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THE WHITE HOUSE
WASHINGTON

November 10, 2000

MEMORANDUM FOR THE PRESIDENT

FROM: SAMUEL BERGER
GENE SPERLING *GBS*
GEORGE FRAMPTON *GF*
ROGER BALLENTINE *RB*

SUBJECT: Climate Change: COP6-Negotiations Issues

This memorandum follows up our background memorandum of October 6. Based on an interagency process that included participation from all relevant agencies, this memorandum requests your approval of key elements of our negotiating strategy before COP6 begins on November 13. We are likely to return to you for additional decisions during COP6.

I. Additional Developing Country Actions

As you know, we are isolated in attempting to make significant progress on developing country participation at COP6. The official agenda relates primarily to resolving design questions for issues as emissions trading, the Clean Development Mechanism (CDM) and the role of sinks. Whether developing countries will make binding commitments to reducing greenhouse gas (GHG) emissions is not on the agenda.

We could enter the negotiations insisting that the parties place developing country participation on the agenda or commit to a future "new dialogue" on the subject. Developing countries, however, have shown no willingness to accept either of these alternatives. Moreover, the State Department does not envision a realistic possibility of any breakthroughs on this issue at COP6.

We could, instead, enter the negotiations prepared to conclude a deal on other important topics without concrete progress on developing country participation. Sidestepping the issue of developing country participation, and not blocking consensus at COP6 over this issue, will increase the likelihood of reaching an agreement on the design of the Kyoto architecture (*i.e.*, emissions trading, CDM, sinks). It also would limit our diplomatic isolation among the COP6 parties. The drawback of this strategy is that it leaves the United States no clear path to move towards a larger role for developing countries in the treaty framework and leaves the Protocol open to attack by opponents as failing to meet the test of the Byrd/Hagel resolution. Further, it would require that a future Administration decide whether to seek additional affirmative agreement on the role of developing countries before sending the Protocol to the Senate for its consideration.

cc: Vice President
Chief of Staff

Despite the drawbacks of the second approach, there is a consensus among all agencies and your senior advisors that we should attempt to conclude an agreement on other important topics without concrete progress on developing country participation. If you approve this approach, and we succeed in obtaining a satisfactory agreement on the other key issues on the agenda at COP6, we can portray the achievement as a significant step toward designing a strong and effective treaty. We would, of course, continue to pursue greater developing country actions, both within and outside the COP process.

_____ Approve _____ Disapprove _____ Discuss

II. New Funding Commitments

Almost all countries in the negotiations, including the Europeans, strongly support a decision at COP6 under which industrialized countries would make new financial commitments to help fund technology transfer and capacity building activities in the developing world. The most likely sources for U.S. funds to achieve that goal are: (1) appropriated funds (such as official development assistance); or (2) funds generated from within a ratified and functioning Protocol, such as a fee (tax) on the use of the Kyoto mechanisms. There is, in fact, a strong push among many parties to the negotiations to impose a tax on emissions trading for these purposes.

There is a consensus among agencies that the United States has fulfilled its obligation to provide appropriated funds in the form of bilateral assistance programs and our contributions to the Global Environment Facility (GEF), which serves as the "financial mechanism" for the 1992 Framework Convention and to which the United States is the largest donor. In addition, the United States agreed to providing developing countries additional resources in acceding at Kyoto in 1997 to allocate a "share of the proceeds" from the Clean Development Mechanism (CDM) to help developing countries to adapt to climate change. The United States has resisted additional commitments for two primary reasons. First, we believe major new resource commitments for developing countries should be made only in exchange for significant new developing country actions to mitigate GHG emissions. Second, the proposal on the table, a tax on emissions trading, would unfairly burden those parties who plan to use trading extensively to comply with the treaty (most notably the United States) and is universally opposed by the business community.

Given this background, we could resist all calls at COP6 for new funds, but would be diplomatically isolated in doing so. Moreover, a U.S. commitment to new funding may be necessary in order to achieve our objectives on such matters as the Kyoto mechanisms and sinks.

Instead of flatly resisting calls for new funding in the absence of firm commitments by developing countries, through the interagency process we have developed a two-part strategy to address pressure that the United States accept for new funding commitments. First, we would agree only to non-legally binding "political" commitments to increase appropriated funds (such as an increase in existing bilateral assistance for clean energy development, capacity building and technology transfer). Second, we would offer a new U.S. proposal for substantial additional resource commitments from within the Kyoto system, but only in a more equitable form than a tax on trading (such as generating resources by the sale of emissions credits donated by all industrialized countries), and only in exchange for new developing country actions.

This approach would put us in a constructive posture while defending against a worse idea. As noted above, ultimately, we anticipate that closing a deal on favorable rules in the Kyoto framework (*i.e.*, unfettered emissions trading, a non-bureaucratic CDM, and broad use of sinks) likely will require us to agree to some limited additional funding. We believe that non-legally binding political commitments in the near term are acceptable and that our offer to consider more significant resources from within the system will position us well going forward on the question of greater developing country actions to mitigate GHG emissions.

Nevertheless, there is a significant likelihood that non-binding commitments of this type would be inadequate to reach agreement at the end of COP6 because we anticipate significant pressure for more binding and near term financial commitments, which would likely generate strong criticism from Congress. If we do face such a situation, we will return to you for guidance.

The consensus among your senior advisors and all relevant agencies is that you approve: 1) making only political commitments to increase funding; and, 2) offering a proposal for new funding within the Kyoto system in exchange for new developing country commitments.

_____ Approve _____ Disapprove _____ Discuss

III. Sinks

The Kyoto agreement included provisions to count forests and agricultural soils as “sinks” under the treaty, but deferred until later the levels of inclusion and specific accounting definitions. Since 1997, parties have worked to produce national data on levels of greenhouse gas sequestration, and to resolve a thicket of technical issues about accounting for sinks. Before presenting the details of this policy issue, we must note that there are significant uncertainties in the figures presented.

In 1997, prospective credit for existing, or “business as usual” (BAU), sinks was one of the factors that allowed you to approve moving from our initial announced target of a zero percent reduction in our emissions below 1990 levels to our final target of seven percent below 1990 emissions. As an important point of reference, if the United States were able to count approximately 115 or more MMT of BAU sinks, that would be the equivalent of meeting our minus seven percent target without actually having to reduce emissions below 1990 levels. Counting BAU sink reductions is a zero cost way to help meet our treaty obligations, and thus much of business community thinks we should seek a large number of these tons. The environmental community, however, would harshly criticize us for obtaining too large a number because it would reduce our “level of effort” toward meeting our target.

The United States is projected to have an annual level of emission sequestration in sinks of approximately 300 million metric tons (MMT) during first commitment period (2008-2012). If all this sequestration were to be counted, it would represent roughly half of the net emissions reductions required for us in the commitment period. Most other parties, however, are strongly opposed to letting us count any more than a very small fraction of this amount. In response, we have signaled our willingness to discount or phase in the amount of sinks counted during the first commitment period.

From a purely economic perspective, your economic advisors (Treasury, CEA, NEC) would prefer to secure a high level of BAU sinks credit, because of sinks' critical role in reducing the cost. (Each 15 MMT of sink credits reduces our cost by an estimated billion dollars per year.) The economic agencies, however, are sensitive to the concern of some that 100 MMT of credit appears to undermine our commitment to our Kyoto target.

Your environmental and science advisors (EPA, Interior, OSTP, Environmental Initiatives and CEQ) prefer to secure less credit for sinks than the economic agencies. They are concerned that obtaining too much credit represents a loosening of our Kyoto commitment. They also note that the issue of BAU sinks has drawn an intense lobbying campaign for us to reject these tons from a broad spectrum of environmental groups.

Based on these concerns, all agencies have agreed that you should direct the negotiators in The Hague to negotiate for between 70 and 80 MMT of credit for sinks. They believe that this target reasonably balances the need to control costs with the need to maintain our Kyoto emission reduction commitment. The State Department cautions that although it will be difficult to achieve, they support a goal of 70 - 80 MMT.

_____ Approve _____ Disapprove _____ Discuss

IV. Compliance/Price Cap

There has been a long-standing debate about whether or not to include a mechanism whereby parties could purchase additional emissions allotments for a set price in order to remain in compliance. Such a mechanism, effectively a price cap, would establish an upper limit on the cost per ton of greenhouse gas reductions, and could effectively limit the overall societal cost of compliance with the Protocol.

Such a mechanism could provide certainty to the business community and could possibly improve the prospects of Senate ratification. Moreover, in the international negotiations, it could lessen the need to pursue other means to constrain costs, such as unlimited trading or a broad definition of sinks and CDM activities. Despite these potential benefits, pursuing such a mechanism carries real risks. If the price level is seen as low, while perhaps a positive for the business community, it would be perceived as a major loophole in the Protocol by much of the environmental community. On the other hand, environmentalists would support a high price level because it would function more like a penalty than as a "safety valve". If the price is set high, however, this could lead some to predict very high costs for the Protocol. There is further concern that any price cap level could be criticized as essentially an international "tax".

This idea is very complex and extremely controversial idea among both supporters and opponents of the Protocol. We are currently working on this issue, and may need to present it to you for decision during COP6.

THE WHITE HOUSE
WASHINGTON

October 18, 2000

MEMORANDUM FOR THE PRESIDENT

FROM: ROGER BALLENTINE 
RE: Update on Bioenergy Initiative

I have asked the Departments of Energy and Agriculture to prepare a short summary update on the status of your Bioenergy Initiative. I attach that summary. You will also soon be receiving, as required by Executive Order 13134, a Strategic Plan outlining how various agencies will pursue the goals of your Initiative.

In the first year, we have progressed on many fronts. We have established a Biomass Research and Development Board, co-chaired by DOE and USDA and including EPA, Interior and OSTP among others, which is overseeing the preparation of the Strategic Plan. We have opened a National Biobased Products and Bioenergy Coordination Office, which serves as the day to day staff operation for the Board, enhancing communication and cooperation among the agencies to form key industry partnerships. We have also begun to form a Federal Advisory Committee on Bioenergy and Bioproducts.

The enactment of the Biomass Research and Development Act earlier this year, chiefly sponsored by Senator Richard Lugar (R-IN), has boosted bipartisan support for our efforts. Your Executive Order and this legislation have provided impetus to ongoing federal efforts to work with private industry and research institutions to improve the technology. Our pragmatic focus has been on lowering the cost of breaking down cellulosic biomass through enhanced enzymes; demonstrating biodiesel fuel applications; improving the infrastructure and practices needed to provide supply of agricultural residues; and other similar efforts.

We have extended four project grants this year pursuant to your Initiative. These projects focus on 1) separating and converting corn fiber to ethanol; 2) producing power using polylactic acid and ethanol; 3) producing fuels, chemicals and power from hog manure; and 4) using tree bark-derived oils for adhesive applications.

The agencies involved point out that future progress in this area will depend in part on a host of related federal policies, including tax credits, phasing out of MTBE, changes to the Clean Air Act that encourage biomass energy production, and electricity restructuring. The Administration's principles on the phasing out of MTBE, for example, have laid out a clear framework for moving forward in the bioenergy area.

These efforts have begun to show a federal focus on the potential of bioenergy and biobased products to become a true national priority. Considering the institutional changes made within the government, coupled with the partnerships being established with the private sector, we can look forward to continued progress in the years ahead.

Copied to: John Podesta
Secretary Dan Glickman
Secretary Bill Richardson

THE WHITE HOUSE
WASHINGTON

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Executive Summary

October 16, 2000

In the past year, significant progress has been made toward accomplishing President Clinton's goal in Executive Order 13134, Developing and Promoting Biobased Products and Bioenergy, to *"triple the use of bioenergy and biobased products in the United States by 2010."* Federal efforts to meet this goal were further advanced with the June enactment of the Bioenergy Research and Development Act of 2000. Through the formation of the Biomass Research and Development Board and the National Biobased Products and Bioenergy Coordination Office, the government machinery is now in place to allow government agencies to combine their expertise, their technologies and their support toward the achievement of this important goal. Leading biomass experts from industry and universities have been brought together to lay out the steps to be taken to achieve this goal and to provide advice to direct government efforts. Finally, several industry-government collaborations have been established to accelerate the technology development critical to meeting the President's goal. These accomplishments will help the nation address the environmental, economic, and national security concerns associated with the use of fossil fuels.

The Biobased Products and Bioenergy Initiative

In the first decade of the 20th century, William Merriam Burton, a chemist for Standard Oil, developed the technology that pulled more energy out of the petroleum molecule. His vision launched the modern petrochemical industry and helped pave the way for the prosperity we enjoy today.

