

FOIA MARKER

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Climate Change Administration Related Issue Papers/Talking Points [1]

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THE UNITED STATES IS TAKING REAL ACTION AT HOME

Domestic action to reduce greenhouse gases emissions is not only important to overall US climate change policy, it is a necessary element in setting the stage for ratification of the Kyoto Protocol.

1. *The President and Vice President have dramatically increased the U.S. efforts to fight global warming.*

- The President has secured more than \$6 billion in funding overall to fight climate change in the last two years.
- Over the past two years, the President has secured more than \$2 billion to research and develop clean energy technologies alone in the four major carbon-emitting sectors of the economy — buildings, transportation, industry, and electricity generation.

2. *The President has taken extraordinary steps to implement domestic greenhouse gas emission reductions through Executive Orders, including:*

- An Executive Order requiring that Federal agencies to reduce the amount of petroleum used by their vehicle fleets by 20 percent below 1999 levels by 2005 reducing greenhouse gas emissions by as much as 160,000 tons per year. This is especially important because the US government is the largest consumer of energy in world.
- Executive Order requiring all US federal government agencies to reduce greenhouse gas emissions from buildings by 30% by 2010
- Executive Order to accelerate the development of clean bio-based fuels and products.

3. *The Vice President has pioneered the way toward reducing emissions from automobiles through research technologies and tax credits*

- Important results are starting to accrue from the public-private Partnership for a New Generation of Vehicles program lead by the Vice President. General Motors, Ford and Daimler-Chrysler have all announced plans to market highly fuel efficient "hybrid" cars that get 50-70 mpg and were partly developed under PNGV.
- Ford and GM have announced increases in overall fuel economy using technologies developed in part under PNGV.
- The President's tax incentives--up to \$3,000 for the purchase of a hybrid vehicle--would take effect in two years--just when vehicles are hitting the show rooms.

4. *These efforts are beginning to show results. The last few years have produced a widening disparity between fast growing US Gross Domestic Product (GDP) and much slower growth in greenhouse gas emissions. The gap between GDP and CO2 emissions has been greater in the second half of the 1990's than the first half. The President's newest proposed investments in clean energy technology and energy efficiency can further "de-couple" carbon emissions and economic growth.*
- In 1999: U.S. GDP grew by 4.2% while CO2 emissions grew by only about 1%.
 - In 1998: U.S. GDP grew by 4% while CO2 emissions grew by only .4%.
 - In the 1990's, US GDP grew almost three times more quickly than energy related CO2 emissions
5. *But the President and Vice President have proposed even more ambitious programs to fight climate change, including*
- \$4 billion in funding for renewable energy, energy efficiency, agricultural and forest-based energy, research and development, and other programs (see budget handout for details)
 - \$4.1 billion consumer tax incentives for the purchase of clean cars, homes, and appliances.

THE ROAD TO RATIFICATION: NEGOTIATING A RATIFIABLE INTERNATIONAL AGREEMENT

Our negotiating efforts leading up to and at The Hague this November are aimed at laying the groundwork for truly effective, global action to combat climate change. But many key elements must be negotiated to make this a real possibility. Resolving the key issues cited below will mean we are well on the way to completing the historic work begun in Kyoto.

Environmental Integrity:

- *The Protocol exists to serve an environmental purpose; to begin to reduce the emissions of the gases that will alter the global climate in an unprecedented manner. Any elaboration and implementation of the Protocol must, as the highest priority, assure the world that the reductions and removals of these gases from the atmosphere have actually occurred. Toward this end, the United States has taken the lead in proposing comprehensive, effective and binding rules to monitor and report emissions and removals, to track trades and to encourage compliance with the obligations of the Protocol.*

Cost-Effectiveness:

- *Over the long run, predictable, cost-effective reductions will allow for the greatest environmental benefit possible for every dollar spent on climate change. Cost-effective action is only possible if the Kyoto mechanisms and sinks can be implemented as widely and as simply as possible while preserving the environmental integrity of the Protocol. Overly bureaucratic requirements or artificial limits on these important tools will only limit the ability of the Parties to act and undermine support for the Protocol.*

Developing Countries:

- *At the same time, climate change is a global problem that requires a global solution. Developed countries have taken the lead but other countries must also contribute in ways that promote their sustainable development. Many developing countries are already making significant strides to improve energy efficiency, slow deforestation and otherwise stem their emissions growth. The Clean Development Mechanism will provide the means for many countries to take additional action without sacrificing economic development.*
- *The United States fully supports the efforts of developing countries to expand their economies and improve the well being of their citizens. We also firmly believe that this goal can be achieved without repeating the wasteful and polluting practices of the past century.*

The United States is committed to completing the work begun at Kyoto. But much remains to be done to address these critical issues.

THE UNITED STATES CLIMATE CHANGE POLICY:
COMMITTED TO ACTION

Climate change is the premier environmental challenge of the 21st Century. There is overwhelming scientific consensus that human activity has begun to affect the climate, and that continuing on our present course may have dire consequences. The evidence of this warming trend has only grown stronger in the last few years

Many segments of American society are embracing the need for action against climate change. These include major corporations, state and local leaders, religious organizations, scientific organizations and others. A strong majority of Americans are not only concerned about climate change; they support action to fight it.

The United States is fully committed to meeting the challenge of climate change, both through strong domestic actions to reduce greenhouse gas emissions, and by working with other nations to achieve agreement on a sound, cost-effective global strategy and binding agreement.

S. Con. Res. 101 – Talking Points

We know that the danger is real: There is an overwhelming and growing scientific consensus that the Earth is warming and that human greenhouse gas emissions are at least partly to blame.

We know that the potential consequences are devastating, including:

- More extreme weather events – increased frequency and intensity of floods and droughts.
- Sea level rise – scientists say 6 to 37 inches by 2100. A 20-inch rise could inundate 7,000 square miles of the U.S. coastline, with Florida and the Gulf Coast at greatest risk.
- Spread of diseases – expanded geographic ranges for diseases like malaria and dengue fever;
- Respiratory illnesses -- more smog caused by warmer temperatures could increase the incidence of illnesses like asthma, particularly among children and the elderly.
- Agricultural disruptions, including changes in growing seasons, water availability, soil moisture, and precipitation. Water supplies and quality may also be affected.
- Damage to ecosystems -- many species of plants and animals are highly adapted to particular climate conditions and may not survive substantial climate shifts.

Responsible course is to guard against these risks with a comprehensive, balanced strategy, including:

- Continued robust scientific research program.
- Near term “win-win” actions that can reduce emissions right now, including voluntary programs that are saving energy and money for consumers and businesses while reducing our reliance on imported oil.
- Accelerated efforts to research, develop, and deploy new technologies that can improve energy efficiency and produce cleaner energy.
- Continued diplomatic efforts to negotiate a strong international agreement that is sound both economically and environmentally.
- Continued efforts to encourage and assist developing countries in reducing emissions.
- Help communities prepare for and adapt to changing climate conditions and protect against potentially catastrophic events and economic dislocations.

Approach of Earth Day – with its clean energy focus – underscores need for Senate to go on record supporting strong action on climate change.

- Growing sentiment throughout the country that USG and Congress must step up to the plate with real action.
- Last fall over 530 mayors and local officials signed a petition calling for greater action by Washington on global warming.
- Scores of religious leaders are speaking out on climate change, launching interfaith organization campaigns in numerous states, and calling for greater action.
- Growing roster of US companies – including Dupont, Dow, IBM, and even oil companies, like BP-Amoco and Shell – are taking real actions cut their ghg emissions.
 - They understand that inaction is irresponsible.
 - They understand that improving energy efficiency makes good business sense.
 - They understand that the US and the world can grow our economy and cut harmful emissions at the same time.

Strong action on climate change – including a strong international treaty – will help U.S. seize opportunities that will be good for our economy, our national security, and the environment.

- Can be a catalyst for making our economy more energy efficient, growing new industries like bioenergy, and reducing our dependence on imported oil.
- Can help US companies in the fast-growing market in developing countries for energy technologies – a market projected to total \$4 trillion over the next 20 years.
- Addressing climate will result in other environmental benefits such as cleaner air and, potentially, enhanced conservation practices in agriculture and forestry.

