit agencies, multilateral development banks and various UN and other international institutions that play key roles in global energy markets to encourage the goals set forth here.

3. The Secretary of Commerce shall work to ensure that the Environmental Technologies Trade Advisory Committee, established under the authority of the Federal Advisory Committee Act, 5 U.S.C. App. 2, provides the Working Group with such information and advice as the Working Group deems useful and necessary in furthering the policies and goals set forth in this memorandum.

WILLIAM J. CLINTON

# # #

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[date]

**MEMORANDUM FOR**
**THE SECRETARY OF COMMERCE**
**THE SECRETARY OF ENERGY**
**THE SECRETARY OF STATE**
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(b) The Working Group shall prepare annually a report detailing progress towards the goals set forth in this memorandum and outlining the means by which agencies represented in the Working Group will coordinate their policies, programs, and budgets over the coming year to best pursue the policies and goals set forth herein. This report shall be referenced as an element of the annual report on the National Export Strategy prepared by the TPCC and submitted to Congress pursuant to 15 U.S.C. 4727(f) as amended by P.L. 106-158, sec. 7. The Working Group shall also contribute to the annual TPCC budget recommendations memorandum submitted to the Office of Management and Budget.

(c) The Working Group shall serve as the primary coordinating forum for relevant federal programs and activities on international clean energy technology promotion and trade, as well as federal research and development efforts specifically supporting such promotion and trade, with a view towards ensuring that federal efforts in each of these areas are consistent and mutually supportive. Accordingly, the Working Group shall also incorporate the work of the National Science and Technology Council Working Group on International Energy established by my memorandum of September 15, 1999 to make recommendations on implementation of the report of the President's Committee of Advisers on Science & Technology (PCAST), *Powerful Partnerships: The Federal Role in International Cooperation on Energy Innovation.*

2. The Working Group shall, within 120 days of this memorandum, prepare a strategic plan outlining and assessing options for better coordinating their respective agency programs and policies to best fulfill the policies and the goals set forth in this memorandum. This plan shall serve as the basis for the first annual report discussed above.

   In preparing this strategic plan, the Working Group shall:

   (a) identify key energy technology markets in developing and transition countries for clean energy technologies building on market studies already completed by existing groups, such as the Environmental Trade Working Group of the TPCC. The plan will focus on countries and regions that offer significant opportunities for clean energy technologies, have attractive investment environments, and span the world's regions and peoples, including, but not limited to, energy markets in Brazil, China, India, Indonesia, Mexico, and South Africa;

   (b) identify and implement ways to simplify and streamline relevant agency programs and policies that assist U.S. companies and institutions seeking to: engage in the export of clean energy technologies and services to developing and transition

countries; invest in clean energy projects in such; and/or, stimulate the development of markets in such countries for clean energy technologies and services. The Working Group should explore all reasonable means to ease the use of these programs by prospective clients and stakeholders, including, but not limited to:

(1) establishing a Global Clean Energy Partnership Program to which the relevant agencies would provide resources on a best-efforts basis from within existing appropriations ceilings and planning levels and which would serve as a single point of entry to relevant programs for prospective clients and stakeholders;

(2) developing and employing innovative information technologies, Internet resources, and other "virtual" management and coordination tools to better serve those in the private sector seeking information and assistance and fostering the creation of networks among stakeholders;

(3) facilitating market-based approaches to the transfer of environmentally sound, cost-effective and commercially practicable technologies, practices, and processes that avoid, control, reduce, or sequester anthropogenic emissions of greenhouse gases to developing countries and economies in transition who are Parties to the United Nations Framework Convention on Climate Change.

(c) seek to ensure that the energy technology research and development programs of agencies represented in the Working Group are focused to meet the actual needs of emerging energy markets in developing and transition countries and are coordinated with the policy goals of agency trade and investment promotion programs with respect to such markets;

(d) consider and make recommendations for modifying existing, relevant agency programs in fiscal year 2002;

(e) consider and make recommendations for legislation for modifying these programs or creating new programs and authorities, if needed;

(f) work closely with the Departments of State and Treasury to assess options for engaging broadly with export credit agencies, multilateral development banks and various UN and other international institutions that play key roles in global energy markets to encourage the goals set forth here.

3. The Secretary of Commerce shall work to ensure that the Environmental Technologies Trade Advisory Committee, established under the authority of the Federal Advisory Committee Act, 5 U.S.C. App. 2, provides the Working Group with such information and advice as the Working Group deems useful and necessary in furthering the policies and goals set forth in this memorandum.

WILLIAM J. CLINTON

# # #

Paul Bledsoe
04/25/2000 06:17:32 PM

Record Type: Record

To: Heather F. Hurlburt/WHO/EOP@EOP, Roger S. Ballentine/WHO/EOP@EOP

cc:
Subject: President's request for funding of Great Lakes Study

See attached. My understanding from OSTP is that this has not been previously announced. We are checking to make sure that is accurate.

---------- Forwarded by Paul Bledsoe/WHCCTF/EOP on 04/25/2000 06:14 PM----------

Rosina M. Bierbaum 04/25/2000 06:06:20

Record Type: Record

To: Paul Bledsoe/WHCCTF/EOP@EOP

cc:
Subject: President's request for funding of Great Lakes Study

The President has requested in his FY01 budget, $2.15 million for the International Joint Commission (IJC) to review the regulation of water levels and outflows in Lake Ontario and the St. Lawrence River. The Plan of Study will examine in detail the alternatives for managment including the impacts of climate change. FY01 is the first year of a 5 year, $10.1 million dollar study.

Paul Bledsoe
04/25/2000 03:11:27 PM

Record Type: Record

To: Heather F. Hurlburt/WHO/EOP@EOP

cc:
Subject: E. Mich Speech

Heather-- Still filling in these blanks (numbers below). Will send all I have by 3:25, especially on clean energy export per Roger's note from the President.
Heather Hurlburt from Speechwriting called to say she's writing a Commencement Speech the President will deliver this Sunday at Eastern Michigan University. The basic theme is science and technology. Right now there is no deliverable for the speech--to keep the environment/climate piece in they are looking for one. Heather wants to include a section on climate change and asked us for input,. Heather has a 3:30 meeting at speechwriting where she has to defend having climate change in the speech and a 6:30 meeting tonight with the President.
I suggest considering the following themes/deliverable:

1. Great Lakes water level drop and connection to global warming (I have a call into Rosina on this). Could we have some special POTUS order on this?

2. Big Idea tied to specific local clean technology firm(s). Best case scenario would be to find one that is or wants to export abroad. International Clean Energy EM (in OMB clearance right now) could be specific tangible deliverable. Would also tie in labor theme -- exporting high technology as a way to creat new high-paying U.S. jobs.

3. Amplify VP's trucks event -- looking to Detroit to lead the way in developing new technologies that can solve environmental problems and promote economic growth.

Paul Bledsoe
04/25/2000 04:59:41 PM

Record Type: Record

To: Roger S. Ballentine/WHO/EOP@EOP

cc: See the distribution list at the bottom of this message
Subject: Deliverable for Michigan: Executive Memorandum on Int'l Clean Energy

Int'lClean.Energy.ExecMemo.d Heather--Roger's right. I didn't mean to overlook the Executive Memorandum (mentioned in my first email) on International Clean Energy which the President could announce in Michigan. The following is a description of the International Clean Energy Initiative and the Executive Memorandum:

To accelerate the development and deployment of clean energy technologies around the world, the President's 2001 Budget request includes $200 million for the International Clean Energy Initiative -- multi-agency effort to encourage open competitive markets and remove market barriers to clean energy technologies in developing and transition countries and to provide new incentives for clean energy technology innovation and export. This initiative will promote U.S. exports, --the worldwide market is estimated at $5 trillion in the next 20 years--create high-value jobs, and will assist countries to power their economic development while fighting air pollution and climate change.

The proposed International Clean Energy Executive Memorandum (attached) follows through on the management side of this initiative. It will consolidate Executive Branch efforts to promote and assist clean energy exports to developing countries. It will:

-- set up an interagency working group to formulate a strategic plan for promoting such exports;
-- create a "one-stop shop" where companies seeking to engage in such exports can go to get information on all the different federal programs that might be able to assist them;
-- coordinate federal R&D efforts on clean energy technologies with federal efforts to promote their export (ensuring that there is a good match between the two);
-- focus our export strategy with respect to these technologies on big markets (such as Brazil, India, China, Indonesia) where there are big opportunities both for American businesses and for environmental gain.

Message Copied To:

Eastern Media

Speech.