Now, at the beginning of the 21st century, we may be nearing a similar breakthrough—one that allows us to use the resources of this nation's farmers and foresters to fuel our future. In August 1999, President Clinton signed Executive Order 13134, Developing and Promoting Biobased Products and Bioenergy. This Executive Order outlines the President's vision to utilize biomass, our most abundant and renewable natural resource, to grow our economy, enhance national security, and protect the environment.

President Clinton's vision called for development of the Biobased Products and Bioenergy Initiative, a coordinated effort between government and industry. An integrated biobased products and bioenergy industry will displace petroleum with traditional commodity crops, agricultural waste, forest residues and aquatic resources to make an array of commercial products including fuels, electricity, chemicals, adhesives, lubricants and building materials. The goal of this Initiative is to triple our use of bioenergy and bioproducts by 2010. Success in reaching this goal could generate as much as \$20 billion a year in new income for American farmers and rural communities, while reducing annual greenhouse gas emissions by up to 100 million tons a year--the equivalent of taking 70 million cars off the road.

One year after the issuance of the Executive Order, we have made significant progress toward accomplishing this goal, helping to turn the President's vision into a reality.

ACCOMPLISHMENTS

In carrying out Executive Order 13134:

A Biomass Research and Development Board was formed with co-chairs from the Departments of Energy and Agriculture. The Board also has representatives from the Department of Interior, the Environmental Protection Agency, the National Science Foundation, the Office of Science and Technology Policy, and other Federal agencies. The Board has met quarterly over the past year to create a Government Strategic Plan, which will accelerate the creation and early adoption of technologies needed to make biobased products and bioenergy cost-competitive. The Strategic Plan, which is currently in draft form, will guide and coordinate the efforts of the various Government agencies, who before the Executive Order, were working independently. The plan recommends:

- specific goals for technology development over the next ten years;
- appropriate policies such as tax code modifications, increased R&D funding, and new State and Federal legislation; and
- key actions to develop markets, such as creating a Federal Procurement protocol for biobased products and bioenergy.

A National Biobased Products and Bioenergy Coordination Office was also formed to serve as the executive secretariat for the Board. This office is staffed with personnel from the DOE and USDA, and has enhanced communications among the agencies involved. Within the DOE and USDA, working groups have been successfully coordinating agency efforts in support of the Initiative, resulting in the award of several critical competitive contracts and the formation of key industry partnerships. A Federal Advisory Committee with members from industry, academia and other organizations is also being formed.

In addition to improved Government coordination, industry involvement is a key factor in reaching the goal of the Executive Order. Several top U.S. industry sectors recognize the commitment of the Administration and have become actively involved, including the forest products and chemical industries, fuel and power producers, and agribusiness. The resources and commercial expertise of these industry sectors are essential to achieving the goals of this Initiative.

These industries, represented by 34 companies and supported by DOE and USDA, undertook an extensive process beginning with the development of a vision for an integrated bioenergy industry. The vision incorporates the President's goals through the year 2010.

This vision was carried forward to a broad cross-section of the agricultural, chemical, forestry, life sciences, and energy communities to develop a detailed technical, market, and policy roadmap. When the roadmap is complete, government and industry will be able to jointly fund R&D and advance policies that will help to develop biomass markets.

The bipartisan political support recently given to bioenergy and biobased products underscores the value of our work in this area and the importance of the progress we have made. Senators Richard Lugar (R-IN) and Tom Harkin (D-IA), both long-standing advocates of biobased

products, along with Representatives Thomas Ewing (R-IL) and Mark Udall (D-CO) were instrumental in the passage of Title III of the Agricultural Risk Protection Act of 2000, signed by the President in June of 2000. Title III of this legislation, which the President signed in June, is the Biomass Research and Development Act of 2000. The goals of this Act are parallel to those of the Executive Order, formalizing the coordinated Federal efforts and the involvement of experts from the private sector, and authorizing \$49 million through the Department of Agriculture for R&D in the area of biobased industrial products. The Executive Order and the related legislation are an important legacy of this Administration and the 106th Congress.

In technology:

For many years both industry and government have been working to develop biomass technology to utilize biomass resources in a cost-effective manner. However, a number of technical barriers still exist. The Biobased Products and Bioenergy Initiative has brought Government and industry together under one umbrella and focused R&D on high priority areas that are necessary to achieve the President's goal. One specific example is the 10 million gallon per year demonstration of sugar cane bagasse to ethanol conversion by BC International Inc. This facility, to be built in Jennings, Louisiana, will be the first commercial biomass ethanol facility in the United States, paving the way for growth in the industry. Some of the other high priority areas supported in FY 2000 by Agriculture and Energy include:

- Improving harvesting, handling and storing alternatives for agricultural residues through targeted research with small business and universities;
- Lowering the cost of converting plant material into ethanol and fermentable sugars, in cooperation with Genencor, Inc, a leader in the enzyme industry;
- Researching new products, such as propylene glycol and ethylene glycol, that can be produced from the low cost sugars;
- Co-locating biomass ethanol facilities with existing corn ethanol facilities;
- Demonstrating biodiesel blends in government fleets and at National Parks;
- Supporting coal and biomass co-firing demonstrations in Indiana, Iowa, Tennessee, New York and Alabama;
- Supporting agriculture market research and demonstration projects;
- Demonstrating black liquor gasification in Virginia.

The cornerstone of the Initiative is research and development of the "biorefinery", a concept modeled after the petroleum industry. Biorefineries will use biomass from today's farms and forests to produce fuels, chemicals and power. Biorefineries will be deployed across rural America, providing new opportunities for many agricultural communities. In July 2000, a competitive solicitation attracted over 40 applications, from which four grants dedicated to development of the biorefinery were issued. The projects include:

- Separation of corn fiber and subsequent conversion to fuels and chemicals;
- Polylactic acid, ethanol and power production;
- Production of chemicals, fuels and power from hog manure;
- Use of bark-derived pyrolysis oils as a phenol substitute in structural panel adhesives.

These government industry partnerships have already resulted in success. An example of a successful commercial transfer of technology is the Cargill Dow Polymers' polylactic acid facility. The company has invested more than \$300 million, leveraged by modest government

funding, to build a new bio-plastic manufacturing plant in Blair, Nebraska. The new factory will produce more than 300 million pounds annually of corn-based plastic.

In market and policy development:

In addition to technical progress, meeting the goals of the Executive Order will require the development of supporting policies and markets. Examples of Federal policies that will affect the growth of the new industry include:

- Tax policy
 - The FY 2001 budget request proposes \$976 million in tax incentives over 5 years and \$2.1 million over ten years to accelerate the development and use of bio-based technologies, which convert crops, trees, and other “biomass” into a vast array of fuels and products. New tax credits would apply to biomass power plants that are supplied by agricultural and forestry wastes. The President has also proposed tax credits for landfill methane power plants and power plants that mix biomass with coal.
- Environmental policy
 - The EPA announced the phase out of the use of MTBE in gasoline because of the threat to public health and the environment. MTBE is used as an oxygen additive in reformulated gasoline (RFG) as required by the Clean Air Act. Ethanol is also used to meet RFG guidelines and studies are being completed to determine the extent to which ethanol can meet the demand created by a MTBE phase out.
 - Senator Tom Daschle (D-SD) has introduced bipartisan legislation to create a nationwide renewable fuels standard. The bill would eliminate the 10 year old requirement that gasoline in polluted urban areas contain a certain amount of oxygen in order to reduce carbon monoxide emissions. However, the bill would require that ethanol consumption remain at or above its current level of 1.3 percent of national gasoline supply, and would mandate increases in consumption over the next 10 years.
 - The existing EPA Clean Air Act regulatory framework limits the deployment of clean biomass cofiring technologies. It requires the filing of a new source review (NSR) application, a time consuming and tedious process for a technology that will ultimately reduce the emissions. The biomass cofiring community is ready to work with the EPA to develop a smarter approach.
- Agriculture policy
 - USDA is implementing Section 769 of the Agriculture, Rural Development, Food and Drug Administration, and Related Agencies Act of 1999, to provide new authority to use Conservation Reserve Program land for pilot biomass projects.
 - USDA has proposed a rule for use of Commodity Credit Corporation funds to boost production of ethanol and biodiesel during the next three fiscal years.
- Electric utility restructuring
 - The Administration’s electric utility restructuring proposal to Congress includes a national Renewable Portfolio Standard (RPS) requiring electric suppliers to provide retail customers with minimum levels of electricity generated from “new” renewable

energy sources including low-emission biomass. Leading the way in procuring renewable energy, Executive Order 13123, signed by the President on June 3, 1999 includes direction to federal agencies to increase their use of renewable energy.

In order to successfully reach the goals of the Initiative, policies will remain an important part of the equation, and Congressional support, such as that illustrated by Senators Daschle and Lugar, is essential.

NEXT STEPS

Over the next year we will fully implement the Federal Government's biomass activities as articulated in the Strategic Plan and begin implementing the technical, market and policy plans as reflected in the industry vision and roadmap. The key to meeting President Clinton's goal of tripling biobased products and bioenergy use by 2010 lies in high-level, well-coordinated, adequately funded partnerships between industry and government.

THE WHITE HOUSE
WASHINGTON

August 11, 2000

Gardner
Anderson, Janet

MEMORANDUM FOR THE PRESIDENT

FROM: ROGER BALLENTINE 

RE: Electricity Generation from Refuse Methane

In response to a report that Japan is building a power plant that will produce electricity from organic refuse methane, you asked both Secretary Richardson and me why such projects are not being undertaken in the U.S. While I am sure that the Secretary could provide a sophisticated explanation, there are several important related points to bring to your attention.

The Japanese power plant described is most likely a prototype or experimental project. The amount of power it intends to produce is also quite small (enough to power about 85 homes). The technology they appear to be using – fermentation of pulverized organic waste (which presumably has had all non-organic elements removed, likely in conjunction with a recycling program) to produce hydrogen – is technology that we are aggressively pursuing under your Bioenergy Initiative. We have several test operations underway in the U.S. that are using forms of fermentation to produce cellulosic ethanol (and, ultimately, hydrogen) from crop and wood wastes that could be used as a vehicle fuel or to power fuel cells. These efforts have not yet proven economically feasible.

It is likely that the economics are different in Japan. First, because of land constraints, alternative disposal of these wastes in Japan (landfills) is probably significantly more expensive than in the U.S. Secondly, there are likely significant Japanese government subsidies for such energy production.

A related waste to energy technology used in the U.S. is found in Municipal Solid Waste (MSW) to energy plants. These facilities burn MSW to produce electricity, but have traditionally had a poor emissions control history and have been opposed by U.S. neighborhood activists and some recycling advocates. Facilities with state of the art emissions control equipment, however, have acceptable emissions profiles. Such facilities also have tremendous greenhouse gas benefits, both by avoiding methane and displacing other fossil fuel electricity production. I am not aware of any federal programs to encourage construction or operation of these facilities, although your electricity restructuring proposal would allow certain MSW plants to qualify under the Renewable Portfolio Standard.

Another related waste to energy method is landfill gas to energy. Landfill Gas to Energy (LFGTE) projects reduce greenhouse gas emissions by converting methane (a greenhouse gas 21 times more potent than carbon dioxide) to carbon dioxide and displacing other production of electricity. The number of landfill methane projects in the U.S. has grown from one in 1981, to 89 in 1990, to over 300 in 2000. EIA data for 1998 shows that MSW and landfill gas projects combined produced 0.54% of the U.S. electricity supply.

According to EPA, the landfill projects currently in place have eliminated more than eleven million tons of greenhouse gases – equal to planting twelve million acres of trees or taking about nine million cars off the road.

Several factors drove the growth in these LFTGE projects. Significantly, a federal tax credit supported landfill methane projects until it expired in 1998. And since 1996, to reduce local smog, EPA has regulated methane emissions from large landfills, and many have chosen to produce energy as the most cost-effective method of meeting this requirement. In addition, as part of the Administration's Climate Change Technology Initiative, EPA is conducting the Landfill Methane Outreach Program, working with smaller landfills not subject to emissions regulations, and currently has over 200 voluntary partnerships to develop LFGTE projects.

The Department of Energy is also researching and developing new technologies to improve the efficiency and emissions profile of equipment (microturbines, advanced gas turbines, and natural gas reciprocating engines) used to generate electricity from landfill gas. The microturbine program began this year and will run for 3 to 5 years, and the advanced turbine systems program ran from 1992 through 1999 and resulted in significant increases in efficiency and dramatic reductions in air emissions. The prototypes resulting from this program are now being tested (vendors are Caterpillar, Allison, GE, and Westinghouse).

The most important thing we can do to maintain growth in this area is to reinstate a federal tax credit for LFTGE. You have proposed such a tax credit as part of your climate change energy tax package. Congress has failed to act on this proposal, despite bipartisan support.