Potential Rebuttal Talking Points

To those who say “the jury is still out” on the science:

- Intergovernmental Panel on Climate Change concluded in 1995 that “the balance of evidence suggests that there is a discernable human influence on global climate.”
- 7 of the last 10 years were the warmest on record. The 1990s were the warmest decade of the millennium.
- The National Climatic Data Center released data near the end of 1999 showing that in the last quarter-century, the rate of warming has been ~~more than~~ ABOUT double that of the 20th century average, and since the mid-1970's, the global temperature has risen at a rate of about 0.35 degrees per decade, or 3.5 degrees per century. The Center also reported that the record 16 month warm period of 1997 and 1998 may reflect a “change point” at which the surface of the planet began to heat up at a faster rate. The study found that there is only a 5% chance that this hot snap occurred as a result of natural variability.
- The National Academy of Sciences released a major new study on January 13, which found that the SURFACE warming trend "...is undoubtedly real and is substantially greater than the average rate of warming during the 20th century."
- We can't afford to guess wrong -- greenhouse gases persist in the atmosphere for decades and, in some instances, centuries. Deciding to do nothing until we have ~~certainty~~ (*I THINK THIS WAS A BIT TOO WIMPY*) UNEQUIVOCALLY OBSERVED THE EFFECTS OF CLIMATE CHANGE ~~scientific~~ would be rolling the dice with our children's future; ALREADY, WE HAVE ANOTHER DEGREE OF WARMING IN THE PIPELINE FROM PAST EMISSIONS. DELAY WILL ENSURE THIS PROBLEM CONTINUES TO WORSEN FOR MANY GENERATIONS ~~—by that time we gain certainty it may be too late to do anything about the problem.~~
- As Texaco recently wrote when it resigned from an anti-climate change action lobbying group, “protracted debate about the adequacy of the science is something [we need] to move beyond.”

To those who say we should focus exclusively on long term technology R&D:

- Long term research and development is needed – but it is no substitute for a balanced approach that

also recognizes the need to act in the near term.

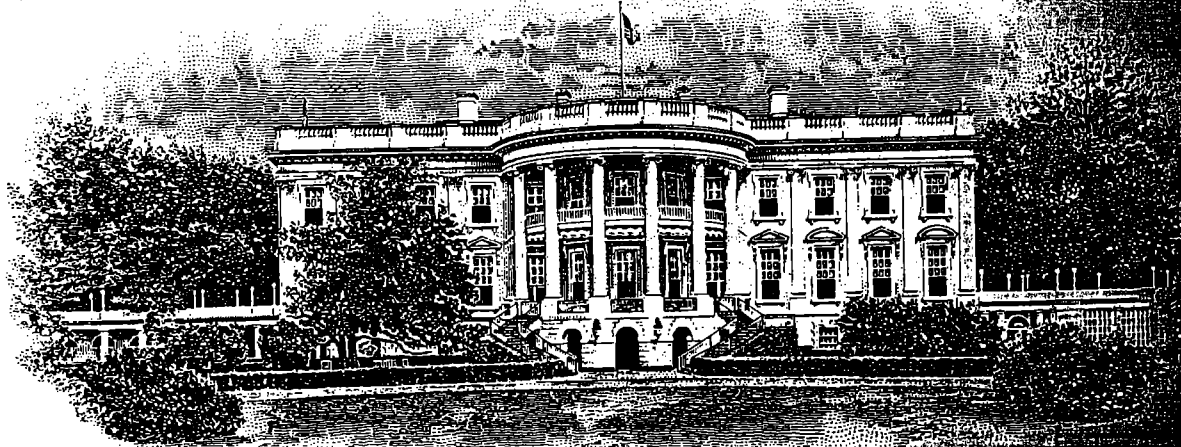
- In the near term, new buildings, new appliances, new equipment, new vehicles and other technologies will be deployed. We need to act now to give American consumers and businesses the clean and efficient products they deserve.
- Long term R&D is also no substitute for strong international action on climate change. Climate change is a global problem that deserves a global solution.
- As Senator Craig recently wrote to the Administration, his bill, which focuses on long term R&D, is “not ‘intended as a substitute for more comprehensive action.’”

Roger —
You background
material.
PB.



ROGER BAUENTINE

The White House



Editorial Boards

Primary Goal: Editorials in the Washington Post, New York Times and USAToday discussing dangers of climate change and urging Congress to support Administration programs.

Secondary Goal: Broadly educating the editorial boards, editors and reporters on the issues; developing closer working relationships with same.

Basic Messages

- 1) Increasing scope and clarity of science making clearer extent of climate change consequences now and over next decades; emerging acknowledgement of problem and interest in action in states, localities and mainstream business community (Mayors, BRT, Ford, BP, Dupont)
- 2) Contrast these developments with Congressional negligence (approps./New Knollenberg, Cochran);
- 3) Efficacy of Administration proposals ("a strong, reasonable plan to both help the environment and save money for consumers and businesses") if only Congress will support them (tax credits, approps, EO's, Int'l).

It is particularly important that we emphasize the President's personal commitment on these issues--noting for example the large number of recent events and statements (we should collect these statements for background materials section). The boards are going to be naturally sceptical about this--wrongly seeing the President's efforts (and perhaps our visits) as thinly-veiled attempts to boost the Vice President. We must forcefully demonstrate the wide-ranging nature of the Administration's commitment.

Issue-by-issue Survey:

1. Congress

A. Appropriations.

The President's FY2000 Budget Request includes nearly \$1.4B for R&D in energy efficient technology and renewable energy. Congress, however, continues to shortchange these successful programs that not only save energy, save consumers and businesses money but also reduce global warming pollution. For example:

- * EPA voluntary programs, including Green Lights and Energy Star, are being slashed 50% from the President's budget request in both House and Senate bills. Request \$216 M--so far \$105M on House, \$102M in Senate. VAHUD passed House last

week before last, Senate to likely take up VAHUD Wednesday.

- * DOE's energy efficiency programs, including the successful Partnership for a New Generation of Vehicles, are down over \$100M from the President's request in both House and Senate.
- * DOE's renewable energy programs, including expanded efforts in key renewable technologies, such as wind, bioenergy, photovoltaics, and geothermal energy, are also down over \$90M from the President's request.
- * The President's Clean Air Partnership Fund, a \$200M new initiative to support state, local, tribal and private efforts to reduce greenhouse gas emissions and ground-level air pollutants, has been zeroed out in the Senate and received only \$36M in the House.

B. Riders

While the evidence of global warming continues to mount, some in Congress are trying to strangle common-sense programs and throw roadblocks in the way of any Administration efforts to address climate change.

Restrictive language has been added to a number of fiscal year 2000 appropriations bills. The Administration has successfully fought off or weakened some of the most far-fetched of these riders. For example, one sought to suppress scientific research on climate (Joanne Emerson, R-MO), and another tried to bar implementation of the President's new executive order to reduce federal energy use and save taxpayers \$750 million a year (Sen. Cochran).

Still alive, however, is the "*Knollenberg rider*" (Rep. Joseph Knollenberg, R-MICH) to EPA's appropriations bill which could roll back EPA's voluntary programs to reduce energy waste and greenhouse gas emissions. These programs have many benefits, including fulfilling the United States' obligations under the UN Framework Convention on Climate Change. Last year, Congress rejected this language and we are hopeful that when the House and Senate conferees meet to work on this bill, the Conference Committee will also reject this language.

This rider has also been attached to 6 other spending bills, including State Department and the U.S. Agency for International Development. Applying these restrictions to international negotiations and activities raises serious Constitutional concerns and could prevent the Administration from advancing bipartisan objectives of engaging developing countries and reducing the cost of addressing climate change. In general, these Knollenberg riders aim at

stopping the U.S. from taking any action to cut emissions of global-warming gases. The conference committees working on these spending bills should reject these riders.

C. Tax Credits.

Although the Majority in Congress has sent to the President an enormous tax package, they have included virtually nothing in the bill to help clean the environment.