David Gardiner
04/25/2000 02:05:10 PM

Record Type: Record

To: Paul Bledsoe/WHCCTF/EOP@EOP

cc:
Subject: Re: Great Lakes water levels

---------- Forwarded by David Gardiner/CEQ/EOP on 04/25/2000 02:05 PM----------

Rosina M. Bierbaum 04/05/2000 11:46:26

Record Type: Record

To: David Gardiner/CEQ/EOP@EOP

cc: Paul Bledsoe/WHCCTF/EOP@EOP
Subject: Re: Great Lakes water levels

Hi--The story discusses consequences of the present low-water levels in the Great Lakes -- which are 8 to 18 inches below long-term monthly mean levels, but have dropped rapidly from historic highs over the past few years -- more than 3 feet since 1997. The lake levels show lots of historical variability, so this isn't a strong global-warming signal, but the impacts are good illustrations of potential future impacts from more sustained drops. The Great Lakes region hasn't published their background report of our assessment yet, but the lead is Peter Sousounis, U Michigan at (734) 936-0488. E-mail is sousou@umich.edu
Reporter can CERTAINLY call him.

My best guess is that the Great Lakes assessment section of our report will likely projects future declines in mean lake levels, by a bit less than 1 foot over the 21st Century (based on the Hadley model), potentially up to 4-5 feet (as forecast by the Canadian model). Thanks, Rosina

Paul Bledsoe
04/25/2000 04:04:39 PM

Record Type: Record

To: Heather F. Hurlburt/WHO/EOP@EOP

cc:
Subject: Climate Section in POTUS Commencement Speech in Michigan Sunday

Rosina said they are tracking down a $10 million announcement POTUS may be able to make re Great Lakes research into the problems. Will get back to us by 4:30 with details.
---------- Forwarded by Paul Bledsoe/WHCCTF/EOP on 04/25/2000 04:00 PM----------

Rosina M. Bierbaum 04/25/2000 03:07:34

Record Type: Record

To: Paul Bledsoe/WHCCTF/EOP@EOP

cc: Roger S. Ballentine/WHO/EOP@EOP, Angela C. Mizeur/WHO/EOP@EOP, Jefferson B. Seabright/WHCCTF/EOP@EOP
Subject: Climate Section in POTUS Commencement Speech in Michigan Sunday

We can definitely highlight Great Lakes and climate. I will also bet I can come up with a biomass or trucks tech angle too with new money. But, given Heather's time, here's our first offering.

**Proposed Addition to the President's Speech in Michigan:**

For the past two years, the water level of the central Great Lakes (Huron, Michigan, and Erie) has been dropping rapidly – faster than at any time since we began measuring them nearly 150 years ago. They now stand nearly two feet below average, bringing widespread hardships to lakeshore communities, to shipping, and to businesses that depend on tourism. But these losses look small compared to what is projected for the next few decades under global climate change, when the lakes could fall as much as six feet over the next 30 years. *(We are trying to see if any USGS or NOAA monies can be "announced" related to this problem..I think we can turn up something related cuz there are monies to be used jointly between Canada and the US on Great Lakes issues for sure, and USGS had a Great Lakes Science initiative that I hope is in our 2001 budget,,,,checking now..*Rosina
**********

**Elaboration for the above 3 sentences:**

Low water levels in the three Central Great Lakes – Michigan, Huron, and Erie – have attracted widespread news coverage over the past two weeks. Stories have appeared in the Detroit Free Press (April 6 and 11), the Chicago Tribune (April 9), the Washington Post (April 3), USA Today (April 24), and many regional papers.

Water levels in these lakes have been falling rapidly for three years. In April 2000, Lakes Huron and Michigan are more than 3 feet below the near-record highs of April 1997, 21 inches below the long-term April average, and 13 inches below the level of one year ago (see first Figure, attached, data from International Joint Commission). The decline over the past two years is the most rapid since measurements began in the 1860s. Gates at the outlets of Lakes Superior and Ontario allow some control of their levels, which are not presently below average.

Low water in the central lakes has brought diverse impacts to the upper Midwest, with financial losses expected to run to the hundreds of millions of dollars. Impacts already include the following:

- Lost use of harbors, docks, ramps, and boat slips;
- Light loading of commercial lake shipping, by 4% on average, in order to reduce drafts;
- Cancellation of two island ferry services in northern Michigan, because of insufficient depth in harbor entrances;
- A surge in dredging – permit applications increased 30% in 1999, 40% in the first three months of 2000 – carrying both high financial cost, and significant environmental costs from raising contaminated sediments.

The past year's water deficits are similar to those that accompanied the early stages of several of the 20th century's worst droughts. Continued low precipitation could bring water shortages this summer.

The immediate causes are fairly clear: extremely low snowpack in the watersheds of the Upper Lakes (Superior, Michigan and Huron) this winter, compounded by a winter in the Midwest with both unusually low precipitation and unusually warm temperatures (and hence high evaporation).

Great Lake levels show substantial historical variability, so recent declines are ***not*** a strong signal of global climate change. The impacts of present low levels are, however, good illustrations of potential future impacts from the larger and more sustained drops that are projected under future climate change. One recent analysis of Great Lakes levels under IPCC climate change scenarios projected drops of 1 to nearly 6 feet within three decades (See second Figure, attached. From P. Chao, "Great Lakes Water Resources: Climate Change Impact Analysis with Transient GCM Scenarios", in Journal of the American Water Resources Association, December 1999, p. 1503.)

---------- Forwarded by Paul Bledsoe/WHCCTF/EOP on 04/25/2000 02:14 PM----------

Paul Bledsoe
04/25/2000 01:35:12 PM

Record Type: Record

To: See the distribution list at the bottom of this message

cc:

Subject: Climate Section in POTUS Commencement Speech in Michigan Sunday

Heather Hurlburt from Speechwriting called to say she's writing a Commencement Speech the President will deliver this Sunday at Eastern Michigan University. The basic theme is science and technology. Right now there is no deliverable for the speech--to keep the environment/climate piece in they are looking for one. Heather wants to include a section on climate change and asked us for input,. Heather has a 3:30 meeting at speechwriting where she has to defend having climate change in the speech and a 6:30 meeting tonight with the President.
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3. Amplify VP's trucks event -- looking to Detroit to lead the way in developing new technologies that can solve environmental problems and promote economic growth.

4. Announce WH forum on climate change (include financial assessment piece).

Message Sent To:

Roger S. Ballentine/WHO/EOP@EOP
Jefferson B. Seabright/WHCCTF/EOP@EOP
David Gardiner/CEQ/EOP@EOP
John D. Gibson/WHCCTF/EOP@EOP
Angela C. Mizeur/WHO/EOP@EOP

heather f. hurlburt/who/eop@eop
david gardiner/ceq/eop@eop
john d. gibson/whcctf/eop@eop
henry c. kelly/ostp/eop@eop
samuel f. baldwin/ostp/eop@eop

# President Clinton's FY 2001 Climate Change Budget

The President's climate change package for FY 2001 totals over $4.1 billion – an increase of $760 million from the amount enacted for FY 2000. This includes $2.4 billion for programs directly aimed at combating global warming – a 43 percent increase over FY 2000 enacted levels. This includes a series of new initiatives, such as accelerated efforts to promote the development and deployment of clean energy technologies around the world; a stepped-up program to develop bioenergy and bio-based products; and a new Clean Air Partnership Fund to boost state and local efforts to reduce both greenhouse gases and ground-level air pollutants. It also includes the Climate Change Technology Initiative (CCTI), which mixes tax incentives and direct spending to spur the research, development, and deployment of energy efficient technology and renewable energy and other climate-related investments, such as R&D of highly efficient technologies for the combustion and use of coal and natural gas, weatherization, and state energy grants. The President is also proposing over $1.7 billion for the United States Global Change Research Program, to enhance our understanding of the human and natural forces that influence the Earth's climate system.

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

| | FY 2000 Enacted | FY 2001 Request | Change |
|---|---|---|---|
| Climate Change Solutions | | | |
| International Clean Energy Initiative | 98 | 201 | +103 |
| Biofuels & Bioproducts Initiative | 196 | 289 | +93 |
| Clean Air Partnership Fund | 0 | 85 | +85 |
| Climate Change Technology Initiative--tax incentives [1] | N/A | 201 | +201 |
| Climate Change Technology Initiative--investments | 1,095 | 1,432 | +337 |
| Other Climate-Related Investments (cleaner coal & Natural gas; weatherization; state energy grants) | 413 | 424 | +11 |
| Subtotal, Climate Solutions [2] | 1,665 | 2,386 | +721 |
| Global Change Research Program | 1,701 | 1,740 | +39 |
| **TOTAL** | 3,366 | 4,126 | +760 |

1 First year of a proposed five year, $4.0 billion package.

2 Subtotal excludes double counts for funds included in new initiatives and cleaner coal which are also part of the CCTI.