Copied to: John Podesta
Secretary Bill Richardson

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RR. Document will be reviewed upon request.

Freedom of Information Act - [5 U.S.C. 552(b)]

- b(1) National security classified information [(b)(1) of the FOIA]
- b(2) Release would disclose internal personnel rules and practices of an agency [(b)(2) of the FOIA]
- b(3) Release would violate a Federal statute [(b)(3) of the FOIA]
- b(4) Release would disclose trade secrets or confidential or financial information [(b)(4) of the FOIA]
- b(6) Release would constitute a clearly unwarranted invasion of personal privacy [(b)(6) of the FOIA]
- b(7) Release would disclose information compiled for law enforcement purposes [(b)(7) of the FOIA]
- b(8) Release would disclose information concerning the regulation of financial institutions [(b)(8) of the FOIA]
- b(9) Release would disclose geological or geophysical information concerning wells [(b)(9) of the FOIA]

THE WHITE HOUSE
WASHINGTON

May 15, 2000

MEMORANDUM FOR THE PRESIDENT

FROM: ROGER BALLENTINE 

RE: One-Year Update on Energy Efficiency Executive Order

You have asked for a report on the status of energy and cost saving efforts throughout the Federal government under Executive Order 13123, signed last June 3rd.

Since the signing of the Executive Order, which called for a 35% level of energy savings by 2010, we have taken several steps to ensure that agencies are working to complete its goals.

- Agencies were directed to appoint a senior official to oversee agency action on the Executive Order. All have done so.
- Agencies were directed to appoint "energy teams" to ease private sector energy-saving contracts through unique agency processes. Most have done so, but we are experiencing only mixed progress in this area.
- Agencies were directed to make compliance with the Executive Order part of performance agreements and to reward achievements by personnel. Compliance, however, is often difficult to quantify.
- GSA and the Department of Energy helped the White House host a training workshop for agency personnel to give high visibility attention to the Executive Order. John Podesta addressed the agency representatives.
- The Department of Energy offers ongoing training for all agencies, and the Department of Defense trains defense personnel.
- OMB has hosted a meeting of the Agency Senior Executives and made the Executive Order an agenda item at two meetings of the President's Management Council (a regular meeting of agency Deputy Secretaries), as well as hosting a meeting of the Senior procurement executives from all agencies.

- At your request, energy savings performance contracts have become one of OMB's "Priority Management Objectives", along with other efficiency measures. OMB is working on budget guidance that will make it more likely agencies will incorporate planning for these tools in budgets.
- OMB has issued the first scorecard for agencies to track their performance under the Executive Order and is working on producing a more stringent year 2000 scorecard requiring more detailed information on agency progress.

Despite progress and strong leadership from OMB and the White House, our efforts to achieve significant savings across the government have been modest. Agencies are exercising bureaucratic caution in moving toward widespread use of tools such as private sector Energy Savings Performance Contracts (ESPC), whereby a private entity is hired to perform energy efficiency upgrades at an agency and is paid out of the energy savings.

The good news is that we see the pace of change accelerating. The 1999 government energy bill is \$2 billion less (in constant dollars) than its bill in 1985, according to the Department of Energy. Since the signing of the Executive Order one year ago, over \$400 million in investments have been planned for ESPC's and other energy saving measures. Given such ample evidence of increased activity, we are optimistic that we can reach the goals established in the Executive Order.

cc: John Podesta
Charles Burson
George Frampton
Jack Lew
Sylvia Mathews

THE WHITE HOUSE

WASHINGTON

March 31, 2000

INTERVIEW WITH LEONARDO DICAPRIO FOR ABC NEWS

DATE: March 31, 2000
LOCATION: Map Room (briefing)
Rose Garden (interview)
TIME: Briefing: 12:30 – 12:50
Interview: 12:55 – 1:10
FROM: Joe Lockhart
Roger Ballentine 

I. PURPOSE:

To provide an interview to ABC for use as part of a prime-time special to be aired on Earth Day April 22) on the subject of global warming. Leonardo Dicaprio will be a host of the ABC special.

II. BACKGROUND:

ABC News will be broadcasting an hour-long prime-time special about global warming on Earth Day, April 22, 2000. They have requested an interview with you at The White House to discuss the Administration's global climate change program, including the "Greening of the White House" initiative.

Leonardo Dicaprio, co-host of the program and Earth Day 2000 Chairman, will conduct the interview, perhaps with the assistance of an ABC reporter. As Chairman of Earth Day, Dicaprio will be the master of ceremonies for the main Earth Day 2000 event on the Mall. Dicaprio has been an advocate for the environment since his earliest days as a public figure. He appears to care deeply about the environment and global warming, and has chosen these issues on which to focus his significant ability to communicate, particularly with young audiences. He did receive criticism over the alleged environmental damage caused by the filming of his most recent movie, "The Beach," in Thailand. Dicaprio has asked the World Conservation Union – a well-respected international environmental organization – to do an assessment of the film's impact, and has stated his determination to address any remaining environmental problems caused by the filming. Any remaining concerns about the incident were certainly insufficient to prevent the national environmental community from selecting him to be Chairman of Earth Day 2000.

Born November 11, 1974 Leonardo DiCaprio was named for the famous artist because his mother felt his first kick while admiring a da Vinci painting. He began his acting career in 1988 starring in a series of commercials. In 1993, DiCaprio received an Academy Award Nomination for Best Supporting Actor in "What's Eating Gilbert Grape?" It was 1997 that brought him international recognition for the blockbuster hit, "Titanic." "The Beach" was released earlier this year.

Global warming is the official theme of the 30th Anniversary of Earth Day, and much of the press attention in the days around April 22 will focus on climate change issues. The overall ABC program format will involve Dicaprio and Chris Cuomo (brother of Andrew) travelling the country and visiting spots that are being or will be impacted by global climate change and meeting people working to prevent it. Such sites include: Florida Keys (focus on coral reefs), Glacier National Park and parts of Alaska (focus on glaciers), the National Climatic Data Center, Asheville, NC (to talk to climate scientists), New Orleans (focus on coastal flooding), and elsewhere.

III. PARTICIPANTS

YOU

John Podesta

Joe Lockhart

Roger Ballentine

Julia Payne

IV. PRESS PLAN

The interview will not be shown or released until April 22.

V. TALKING POINTS [Attached]

ABC Earth Day Special -- Interview Talking Points

- The overwhelming majority of scientists now agree: the planet is getting warmer and people are at least partly to blame. Every week it seems this consensus grows stronger and stronger.
 - Last week, NOAA scientists reported that the world's oceans have gotten significantly warmer over the past 40 years.
 - Back in December scientists reported that since the mid-1970s, the average global surface temperature has increased at a rate of about 3.5 degrees per century – about the same rate estimated for the 21st century if we don't reduce our greenhouse gas emissions.
 - That may not sound like a lot, until you realize that the last Ice Age was only 5 to 9 degrees colder than today.
 - Seven of the 10 hottest years on record occurred in the 1990s, which was the warmest decade of the millennium.
- So we believe climate change is happening and that addressing it will be the greatest environmental challenge of the new century. We need to do this by cutting our greenhouse gas emissions and becoming more energy efficient. Some say we should wait and be even more certain about the science before we act. I reject that, both because the risk is too great, *and* because we can fight this problem without slowing the economy, and even while creating new jobs and saving consumers money.
- I believe this so strongly, that we put our money where our mouth is right here at the White House. On Earth Day 1993 – my first Earth Day as President – I announced “the Greening of the White House” – an initiative to improve the energy efficiency and environmental performance of this historic house and the offices connected with it. The measures we've put in place since then are cutting greenhouse gas emissions by over 800 tons a year *and* saving taxpayers about \$300,000 a year in energy costs. We did it by:
 - Installing compact fluorescent light bulbs that use less energy and are saving over \$100,000 – that's taxpayers' money -- annually here at the White House compound alone;
 - And by purchasing high-efficiency heating systems, new efficient window air conditioners, computers, copiers, sprinklers and timers that are saving energy, water and taxpayer dollars.
- The best part is that we have done these upgrades using commercial off-the-shelf products and technologies that Americans can buy and use in their own homes.
- In fact, we've tried to make the entire government a leader by example. Last June I ordered federal agencies to cut their greenhouse gas emissions from buildings by 30% by 2010. That's going to save taxpayers \$750 million dollars annually and reduce annual emissions by 2.4 million tons -- the equivalent reduction of taking 1.7 million cars off the road.

- These measures are part of our broader strategy to cut the greenhouse gas emissions from America's vehicles, homes, power plants and industry – while creating economic growth:
 - Under the leadership of the Vice President, we formed a Partnership for a New Generation of Vehicles with Detroit automakers back in 1993 with a goal of making safe, affordable, comfortable cars that get up to 80 miles per gallon. All three automakers now have concept cars that are on the way to meeting this goal. And the Vice President just announced yesterday that we going to work with Detroit to incorporate some of these same technologies into light trucks and SUVs.
 - *American consumers understand that a car that gets twice the fuel economy of today's comparable vehicle is the equivalent of cutting the price of gas in half.* This is a win-win situation. It's a win for the environment and it's a win for the pocketbooks of the American people
 - We're also seeking to find new ways to power our cars using fuel cells and clean burning biofuels made from agricultural waste products.
 - We're doing advanced research on renewable energy sources like solar and wind to make them cost-competitive.
 - We have formed a partnership with the housing industry to make new homes 50% more energy efficient and dramatically cutting home heating and cooling costs.
 - We have also proposed a \$4 billion plan to give tax credits to consumers who buy energy-efficient homes, cars, and appliances and for producers of clean, renewable energy.
- Now there are a lot of people in this town who don't want to talk about global warming because they think you cannot cut greenhouse gas emissions without slowing economic growth. But all of these things I've talked about are "win-win" measures – they don't just help the environment, they also save money and create economic opportunities. These are all things we ought to be doing anyway just to cut our energy bills and reduce our dependence on foreign oil.
- That is what people need to understand -- that in today's digital economy, the Big Idea of the Industrial Age just isn't true anymore: we don't have to sacrifice our environment in order to grow our economy.
- It is not just the Vice President and me who are saying we have to fight climate change and that we can do it without hurting the economy. Religious leaders, cities, states, and companies across America believe we can – and must – take action now. Many major corporations are cutting back on their emissions because they realize it's the right thing to do *and* that it can save money. Dupont, Dow, IBM, BP-Amoco are among scores of US companies who have stepped forward in the past couple of years with real goals and targets to reduce their emissions.

- And this is true not just for America but for developing countries too. They don't have to repeat the mistakes we made in our economic development. New technologies are available that will allow them to leapfrog over the Industrial Age polluting ways of making energy and growing the economy. I talked about this last week at the Taj Mahal with Indian government officials where their government announced its own goals to generate more electricity from renewable sources and improve efficiency.
- Climate change is truly a global challenge, and as we do in so many areas, America should lead. And climate change also presents a global opportunity, and here again, America must lead. It's the right thing to do and it is the smart thing to do.

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EXPECTED Q & A

ABC CLIMATE CHANGE INTERVIEW

March 31, 2000

Q. From what I've read, scientists are now measuring increasing warming worldwide. How concerned are you about this?

A. The overwhelming majority of scientists now agree: the planet is getting warmer and people are at least partly to blame. Every week it seems this consensus grows stronger and stronger. So I believe climate change is happening and that addressing it will be the greatest environmental challenge of the new century. We need to do this by cutting our greenhouse gas emissions and becoming more energy efficient. Some say we should wait and be even more certain about the science before we act. I reject that, both because the risk is too great, *and* because we can fight this problem without slowing the economy, and even while creating new jobs and saving consumers money.

Q. What will the world be like in 20 years when a new generation comes of age and is in charge? What effects of global warming might we see?

A. First, I hope that the next generation will have learned from the mistakes we have made and maybe from some of the things we've done right. You know, perhaps this is why I believe this is such an important issue that we must act on. Those of us in this generation have a responsibility to leave this world in the best shape we can for our children and their children. We have a *moral* obligation, I believe, to act to fight global warming. Now, if we don't act, scientists tell us that the next generation will likely see more severe weather, more droughts, more flooding, and a wider range for tropical diseases.

Q. The US is the largest polluter in the world. What can we do to reduce pollution here at home?

A. I think that, even in the case of greenhouse gases, there is much we can do. There are many measures that we all can take as part of a strategy to cut the greenhouse gas emissions from America's vehicles, homes, power plants and industry – while preserving and creating economic growth. Here are some of the things we are already doing:

- Under the leadership of the Vice President, we formed a Partnership for a New Generation of Vehicles with Detroit automakers back in 1993 with a goal of making safe, affordable, comfortable cars that get up to 80 miles per gallon. And the Vice President just announced yesterday that we going to work with Detroit to incorporate some of these same technologies into light trucks and SUVs. *American consumers understand that a*

car that gets twice the fuel economy of today's comparable vehicle is the equivalent of cutting the price of gas in half. This is a win-win situation.