Climate Change Technology Initiative. The President's FY2000 budget request includes a \$3.6 billion five-year package of tax cuts for consumers who purchase energy efficient products and for producers of energy from renewable sources. Highlights include:

- * Tax credits for energy efficient homes. This credit contained in H.R. 2380 a bill introduced by Congressman Matsui (D-CA) as well as in a bill introduced by Senators Daschle, Kerrey, Baucus, Bingaman and Byrd. We continue to work with both the environmental community and the homebuilders to find consensus on this issue.
- * Tax credits for renewable energy. This credit is for energy produced by wind, biomass, and biomass cofired with coal. This provision is in the Matsui bill, in the Daschle package, and in a bill introduced by Senator Grassley (R-IA). It was also included in the Senate-passed tax package but substantially dropped by the conference committee.
- * Tax credits for fuel-efficient cars. This provision is in the Matsui bill and in the Daschle package.

D. Credit for Early Action.

- * Bills have been introduced in both the Senate (S.547 -- Senators Chafee (R-RJ), Lieberman (D-CT) and Mack (R-FL)) and the House (H.R. 2520 -- Representatives Lazio (R-NY) and Dooley (D-CA)). The Senate Environment and Public Works Committee held one hearing on the issue and has been conducting extensive outreach to industry and the environmental community to work through the many substantive, difficult issues. The Committee plans to continue to work on the bill with hopes of marking up the bill at the beginning of next year.
- * In addition, several other bills have either been introduced or are

being contemplated that are being portrayed as alternatives to the credit for early action legislation. For example, Senator Murkowski (R-AL) has introduced S.882 a bill that authorizes additional funding for long-term technology R&D as well as makes several modifications to the 1605(b), DOE voluntary reporting program. We understand that Senator Craig is working on legislation that would also address the 1605(b) program as well as attempt to remove perceived regulatory barriers to industry taking voluntary actions.

E. Bioenergy Legislation

* Bills have been introduced in both the Senate (Senators Lugar (R-IN) and Harkin (D-IA)) and the House (Representative Udall (D-CO)). The House bill has been referred to the Science Committee which has not yet taken action. In the Senate, S. 935 was reported out of the Agriculture Committee and awaits floor action.

2. Administration's Executive Actions -- Despite Congressional recalcitrance, the Administration been working to make government show place of energy efficiency and climate change leadership.

a) Energy Efficiency EO -- See Attachment

b) Bioenergy EO -- See Attachment

3. Latest Science -- Science increasingly leaves no doubt that greenhouse gas emissions are a major cause of significant global warming; research already turning up multitude of impacts to natural systems; long term models often dire unless we take action soon.

a) Ice core samples --

b) Bill Stevens article (NYT 6/29/99)--summary of science focusing on gg gases as source of warming. See attachment.

4. COP5 -- Administration committed to securing meaningful participation from as many nations as possible and beginning to see progress. (David S./Ian)

a) Emerging Economies -- Argentina, Kazakhstan

b) Timing for COP6

5. CAFE --

For past several years, the appropriations bill for transportation has included a rider that has prevented the consideration of any improvements to the fuel economy standards. The Administration has opposed the rider, and continues to do so. Last week, for the first time, opponents of the rider in the Senate offered a resolution opposing it. The resolution failed by a vote of 55-40. The environmental community claims that the vote indicates that there are a "veto-proof" group of Senators who would vote to uphold a Presidential veto of the transportation appropriations bill. The Administration wants the rider eliminated, and is considering its options.

6. UN Special Session -- Do we have language about this? *Times* is certain to discuss. (David S./John)

2. Recent Corporate Action (since April) -- See Attachment for before April.

- * DuPont announces pledge to cut greenhouse gas emissions by 65% over 1990 levels by 2010;

- * Motorola announcement (May) of 50% reduction in PFC emissions from 1995 (worldwide semi-conductor industry 10% reduction goal);

- * BP Amoco extended the commitment to ARCO.

- * Aiden Murphy from Shell made the statement Monday that corporations undertake these commitments because they realize they are "citizens of the planet on BOTH the corporate and individual level."

- * The Business Roundtable report released this summer -- See Attachment.

Materials --

1. Summary of Congressional State of Play; Recent Corporate Actions.
2. Recent Presidential statements.
3. Executive Orders on Federal buildings and BioEnergy
4. Summary of Administration Programs "Meeting the Challenge of Global Climate Change"
5. Report by President's Committee of Advisors on Science and Technology: "The Federal Role
"on Internal cooperation on Energy Innovation"
6. Bill Stevens *New York Times* story on science.

In general, it is time to play OFFENSE.

Our audience -- editorial writers, news editors, environmental reporters and columnists -- should include:

New York Times

Bob Semple (ed writer), Bill Stevens (sci.), Bob Herbert (columnist)

Washington Post

Fred Hiatt (ed board editor) , Martha Hamilton (bus.), Rob Stien (editor) David Ignatius (columnist)

USA Today

Graham Dower (ed writer), Jack Williams (sci.), Traci Watson

We will obviously encourage other Post or Times staff members who wanted to sit in as well. (For example, I would not be surprised to see Howell Raines, editorial page editor of the NYTimes, stop by.)

From: <John_D._Gibson@whcctf.eop.gov>
To: ibr8dm00.ibr8smtp("pbledsoe@usbr.gov")
Date: 9/17/99 6:12PM
Subject: ed boards and stuff

I think everyone got the ed board stuff to you -- hound them monday morning if they didn't. I am out today for the holiday. Elliot thinks that whatever is in the bible is good enough for POTUS statements. I would encourage you to surf the white house web site to get more, however. I simply didn't have time. I think it's pretty easy to pull them down.

I hope you got the communications memo that i sent out. I'm appending here in case you couldn't open the attachment. I hope you don't feel like I encroached on your turf by doing this but I was asked to in a conference call with Frank and Roger on Thursday. Believe me, I'd much rather you be the one doing this. We're also really behind the curve on some of this. Hope you had a productive trip. See you/talk to you Tuesday.

4

9/17 Pre-decisional Draft; Do Not Cite; Close Hold

MEMORANDUM

TO: Roger Ballentine
Paul Bledsoe
Elliot Diringer
David Gardiner
Frank Loy
Nigel Purvis
David Sandalow
Jeff Seabright

FROM: John Gibson

DATE: September 17, 1999

RE: COP-5 Communications.

This memo outlines:

- ? draft message for COP-5;
- ? list of potential means of dissemination;
- ? list of potential materials for press packet and status.

Draft Message

This reflects input from Frank and Nigel. We may want to consider tailoring our message, emphasizing different aspects of it depending on whether the audience is foreign or domestic. The core though, might run as follows:

? A growing body of scientific evidence makes clear that climate change is one of the premier environmental challenges of the 21st century.

? The U.S. is taking significant domestic actions to reduce its greenhouse gas emissions. These actions are taking place at the federal,

state and local levels and throughout corporate America.

? Preliminary new data shows that the U.S. and others may be beginning to demonstrate that economic growth and emissions need not move in lock-step.

? The Kyoto Protocol put in place the architecture of an agreement to begin addressing the challenge of climate change.

? The United States is committed to working to make Kyoto a reality ? one that can be ratified and enter into force.

? That entails ensuring that the cost is reasonable and there is meaningful participation by developing countries.

? We recognize that developing countries must give priority to economic and social development, and we are prepared to create opportunities to address sustainable development goals via the Kyoto Protocol.

? Last year, we began to turn Kyoto's broad concepts into working realities, with the Buenos Aires plan of action. In Bonn, the challenge is to keep the momentum going so that our work can be finalized by the end of COP-6.

? Unless we work together urgently to create the conditions necessary to bring the Kyoto Protocol into force, however, we risk missing an important opportunity to protect the earth's climate.

OR

We are rapidly approaching a fork in the road ? unless there is real progress in Bonn, it may be impossible to complete the Buenos Aires plan of action by the end of COP-6. This may deal a fatal blow to Kyoto.

Clearly, this last formulation would be setting a bar -- one that we may not be able to clear. There would be potential advantages and disadvantages to doing so and what may be advantageous diplomatically could well be disadvantageous domestically.