# International Clean Energy Initiative

To accelerate the development and deployment of clean energy technologies around the world, President Clinton is proposing the International Clean Energy Initiative – a $200 million multi-agency effort (a more than 100 percent increase over FY 2000 enacted levels) to encourage open competitive markets and remove market barriers to clean energy technologies in developing and transition countries and to provide new incentives for clean energy technology innovation and export. This initiative will promote U.S. exports and create high-value jobs, and will assist countries to power their economic development while fighting air pollution and climate change.

***Window of Opportunity for America and the World.*** Developing country energy use will overtake that of industrial countries by 2020. These energy technology markets are projected to total $4 to $5 trillion over the next 20 years and $15 to $25 trillion over the next 50 years. Developing country energy use is expected to account for three-fourths of the increase in global energy use between now and 2050.

Advanced, low-polluting energy technologies, developed and manufactured in the United States, can provide these energy services efficiently, but existing markets often do not value environmental and efficiency benefits. In addition, environmentally superior options often carry higher up-front costs, may be unfamiliar, or are perceived as more risky by decision-makers in developing countries. The initiative builds on a recent set of recommendations by the President's Committee of Advisors on Science and Technology (PCAST) and is directed at leveling the playing field between cleaner U.S. energy technologies and services and polluting alternatives.

***Real Benefits At Home and Abroad.*** The initiative will help lay the technical and policy foundation that will allow developing and transition countries to build a clean energy future, leapfrogging past the polluting energy technologies used by the industrial countries, while building competitive markets open to U.S. firms. The goals of this initiative include:

- Doubling clean energy technology exports by 2005, creating as much as $5 billion in new export revenues for U.S. companies and as many as 100,000 new U.S. jobs.

- Cutting energy use in targeted country buildings and appliances in half through advanced building design tools and building equipment codes and standards.

- Developing integrated renewable energy technologies that have the potential to power the full range of energy services for the 2 billion people in developing countries that do not now have electricity.

- Sharply reducing sulfur, particulate, and greenhouse gas emissions by developing advanced coal-fired power plants and low-cost hydrogen fuels.

- Maximizing use of combined heat & power systems through technical and policy assistance.

- Reducing methane emissions from pipelines and other fossil sources by an amount equal to as much as 100 million metric tons of carbon per year by 2005.

- Providing technical and policy support to encourage the development of natural gas grids.

- Reducing energy use in the industrial sector through the introduction of best practice methods, including advanced sensors and controls, and energy efficient motor drive systems.

- Conducting research in nuclear energy to address cost, waste, safety, and proliferation concerns.

- Providing technical and policy assistance in support of energy sector reform that creates open, competitive markets while protecting the public interest.

***Initiative Structure.*** This initiative will strengthen efforts to streamline current bureaucratic procedures to better assist U.S. firms wishing to invest in clean energy projects in developing and transition countries. This initiative will also encourage public-private partnerships with foreign counterparts to demonstrate clean energy technologies, drive down their cost, and facilitate private sector financing for their large-scale deployment. The initiative will employ a range of proven policy tools, including U.S. technical and policy assistance to developing countries through personnel exchanges, conducting collaborative R&D with key foreign research groups, developing integrated renewable energy, energy efficiency, and advanced fossil energy technologies and pilot projects, and providing a range of trade supports to expand clean energy exports.

The initiative's requested $100 million increase for these activities includes an additional $46 million for the Department of Energy (DOE); $30 million for the U.S. Agency for International Development; $15 million for the Export-Import Bank; $5 million for the Trade and Development Agency; and $4 million for the Department of Commerce. A $3 million increase in base programs is also requested at DOE, bringing the total increase to $103 million.

# Bioenergy & Bioproducts Initiative

President Clinton's FY 2001 Budget includes $289 million to accelerate the development and use of bio-based technologies, which convert crops, trees, and other "biomass" into fuels, power, chemicals, and other products. This initiative supports the President's August 1999 Executive Order 13134 and Memorandum on Promoting Biobased Products and Bioenergy, aimed at tripling U.S. use of biobased products and bioenergy by 2010. The initiative provides an increase of more than $93 million (47 percent) over the amounts available for FY 2000, with $49 million directed towards the Department of Energy (DOE) and $44 million for stepped-up efforts at the Department of Agriculture (USDA). (Funding in DOE is also considered part of the Climate Change Technology Initiative.) In addition to this increase in R&D, the Commodity Credit Corporation will provide $100 million in FY 2000 and up to $150 million in FY 2001 and 2002 in incentive payments to encourage production of biobased fuels. The initiative will increase the viability of alternative energy sources and help meet environmental challenges like global warming, while diversifying and strengthening the rural economy.

***New Economic Opportunities for a New Century.*** Continuing advances in forest and farm technology, molecular biology, and other areas are fueling a revolution in the use of biomass to make low-polluting products, such as:

- **transportation fuels**, like cellulosic ethanol from agricultural waste;
- **electricity**, by burning wood chips and switchgrass along with coal in existing plants and by converting paper industry wastes into fuel gases for advanced gas turbines;
- **commercial products**, such as chemicals, glues, paints, packing materials, and textiles.

Already, creative companies such as **Cargill-Dow Polymers** are making this vision a reality, recently announcing plans to build a $300 million production facility that will convert corn based sugars into plastic fibers than can be used to make products that are all natural and biodegradable.
Meeting the President's goal of tripling U.S. use of bioenergy and bioproducts will add billions in new income for farmers, producing 50,000 new, high-technology jobs in small processing plants in rural American and up to 130,000 such jobs in biopower, bioproducts, and biofuels industries.

***Cleaner Energy, Cleaner Environment.*** Bioenergy and bioproducts can dramatically reduce greenhouse gas emissions that contribute to global warming. Since crops absorb carbon during growth, their use for energy and other applications results in near zero net carbon release. Tripling our use of bioenergy and bioproducts by 2010 will reduce annual greenhouse gas emissions by up to 100 million tons – the equivalent of taking over 70 million cars off the road.

***Making Biomass Competitve With Fossil Fuels.*** A major goal of this initiative is to make biomass a viable competitor to fossil fuels as an energy source and chemical feedstock while protecting the environment. This goal is achievable, but it will require an unprecedented effort to

support research in universities, companies, and our national laboratories. In the past few years, for example, federal research has developed techniques that greatly accelerate the production of sugars and other useful chemicals from materials like corn stover and wood. The research funded under this initiative will ensure a continuing flow of the basic innovations on which such investments can be made.

Many uses for biomass materials are possible in the near future and this initiative will support research concepts on a competitive basis. This will include support for integrated systems capable of processing feedstocks simultaneously into a variety of products such as fuels, chemicals, and electricity. Much like today's petroleum-based refineries, the mix of products from these facilities will depend on market conditions. The research aims to understand the basic chemistry of cellulose and other materials in biomass, and develop new thermal, chemical, and bio-chemical techniques for converting these materials into useful forms.

***Initiative Structure.*** The President's August 1999 Executive Order instructs DOE, USDA, the National Science Foundation, the Environmental Protection Agency and other agencies, to work closely together in supporting the broad range of needed research and development efforts. These efforts will support research partnerships linking industry, university, and government research facilities selected on a competitive basis. Key areas of new research activity will include:

- Development of inexpensive systems to break down cellulose into low-cost sugars, allowing woody and grassy crops and agricultural waste, such as corn stalks, to take the place of high-value grain and food crops as biofuel feedstocks.
- Renewable bioproducts, using multi-disciplinary and university/industry partnerships to develop and accelerate adoption of possible "leap-frog" technologies for converting crops, trees and residues into chemical feedstocks and consumer products.
- Biopower, promoting both the integration of biomass gasification systems with modern gas-turbine/steam-turbine generation systems, and the co-firing of biomass with coal.
- Expanded Forest Service research on faster-growing trees and the use of small-diameter trees for commercial, biobased products.
- Methane gas recovery pilots to reduce greenhouse gas emissions from livestock operations and provide assistance to farmers that want to produce or market biobased products.
- Expanded Agricultural Research Service research to develop biobased materials from commodities and bioproducts, and convert biomass to energy.
- Competitive resources for research partnerships with universities, complementing the new Initiative for Future Agriculture and Food Systems announced by USDA earlier this month.
- Rural development grants to rural electric cooperatives to develop pilot projects to demonstrate the commercial viability of small-scale biomass fuel generation, grants for technical assistance for processing and marketing biobased products, and loans for facilities and operating capital for organizations engaged in biobased production activities.

# Clean Air Partnership Fund

To help protect public health and ease the threat of global warming, President Clinton is proposing $85 million for the creation of a new Clean Air Partnership Fund. The Fund will provide grants to states, localities, and tribes to support efforts that achieve reductions in both greenhouse gas emissions and ground-level air pollutants. First proposed as part of last year's FY 2000 budget, the Fund will be administered by the Environmental Protection Agency under existing authority.