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- We have also proposed a \$4 billion plan to give tax credits to consumers who buy energy-efficient homes, cars, and appliances and for producers of clean, renewable energy.
- But government can't do it alone. And fortunately, it is not just the Vice President and me who are saying we have to fight climate change. Religious leaders, cities, states, and companies across America believe we can – and must – take action now. Many major corporations are cutting back on their emissions because they realize it's the right thing to do *and* that it can save money. Dupont, Dow, IBM, BP-Amoco are among scores of US companies who have stepped forward in the past couple of years with real goals and targets to reduce their emissions. So, we all have to be part of the solution.

Q. What are we doing to prevent the cutting of our forests? What did you think of Julia "Butterfly" who lived in a Redwood for over a year in protest of logging?

A. I greatly respect the right of all Americans to pursue their causes peacefully -- and with passion. I do think it's always best if that is done within the law. That is why we worked so hard to save the ancient redwoods in Headwaters Forest, and we succeeded. Some of these awesome trees are 2,000 years old, and we've made sure they will be protected forever. We also have worked very hard to restore balance to our national forests, starting with our successful plan to protect the spotted owl in the Pacific Northwest. We've put greater emphasis on protecting wildlife and water quality, while ensuring a steady, sustainable supply of timber and jobs. Our latest effort, which I announced last fall, is a plan to protect more than 40 million acres of roadless areas. These are some of the last wild lands in America, and I'd like to see them preserved for future generations.

Q. What are oil companies and others doing to look into production of alternative fuels?

A. I think they're doing a lot; but we need to do more. This recent oil problem we had, which caused gasoline prices to go up, shows that we need to be more energy independent. The way to do that, in the long run, is to become more efficient – so we don't need as much oil – and

to develop alternative fuels. I have proposed significant funding in my budget to work with industry to conduct the research and development that will bring clean alternative fuels to the market. We also have proposed tax credits that will help drive the market for these clean fuels. I think we can get there soon and we will keep pushing the oil companies and others to do this as soon as we can.

Q. What differences do you see in the economies of the 20th Century from the 21st? Can we find ways to pollute less and still have a strong economy?

A. That is what people need to understand: that in today's digital economy, the Big Idea of the Industrial Age just isn't true anymore: we don't have to sacrifice our environment in order to grow our economy. And this is true not just for America but for developing countries too. They don't have to repeat the mistakes we made in our economic development. New technologies are available that will allow them to leapfrog over the Industrial Age polluting ways of making energy and growing the economy. I talked about this recently at the Taj Mahal with Indian government officials where their government announced its own goals to generate more electricity from renewable sources and improve efficiency. We need to spread this message that the 21st Century will be different; that we will be able to grow our economies with clean affordable energy.

Q. What are we doing to fight the decline of coral reefs, the so-called "bleaching" by climate change?

A. Our coral reefs are the foundation of so much of our oceans ecosystems. Unfortunately, they face a variety of threats. In some parts of the world, for example, people use dynamite to harvest resources from coral reefs. In our own waters, reefs are threatened by water pollution, reckless boating, and, of course, climate change. The past few years have seen the worst episodes of coral bleaching ever observed. In the Indian Ocean, warmer temperatures have led to a loss of more than 90% of coral reefs in some areas. In addition to the simple effect of warmer water, many scientists now believe that increased carbon dioxide in the atmosphere – and thus in the oceans – actually causes the weakening of "skeletons" of coral. Fortunately, we have a plan to help save our coral reefs. Two years ago, at the National Ocean conference in Monterey, I signed an Executive Order to strengthen protection of coral reefs in U.S. waters. As a result of that action, a Cabinet-level task force has put together a long-term strategy for the federal government, which includes designating 20 percent of U.S. coral reefs as protected ecological reserves.

THE WHITE HOUSE

WASHINGTON

March 31, 2000

INTERVIEW WITH LEONARDO DICAPRIO FOR ABC NEWS

DATE: March 31, 2000
LOCATION: Map Room (briefing)
Rose Garden (interview)
TIME: Briefing: 12:30 – 12:50
Interview: 12:55 – 1:10
FROM: Joe Lockhart
Roger Ballentine 

I. PURPOSE:

To provide an interview to ABC for use as part of a prime-time special to be aired on Earth Day April 22) on the subject of global warming. Leonardo Dicaprio will be a host of the ABC special.

II. BACKGROUND:

ABC News will be broadcasting an hour-long prime-time special about global warming on Earth Day, April 22, 2000. They have requested an interview with you at The White House to discuss the Administration's global climate change program, including the "Greening of the White House" initiative.

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III. PARTICIPANTS

YOU

John Podesta

Joe Lockhart

Roger Ballentine

Julia Payne

IV. PRESS PLAN

The interview will not be shown or released until April 22.

V. TALKING POINTS [Attached]

ABC Earth Day Special -- Interview Talking Points

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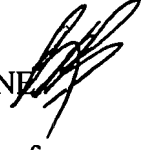
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THE WHITE HOUSE
WASHINGTON

November 8, 1999

MEMORANDUM FOR THE PRESIDENT

FROM: ROGER BALLENTINE 
RE: Report on the Fifth Conference of the Parties (COP-5) of the U.N.
Framework Convention on Climate Change (UNFCCC)

I am pleased to report a positive outcome to last week's climate meeting in Bonn. As you know, COP-5 was an important intermediate step in the hard task of finalizing the Kyoto Protocol at COP-6 next year. While this COP did not address the most difficult issues that divide countries (such as the EU proposal to "cap" the Kyoto Mechanisms), it was critical that we come away from the meeting with a clear sense of the path to COP-6.

The COP agreed on a greatly stepped-up schedule of technical and high-level meetings. As expected, we did not prevail in setting the date of the COP for spring 2001, instead settling for November 13-24 of next year. We found more convergence than expected on many of the substantive elements of the package that will need to be finalized for COP-6. We were able to make substantial progress on such key technical areas as the Kyoto mechanisms, sinks, and compliance.

Strong U.S. support for an intensified process helped us deliver the primary message we hoped to convey: that the Administration is serious about climate change and serious about the Kyoto process. We repeatedly described the many actions we are taking at home and the initiatives you have proposed to our counterparts from other countries, the press, the business community, and the environmental community. It is clear, however, that many countries (including China and those in the EU) and the environmental community continue to criticize the U.S. for not taking stronger action.

Our efforts to secure greater developing country participation under the Kyoto Protocol continue, although the outlook for success in the near term is not promising. Argentina announced its desire to take on an emissions mitigation target that appears to be based on sound economic analysis. Kazakhstan proposed an amendment that would allow it to take on developed country obligations. Although the amendment failed, the Kazaks will pursue their intention take on such obligations over the next year. In the U.S. statement on the way forward, we proposed a dialogue on developing country participation, which we expect to pursue over the coming months.

We had a number of important bilateral meetings. Our meeting with the Chinese was difficult, as they believe that the U.S. should take action before they can be expected to participate. It is clear that they do not yet understand the economic and other benefits available to them through technology transfer, the Clean Development Mechanism, and other joint, cooperative efforts. The Indian government has a new environment Minister who is not yet familiar with this issue. The Indians too were cautious, but we had a positive discussion about the joint statement negotiated by Secretary Richardson. Undersecretary Loy and I hope to travel to India in the near future to seek to build on that progress and to develop some sort of breakthrough agreement that you could announce as part of any Presidential visit next year.

I had a lengthy one on one meeting with British Deputy Prime Minister Prescott. While we discussed the strong disagreements that we have with the EU regarding the flexibility mechanisms, we had a very positive exchange. The British are very interested in the idea of a joint climate change event between you and Prime Minister Blair. They would like to focus on the economic opportunities of fighting climate change and how the developing world can grow their economies and reduce their emissions. This, of course, has been your message as well.

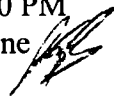
The COP-5 outcome leaves us with an exceedingly ambitious schedule for next year that will have numerous domestic implications. Our domestic initiatives will receive greater international scrutiny, and our domestic opponents will mobilize as we get closer to COP6.

cc: The Vice President
John Podesta
Martin Baily
Charles Burson
George Frampton
Neal Lane
Gene Sperling
Larry Stein
Jim Steinberg

**THE WHITE HOUSE
WASHINGTON**

November 29, 1999

BOB VILA/PODESTA TAPING — DROP-BY

DATE: Monday, November 29, 1999
LOCATION: West Wing hallway/Oval
TIME: 1:30 PM – 1:40 PM
FROM: Roger Ballentine 

I. PURPOSE

To drop by on the taping of a segment on the “Greening of the White House”, which will run this Thursday on the CBS morning show. John Podesta will lead well-known home construction expert Bob Vila on a tour of parts of the White House while noting our “Greening” efforts and the taxpayer savings we have achieved.

II. BACKGROUND

On Thursday, December 2, we will release the latest “Greening of the White House” report. In 1996, we reported annual energy cost savings of \$150,000. This latest report will reveal an additional \$150,000 in annual savings. The savings come from upgrades in lighting, heating, air conditioning, office equipment, water conservation and recycling. These savings, of course, will soon be joined by the \$750 million in annual savings that will result from your Executive Order directing all federal agencies to take such steps. Secretary Richardson and Administrator Browner will hold a press conference on Thursday at the White House to formally release the report.

III. PARTICIPANTS

The President
John Podesta
Bob Vila

IV. REMARKS

Talking points attached

ATTACHMENT

- Welcome to the White House. I am glad that you are seeing some of the simple and common sense steps that we have taken here at the White House. These are the types of things that Americans across the country can do in their own homes to save money, clean the environment and help fight climate change.
- In 1993, I directed that the White House become more energy efficient and more environmentally friendly. We have just completed a report on what we've achieved. Thanks to steps we've taken so far taxpayers are saving \$300,000 annually. We're also reducing greenhouse gas pollution by some 845 tons a year.
- Greater energy efficiency means that utilities have to burn less fossil fuel, which translates into less greenhouse gas pollution.
- In addition, we've directed the entire federal government to become more energy efficient. In June, I signed an Executive Order on Federal Energy Efficiency that directs all federal agencies to achieve 35% greater energy efficiency in buildings by 2010 relative to 1985 levels. Will save taxpayers \$750 million a year; Reduce greenhouse gases by 2.4 million tons annually – equal to taking 1.7 million cars off the road.
- We hope that millions of Americans follow this lead – it can save money for homeowners and make a real contribution to the environment. Energy-efficiency will be a crucial economic and environmental issue in the coming century for America and the world. Improved energy and environmental technologies can help America and the rest of the world avoid the old misconception—that we had to pollute in order to live and to grow. That was the idea of the last century. The 21st century will emphasize energy efficiency and environmental restoration – while we make life better for Americans and for people throughout the world.

THE WHITE HOUSE
WASHINGTON

December 30, 1999

MEMORANDUM FOR THE PRESIDENT

FROM: ROGER BALLENTINE 

RE: Climate Change

I want to pass along some information that you requested and other items that may interest you.

First, I attach a memorandum prepared for me by OSTP responding to your request for more information on the "Greenhouse Effects" article recently published in *Time* magazine. That article listed many "telltale signs" of climate change, and you asked for an evaluation of those claims.

Second, I recently received an advance copy of *New York Times* science reporter Bill Stevens' upcoming book *The Change in the Weather*. I thought you would like to have this.

Third, this month I had the privilege of traveling to Antarctica as a guest of the National Science Foundation. At the South Pole, I met with scientists conducting atmospheric/climate change research. They provided the attached materials, which I thought you would find interesting.

Finally, Amory Lovins provided me with numerous copies of *Natural Capitalism* with the hope that we would forward them to the Cabinet. I am happy to do so if you would like. I have already given a copy to Bill Richardson on your behalf.

cc: John Podesta
George Frampton
Neal Lane

ATTACHMENT ONE

EXECUTIVE OFFICE OF THE PRESIDENT
OFFICE OF SCIENCE AND TECHNOLOGY POLICY
WASHINGTON, D.C. 20502

December 23, 1999

MEMORANDUM TO ROGER BALLENTINE

FROM: Rosina Bierbaum

Subject: Further Information on Climate Indicators Map from Time Magazine

In response to the request from the President that you forwarded to me, OSTP reviewed the "Greenhouse Effects" article recently published by Time magazine. Overall, the article was a reasonably accurate description of various pieces of evidence that global warming is occurring and of the kind of "climate events" that may become more frequent in the future. We expect to obtain more information about the potential consequences of climate change for the US from the first National Assessment of Climate Change, which should be completed in spring of 2000.