Potential Means of Dissemination

This section was prepared with the assistance of Sheila Austrian at USIS.

1. Get cable out to embassies with our message so they can start pushing it and using it to respond to press inquiries. By this time last year, this was already done. Recommend OES draft new cable ASAP with appropriate guidance from WH.
2. Presidential/Vice-Presidential Events. Consideration being given for state and local event, technology export initiative, Greening of the White House, Clinton/Blair cyber-summit, transportation E.O.
3. Op-ed by Frank Loy setting expectations for COP-5 for placement in Financial Times or other European publication. If proceed, recommend OES/WHCCTF produce first draft by 10/10.

4. Op-ed by Frank Loy/Bill Richardson/Carol Browner (pick 1 or 2) for placement in G-77 countries. If proceed, recommend WHCCTF oversee production of first draft by 10/10. USIA would seek to place.
5. Speech by Frank Loy setting expectations for COP-5. If we do this, forum will have to be sought.
6. Briefing by Frank Loy and Roger Ballentine for Washington reporters.
7. Placement of domestic action and other materials on USIA web site. Materials in production (see below). Recommend delivering to USIA for posting as soon as finished.
8. Background Briefings/Press Conferences at USIA Foreign Press Center. Several of these done by M. Kimble last year. Recommend two be done this year: one by high-level official setting diplomatic expectations; one by high-level official explaining domestic initiatives. These and similar events could also be done via USIA's WORDLNET TV satellite feeds (journalists in a 2-4 countries abroad ask questions in real-time; briefer can't see questioners, however) and/or by digital video conferencing (more like one-on-ones where both parties can actually see each other).
9. Direct USIA's Washington File writers to stories about U.S. domestic programs. This is USIA's wire service; stories get picked up abroad.

Potential Materials for Press Packet

1. Cover letter from Head of Delegation addressing overarching U.S. objectives for COP-5 and looking forward to COP-6. Recommend OES produce first draft by 10/1.
2. Fact Sheet on Buenos Aires Plan of Action. Recommend WHCCTF update State Department fact sheet from last January by 10/1.
3. Fact Sheet on CCTI & other climate-related investments. This would be the big one; agencies already tasked for draft inputs by 9/23. We may also want to group this with/staple/place in book with 4, 5 and, possibly, 6 and 7 below.
4. Fact Sheet on Federal Energy. DOE tasked to update 5 pager from June event; draft due by 9/23.
5. Fact Sheet on Bioenergy Initiative. DOE & USDA tasked to update 4 pager from August event by 9/23.
6. Fact Sheet on U.S. State and Local achievements. Recommend WHCCTF produce w/help from EPA and others as necessary; first draft by 10/1.
7. Fact Sheet on Private Sector Developments. Recommend WHCCTF produce w/help from EPA and others as necessary; first draft by 10/1.
8. Fact Sheet on Emissions Trading. Recommend updating COP-4 edition. WHCCTF to complete for OES review by 10/1.
9. Fact Sheet on CDM. Recommend updating COP-4 edition. WHCCTF to

complete for OES review by 10/1.

10. Fact Sheet on Sinks. Recommend OES produce first draft by 10/1 w/input from USDA & EPA.

11. Fact Sheet on Compliance. Recommend OES produce first draft by 10/1.

12. Fact Sheet on latest science findings. Recommend OSTP produce first draft by 10/1.

13. Fact Sheets on Joint Implementation, National Security & Kyoto. Recommend not doing.

14. Bios of Roger Ballentine, David Gardiner, Mark Hambley, Frank Loy, David Sandalow, Jeff Seabright. Presumably these all exist.

cc: Susan Povenmire
Sheila Austrian

Materials --

1. Summary of Congressional State of Play; Recent Corporate Actions.
2. Recent Presidential/Vice Presidential statements.
3. Executive Orders on Federal Buildings and BioEnergy
4. Summary of Administration Programs “Meeting the Challenge of Global Climate Change”
5. Report by President’s Committee of Advisors on Science and Technology: “The Federal Role on International Cooperation on Energy Innovation”
6. Summary of recent science; Bill Stevens *New York Times* story on science.
7. Time Magazine story on Congressional negligence

1. Congress

A. Appropriations.

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- * Tax credits for fuel-efficient cars. This provision is in the Matsui bill and in the Daschle package.

D. Credit for Early Action.

- * Bills have been introduced in both the Senate (S.547 -- Senators Chafee (R-RI), Lieberman (D-CT) and Mack (R-FL)) and the House (H.R. 2520 -- Representatives Lazio (R-NY) and Dooley (D-CA)). The Senate Environment and Public Works Committee held one hearing on the issue and has been conducting extensive outreach to industry and the environmental community to work through the many substantive, difficult issues. The Committee plans to continue to work on the bill with hopes of marking up the bill at the beginning of next year.
- * In addition, several other bills have either been introduced or are being contemplated that are being portrayed as alternatives to the credit for early action legislation. For example, Senator Murkowski (R-AL) has introduced S.882 a bill that authorizes additional funding for long-term technology R&D as well as makes several modifications to the 1605(b), DOE voluntary reporting program. We understand that Senator Craig is working on legislation that would also address the 1605(b) program as well as attempt to remove perceived regulatory barriers to industry taking voluntary actions.

E. Bioenergy Legislation

- * Bills have been introduced in both the Senate (Senators Lugar (R-IN) and Harkin (D-IA)) and the House (Representative Udall (D-CO)). The House bill has been referred to the Science Committee which as not yet taken action. In the Senate, S. 935 was reported out of the Agriculture Committee and awaits floor action.

2. **Recent Corporate Action** (since April) -- See Attachment for before April.

- * DuPont announces pledge to cut greenhouse gas emissions by 65% over 1990 levels by 2010;
- * Motorola announcement (May) of 50% reduction in PFC emissions from 1995 (worldwide semi-conductor industry 10% reduction goal);
- * BP Amoco extended the commitment to ARCO.
- * Aiden Murphy from Shell made the statement Monday that corporations undertake these commitments because they realize they are "citizens of the planet on BOTH the corporate and individual level.
- * The Business Roundtable report released this summer -- See Attachment.

INDUSTRY AND CLIMATE CHANGE

APRIL 1999

There is a growing awareness in the business community that the threats posed by climate change are real and a number of companies are stepping forward to assume leadership roles in efforts to address the problem. The Clinton Administration is working to facilitate these efforts through a range of voluntary programs. It also supports the principle of granting credit to firms that take early action to reduce greenhouse gas (ghg) emissions.

Growing Awareness and Support From Business. An increasing number of companies are committing to take real actions to cut their ghg emissions. In the past year alone:

- **British Petroleum** pledged in September 1998 to reduce its ghg emissions 10% below 1990 levels by 2010 across its global operations and to ramp up its solar business to \$1 billion in sales by 2007. The company later extended its pledge to include its newly acquired subsidiary, **Amoco**.
- **Royal Dutch Shell** pledged to cut its global ghg emissions by 10% by 2002 and maintain that level of reduction through 2010. It will also spend \$500 million over the next 5 years on developing a new renewable energy business.
- **United Technologies** -- producers of Otis elevators, Carrier air conditioners, Pratt & Whitney engines and Sikorsky helicopters -- announced a plan to cut emissions by improving energy efficiency 25% per unit of production by 2010.
- **IBM** announced goals to improve energy efficiency by 4% per year and to reduce ghg emissions.
- The new **Pew Center on Climate Change** launched a \$5 million campaign to build support for taking action on climate change. **Boeing, DuPont, Shell, Weyerhaeuser** and some 17 other major corporations joined the Center's *Business Environmental Leadership Council*, saying "enough is known about the science and environmental impacts of climate change for us to take actions to address its consequences."

Industry Partnerships. A number of voluntary government-industry partnerships are supporting efforts to reduce emissions, including:

- *Partnership for a New Generation of Vehicles*, a partnership with the **auto industry** to develop cars that get up to three times the fuel efficiency of today's cars;
- *Partnership for Advancing Technology in Housing*, a partnership with the **building industry** to develop and deploy housing technologies to make new homes 50% more energy efficient and to retrofit 15 million existing homes to make them 30% more energy efficient within a decade; and
- *Industries of the Future*, a cooperative research program with the nation's most energy-intensive industries -- such as **aluminum, glass, chemicals, forest products, mining, petroleum refining, and steel** -- to develop energy efficient technologies.