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

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

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

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

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

# Climate Change Technology Initiative: $4.0 Billion in Tax Incentives

The President is proposing a new $4.0 billion package in tax incentives over five years to help reduce greenhouse gas emissions by spurring the purchase of energy efficient products and the use of renewable energy (see Table 2). This year's CCTI tax package is $400 million greater than last year's proposed five-year package.

**Table 2. CCTI Tax Incentives ($ in Millions)** — **Revenue Effect**

| | FY 2001 | Total FY01-05 |
|---|---|---|
| **Homes and Buildings** | | |
| Provide tax credit for energy efficient building equipment | -18 | -201 |
| Provide tax credit for new energy efficient homes | - 82 | -633 |
| Provide tax credit for solar energy systems | -9 | -132 |
| **Vehicles** | | |
| Extend tax credit for electric and fuel cell vehicles and provide tax credits for qualified hybrid vehicles | 0 | -2078 |
| **Clean Energy** | | |
| Extend tax credit for electricity produced from wind and closed-loop biomass; provide credits for open-loop biomass facilities and coal-biomass cofiring; and provide credits for methane from certain landfills | -91 | -976 |
| **Industry** | | |
| Provide 15-year recovery period for distributed power property | -1 | -10 |
| **TOTAL*** | **-201** | **-4030** |

*Totals may not add due to rounding.

## HOMES AND BUILDINGS

- ***Tax credit to consumers who purchase new energy efficient homes.*** To encourage the purchase of new energy efficient homes, consumers would receive a tax credit of $1,000 for homes purchased from 2001-2003 that use at least 30 percent less energy than the standard under the 1998 International Energy Conservation Code (IECC) and a credit of $2,000 for homes purchased from 2001-2005 that use at least 50 percent less energy than the IECC standard.

- ***Tax credit for energy efficient equipment in new and existing homes or buildings.*** This credit will encourage the purchase of electric heat pump water heaters, natural gas heat pumps, and fuel cells. The credit would apply to both residential and commercial equipment. The credit would be 20 percent of the cost of the investment, subject to a cap, for equipment purchased from 2001-2004.

- ***Tax credit for solar energy systems.*** A 15 percent tax credit will encourage the purchase by consumers and businesses of solar energy systems. The maximum credit would be $2,000 for rooftop photovoltaic systems placed in service from 2001-2007 and $1,000 for solar water heating systems placed in service from 2001-2005.

## VEHICLES

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

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

  -- **Tax credits for hybrid vehicles.** The credit – available for all qualifying vehicles, including cars, minivans, sport utility vehicles, and pickup trucks – would range from $500 to $3,000 for qualified hybrid vehicles purchased from 2003-2006, depending upon the vehicle's design performance.

## CLEAN ENERGY

- ***Tax credit for electricity produced from wind.*** Current law encourages the production of electricity from wind, which emits no greenhouse gases, through a tax credit of 1.5 cents per kilowatt hour (adjusted for inflation after 1992). The current tax credit covers facilities placed in service before January 1, 2002. The President proposes a 2.5-year extension of this tax credit.

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

  -- **Extend current "closed-loop" biomass credit.** This proposal extends for 2.5 years the current 1.5 cent per kilowatt hour tax credit (adjusted for inflation after 1992), which covers facilities placed in service before January 1, 2002.

-- **Provide credits for "open loop" biomass facilities.** This proposal expands the definition of biomass eligible for the 1.5 cent tax credit to include certain forest-related resources and agricultural and other sources for facilities placed in service from 2001-2005, and provides a 1.0 cent credit for electricity produced from 2001-2003 from facilities placed in service prior to January 1, 2001.

-- **Provide a credit for cofiring biomass and coal.** This proposal adds a 0.5 cent per kilowatt hour tax credit for electricity produced by cofiring biomass in coal plants from 2001-2005.

-- **Provide credit for methane from landfills.** This proposal adds a 1.5 cent per kilowatt hour credit for electricity produced from landfills not subject to EPA's 1996 New Source Performance Standards/Emissions Guidelines (NSPS/EG) and 1.0 cent per kilowatt hour for landfills subject to NSPS/EG. Qualified facilities would be facilities placed in service after December 31, 2000 and before January 1, 2006.

**INDUSTRY**

- ***15-year recovery period for distributed power property.*** The development of distributed power technologies has made it possible to generate electricity locally at dispersed industrial, commercial, and residential locations. Such technologies can be more energy efficient and generate fewer greenhouse gases than conventional generation methods. This proposal would simplify and rationalize the current depreciation system by assigning a single 15-year recovery period to distributed power property.

# Climate Change Technology Initiative: $1.4 Billion for Efficient Energy and Clean Energy

The President's FY 2001 budget proposes over $1.4 billion for the research, development, and deployment of renewable energy technologies, energy efficient products and buildings that will help reduce U.S. greenhouse gas emissions. This represents a $337 million increase (30 percent) over FY 2000 spending (see Table 3). The President's proposed investment package covers the four major carbon-emitting sectors of the economy -- buildings, transportation, industry, and electricity -- as well as carbon sequestration (see Table 4). The following sections highlight selected programs in each of these areas of effort. The full agency programs extend well beyond what is described here.

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

| | FY 1999 Enacted | FY 2000 Enacted | FY 2001 Request | Change from 2000 |
|---|---|---|---|---|
| Energy | 902 | 980 | 1,169 | +189 |
| EPA | 109 | 103 | 227 | +124 |
| Housing & Urban Development | 10 | 10 | 12 | +2 |
| Agriculture | 0 | 0 | 24 | +24 |
| Commerce | 0 | 2 | 0 | -2 |
| **TOTAL*** | **1,021** | **1,095** | **1,432** | **+337** |

*Totals may not add due to rounding.

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

| | FY 1999 Enacted | FY 2000 Enacted | FY 2001 Request | Change from 2000 |
|---|---|---|---|---|
| Buildings | 176 | 194 | 275 | +81 |
| Transportation | 285 | 309 | 382 | +73 |
| Industry | 187 | 189 | 251 | +62 |
| Electricity | 310 | 321 | 406 | +85 |
| Carbon Sequestration | 14 | 30 | 52 | +22 |
| Management, Planning & Analysis | 48 | 51 | 65 | +14 |
| **TOTAL*** | **1,021** | **1,095** | **1,432** | **+337** |

* Totals may not add due to rounding.

## BUILDINGS

- ***Partnership for Advancing Technology in Housing.*** PATH is a partnership between the Federal government and building industry to develop and deploy housing technologies to make new homes 50 percent more energy efficient and to make at least 15 million existing homes 30 percent more energy efficient within a decade. PATH has established five pilot communities in Denver, Los Angeles, Pittsburgh, and Tuscon. The program coordinates work in the Department of Housing and Urban Development, the Department of Energy (DOE), the Environmental Protection Agency (EPA), FEMA, the Department of Commerce and other agencies, ensuring, for example, that research conducted in DOE's enhanced residential buildings program is quickly transferred into practice. The FY 2001 budget request for building efficiency efforts, such as PATH, Energy Star, and Building America, totals $275 million, a 42 percent increase over FY 2000 appropriations.

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

  -- DOE will accelerate its program to establish **energy efficiency standards** for commercial heating and cooling, water heaters, and electrical distribution transformers, and will begin efforts to harmonize international energy-efficiency standards and test methods to promote exports of efficient U.S. products.

  -- EPA and DOE's **Energy Star Products** program saves consumers money and reduces greenhouse gas emissions at the same time by promoting the use of energy efficient products – everything from computers to refrigerators to central air-conditioning units. New funding will support the launch of new Energy Star product lines and will promote the Energy Star labeling program in 6-10 export markets.

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

- ***Energy Smart Schools/Energy Star Label for Schools.*** DOE and EPA have two programs that are working in coordination to improve energy efficiency in U.S. primary and secondary schools, bringing together public and private sector resources to cut schools' energy bills so that the savings can be reinvested in students and their education.

## TRANSPORTATION

- ***Partnership for a New Generation of Vehicles.*** PNGV is a government-industry effort that aims to develop attractive, affordable cars that meet all applicable safety and environmental standards and get up to three times the fuel efficiency of today's cars. Since 1993, great strides have been made in producing lower-cost, light-weight materials, inexpensive fuel cells, and advanced internal combustion engines for use in hybrid vehicles. The program aims to produce a prototype mid-sized family car capable of 80 miles per gallon with a two-thirds reduction in carbon emissions by 2004. In January 2000, the auto-industry partners unveiled their PNGV "concept cars" at the Detroit Auto Show, which keeps the program on schedule for meeting its 2004 goal. The FY 2001 budget includes $255 million for PNGV-related work, an increase of $30 million over the amount appropriated for FY 2000.