An important caveat in any discussion of exemplary "events" is that it is not possible to say that any single event is caused by climate change. We can say that many of the unusual events of the last several years are examples of the conditions we expect to be more prevalent as climate continues to change. We can also say with a high degree of confidence that global warming is underway, and those human activities are playing a role in this change.

- Atmospheric concentrations of carbon dioxide are higher than they have been in the last 420,000 years, as shown by newly extended (from 160,000 to 420,000 years) long-term climate record from the Antarctic Vostok ice core.
- Human activities have increased CO₂ concentrations by about 30% in the last 150 years. This change is as large as the increases that occurred during changes from ice ages to warmer periods, as seen in the Vostok record.
- Over the last century, the global average surface temperature has increased by about 1 degree F, sea level has risen 10 to 25 cm (about 4 to 10 inches), and mountain glaciers have generally retreated.
- Of the 120 to 140 years for which thermometer records are sufficiently complete to define a global average temperature, the 12 warmest years have all occurred since 1983. The three warmest years on record were 1998, 1997, and 1995, in that order. 1999 is tied for the 5th warmest year.
- According to "proxy" temperature records from tree rings and coral growth, the last 10 years appear to have been the warmest decade (and 1998 appears to have been the warmest year) in the Northern Hemisphere in the last 1,000 years.
- Rainfall data for the last century show that global precipitation has increased. U.S. precipitation has increased by an average of 8 percent over the last century. To put this in perspective, this increase is equivalent to the annual amount of water that flows out of the Mississippi River.
- Furthermore, since the beginning of this century, the frequency of intense precipitation events, where more than two inches of rain falls in a 24-hour period, have increased. Such events lead to flooding, soil erosion, and even loss of life.

Following is a more detailed discussion of the "telltale signs" described in the Time magazine map.

Vanishing Animals

Climate change will force shifts in the range and distribution of many individual plant and animal species, and thus will alter many of the ecosystems, including forests and wetlands, which provide the support systems for life on Earth. In the future, as habitats shift with global warming, species that cannot migrate fast or far enough may face extinction.

- Some changes are occurring already. There is compelling evidence that the shrinking habitat and range of the Checkerspot Butterfly in the US and Europe is linked to observed temperature changes over time

However, the declines in numbers of Peary Caribou cannot be clearly attributed to climate change. We do expect that warming in far northern regions would lead to heavy snowfalls and ice storms, but we can't say that the snow and ice storm events that hurt the Peary Caribou were caused by climate change, so we can't say that climate change is responsible for this instance of caribou decline.

Storms and Floods

Climate change will lead to increased precipitation, and increases in the number of extreme rainfall events that often lead to flooding. We can expect more frequent "storms of the century" and "hundred-year floods" as average global temperature continues to increase. In addition, the overall increase in amount and intensity of precipitation that has been observed (globally and in the US) over the last century is some of the most robust evidence that climate change is occurring.

As far as the particular events referenced in the map, we can say that they provide examples of conditions that we expect to be more common in the future, but we cannot be sure whether any single storm or flood is due to global warming or simply part of the natural variability in weather extremes. For example, the El Nino-La Nina cycle also affects precipitation and this cycle and long-term climate change likely interact, so it is difficult to separate the effects of one from the other. The February 1998 record rainfall in California, listed in the map, was largely due to the El Nino event of 1997-98. The rainfall events in Korea and Australia, which occurred in August 1998, were record setting, but the year as a whole was only slightly wetter than average on a global basis.

Spreading Disease

The prevailing scientific view is that climate change could adversely affects human health through an increase in the rate of heat-related mortality and in the potential for the spread of vector-borne diseases such as malaria, dengue, yellow fever, and encephalitis and non-vector-borne diseases such as cholera and salmonellosis. More recent work has shown that warmer temperatures promote smog formation and increase levels of airborne pollen and spores, which exacerbate respiratory disease, asthma, and allergic disorders. However, if health care and surveillance systems are in place, society may be able to cope with these challenges.

The incidents of spreading malaria and increased range of mosquitoes cited in *Time* are best seen as examples of the kind of increased disease ranges we expect to see in the future. However, it is important to emphasize that factors other than climate play a role in the spread of diseases, including more rapid and frequent movement people and animals.

Droughts and Fires

We expect climate change to increase the frequency and intensity of both severe rainfall events and droughts. The extreme Midwestern drought of the late 1980's, and the 1995-96 drought in Texas, thus

provide us with a window on the what the climate-changed future could be like, even though we cannot attribute these specific events to climate change.

We also cannot clearly link the droughts and fires that occurred in Mexico and Indonesia in 1998 to global warming. The record El Nino of 1997-98 played a role in causing dry conditions and increasing vulnerability to wild fires, and the use of controlled burns for clearing cropland was also a factor. Nonetheless, with a warmer climate, droughts and floods could become more frequent, severe, and longer lasting, as could the wild fires that often accompany drought conditions.

Earlier Spring

A variety of recent scientific analyses have provided evidence of changes in the lengths and timing of growing seasons in northern latitudes, which is one of the expected consequences of warming. The items cited in *Time* are consistent with these findings and with analyses of Alaskan change that have been conducted as part of the ongoing National Assessment of Climate Change. The early thaws of the Tanana river in Alaska are part of an overall pattern observed in Alaska that also includes a longer growing season, earlier snow disappearance, and warmer temperatures in May and June. Examples of other findings that ecosystems may be responding to warming include:

- Satellite data from 1981-1991 show that high latitudes (between 45° and 70° North) sustained a longer growing season, and an advance of up to seven days in “greening” in spring and summer.
- A recent study of the behavior of trees and shrubs across Europe concluded that botanical spring is starting an average of six days earlier than it did three decades ago, while autumn has been delayed an average of about five days.

Heat Waves

Individual heat waves are not themselves proof of climate change, but again, provide a window on a climate-changed future. As the globe warms, heat waves are likely to become more frequent, and global average temperatures are rising. They have gone up about 1 degree F since 1880, with 1999 being the fifth warmest year.

The examples given of record heat during 1998 in Tibet and Egypt are examples of regional records set during the global record setting 1998. Similarly, the record heat in New York City during July 1999 was part of the second warmest year since 1900 when averaged throughout the US.

- A study of deaths associated with summer time heat stress and winter time illnesses in 44 US cities estimated that climate change could double the number of weather-related deaths, with the elderly at greatest risk. Urban populations in developing countries are also especially vulnerable to heat stress.
- Under a business as usual scenario, the likelihood of the 1995 Chicago heat wave increases from a 1 in 150-year event to a 1 in 25-year event.

Rising Seas

Sea level has risen 10 to 25 centimeters since 1900, forming one of the principal lines of evidence in support of global warming. Sea level rise occurs as water expands in volume with higher temperatures and as mountain glaciers and the Greenland ice sheet melt. By 2100, sea level is expected to rise another 6 - 38 inches (the best estimate is 20 inches), with effects that include erosion of shores and increases in saltwater intrusion. This will place ecosystems at risk, including the mangrove forests listed in the map for Bermuda.

- 20 inches of sea level rise would double the population at risk from storm surges, from roughly 45 million now to over 90 million worldwide. A 3-foot rise would triple the number of people exposed. Increased coastal area populations are likely to further increase the number of people at risk.
- In the US, approximately 7000 square miles of land would be lost from a three-foot rise in sea level. Areas most at risk include the gulf coast and Florida, where saltwater intrusion from sea level rise, combined with precipitation changes, could adversely affect the ecological communities of the Florida Everglades and degrade the habitat for many species of wading birds.

Melting Glaciers

Alpine glaciers have retreated worldwide over the last century and the rate of shrinkage is closely correlated with observed increases in temperature. Studies of glacier history have shown that many glaciers reached their maximum "post-ice-age" size during the last 500 years, culminating in major expansions from about 1750 to 1850, after which almost all have retreated.

- Outside of Greenland and Antarctica, most mountain glaciers have retreated during the last century.
- In the US, the glaciers of Glacier National Park have been steadily retreating during this century. The larger glaciers are now about 1/3 of their size as documented in 1850; many smaller glaciers have disappeared. Glaciers in the Park will disappear completely by 2030 unless temperatures begin to cool instead of warm.

Polar Warming

Climate change is expected to occur sooner and be of greater magnitude in Polar Regions, and indeed, the greatest observed changes to date have been in far northern latitudes. Alaska has warmed by about 5 degrees F since the 1950's, and the thickness of arctic sea ice has been reduced about 40% over this same period of time. Recently published work suggests that total Arctic sea ice extent has been decreasing by about 3 - 7% per decade.

There is emerging evidence that these observed high-latitude changes can at least partially be attributed to human activities. Recent research has shown, for example, that it is unlikely that natural variability alone – separate from global warming caused by man – can account for the observed declines in thickness and areal extent of arctic sea ice. In other words, there is evidence that the observed loss of ice is related to human induced global climate change.

Many other major changes have been observed in Polar Regions. Dramatic warming in a small region of Antarctica (the Antarctic Peninsula) in the last several years has led to icebergs as large as Rhode Island breaking off. The observed decrease in snowless days in Barrow, AK, is also suggestive of warming due to regional climate change, as is the widespread warming and slumping of discontinuous permafrost in Arctic regions. But in all of these cases, it is not yet possible to determine the relative influence of natural cycles and human causes. More sophisticated and consistent observations over a longer period of time are required to improve our understanding.

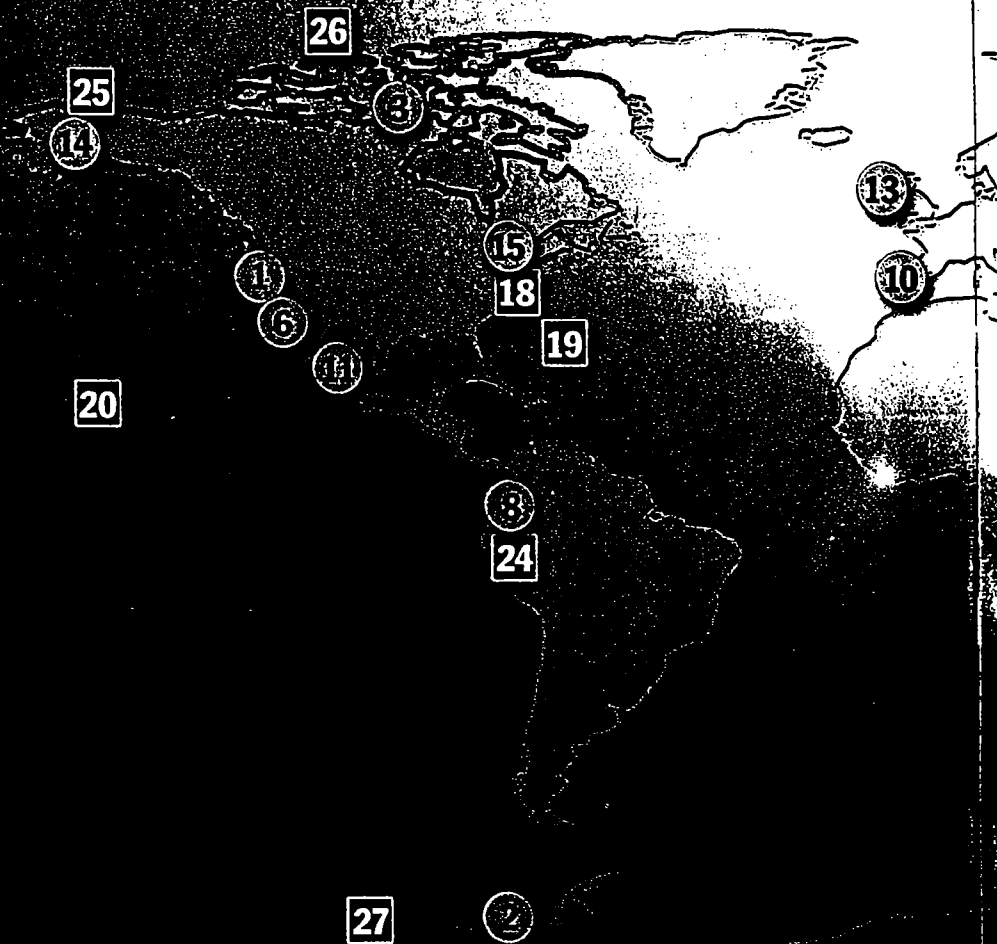
cc:

Neal Lane

Attachment

GREENHOUSE

Carbon dioxide and other gases from the burning of fossil fuels collect in the atmosphere and act like the glass walls of a greenhouse, trapping heat on the earth's surface. Scientists predict that the planet's average temperature could rise as much as 6.3°F (3.5°C) over the next century, and we are already seeing heat waves, melting polar ice and rising seas. Local impact remains unpredictable: some areas could suffer stronger storms and other places severe drought. Seven environmental groups—Environmental Defense Fund, Natural Resources Defense Council, Sierra Club, Union of Concerned Scientists, U.S. Public Interest Research Group, World Resources Institute and World Wildlife Fund—have put together a world map showing “early-warning signs” of global warming. Reviewed by a team of scientists, the signs fall into two categories: direct manifestations of warming, called fingerprints, and events that could become more frequent and widespread with climate change, which are labeled harbingers. Here's an exclusive advance look at the highlights of the map. A more detailed version will be posted on Dec. 15 at www.climatehotmap.org.