Credit for Early Action. In this year's State of the Union address in January, President Clinton reiterated his commitment to providing credit to companies that take early, voluntary action to reduce ghg emissions or increase carbon sequestration. We look forward to working with Congress and stakeholders on a fair and workable program that rewards real environmental gain.



For Immediate Release:
Monday September 13, 1999

DuPont Announces New Targets to Reduce Greenhouse Gas Emissions

Pledge Made at Pew Center on Global Climate Change Early Action Conference

WASHINGTON, D.C. – DuPont, a member of the Pew Center on Global Climate Change's Business Environmental Leadership Council, today announced an ambitious set of new targets to address the challenge of climate change.

Dennis H. Reilley, Executive Vice President and Chief Operating Officer at DuPont, made the announcement today in a keynote address at the Pew Center's Early Action Conference in Washington D.C. The Pew Center, in cooperation with the H. John Heinz III Center for Science, Economics and the Environment, is hosting the two-day conference to examine issues related to credit for early action by companies to reduce greenhouse gas emissions.

Specifically the new goals for 2010 unveiled by Reilley include:

- Reducing global carbon equivalent greenhouse gas emissions by 65 percent, using 1990 as a base year;
- Holding total energy use flat, using 1990 as a base year; and,
- Using renewable resources for ten percent of global energy use.

"We applaud DuPont's leadership in rising to meet the challenge of climate change," said Eileen Claussen, Executive Director, Pew Center on Global Climate Change. "DuPont's commitment is an important reminder that there are steps companies can take now to reduce emissions. A legal framework for early action would only inspire more businesses to take similar voluntary steps."

The Pew Center's Early Action Conference is exploring why the United States should seriously consider a framework to recognize companies' voluntary efforts; what policymakers must do to ensure that companies acting in advance of an international agreement are not penalized; and how to create an early action crediting program that avoids putting climate-conscious companies at a competitive disadvantage, yet does not reward phantom emission reductions.

In his address, Reilley pointed to the value of an early action framework. "Credit for early action and other incentives offer the possibility of eliminating cost penalties and encouraging, and possibly accelerating, the growth of cost-effective sources of renewable energy."

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The Pew Center On
Global Climate Change
brings a new cooperative
approach and critical
scientific, economic and
technological expertise
to the global debate on
climate change.

DuPont's work on climate change is part of a long-standing commitment. As a result of an earlier initiative to reduce greenhouse gas emissions, by the year 2000 DuPont will have reduced emissions for global operations by 45 percent and improved energy efficiency by 15 percent below 1990 levels. DuPont also has succeeded in holding energy use constant for the last ten years.

DuPont's work on climate change will be highlighted in a Pew Center-sponsored advertisement under the banner headline of "a leap forward on climate change." The print advertisement will appear in *Newsweek*, *Business Week*, *The Washington Post*, *The Wall Street Journal*, *The Philadelphia Inquirer* and *The Wilmington News Journal*.

In addition to the address by Reilley, the Pew Center Early Action Conference will include presentations from proponents of current early action proposals, as well as discussion on the complex legal, policy, and technical issues that confront the architects of early action programs.

"By bringing business leaders, policymakers and others with a stake in the climate change debate together, we hope the conference will provide new and balanced insight on the need for a legal framework on early action," said Claussen.

DuPont is a science company, delivering science-based solutions that make a difference in people's lives in food and nutrition; health care; apparel; home and construction; electronics; and transportation. Founded in 1802, the company operates in 65 countries and has 92,000 employees.

The Pew Center was established in May 1998 by the Pew Charitable Trusts, one of the nation's largest philanthropies and an influential voice in efforts to improve the quality of America's environment. The Pew Center supports businesses in developing marketplace solutions to reduce greenhouse gases, produces analytical reports on the science, and economic and environmental impacts of climate change, launches public education efforts and promotes better understanding of market mechanisms globally. Eileen Claussen, former U.S. Assistant Secretary of State for Oceans and International Environmental and Scientific Affairs, is the executive director of the Pew Center.

The Pew Center includes the Business Environmental Leadership Council, which is composed of 21 major, largely Fortune 500 corporations all working with the Pew Center to address issues related to climate change. The companies do not contribute financially to the Pew Center – it is solely supported by contributions from charitable foundations.

#

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Remarks by
Dennis H. Reilley
Vice President and Chief Operating Officer - DuPont

Pew Center Conference, Washington, DC
September 13, 1999

For the past 10 years DuPont has been on a remarkable environmental journey. In 1989, then-chairman and CEO Ed Woolard announced that CEO stood for "chief environmental officer" and that he was going to make environmental leadership a priority of his tenure. Ed's successors - Jack Krol and Chad Holliday - each accepted that same accountability.

During that period of time, we went from a mindset that said environmental performance was defined by external regulations, to a fuller perspective that says environmental performance is part of an all-encompassing internal drive toward true sustainable growth.

Operationally, we began by proposing a series of numerical goals that included reducing levels of hazardous waste at the source; major reductions in airborne emissions, especially carcinogens; and land "set asides" for wildlife habitat. Later we set a goal to eliminate discharges to deep wells. Eventually we adopted a zero waste and emissions goal as a direction in which to move.

Although those goals were concrete, our ultimate objective was to make environmental protection a value that would be on the same level as the value that we had assigned to safety for nearly two centuries. We wanted environmental protection to become an enduring part of our company's culture, and an integral part of all business decisions.

In many respects we succeeded - so much so that in the past few years we have been able to turn our focus to the ultimate challenge that faces all of us: How can we achieve sustainable growth? We are trying to

envision what sustainability would look like for a company such as ours which continues to grow and transform itself in a global economy that is itself dynamic and unpredictable.

For many industrial companies, the creation of value is still linked to the throughput of materials and increased pounds of production made possible by the expenditure of large amounts of energy in the form of fossil fuels. A sustainable growth company, by contrast, builds value for shareholders and society while decreasing its environmental footprint. It sees the marketplace and civil society as integral to business decisions, not as external entities that we simply interact with. And it fulfills the needs of a growing world population using the best and most advanced forms of modern technology while minimizing risk and environmental impact.

For a company like DuPont, there are several factors to consider as we seek sustainable growth. One of the most important is the one I want to address today - energy, and its impact on global climate.

Our experience with atmospheric science issues goes back to the 1970s. So we are not newcomers to the climate change issue. In 1991, we concluded that there was sufficient evidence linking greenhouse gas emissions to global climate change that we needed to take action. And, in 1993 we became the first company to volunteer under the U.S. Environmental Protection Agency/ Department of Energy Climate Wise program.

Since 1991, we have spent over \$50 million to achieve a goal of reducing greenhouse gas emissions from our global operations (on a

carbon-equivalent basis) by 45 percent by the year 2000. We have done this primarily by reducing point sources - nitrous oxides and fluorochemicals. During that same past decade our production volumes increased by over 35 percent while we held total energy consumption flat. About half of that flat energy profile came from the classic energy efficiency items of equipment, yield and uptime improvements. The rest came from changes in our mix of products and processes and from significant powerhouse improvements.

During the same time period, our shareholder return increased by a factor of four. We have been able to demonstrate that performance in at least one key area of sustainability can be consistent with a growing business and solid return to our shareholders.

When we think about energy use and climate change at DuPont, we take a very long view. The long-term view is nothing new to DuPont. We have been in business for nearly 200 years and we have undergone several transformations. We are in the midst of another transformation now - one in which information science and biology are just as key to our outlook and plans as chemistry and chemical engineering were through much of the 20th century. In this process, we continually ask ourselves, do the businesses and technologies that we are building lend themselves to sustainable models? What actions must we take now to make sure that we are able to maintain sustainable growth over the next 100 years?