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

  -- By 2003, DOE aims to develop **advanced diesel cycle engine technologies** for pickup trucks, vans, and sport utility vehicles which achieve at least a 35 percent fuel efficiency improvement relative to current gasoline-fueled trucks while meeting strict emission standards.

  -- By 2004, DOE, in coordination with EPA and the Department of Defense, aims to develop **engine and vehicle technologies for heavy trucks** that will increase the fuel economy to 10 mpg from the current average of 7 mpg.

## INDUSTRY

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

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

- ***Voluntary Industrial Partnerships.*** EPA will expand its industry partnership programs, such as **Climate Wise** and the **Voluntary Aluminum Industrial Partnership**, to

encourage businesses to take advantage of cost-effective emissions reductions opportunities -- including emissions of the most potent greenhouse gases, such as methane, perfluorocarbons (PFCs), hydrofluorocarbons (HFCs), and sulfur hexaflouride (SF6).

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

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

  --The **Agricultural Research Service** will devote $8.5 million towards climate change related activities, including the development of new technology and expertise for reducing agriculture's vulnerability to a changing climate. Field experiments will seek to measure various potential effects of climate change, such as varying amounts and patterns of rainfall on forage production.

The FY 2001 budget also includes important USDA funding for developing advanced biomass energy technologies; R&D and demonstration projects for carbon sequestration; research to study the role of farms, forests, and other natural or managed lands in capturing and storing carbon; and a comprehensive U.S. soil carbon inventory (see p.16 below).

## ELECTRICITY

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

  -- **Million Solar Roofs.** In June, 1997, the President announced an initiative to encourage the installation of one million solar systems by 2010, which would reduce carbon emissions equivalent to the annual emissions from 850,000 cars. To date, DOE has received commitments for over 900,000 solar rooftop installations. In FY 2001, DOE expects 40,000 systems to be installed under this program, bringing the total to 90,000.

  -- **Technology Advances.** By 2004, DOE aims to increase the efficiency of thin-film PV modules in multi-megawatt production from 7 percent to 12 percent and to reduce module manufacturing costs by 40 percent (from $2.50/watt to $1.50/watt). Specific performance measures for FY 2001 include achieving 14

percent stable efficiency in prototype thin-film modules and, in a new initiative begun in FY 2000, identifying at least three promising non-conventional PV technologies for further development.

- ***Biomass Power.*** DOE supports biopower systems R&D addressing three major technology areas: co-firing biomass with fossil fuels such as coal and natural gas, small modular biopower systems, and advanced biomass gasification. This work is also included in the Bioenergy and Bioproducts Initiative described in above (see pp.4-5 above).

- ***Wind Powering America.*** This initiative, announced in June 1999, will accelerate DOE's research, development, testing and field validation of next-generation wind technologies, with a goal of supplying 5 percent of U.S. electricity through wind technologies by 2020. This will be supported by an aggressive R&D program that will reduce the cost of electricity in favorable wind sites to 2.5 cents per kilowatt hour by 2002, and will move specialized cold-weather wind turbines from development to demonstration in 2000, leading to commercialization in 2001.

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

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

**CARBON SEQUESTRATION**

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

  -- **Enhancing Forest and Farmland Sinks.** The **Forest Service**, in conjunction with other USDA agencies, will spend $3 million for R&D and demonstration projects for optimizing forest, farmland, and rangeland carbon sinks. The focus of such projects will include storage of carbon in forest soils and increased durability and use of wood products to sequester carbon.

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

# Other Climate-Related Investments

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

- ***Cleaner Coal and Natural Gas.*** The FY 2000 budget includes a total of $232 million (of which $56 million is part of CCTI) to support the Department of Energy's (DOE) aggressive R&D effort to develop next-generation technologies for the combustion and use of coal and natural gas. For example, research and development of integrated gasification combined cycle technology could lead to ultra-high efficiency coal plants with significantly lower greenhouse gas emissions.

- ***Low Income Weatherization and State Energy Grants.*** These DOE programs facilitate energy efficiency investments at the State and local level. The **Weatherization Assistance Program**, for example, delivers energy conservation services, such as insulation, to low-income Americans, reducing energy costs for consumers, improving health and safety, and reducing carbon emissions. The total FY 2001 budget request for these two programs is $191 million – a $22 million increase over FY 2000 appropriations.

- ***Agricultural & Forestry Conservation Programs.*** The Administration's 2001 Farm Safety Net Initiative proposes an increase of $1.3 billion in FY 2001 funding for Department of Agriculture conservation programs. Many of these same programs have the co-benefit of reducing carbon emissions resulting from agriculture and forestry and enhancing the ability of "sinks," such as forests and farmlands, to sequester or store carbon. This includes programs such as the **Conservation Reserve Program**, the **Environmental Quality Incentives Program**, and the **Farmland Protection Program**. In general, these programs assist farmers, ranchers, and other landowners in conserving and improving soil, water, and other natural resources associated with rural land.

# U.S. Global Change Research Program

The United States Global Change Research Program (USGCRP) seeks to provide a sound scientific understanding of both the human and natural forces that influence the Earth's climate system. USGCRP science results provide useful information for environmental decision-making on issues such as climate change, ozone depletion, changes in ecosystems, and land use. This multi-agency effort is coordinated through the National Science and Technology Council.

For FY 2001, the President is requesting $1.74 billion for the USGCRP, an increase of $39 million above the amount enacted for FY 2000. $843 million is for scientific research and improvements to surface-based monitoring, (an increase of $79 million, or about 10 percent). $923 million is for NASA's development of Earth observing satellites to monitor climate change and other global changes (a decrease of $34 million, reflecting the phasing of funding for large development projects). Important USGCRP budget highlights include:

- ***Improved Climate Observations.*** The FY 2001 budget provides $26 million to enhance NOAA surface-based observations, including creation of a climate reference network to provide, for the first time, automated, simultaneous, and ideally located measurements of changing temperatures, precipitation, and soil moisture. Measurements of atmospheric trace gases, aerosols, ocean temperatures, and ocean currents will also be expanded.

- ***The Global Water Cycle.*** The FY 2001 budget provides $308 million (an increase of $35 million, or about 13 percent) for research on changes in the Earth's water cycle, which is one of the primary determinants of the Earth's climate. The water cycle is emerging as a top research priority because changes appear to occurring already. The launch of NASA's EOS Aqua spacecraft in December 2000 will support this research by provide new global measurements of humidity, cloud properties, precipitation, snow, and sea ice.

- ***Ecosystem Changes.*** The FY 2001 budget provides $224 million for research on the potential impacts of climate change and other stresses on forests, coastal areas, croplands, and other ecosystems (an increase of $19 million, or 9 percent). New studies will improve our understanding of the relationships among land cover, land use, climate, and weather, and help identify "thresholds" for significant changes in ecosystems.

- ***Carbon Cycle Initiative.*** The FY 2001 budget request continues strong support for the multi-agency carbon cycle science initiative begun in FY 2000, providing $227 million (an increase of $23 million or 11 percent). This request includes funds to study how carbon cycles between the atmosphere, the oceans, and land, and the role of farms, forests, and other natural or managed lands in capturing carbon. Such carbon "sinks" may help the United States and other nations offset greenhouse gas emissions. Key agencies include the Departments of Agriculture (USDA), Energy, Interior, NASA, the National Science Foundation, and the Smithsonian Institution. Included in the request is $13.5 million (an increase of over $12 million) to significantly expand USDA Natural Resources Conservation Service soil carbon inventory and analysis efforts.

# President Clinton's FY 2001 Climate Change Budget

The President's climate change package for FY 2001 totals over $4.1 billion – an increase of $760 million from the amount enacted for FY 2000. This includes $2.4 billion for programs directly aimed at combating global warming – a 43 percent increase over FY 2000 enacted levels. This includes a series of new initiatives, such as accelerated efforts to promote the development and deployment of clean energy technologies around the world; a stepped-up program to develop bioenergy and bio-based products; and a new Clean Air Partnership Fund to boost state and local efforts to reduce both greenhouse gases and ground-level air pollutants. It also includes the Climate Change Technology Initiative (CCTI), which mixes tax incentives and direct spending to spur the research, development, and deployment of energy efficient technology and renewable energy and other climate-related investments, such as R&D of highly efficient technologies for the combustion and use of coal and natural gas, weatherization, and state energy grants. The President is also proposing over $1.7 billion for the United States Global Change Research Program, to enhance our understanding of the human and natural forces that influence the Earth's climate system.