Vanishing Animals

- **CALIFORNIA** Edith's Checkerspot Butterfly has disappeared from the lower elevations and southern limits of its range
- **ANTARCTICA** Adelie penguin populations have declined 33% in 25 years because the sea ice where they live is shrinking
- **CANADIAN ARCTIC** Peary caribou numbers dropped from 24,000 in 1961 to as few as 1,100 in 1997, mostly because heavy snowfalls and freezing rain covered their food supply

Storms and Floods

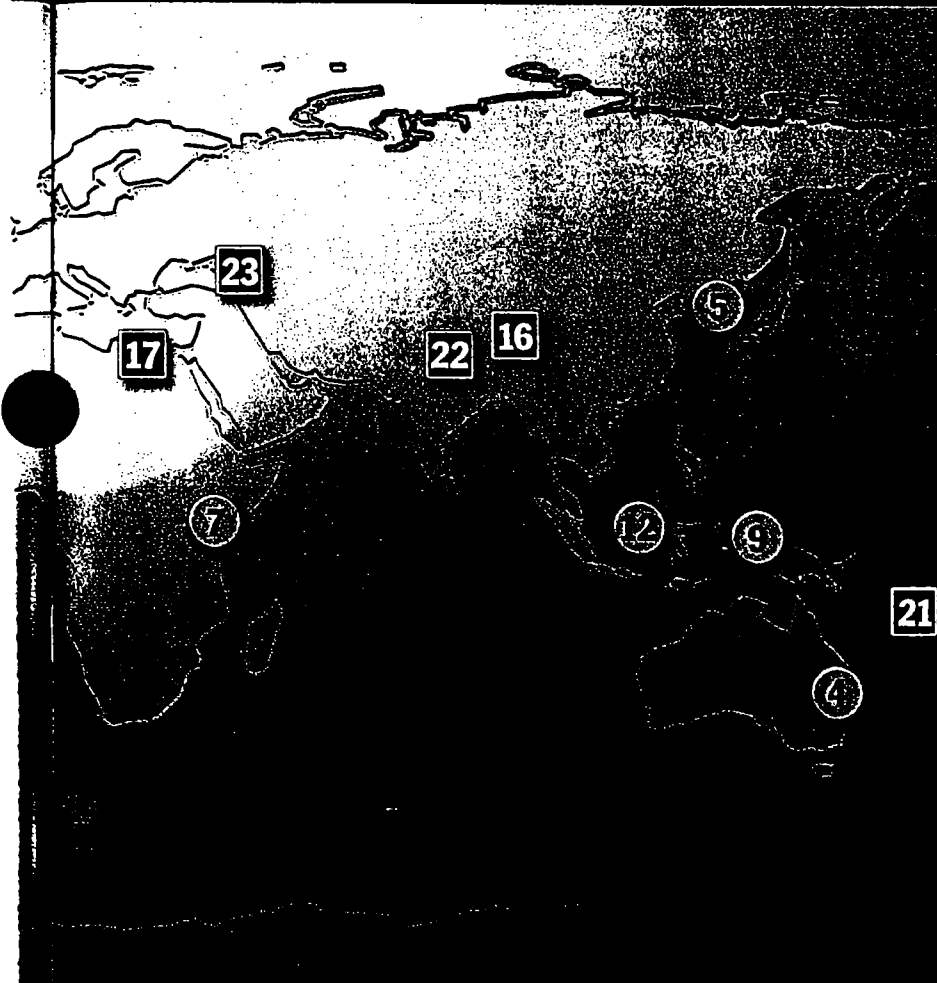
- **AUSTRALIA** During August 15 to 17, 1998, a storm dumped nearly 1 ft. (30 cm) of rain on Sydney, three times as much as normally falls during that entire month
- **KOREA** Severe flooding struck during July and August 1998. On some days rainfall exceeded 10 in. (25 cm)
- **CALIFORNIA** In February 1998, 21.74 in. (55.22 cm) of rain fell on Santa Barbara, its highest monthly total on record

Spreading Disease

- **KENYA** In 1997 hundreds of people died of malaria in highlands where the population had not previously been exposed
- **COLOMBIA** In the Andes, mosquitoes that can carry dengue and yellow fever, once limited to altitudes no higher than 3,300 ft. (1,000 m), appeared at altitudes of 7,200 ft. (2,195 m)
- **INDONESIA** In 1997 malaria was detected for the first time as high as 6,900 ft. (2,100 m) in Irian Jaya province

EFFECTS

Global warming is well under way. Here are some telltale signs



THE FINGERPRINTS

Heat Waves

- 16 TIBET** In 1998 Lhasa had its warmest June on record. Temperatures exceeded 77°F (25°C) for 23 days
- 17 CAIRO** 1998 brought the warmest August since data have been kept. Temperatures reached 105.8°F (41°C) on August 6
- 18 NEW YORK CITY** In 1999 the city had its warmest and driest July on record, with temperatures climbing above 95°F (35°C) for 11 days

Rising Seas

- 19 BERMUDA** Saltwater inundation from the intruding ocean is killing coastal mangrove forests
- 20 HAWAII** Sea-level rise at Waimea Bay, along with coastal development, has contributed to considerable beach loss over the past 90 years
- 21 FIJI** The shoreline has receded half a foot (15 cm) per year for 90 years, according to local reports

Melting Glaciers

- 22 INDIA** The Gangotri Glacier is retreating 98 ft. (30 m) per year
- 23 RUSSIA** In the Caucasus Mountains half of all glacial ice has disappeared in the past 100 years
- 24 PERU** The Qori Kalis glacier in the Andes Mountains is receding about 100 ft. (30.5 m) per year, a sevenfold increase in rate since the 1960s and 1970s

Polar Warming

- 25 ALASKA** In Barrow the average number of snowless days in summer has increased from fewer than 80 in the 1950s to more than 100 in the 1990s
- 26 ARCTIC OCEAN** The area covered by sea ice declined about 6% from 1978 to 1995
- 27 ANTARCTICA** Nearly 1,150 sq. mi. (2,980 sq km) of the Larson B and Wilkins ice shelves collapsed from March 1998 to March 1999

Droughts and Fires

- SPAIN** More than 1.2 million acres (500,000 hectares) of forest burned in 1994
- MEXICO** In 1998 1.25 million acres (506,000 hectares) went up in flames during a severe drought
- INDONESIA** Up to 2 million acres (800,000 hectares) of land burned in 1998, including parts of the already devastated rain-forest habitat of the Kalimantan orangutan

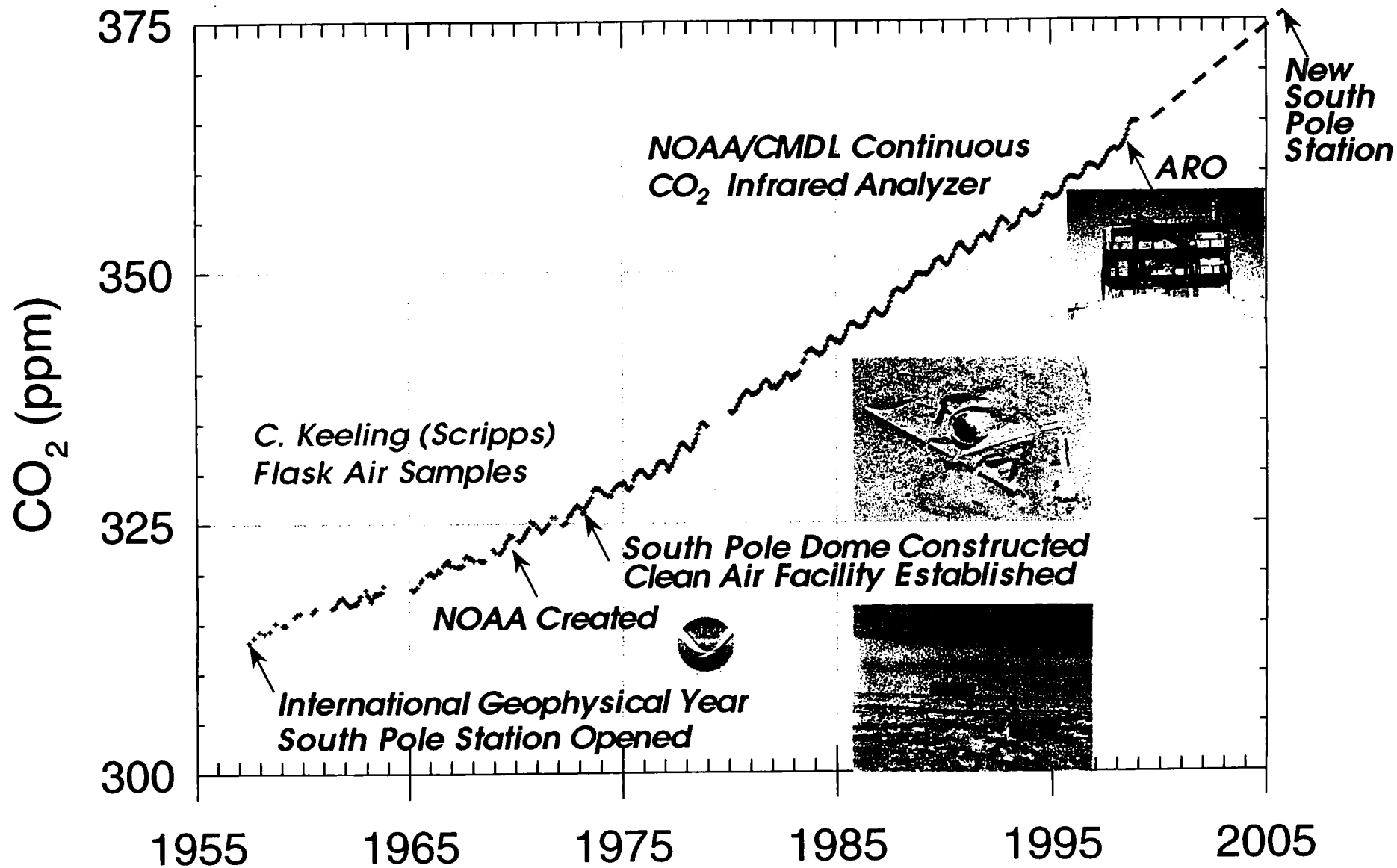
Earlier Spring

- ENGLAND** 31% of 65 bird species studied in 1995 laid their eggs earlier than in 1971 by an average of 8.8 days
- ALASKA** During 82 years on record, four out of the five earliest thaws on the Tanana River have occurred in the 1990s
- NEW HAMPSHIRE** The length of time Mirror Lake is covered with ice has declined about half a day per year during the past 30 years