Of course, we don't have any special means for predicting the future. It is humbling for us at DuPont in 1999 to think about our predecessors in corporate management back in 1899. How would they have gone about planning for the uncertain and largely unimaginable industrial developments of the century ahead? The answer is that they did not wait for certainty. Nor can we. No business leader can afford to do that. We make decisions in the face of uncertainty all the time. We rely on good science and tried

and true values to make plans and decisions in the face of uncertainty.

One thing that we do have as a result of being in business for two centuries is a very real understanding of what it means to have a legacy and what it means to leave a legacy. It is not an easy thing for a business focused on the next quarter's earnings to make costly decisions to ensure that our children's children and the generations after them do not live in a world of collapsing ecosystems. But that is the ethical response we must make to the situation we currently face.

Such a long-term view is obviously relevant to the discussion of climate change, because climate change scenarios will play out over that time frame - the next century and beyond. To give you an idea of the order of magnitude of what we face, consider this: to achieve atmospheric carbon dioxide levels currently being considered as possible stabilization targets - between 1.6 and 3 times pre-industrial levels - per capita global carbon emissions will have to be one-tenth that of the U.S. today and *falling rapidly* 75 to 150 years from now.

From this perspective, the Kyoto Protocol represents only a signal that global leaders are taking the issue of climate change seriously. Given the global challenge before us, the Kyoto goals have an effect, but do not, over the course of the next 100 years, alter the curve. They may shift it downward, but not to any degree that makes a difference. Moreover, they arguably are a negative, because they set an extremely challenging short-term target, and that target now dominates political discussion.

From our point of view, what matters is not whether we are for Kyoto or against Kyoto. Our bias should be for prompt and meaningful *action* where there is reasonable cause for concern. And there is no question in our minds about whether there is reasonable cause for concern.

From that point of view and in addition to our actions of the past decade, we have set for ourselves three goals for the year 2010:

First, we will reduce our global carbon-equivalent greenhouse gas emissions by 65 percent using 1990 as a base year. For the purposes of our "scorecard," we will use the Kyoto basket of gases.

Second, we will hold total energy use flat using 1990 as a base year. While this continues the progress we have already made, this is clearly a stretch goal for us. To achieve this goal in the future will require that our business growth be much more "knowledge intensive" and much less "raw material and energy" intensive than in the past – a move that is very consistent with our stated corporate direction.

Third, we will source 10 percent of our global energy use in the year 2010 from renewable resources. We want to show that we are serious about the need for renewable energy to be a part of our future, and to provide a strong "market signal" that there will be at least one major energy consumer ready to buy. We also want to indicate that we are prepared to work with energy suppliers and others to develop renewable energy.

To put this goal in perspective, DuPont's renewable energy demand in 2010 will require 300 megawatts of capacity, which represents 17 percent of the present U.S. commercial capacity and 4 percent of the present world commercial capacity for renewable wind energy. However, with the projected double-digit growth for renewable energy, we expect that our demand will be a small, but not insignificant, part of the available supply in 2010.

We know that we will need help to achieve these goals if we are to achieve them in a way that is good for our business. This help will need to come from the commitment and creativity of our employees, from alliances with global energy providers, and from responsible public policy. That is why I am

very pleased that you are talking about "credit for early action" at this conference.

As we look at our own goals and consider what needs to be done by industry more broadly, it becomes critically important that incentives are provided. Equally important is making sure that disincentives are not put in place. If a primary objective is to reduce our dependence on fossil fuel technologies and to encourage renewable energy technologies, incentives for early action will surely help.

For example, our goal of 10 percent sourcing of renewable energy by the year 2010 may bring with it a significant cost penalty. If we bought the best-priced renewable energy today, we would pay 2-3 cents per kilowatt hour more than the most attractive fossil fuels. This would increase our energy costs by \$60-90 million dollars per year – a change that would, obviously, not be good for business.

"Credit for early action" and other incentives offer the possibility of eliminating cost penalties and encouraging, and possibly accelerating, the growth of cost-effective sources of renewable energy. The absence of incentives, and the continuance of subsidies for our fossil fuel based global economy, will only serve to strengthen the status quo – a scenario that shows increasing carbon concentrations in the atmosphere with unknown, but potentially significant, changes in our global climate.

As a company, we believe that action is warranted, not further debate. We also believe that the best approach is for business to lead, not wait for public outcry or government mandates. From our experience of the past ten years, we know that integrating environmental considerations into our business strategies enhances our ability to achieve sustainable growth. But, we have also learned that the transition to sustainable growth is accelerated when the economics are positive, a critical factor that can be highly influenced by responsible public policy.

DuPont has already weighed in on the side of prudent action. We are convinced that the key to lower long-term concentrations of carbon in the atmosphere will be a fundamental change in energy technology – one that will take several decades to achieve. However, we also believe that several important steps need to be taken now, and we have learned during our environmental journey of the past decade to face reality squarely and to respond with creative action.

The goals I have announced today are to challenge us as a company, and to show the world that we are serious about the changes we need to make. We believe that our response satisfies our scientific understanding and ethical standards. We also believe that it can be good for business. And, we believe that meeting these goals will be a step towards creating a world that is more sustainable for future generations.

8/24/99

Business Roundtable Embraces Attempts To Curb Warming

CEOs Seek National Summit
To Discuss Ways of Using
Energy-Saving Devices

By JOHN J. FIALKA

Staff Reporter of THE WALL STREET JOURNAL

WASHINGTON — Citing "dramatic" changes in energy-related technology that can help U.S. industry curb global warming, the Business Roundtable is calling for a national summit on how business and government might speed the development and use of energy-efficient devices.

The Roundtable, which represents chief executives of more than 200 of the largest U.S. companies, will issue the results of a survey of its members today on Capitol Hill. It said "long term technologies in every sector hold enormous potential" to help combat climate change.

These include: automobiles able to travel 80 miles on a gallon of gas, fuel made from waste products, and special laser beams that cut logs and shape textiles. Most would lessen climatic change by generating less carbon dioxide and other gases. Such gases are thought to be artificially warming the earth's atmosphere by trapping more of the sun's heat—the so-called greenhouse effect.

Robert N. Burt, chairman of the FMC Corp. and head of a Roundtable task force on the environment, said the group believes many of the new technologies make good business sense because they will cut production costs. "The fact that it will help us prepare for reducing climate change is

like frosting on the cake." Previously the group has stressed that moves to curb emissions might wreck the booming U.S. economy.

Mr. Burt said the group remains opposed to U.S. ratification of the Kyoto treaty on climate change because the survey indicates that most of the technology will take two decades or more to get into common use. The Kyoto treaty calls for industrial nations to begin cutting emissions between 2008 and 2012.

Roger S. Ballentine, who handles climate-change issues for the White House, said the Clinton administration regards the Roundtable survey as a positive step because it supports many aspects of the president's five-year, \$6.5 billion budget request to accelerate government research into energy-efficient technology. "These are programs that just make sense. The fact that the Roundtable has just proposed this from a business perspective is heartening," he said.

Republicans on Capitol Hill have stymied the Clinton package, calling it a "backdoor attempt" to gain ratification for the Kyoto treaty. Mr. Burt said that while there may be some "similarities" with its new survey report, the Roundtable has taken no formal position on the Clinton proposals. Members of the group remain deeply split over emissions trading and other incentives offered by the treaty to help create markets for energy-saving technology, he said.

He said the Roundtable wants to help sponsor a national summit on ways to speed the transfer and use of new technology after the 2000 election. "We need a more stable, bipartisan environment on this. It may be a difficult thing to do."

Fred Krupp, president of the Environmental Defense Fund, a New York environmental group, called the Roundtable's latest stance "hypocritical" because it opposes the treaty while asking for government aid.