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

| | FY 2000 Enacted | FY 2001 Request | Change |
|---|---|---|---|
| Climate Change Solutions | | | |
| International Clean Energy Initiative | 98 | 201 | +103 |
| Biofuels & Bioproducts Initiative | 196 | 289 | +93 |
| Clean Air Partnership Fund | 0 | 85 | +85 |
| Climate Change Technology Initiative--tax incentives [1] | N/A | 201 | +201 |
| Climate Change Technology Initiative--investments | 1,095 | 1,432 | +337 |
| Other Climate-Related Investments (cleaner coal & Natural gas; weatherization; state energy grants) | 413 | 424 | +11 |
| Subtotal, Climate Solutions [2] | 1,665 | 2,386 | +721 |
| Global Change Research Program | 1,701 | 1,740 | +39 |
| **TOTAL** | 3,366 | 4,126 | +760 |

1 First year of a proposed five year, $4.0 billion package.

2 Subtotal excludes double counts for funds included in new initiatives and cleaner coal which are also part of the CCTI.

# International Clean Energy Initiative

To accelerate the development and deployment of clean energy technologies around the world, President Clinton is proposing the International Clean Energy Initiative – a $200 million multi-agency effort (a more than 100 percent increase over FY 2000 enacted levels) to encourage open competitive markets and remove market barriers to clean energy technologies in developing and transition countries and to provide new incentives for clean energy technology innovation and export. This initiative will promote U.S. exports and create high-value jobs, and will assist countries to power their economic development while fighting air pollution and climate change.

***Window of Opportunity for America and the World.*** Developing country energy use will overtake that of industrial countries by 2020. These energy technology markets are projected to total $4 to $5 trillion over the next 20 years and $15 to $25 trillion over the next 50 years. Developing country energy use is expected to account for three-fourths of the increase in global energy use between now and 2050.

Advanced, low-polluting energy technologies, developed and manufactured in the United States, can provide these energy services efficiently, but existing markets often do not value environmental and efficiency benefits. In addition, environmentally superior options often carry higher up-front costs, may be unfamiliar, or are perceived as more risky by decision-makers in developing countries. The initiative builds on a recent set of recommendations by the President's Committee of Advisors on Science and Technology (PCAST) and is directed at leveling the playing field between cleaner U.S. energy technologies and services and polluting alternatives.

***Real Benefits At Home and Abroad.*** The initiative will help lay the technical and policy foundation that will allow developing and transition countries to build a clean energy future, leapfrogging past the polluting energy technologies used by the industrial countries, while building competitive markets open to U.S. firms. The goals of this initiative include:

- Doubling clean energy technology exports by 2005, creating as much as $5 billion in new export revenues for U.S. companies and as many as 100,000 new U.S. jobs.

- Cutting energy use in targeted country buildings and appliances in half through advanced building design tools and building equipment codes and standards.

- Developing integrated renewable energy technologies that have the potential to power the full range of energy services for the 2 billion people in developing countries that do not now have electricity.

- Sharply reducing sulfur, particulate, and greenhouse gas emissions by developing advanced coal-fired power plants and low-cost hydrogen fuels.

- Maximizing use of combined heat & power systems through technical and policy assistance.

- Reducing methane emissions from pipelines and other fossil sources by an amount equal to as much as 100 million metric tons of carbon per year by 2005.

- Providing technical and policy support to encourage the development of natural gas grids.

- Reducing energy use in the industrial sector through the introduction of best practice methods, including advanced sensors and controls, and energy efficient motor drive systems.

- Conducting research in nuclear energy to address cost, waste, safety, and proliferation concerns.

- Providing technical and policy assistance in support of energy sector reform that creates open, competitive markets while protecting the public interest.

***Initiative Structure.*** This initiative will strengthen efforts to streamline current bureaucratic procedures to better assist U.S. firms wishing to invest in clean energy projects in developing and transition countries. This initiative will also encourage public-private partnerships with foreign counterparts to demonstrate clean energy technologies, drive down their cost, and facilitate private sector financing for their large-scale deployment. The initiative will employ a range of proven policy tools, including U.S. technical and policy assistance to developing countries through personnel exchanges, conducting collaborative R&D with key foreign research groups, developing integrated renewable energy, energy efficiency, and advanced fossil energy technologies and pilot projects, and providing a range of trade supports to expand clean energy exports.

The initiative's requested $100 million increase for these activities includes an additional $46 million for the Department of Energy (DOE); $30 million for the U.S. Agency for International Development; $15 million for the Export-Import Bank; $5 million for the Trade and Development Agency; and $4 million for the Department of Commerce. A $3 million increase in base programs is also requested at DOE, bringing the total increase to $103 million.

# Bioenergy & Bioproducts Initiative

President Clinton's FY 2001 Budget includes $289 million to accelerate the development and use of bio-based technologies, which convert crops, trees, and other "biomass" into fuels, power, chemicals, and other products. This initiative supports the President's August 1999 Executive Order 13134 and Memorandum on Promoting Biobased Products and Bioenergy, aimed at tripling U.S. use of biobased products and bioenergy by 2010. The initiative provides an increase of more than $93 million (47 percent) over the amounts available for FY 2000, with $49 million directed towards the Department of Energy (DOE) and $44 million for stepped-up efforts at the Department of Agriculture (USDA). (Funding in DOE is also considered part of the Climate Change Technology Initiative.) In addition to this increase in R&D, the Commodity Credit Corporation will provide $100 million in FY 2000 and up to $150 million in FY 2001 and 2002 in incentive payments to encourage production of biobased fuels. The initiative will increase the viability of alternative energy sources and help meet environmental challenges like global warming, while diversifying and strengthening the rural economy.

***New Economic Opportunities for a New Century.*** Continuing advances in forest and farm technology, molecular biology, and other areas are fueling a revolution in the use of biomass to make low-polluting products, such as:

- **transportation fuels**, like cellulosic ethanol from agricultural waste;
- **electricity**, by burning wood chips and switchgrass along with coal in existing plants and by converting paper industry wastes into fuel gases for advanced gas turbines;
- **commercial products**, such as chemicals, glues, paints, packing materials, and textiles.

Already, creative companies such as **Cargill-Dow Polymers** are making this vision a reality, recently announcing plans to build a $300 million production facility that will convert corn based sugars into plastic fibers than can be used to make products that are all natural and biodegradable.
Meeting the President's goal of tripling U.S. use of bioenergy and bioproducts will add billions in new income for farmers, producing 50,000 new, high-technology jobs in small processing plants in rural American and up to 130,000 such jobs in biopower, bioproducts, and biofuels industries.

***Cleaner Energy, Cleaner Environment.*** Bioenergy and bioproducts can dramatically reduce greenhouse gas emissions that contribute to global warming. Since crops absorb carbon during growth, their use for energy and other applications results in near zero net carbon release. Tripling our use of bioenergy and bioproducts by 2010 will reduce annual greenhouse gas emissions by up to 100 million tons – the equivalent of taking over 70 million cars off the road.

***Making Biomass Competitve With Fossil Fuels.*** A major goal of this initiative is to make biomass a viable competitor to fossil fuels as an energy source and chemical feedstock while protecting the environment. This goal is achievable, but it will require an unprecedented effort to

support research in universities, companies, and our national laboratories. In the past few years, for example, federal research has developed techniques that greatly accelerate the production of sugars and other useful chemicals from materials like corn stover and wood. The research funded under this initiative will ensure a continuing flow of the basic innovations on which such investments can be made.

Many uses for biomass materials are possible in the near future and this initiative will support research concepts on a competitive basis. This will include support for integrated systems capable of processing feedstocks simultaneously into a variety of products such as fuels, chemicals, and electricity. Much like today's petroleum-based refineries, the mix of products from these facilities will depend on market conditions. The research aims to understand the basic chemistry of cellulose and other materials in biomass, and develop new thermal, chemical, and bio-chemical techniques for converting these materials into useful forms.

***Initiative Structure.*** The President's August 1999 Executive Order instructs DOE, USDA, the National Science Foundation, the Environmental Protection Agency and other agencies, to work closely together in supporting the broad range of needed research and development efforts. These efforts will support research partnerships linking industry, university, and government research facilities selected on a competitive basis. Key areas of new research activity will include:

- Development of inexpensive systems to break down cellulose into low-cost sugars, allowing woody and grassy crops and agricultural waste, such as corn stalks, to take the place of high-value grain and food crops as biofuel feedstocks.
- Renewable bioproducts, using multi-disciplinary and university/industry partnerships to develop and accelerate adoption of possible "leap-frog" technologies for converting crops, trees and residues into chemical feedstocks and consumer products.
- Biopower, promoting both the integration of biomass gasification systems with modern gas-turbine/steam-turbine generation systems, and the co-firing of biomass with coal.
- Expanded Forest Service research on faster-growing trees and the use of small-diameter trees for commercial, biobased products.
- Methane gas recovery pilots to reduce greenhouse gas emissions from livestock operations and provide assistance to farmers that want to produce or market biobased products.
- Expanded Agricultural Research Service research to develop biobased materials from commodities and bioproducts, and convert biomass to energy.
- Competitive resources for research partnerships with universities, complementing the new Initiative for Future Agriculture and Food Systems announced by USDA earlier this month.
- Rural development grants to rural electric cooperatives to develop pilot projects to demonstrate the commercial viability of small-scale biomass fuel generation, grants for technical assistance for processing and marketing biobased products, and loans for facilities and operating capital for organizations engaged in biobased production activities.