TIME Map by Ed Gobel

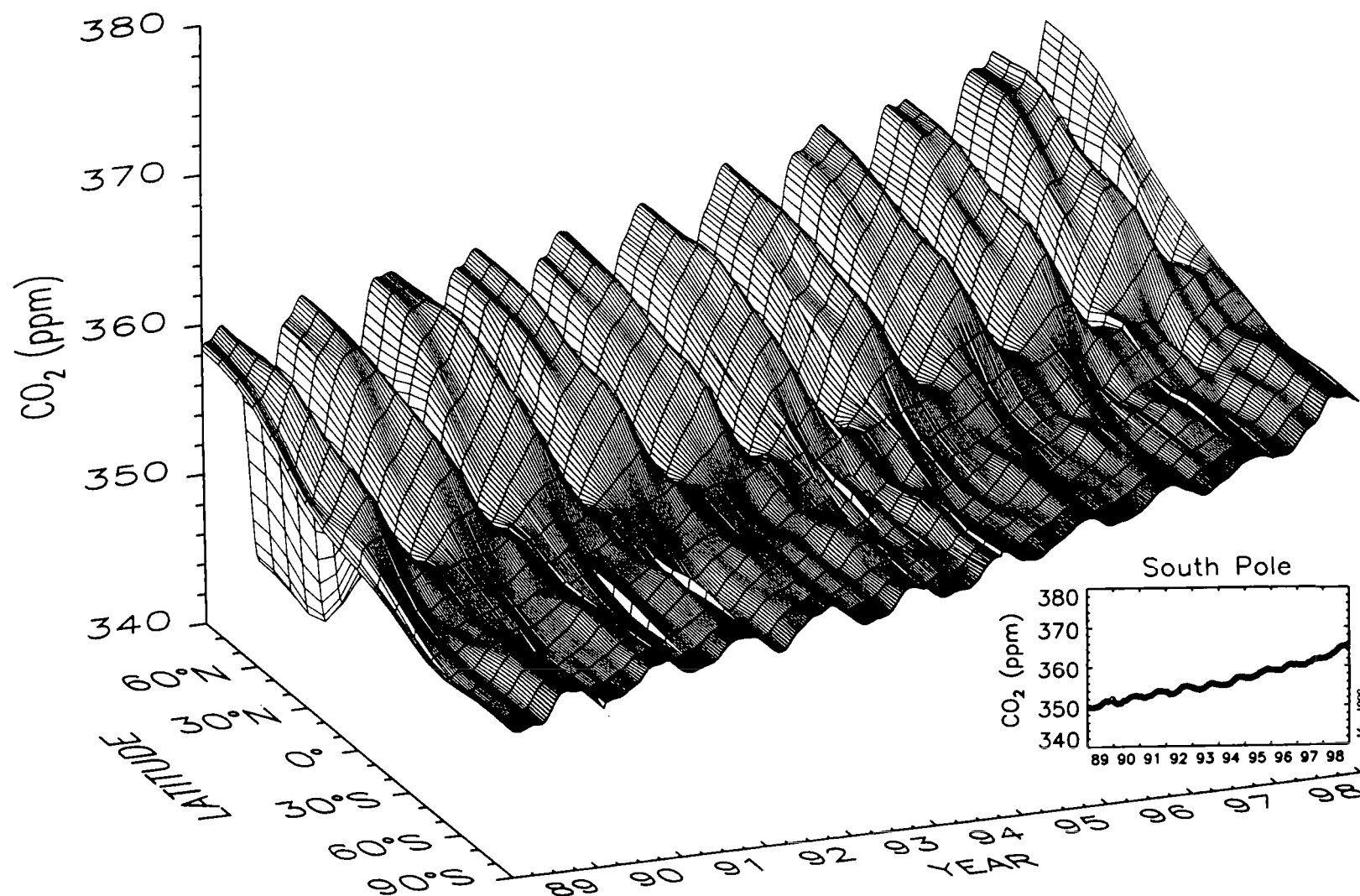
ATTACHMENT TWO

South Pole Carbon Dioxide Record





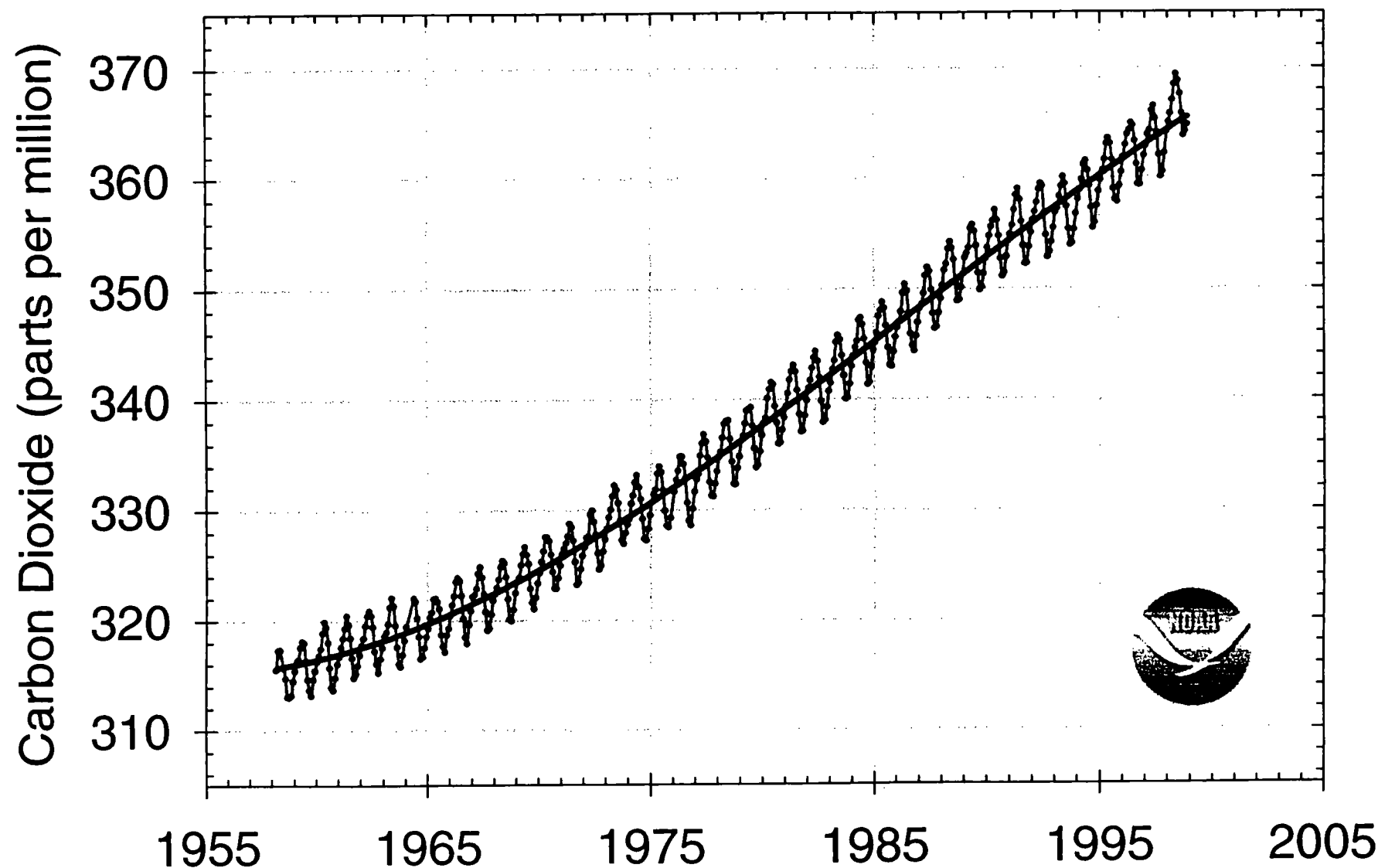
GLOBAL DISTRIBUTION OF ATMOSPHERIC CARBON DIOXIDE

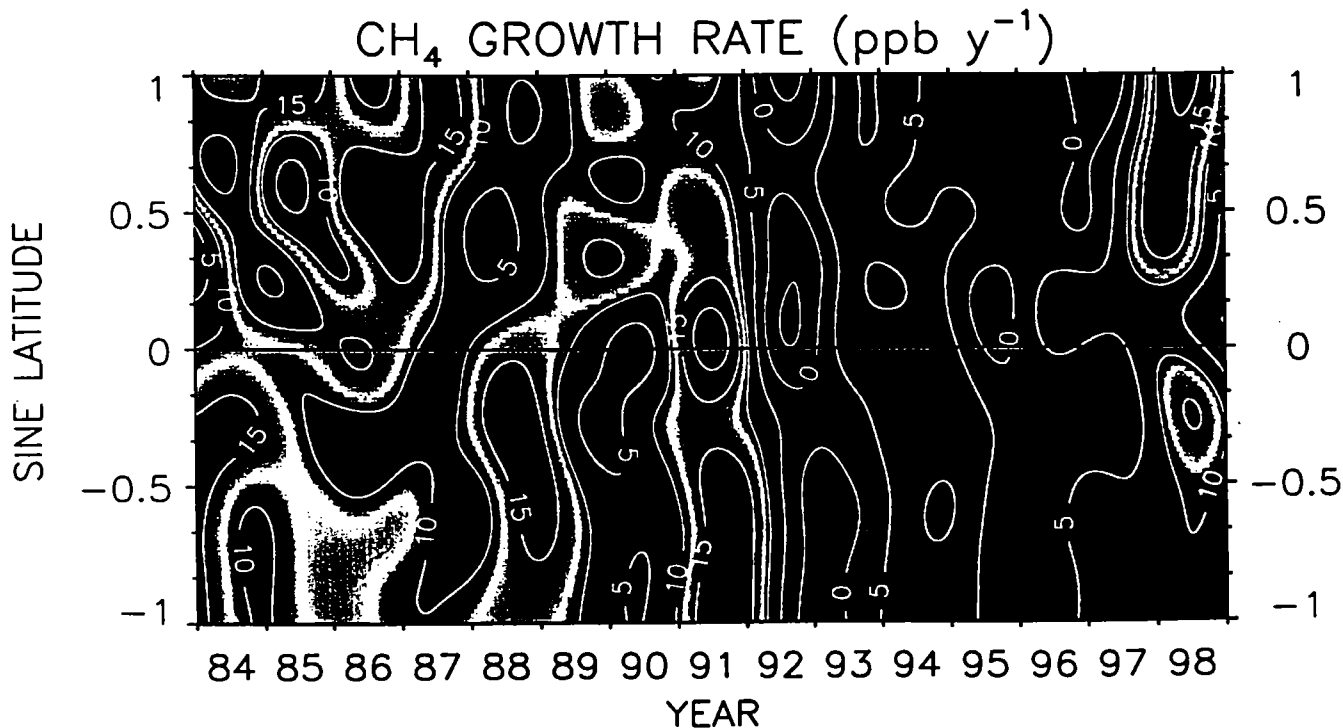
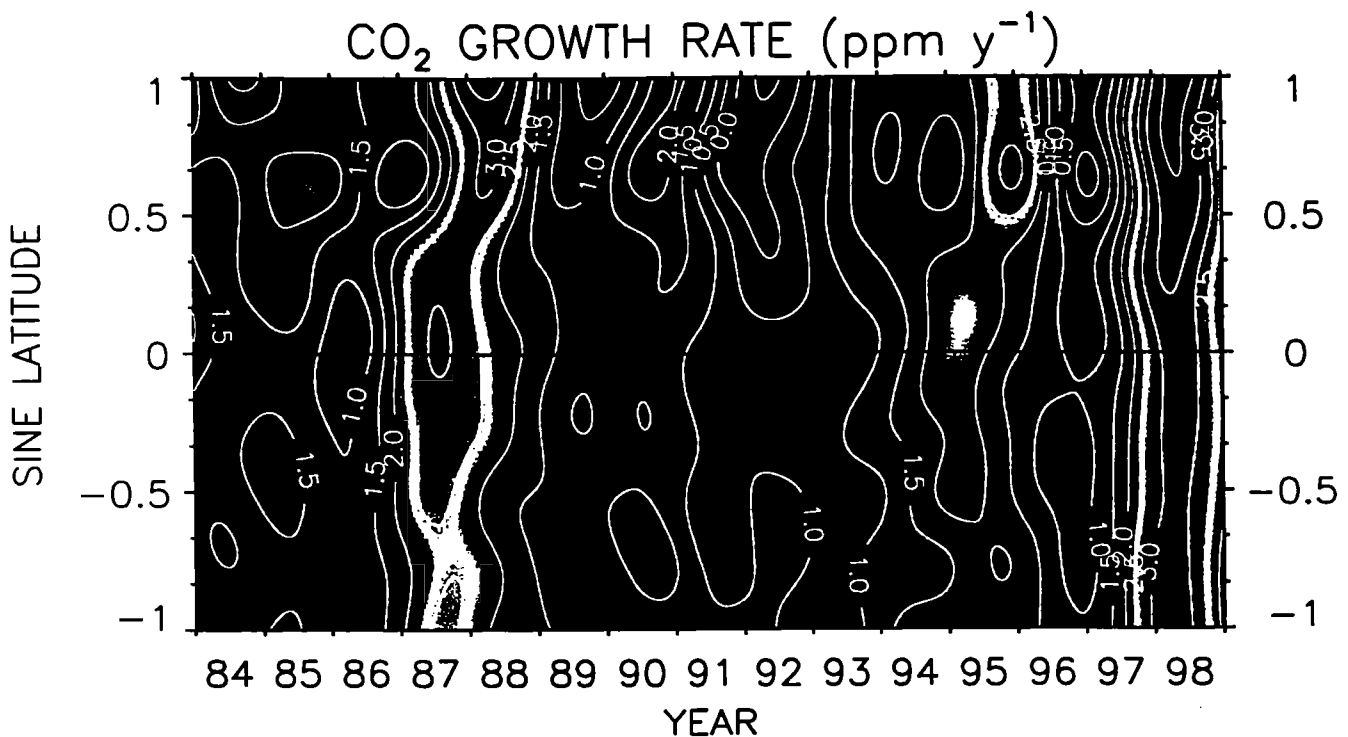


Three dimensional representation of the latitudinal distribution of atmospheric carbon dioxide in the marine boundary layer. Data from the NOAA CMDL cooperative air sampling network were used. The surface represents data smoothed in time and latitude. The contribution from the NOAA CMDL South Pole Observatory flask sampling effort is shown inset as flask monthly means. The 10 degree latitude zone in which South Pole resides is highlighted. Principal investigators: Pieter Tans and Thomas Conway, NOAA CMDL Carbon Cycle Group, Boulder, Colorado, (303) 497-6678.