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TALKING POINTS BY VICE PRESIDENT AL GORE
GLOBAL WARMING DISCUSSION, NATIONAL GEOGRAPHIC BUILDING
Monday, August 2, 1999

- I want to begin by thanking John Holdren for giving us such a good explanation of what global warming is, and what causes it. As Chair of the Energy Panel of the President's Committee of Advisors on Science and Technology, he is doing even more to help us solve it.
- And I want to offer a warm hello to Bill Nye the Science Guy, who makes TV look good even from a parent's point of view. His science program for kids is seen as the last word in cool for the middle school set, and along with being fun it helps kids understand a lot more about the world we all share.
- Kids are often smarter than adults when something's really wrong; they know that you can't just close your eyes and pretend it will go away -- and how important it is to put things right. A lot of kids I've met on my travels have said that they are quite worried about the environment, and especially about the planet getting hotter, and they don't understand why adults don't get how necessary it is to do something about it now.
- Kids today often know more about the environment than their parents do, and they also -- rightly -- expect grown-ups who have the power to solve these problems to wake up, get going, and act on their behalf. You don't have to explain to most kids I've met that everything else we leave them depends on the well-being of the world and the good balance of nature; they realize that often better than adults do, who can sometimes feel overwhelmed or helpless faced with global challenges and wondering just what can be done.
- I want you to feel encouraged today. There is so much we can do. Together -- and many parents who are not scientists tell me that this is news to them. There are things we can do about global warming. We can join hands around the world and create solutions -- the science for them exists already -- that will let us protect our precious environment and avert all the difficulties projected ahead that you may have heard about and been concerned about. We can do it if we set our hearts and minds to it.
- It's pretty hot outside today. It's been so hot that school was closed in D.C. for a while earlier this summer. Of course, we had heat waves long before there was any threat of global warming. But global warming is real, and we should act together now, so that in the future, our families will not have to suffer more extreme weather of all kinds. And it is not just our families we can save from suffering: farmers should not have to keep losing their crops as they have this summer; communities should be saved from the droughts that are sapping their reservoirs; kids should be saved from the asthma and old people from the serious health burdens of the kind of heat we have endured.
- Let's take a quick look at the science. Bill, will you give me a hand? You're the pro at

this. *[Nye should point at the charts or help in some way.]* How do we know the earth is getting warmer? Well, scientists have gone to the coldest places on Earth -- the North Pole and South Pole -- and they're finding tell-tale signs of global warming. They dug deeply into the ice in the Antarctic took ice samples like the ones we have here. They analyzed the gases trapped in that ice, and discovered that there's more carbon dioxide in the atmosphere today than at any time in 160,000 years. *[VP opens chart]* Just recently, they found that there is more CO₂ than at any time in 420,000 years.

- The more carbon dioxide we put into the atmosphere -- by burning gas, and coal, and oil - - the worse global warming will get. In fact, if we keep using energy the way we've been using it *[VP flips chart up]*, CO₂ will rise to almost double the current levels. But if we stop -- for instance, by joining forces to promote the greener cars that the auto industry is committed to developing -- we can clean up the mess. And restore the balance.
- Today, I want to share with you some brand new pictures of the Arctic, which are being seen for the very first time anywhere. As part of the SHEBA experiment, we've worked with our military and intelligence leaders to release 59 new pictures of the Arctic -- taken by spy satellites way above the Earth. They are some of the most detailed and important information we have ever had to help scientists understand the changes in Arctic ice -- and it is important to see what is happening in the Arctic, because the poles are the most sensitive region of the Earth to global warming.
- Scientists thought there was some thinning of the ice on the North pole, but they were shocked to find that it has been much greater than they thought; we have lost about three feet of ice since the 70's. *[VP shows 40x50 images]*
- When I was a Senator, I had a chance to go on a submarine to the North Pole. We actually went beneath the ice cap. That was eight years ago, and the ice was several feet thicker in some places. In fact, the scientists working on SHEBA had intended to set up camp on a nine-foot-thick ice floe area so it would be sturdy enough -- but they couldn't find any!
- Fortunately, there are so many things we can do to reduce global warming. First, we can be a lot smarter about the way we generate and use energy. New technology -- such as the cleaner cars I mentioned, and greener home appliances -- can help us to do that in a way that actually creates good new jobs and makes money for our businesses. In fact, John Holdren and our top science advisors just gave us a report saying that the world will need \$10 trillion worth of new energy systems.
- There's a lot more we can do. President Clinton and I believe we need to invest more in research about global warming, and develop even more clean energy technologies, faster. We believe we can help people save energy in their homes, to help the environment. We are working with car manufacturers to develop new cars that get

three times as many miles on a gallon of gas. We can unite with other countries to create imaginative new solutions, so countries that need to develop can do so without harming the Earth. And I urge Congress to work with us, not against us, to get these things done.

- It's your world, really; the grownups are just taking care of it for you for a while. When you inherit it, it should be as clean and lively, as full of wonderful animals and stable, nurturing seasons – the seasons God made in the first place – as it was when our generation inherited it. I am glad we have the technology and imagination to give you that gift, and I believe we can muster the will. If we act now, we can reduce global warming before it's too late and give you your world in the condition you deserve. It's the least we can do for our kids.
- And now we'd like to hear your questions...

From: <Elliot_J._Diringer@ceq.eop.gov>
To: Paul W Bledsoe <pbledsoe-ibr9wo@ibr8gw80.usbr.gov>
Date: 9/16/99 6:02PM
Subject: more potus remarks

THE WHITE HOUSE

Office of the Press Secretary
(Christchurch, New Zealand)

For Immediate Release
September 15, 1999

REMARKS BY THE PRESIDENT
TO THE PEOPLE OF NEW ZEALAND

Antarctic Centre
Christchurch, New Zealand

1:38 P.M. (L)

THE PRESIDENT: Thank you very much. Good afternoon. Prime Minister Shipley, to Burton and Anna and Ben; and Sir Edmund Hillary and Lady Hillary; Ambassadors Beeman and Bolger, and their wives; to Mayor Moore; Dr. Erb, Dr. Benton, Mr. Mace, Dr. Colwell; to all of those who have made our visit here so memorable.

Let me begin on behalf of my family and my party by thanking the officials and the people of New Zealand for giving us five absolutely glorious days in one of the most beautiful places on Earth. We are very grateful. (Applause.)

I hope you will all indulge me just one moment. This is my only chance to speak not only to you, but to the people of the United States today. And since we're here to talk about the weather, you should know that my country is facing one of the most serious hurricanes ever to threaten the United States if the predictions of its force and scope hold true.

This morning I signed an emergency declaration for the states of Florida and Georgia to provide for assistance for emergency protective and preventive measures. I have been in close contact with our Vice President, Al Gore, and our Director of Emergency Management, James Lee Witt. They are working around the clock to prepare for the storm. I ask all of you here to remember my fellow Americans, and after we finish the state dinner tonight I am going to fly home and we will make the best job of it we can.

Let me say I am particularly honored to be here with Sir Edmund Hillary, referred to in our family as my second favorite Hillary. (Laughter.) I read that when Sir Edmund turned 50 he resolved to do three things: to build a house on the cliffs above the Tasman Sea; to become a

better skier; to do a grand traverse up the peaks of Mt. Cook. I'm wondering what he resolved to do when he turned 80. I hear the All Blacks may have a new fullback. (Laughter.)

I wish you a happy 80th birthday, sir, and I wish all of us might lead lives half so full and productive as yours. (Applause.)

I come here to this beautiful city and to this place to deepen a partnership between the United States and New Zealand that is already long and strong. In this century, young Americans and New Zealanders have fought again and again side by side to turn back tyranny and to defend democracy. We have worked together on peacekeeping missions. We have stood together for expanded opportunity for our people through trade. We even let you borrow the America's Cup from time to time. (Laughter.) We hope to reverse our generosity shortly. (Laughter.) We are grateful for your friendship and we thank you for it.

This magnificent center stands as a symbol of what we can accomplish when we work together, and I would argue is a symbol of what will be most important about our cooperation in the 21st century.

You heard Sir Edmund talk about his trip across Antarctica. We he started it, some people called it the last great journey on Earth. As I was reading about it, I understand that he actually overheard one farmer ask another, "that there Antarctica, how many sheep do they run to the acre?" (Laughter.)

But America believed in his mission and has long been fascinated with Antarctica. Way back in 1820, Nathaniel Brown Palmer was one of the first people to sight it. A few years later, an American exploring expedition mapped more than 1,500 miles of the Antarctic coast, ending a centuries-old debate over whether a big land mass, in fact, existed around the South Pole.