# Clean Air Partnership Fund

To help protect public health and ease the threat of global warming, President Clinton is proposing $85 million for the creation of a new Clean Air Partnership Fund. The Fund will provide grants to states, localities, and tribes to support efforts that achieve reductions in both greenhouse gas emissions and ground-level air pollutants. First proposed as part of last year's FY 2000 budget, the Fund will be administered by the Environmental Protection Agency under existing authority.

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

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

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

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

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

# Climate Change Technology Initiative: $4.0 Billion in Tax Incentives

The President is proposing a new $4.0 billion package in tax incentives over five years to help reduce greenhouse gas emissions by spurring the purchase of energy efficient products and the use of renewable energy (see Table 2). This year's CCTI tax package is $400 million greater than last year's proposed five-year package.

**Table 2. CCTI Tax Incentives ($ in Millions)** — **Revenue Effect**

| | FY 2001 | Total FY01-05 |
|---|---|---|
| **Homes and Buildings** | | |
| Provide tax credit for energy efficient building equipment | -18 | -201 |
| Provide tax credit for new energy efficient homes | - 82 | -633 |
| Provide tax credit for solar energy systems | -9 | -132 |
| **Vehicles** | | |
| Extend tax credit for electric and fuel cell vehicles and provide tax credits for qualified hybrid vehicles | 0 | -2078 |
| **Clean Energy** | | |
| Extend tax credit for electricity produced from wind and closed-loop biomass; provide credits for open-loop biomass facilities and coal-biomass cofiring; and provide credits for methane from certain landfills | -91 | -976 |
| **Industry** | | |
| Provide 15-year recovery period for distributed power property | -1 | -10 |
| **TOTAL*** | **-201** | **-4030** |

*Totals may not add due to rounding.

## HOMES AND BUILDINGS

- ***Tax credit to consumers who purchase new energy efficient homes.*** To encourage the purchase of new energy efficient homes, consumers would receive a tax credit of $1,000 for homes purchased from 2001-2003 that use at least 30 percent less energy than the standard under the 1998 International Energy Conservation Code (IECC) and a credit of $2,000 for homes purchased from 2001-2005 that use at least 50 percent less energy than the IECC standard.

- ***Tax credit for energy efficient equipment in new and existing homes or buildings.*** This credit will encourage the purchase of electric heat pump water heaters, natural gas heat pumps, and fuel cells. The credit would apply to both residential and commercial equipment. The credit would be 20 percent of the cost of the investment, subject to a cap, for equipment purchased from 2001-2004.

- ***Tax credit for solar energy systems.*** A 15 percent tax credit will encourage the purchase by consumers and businesses of solar energy systems. The maximum credit would be $2,000 for rooftop photovoltaic systems placed in service from 2001-2007 and $1,000 for solar water heating systems placed in service from 2001-2005.

## VEHICLES

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

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

  -- **Tax credits for hybrid vehicles.** The credit – available for all qualifying vehicles, including cars, minivans, sport utility vehicles, and pickup trucks – would range from $500 to $3,000 for qualified hybrid vehicles purchased from 2003-2006, depending upon the vehicle's design performance.

## CLEAN ENERGY

- ***Tax credit for electricity produced from wind.*** Current law encourages the production of electricity from wind, which emits no greenhouse gases, through a tax credit of 1.5 cents per kilowatt hour (adjusted for inflation after 1992). The current tax credit covers facilities placed in service before January 1, 2002. The President proposes a 2.5-year extension of this tax credit.

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

  -- **Extend current "closed-loop" biomass credit.** This proposal extends for 2.5 years the current 1.5 cent per kilowatt hour tax credit (adjusted for inflation after 1992), which covers facilities placed in service before January 1, 2002.

-- **Provide credits for "open loop" biomass facilities.** This proposal expands the definition of biomass eligible for the 1.5 cent tax credit to include certain forest-related resources and agricultural and other sources for facilities placed in service from 2001-2005, and provides a 1.0 cent credit for electricity produced from 2001-2003 from facilities placed in service prior to January 1, 2001.

-- **Provide a credit for cofiring biomass and coal.** This proposal adds a 0.5 cent per kilowatt hour tax credit for electricity produced by cofiring biomass in coal plants from 2001-2005.

-- **Provide credit for methane from landfills.** This proposal adds a 1.5 cent per kilowatt hour credit for electricity produced from landfills not subject to EPA's 1996 New Source Performance Standards/Emissions Guidelines (NSPS/EG) and 1.0 cent per kilowatt hour for landfills subject to NSPS/EG. Qualified facilities would be facilities placed in service after December 31, 2000 and before January 1, 2006.

## INDUSTRY

- ***15-year recovery period for distributed power property.*** The development of distributed power technologies has made it possible to generate electricity locally at dispersed industrial, commercial, and residential locations. Such technologies can be more energy efficient and generate fewer greenhouse gases than conventional generation methods. This proposal would simplify and rationalize the current depreciation system by assigning a single 15-year recovery period to distributed power property.

# Climate Change Technology Initiative: $1.4 Billion for Efficient Energy and Clean Energy

The President's FY 2001 budget proposes over $1.4 billion for the research, development, and deployment of renewable energy technologies, energy efficient products and buildings that will help reduce U.S. greenhouse gas emissions. This represents a $337 million increase (30 percent) over FY 2000 spending (see Table 3). The President's proposed investment package covers the four major carbon-emitting sectors of the economy -- buildings, transportation, industry, and electricity -- as well as carbon sequestration (see Table 4). The following sections highlight selected programs in each of these areas of effort. The full agency programs extend well beyond what is described here.

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

| | FY 1999 Enacted | FY 2000 Enacted | FY 2001 Request | Change from 2000 |
|---|---|---|---|---|
| Energy | 902 | 980 | 1,169 | +189 |
| EPA | 109 | 103 | 227 | +124 |
| Housing & Urban Development | 10 | 10 | 12 | +2 |
| Agriculture | 0 | 0 | 24 | +24 |
| Commerce | 0 | 2 | 0 | -2 |
| **TOTAL*** | **1,021** | **1,095** | **1,432** | **+337** |

*Totals may not add due to rounding.

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

| | FY 1999 Enacted | FY 2000 Enacted | FY 2001 Request | Change from 2000 |
|---|---|---|---|---|
| Buildings | 176 | 194 | 275 | +81 |
| Transportation | 285 | 309 | 382 | +73 |
| Industry | 187 | 189 | 251 | +62 |
| Electricity | 310 | 321 | 406 | +85 |
| Carbon Sequestration | 14 | 30 | 52 | +22 |
| Management, Planning & Analysis | 48 | 51 | 65 | +14 |
| **TOTAL*** | **1,021** | **1,095** | **1,432** | **+337** |

* Totals may not add due to rounding.

## BUILDINGS

- ***Partnership for Advancing Technology in Housing.*** PATH is a partnership between the Federal government and building industry to develop and deploy housing technologies to make new homes 50 percent more energy efficient and to make at least 15 million existing homes 30 percent more energy efficient within a decade. PATH has established five pilot communities in Denver, Los Angeles, Pittsburgh, and Tuscon. The program coordinates work in the Department of Housing and Urban Development, the Department of Energy (DOE), the Environmental Protection Agency (EPA), FEMA, the Department of Commerce and other agencies, ensuring, for example, that research conducted in DOE's enhanced residential buildings program is quickly transferred into practice. The FY 2001 budget request for building efficiency efforts, such as PATH, Energy Star, and Building America, totals $275 million, a 42 percent increase over FY 2000 appropriations.

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

  -- DOE will accelerate its program to establish **energy efficiency standards** for commercial heating and cooling, water heaters, and electrical distribution transformers, and will begin efforts to harmonize international energy-efficiency standards and test methods to promote exports of efficient U.S. products.

  -- EPA and DOE's **Energy Star Products** program saves consumers money and reduces greenhouse gas emissions at the same time by promoting the use of energy efficient products – everything from computers to refrigerators to central air-conditioning units. New funding will support the launch of new Energy Star product lines and will promote the Energy Star labeling program in 6-10 export markets.