40 YEARS OF CARBON DIOXIDE MEASUREMENTS

NOAA/CMDL MAUNA LOA OBSERVATORY





Contour plots showing the temporal and spatial variations in the atmospheric increases of carbon dioxide (top) and methane (bottom). The cooler colors (green, blue, violet) represent periods of lower than average growth rates and the warmer colors (yellow, orange, red) represent high growth rate periods. These plots are derived from measurements of thousands of samples collected at the CMDL cooperative air sampling network sites. The variations in the growth rates of these climatically important gases are due to interannual variations in the imbalances between sources and sinks, and also to variations in atmospheric transport. Because the major sources and sinks for carbon dioxide and methane are different, their patterns of growth rate variations are usually dissimilar. An exception to this is the period of low, and even negative growth rates of both gases in 1992-1993, a period when anomalous low temperatures were observed. These observations provide powerful constraints on attempts to model the global carbon cycle. Principal investigator: Pieter Tans, NOAA CMDL Carbon Cycle Group, Boulder, Colorado, (303) 497-6678. ptans@cmdl.noaa.gov.



CLIMATE MONITORING & DIAGNOSTICS LABORATORY



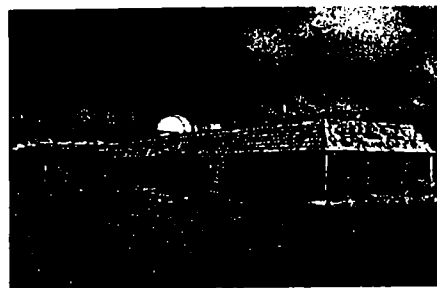
BASELINE OBSERVATORIES



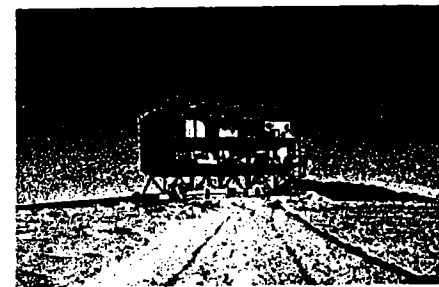
Barrow, Alaska



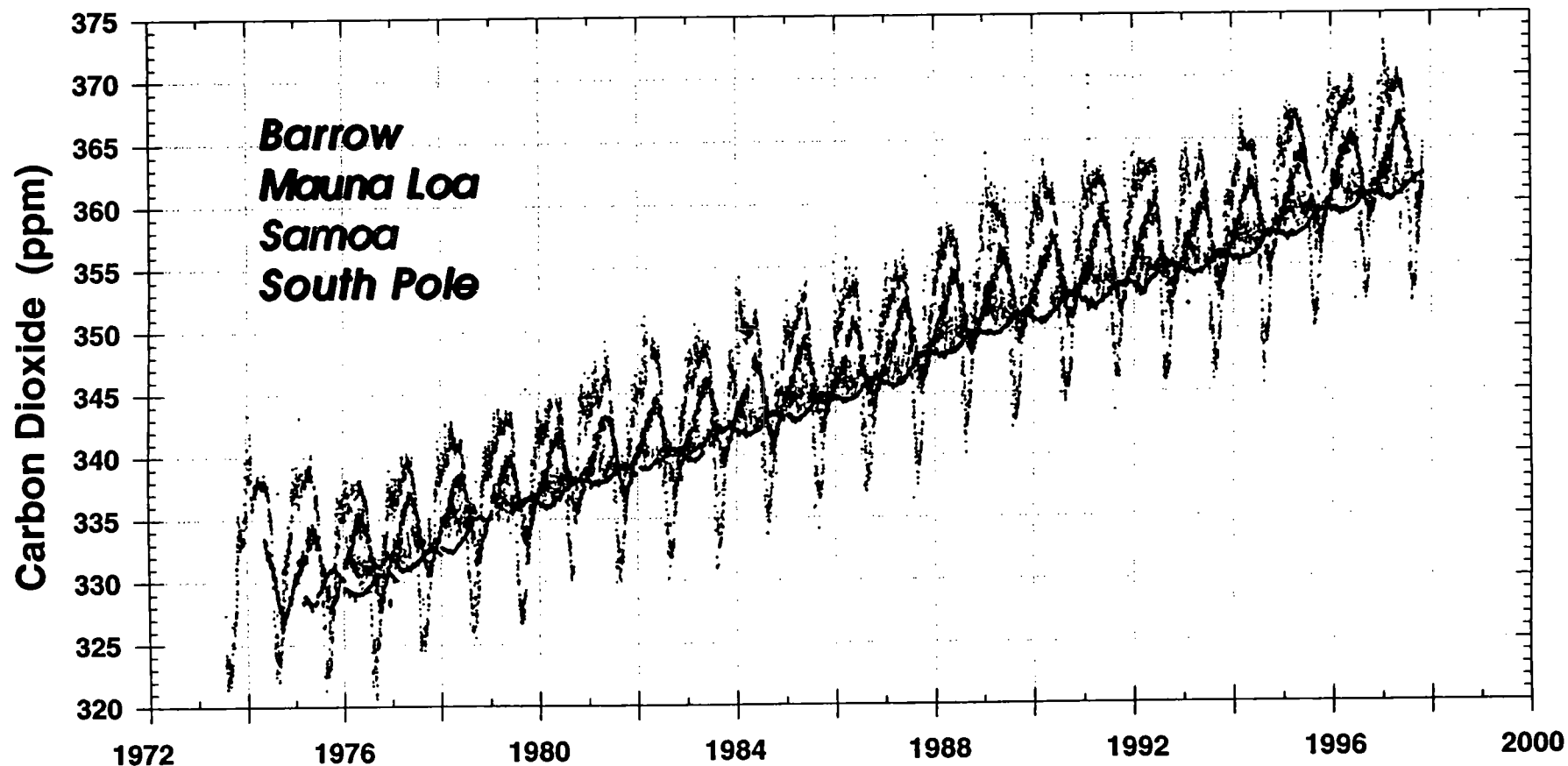
Mauna Loa, Hawaii



Cape Matatula, Samoa



South Pole, Antarctica

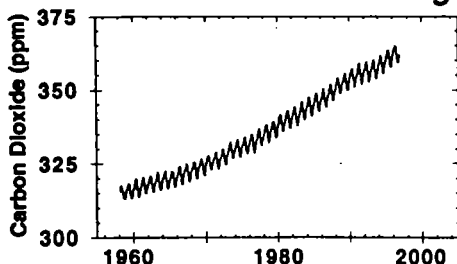




NOAA's BASELINE OBSERVATORIES

The Task of Keeping Watch on Atmospheric Gases that Affect Climate and the Ozone Layer has Become as Important as Keeping Watch on the Weather.

Carbon Dioxide Rising

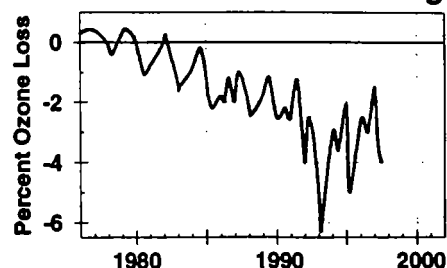


*Pt. Barrow, Alaska
Mauna Loa, Hawaii
American Samoa
The South Pole*

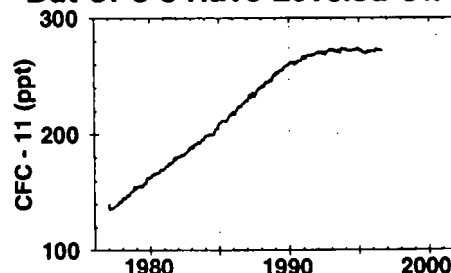
Carbon dioxide continues to increase, adding to the blanket warming the earth. NOAA measurements of greenhouse gases are providing the information needed for wise policy decisions.

Due to regulations on human-made chemicals, the decline of global ozone and the increase in harmful ultraviolet radiation appears to have slowed. NOAA is prepared to make the global measurements, from Alaska to the South Pole, which will show that the ozone layer has begun recovery, thus reassuring the world that the regulations are working.

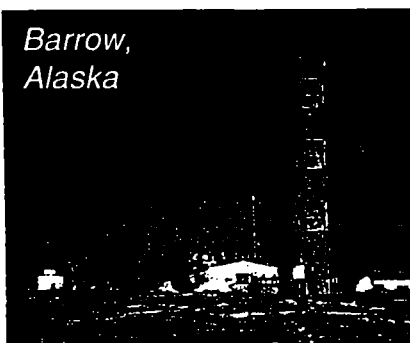
Global Ozone Declining



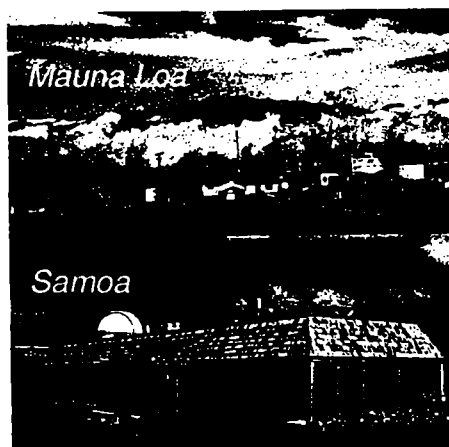
But CFC's Have Leveled Off!



NOAA's Baseline Observatories have been the sentinels of environmental change for 40 years. The FY2001 Climate Research and Services Initiative will allow upgrading and expanding the measurements of greenhouse gases, ozone-depleting gases and radiation.

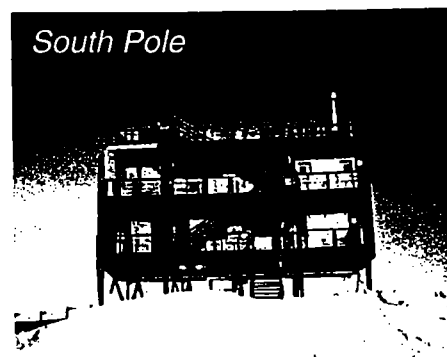


*Barrow,
Alaska*



Mauna Loa

Samoa



South Pole

NOAA Baseline Observatories

THE WHITE HOUSE
WASHINGTON

September 6, 1999

MEMORANDUM FOR THE PRESIDENT

FROM: ROGER BALLENTINE 

RE: *Natural Capitalism*

Thank you for loaning me Amory Lovin's new book – *Natural Capitalism*. As you requested, I have highlighted some of the more provocative passages.

The authors make a number of points about how economic decisions should be made with a "whole system" view that includes the costs of and impacts on "natural capital". We are entering for the first time in history a fundamentally new pattern of scarcity: the scarcity of natural capital (whether it be green space, species, clean water, clean air, or a hospitable climate). Never before has the barrier to sustained economic growth on a global scale been the scarcity of natural resources. Historically, our economic and industrial practices have developed in response to an inverse pattern of scarcity -- abundant natural resources and relatively few people. Natural capitalism is an economic construct meant to respond to this new pattern of scarcity through: radical resource productivity, loop-closing and the elimination of waste, moving toward a "service and flow" economy (where consumption of products is replaced by the more efficient provision of services to the consumer), and reinvestment in natural capital.

There are many implications and ideas for policy in this book, in the contexts of climate change, the Vice President's Livability Initiative and your Lands Legacy proposals. Fundamentally, however, I believe that you and the Vice President have already promoted the simplest and most profound lesson from this book: that economic and environmental issues are one and the same. Not only *can* we grow the economy while we clean up the environment and protect natural resources, rational economic principles *demand* it. Amory Lovins notes in the book Einstein's observation that "problems cannot be solved within the mindset that created them". The "new environmentalism" of the Clinton-Gore Administration -- whereby economic, social and environmental priorities have been shown to be mutually reinforcing instead of in conflict -- is a new mindset and is very much in line with the principles of "natural capitalism".

cc: The Vice President
John Podesta
George Frampton