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

- ***Energy Smart Schools/Energy Star Label for Schools.*** DOE and EPA have two programs that are working in coordination to improve energy efficiency in U.S. primary and secondary schools, bringing together public and private sector resources to cut schools' energy bills so that the savings can be reinvested in students and their education.

## TRANSPORTATION

- ***Partnership for a New Generation of Vehicles.*** PNGV is a government-industry effort that aims to develop attractive, affordable cars that meet all applicable safety and environmental standards and get up to three times the fuel efficiency of today's cars. Since 1993, great strides have been made in producing lower-cost, light-weight materials, inexpensive fuel cells, and advanced internal combustion engines for use in hybrid vehicles. The program aims to produce a prototype mid-sized family car capable of 80 miles per gallon with a two-thirds reduction in carbon emissions by 2004. In January 2000, the auto-industry partners unveiled their PNGV "concept cars" at the Detroit Auto Show, which keeps the program on schedule for meeting its 2004 goal. The FY 2001 budget includes $255 million for PNGV-related work, an increase of $30 million over the amount appropriated for FY 2000.

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

  -- By 2003, DOE aims to develop **advanced diesel cycle engine technologies** for pickup trucks, vans, and sport utility vehicles which achieve at least a 35 percent fuel efficiency improvement relative to current gasoline-fueled trucks while meeting strict emission standards.

  -- By 2004, DOE, in coordination with EPA and the Department of Defense, aims to develop **engine and vehicle technologies for heavy trucks** that will increase the fuel economy to 10 mpg from the current average of 7 mpg.

## INDUSTRY

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

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

- ***Voluntary Industrial Partnerships.*** EPA will expand its industry partnership programs, such as **Climate Wise** and the **Voluntary Aluminum Industrial Partnership**, to

encourage businesses to take advantage of cost-effective emissions reductions opportunities -- including emissions of the most potent greenhouse gases, such as methane, perfluorocarbons (PFCs), hydrofluorocarbons (HFCs), and sulfur hexaflouride (SF6).

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

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

  --The **Agricultural Research Service** will devote $8.5 million towards climate change related activities, including the development of new technology and expertise for reducing agriculture's vulnerability to a changing climate. Field experiments will seek to measure various potential effects of climate change, such as varying amounts and patterns of rainfall on forage production.

The FY 2001 budget also includes important USDA funding for developing advanced biomass energy technologies; R&D and demonstration projects for carbon sequestration; research to study the role of farms, forests, and other natural or managed lands in capturing and storing carbon; and a comprehensive U.S. soil carbon inventory (see p.16 below).

## ELECTRICITY

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

  -- **Million Solar Roofs.** In June, 1997, the President announced an initiative to encourage the installation of one million solar systems by 2010, which would reduce carbon emissions equivalent to the annual emissions from 850,000 cars. To date, DOE has received commitments for over 900,000 solar rooftop installations. In FY 2001, DOE expects 40,000 systems to be installed under this program, bringing the total to 90,000.

  -- **Technology Advances.** By 2004, DOE aims to increase the efficiency of thin-film PV modules in multi-megawatt production from 7 percent to 12 percent and to reduce module manufacturing costs by 40 percent (from $2.50/watt to $1.50/watt). Specific performance measures for FY 2001 include achieving 14

percent stable efficiency in prototype thin-film modules and, in a new initiative begun in FY 2000, identifying at least three promising non-conventional PV technologies for further development.

- ***Biomass Power.*** DOE supports biopower systems R&D addressing three major technology areas: co-firing biomass with fossil fuels such as coal and natural gas, small modular biopower systems, and advanced biomass gasification. This work is also included in the Bioenergy and Bioproducts Initiative described in above (see pp.4-5 above).

- ***Wind Powering America.*** This initiative, announced in June 1999, will accelerate DOE's research, development, testing and field validation of next-generation wind technologies, with a goal of supplying 5 percent of U.S. electricity through wind technologies by 2020. This will be supported by an aggressive R&D program that will reduce the cost of electricity in favorable wind sites to 2.5 cents per kilowatt hour by 2002, and will move specialized cold-weather wind turbines from development to demonstration in 2000, leading to commercialization in 2001.

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

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

**CARBON SEQUESTRATION**

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

  **-- Enhancing Forest and Farmland Sinks.** The **Forest Service**, in conjunction with other USDA agencies, will spend $3 million for R&D and demonstration projects for optimizing forest, farmland, and rangeland carbon sinks. The focus of such projects will include storage of carbon in forest soils and increased durability and use of wood products to sequester carbon.

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

# Other Climate-Related Investments

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

- ***Cleaner Coal and Natural Gas.*** The FY 2000 budget includes a total of $232 million (of which $56 million is part of CCTI) to support the Department of Energy's (DOE) aggressive R&D effort to develop next-generation technologies for the combustion and use of coal and natural gas. For example, research and development of integrated gasification combined cycle technology could lead to ultra-high efficiency coal plants with significantly lower greenhouse gas emissions.

- ***Low Income Weatherization and State Energy Grants.*** These DOE programs facilitate energy efficiency investments at the State and local level. The **Weatherization Assistance Program**, for example, delivers energy conservation services, such as insulation, to low-income Americans, reducing energy costs for consumers, improving health and safety, and reducing carbon emissions. The total FY 2001 budget request for these two programs is $191 million – a $22 million increase over FY 2000 appropriations.

- ***Agricultural & Forestry Conservation Programs.*** The Administration's 2001 Farm Safety Net Initiative proposes an increase of $1.3 billion in FY 2001 funding for Department of Agriculture conservation programs. Many of these same programs have the co-benefit of reducing carbon emissions resulting from agriculture and forestry and enhancing the ability of "sinks," such as forests and farmlands, to sequester or store carbon. This includes programs such as the **Conservation Reserve Program**, the **Environmental Quality Incentives Program**, and the **Farmland Protection Program**. In general, these programs assist farmers, ranchers, and other landowners in conserving and improving soil, water, and other natural resources associated with rural land.

# U.S. Global Change Research Program

The United States Global Change Research Program (USGCRP) seeks to provide a sound scientific understanding of both the human and natural forces that influence the Earth's climate system. USGCRP science results provide useful information for environmental decision-making on issues such as climate change, ozone depletion, changes in ecosystems, and land use. This multi-agency effort is coordinated through the National Science and Technology Council.

For FY 2001, the President is requesting $1.74 billion for the USGCRP, an increase of $39 million above the amount enacted for FY 2000. $843 million is for scientific research and improvements to surface-based monitoring, (an increase of $79 million, or about 10 percent). $923 million is for NASA's development of Earth observing satellites to monitor climate change and other global changes (a decrease of $34 million, reflecting the phasing of funding for large development projects). Important USGCRP budget highlights include:

- ***Improved Climate Observations.*** The FY 2001 budget provides $26 million to enhance NOAA surface-based observations, including creation of a climate reference network to provide, for the first time, automated, simultaneous, and ideally located measurements of changing temperatures, precipitation, and soil moisture. Measurements of atmospheric trace gases, aerosols, ocean temperatures, and ocean currents will also be expanded.

- ***The Global Water Cycle.*** The FY 2001 budget provides $308 million (an increase of $35 million, or about 13 percent) for research on changes in the Earth's water cycle, which is one of the primary determinants of the Earth's climate. The water cycle is emerging as a top research priority because changes appear to occurring already. The launch of NASA's EOS Aqua spacecraft in December 2000 will support this research by provide new global measurements of humidity, cloud properties, precipitation, snow, and sea ice.

- ***Ecosystem Changes.*** The FY 2001 budget provides $224 million for research on the potential impacts of climate change and other stresses on forests, coastal areas, croplands, and other ecosystems (an increase of $19 million, or 9 percent). New studies will improve our understanding of the relationships among land cover, land use, climate, and weather, and help identify "thresholds" for significant changes in ecosystems.

- ***Carbon Cycle Initiative.*** The FY 2001 budget request continues strong support for the multi-agency carbon cycle science initiative begun in FY 2000, providing $227 million (an increase of $23 million or 11 percent). This request includes funds to study how carbon cycles between the atmosphere, the oceans, and land, and the role of farms, forests, and other natural or managed lands in capturing carbon. Such carbon "sinks" may help the United States and other nations offset greenhouse gas emissions. Key agencies include the Departments of Agriculture (USDA), Energy, Interior, NASA, the National Science Foundation, and the Smithsonian Institution. Included in the request is $13.5 million (an increase of over $12 million) to significantly expand USDA Natural Resources Conservation Service soil carbon inventory and analysis efforts.