Forty years ago, inspired in part by Sir Edmund's expedition, the United States convened a meeting in Washington to preserve the Antarctic forever as a haven for peace and scientific cooperation. Today, we can all be proud that not a single provision of the Antarctic Treaty has ever been violated. Forty-three nations, representing two-thirds of the world's population, adhere to the treaty. And the Antarctic is what it should be -- a treasure held in trust for every person on the planet.

We are working together to preserve the pristine waters surrounding the continent, and fighting illegal fishing that threatens to destroy species in the southern ocean.

For the United States and New Zealand, our commitments to Antarctica are based right here in Christchurch. Nearly 7 out of 10 United States expeditions to the Antarctic are staged from here. And let me say, the only disappointment I have about this trip is that I didn't stage an expedition from here. (Laughter.) So I want you to know, I expect that you will let me come back one more time, so I can fulfill my lifelong desire to go to Antarctica. (Applause.)

I think, of all the work being done here, perhaps the most important to us and to the young people here, particularly, over the next 20 years

will be the work that tells us about the nature of climate change and what it is doing to the ice cap here, to the water levels around the world, and to the way of life that we want for our children and our grandchildren.

The overwhelming consensus of world scientific opinion is that greenhouse gases from human activity are raising the Earth's temperature in a rapid and unsustainable way. The five warmest years since the 15th century have all been in the 1990s; 1998 was the warmest year ever recorded, eclipsing the record set just the year before, in 1997.

Unless we change course, most scientists believe the seas will rise so high they will swallow whole islands and coastal areas. Storms, like hurricanes, and droughts both will intensify. Diseases like malaria will be borne by mosquitoes the higher and higher altitudes, and across borders, threatening more lives -- a phenomenon we already see today in Africa.

A few years ago, hikers discovered a 5,000-year old man in the Italian Alps. You might think someone would have noticed him before. They didn't because the ice hadn't melted where he was before -- in 5,000 years. If the same thing were to happen to the west Antarctic ice sheet, God forbid -- it's a remote threat now, but it could occur one day -- and if it did, sea levels worldwide would rise by as much as 20 feet. If that happens, not even Augie Auer will be able to save us from the weather. (Laughter.) Now, I want you to laugh about it because I figure when people laugh, they listen. But this is a very serious thing.

In 1992, the nations of the world began to address this challenge at the Earth Summit in Rio. Five years later, 150 nations made more progress toward that goal in Kyoto, Japan. But we still have so much more to do. America and New Zealand, in no small measure because of our understanding, which the Prime Minister so eloquently articulated a few moments ago, because of our understanding of the significance of Antarctica and the work we have done here to make this a refuge of scientific inquiry, have special responsibilities in this area.

Of course, we have a big responsibility because America produces more greenhouse gases than any other country in the world. I have offered an aggressive program to reduce that production in every area. We are also mindful that emissions are growing in the developing world even more rapidly than in the developed world, and we have a responsibility there.

But I wanted to say today -- and if you don't remember anything else I say, I hope you will remember this -- the largest obstacle to meeting the challenge of climate change is not the huge array of wealthy vested interests and the tens of thousands of ordinary people around the world who work in the oil and the coal industries, the burning of which produce these greenhouse gases. The largest obstacle is the continued clinging of people in wealthy countries and developing countries to a big idea that is no longer true -- the idea that the only way a country can become wealthy and remain wealthy is to have the patterns of energy use that brought us the Industrial Age. In other words, if you're not burning more oil and coal this year than you were last year, you're not getting richer; you're not creating more jobs; you're not lifting more children out of poverty. That is no longer true.

We now know that technologies that permit breathtaking advances in energy conservation, and the use of alternative forms of energy, make it possible to grow the economy faster while healing the environment, and that, thank God, it is no longer necessary to burn up the atmosphere to create economic opportunity.

We have somehow got to convince a critical mass of decision-makers and ordinary citizens in every nation of the world that that is true. It will help to concentrate their attention if the people who know about Antarctica can illustrate, year in and year out, in graphic terms, the consequences of ignoring climate change and global warming.

We are committed to doing more at home and to do more to help developing nations bring on these technologies, so they can improve living standards and improve the environment. We can do this. We can do it in the same way that progress is being made in dealing with the ozone layer. Consider that example -- something again which we know more about thanks to the work of scientists here.

Because of chemicals we produced and released into the atmosphere over the past 50 years, every spring a hole appears in the ozone layer above Antarctica. You already heard, and you know more about it than any country in the world, about the unhealthy levels of ultraviolet radiation which pass through. Now, ever Kiwi school child who has participated in Block Day knows what it means, why you have to have sunscreen and a hat.

But in 1987, the international community came together in Montreal and agreed to stop the use of chemicals that deplete the ozone layer. Experts tell us that if we keep going the ozone hole will shrink, and by the middle of the next century the ozone hole could actually close, so that, miracle of miracles, we would have a problem created by people solved by people, and their development. This is the sort of thing we have to do with climate change -- and the stakes are even higher.

The Antarctic is a great cooling tower for our planet, a great learning tower for our planet's scientists. What happens to it will determine weather all over the globe, and will determine the patterns of life of the children here in this audience and certainly of their children and grandchildren. It is a bridge to our future and a window on our past.

Right now, the ice is two miles thick and goes back more than 400,000 years. By studying the patterns of the past, scientists will be able to tell us what will likely happen in the future and how we are changing the future from the past based on what we are doing.

So much of what we know today from global climate patterns comes also from satellite images. But scientists have never had detailed images of key parts of the Antarctic to work with until today. So I wanted to come here with one small contribution to the marvelous work that all of our people are doing here. Today America is releasing once classified satellite images of the Antarctic's unique dry valleys. The pictures provide two sets of images taken 10 years apart and provides some of the most detailed and important information we've ever had on these ecological treasures.

Last month, Vice President Gore did the same thing for the Arctic.

Both these releases will help scientists understand changes taking place at the poles, and help us take another step toward meeting the challenge of a warming planet.

This is a special challenge for our young people. We have used the Internet, through an initiative called the Globe program, to teach students in more than 50 countries that a grasp of science and ecology is the first step toward a cleaner world. I am pleased that, working with Prime Minister Shipley, we are also going to establish a new Globe program for children right here in New Zealand.

When Sir Edmund Hillary made his trek, the Antarctic was the last new place humanity looked before turning its attention to the stars. In less than four months, all humanity will be looking forward to the promise of a new century and a new millennium. When the dawn breaks on January 1st, the international timeline tells us that New Zealand literally will lead the world into a new age.

Let us vow, in this place of first light, to act in the spirit of the Antarctic Treaty, to conquer the new challenges that face us in the new millennium. Let us work with the determination of Sir Edmund Hillary to strengthen our partnership, to keep our air and water clean and our future alive for our children. We owe it to the children of New Zealand, the children of the United States and the children of the world. And we can do it.

Thank you very much. (Applause.)

END 12:56 P.M. (L)

**Growing Clean Energy for the 21st Century:
For Our Economy, Our Climate and a More Secure America
August 12, 1999**

President Clinton today issued an Executive Order that will coordinate Federal efforts to accelerate the development of 21st century bio-based industries that use trees, crops, and agricultural and forestry waste to make fuels, chemicals, and electricity. Speaking at a roundtable attended by CEOs, scientists, farmers, and environmental leaders, the President emphasized that these efforts will create high-tech economic opportunities for rural America, help meet environmental challenges like global warming, and enhance U.S. energy security. The President called on Congress to approve his pending budget request for bioenergy funding and announced a goal of tripling U.S. use of bioenergy and bioproducts by 2010. This will create \$15 to \$20 billion in new income for farmers and rural America and reduce annual greenhouse gas emissions by over 100 million tons – the equivalent of taking more than 80 million cars off the road.

New Economic Opportunities for the New Economy. Advances in farm, forestry, and other biological sciences are fueling a revolution in the use of biomass (trees, crops, and agricultural and forestry wastes) to produce high-efficiency, low polluting products, such as:

- **transportation fuels**, like ethanol, using cellulosic biomass (agricultural “waste”);
- **electricity**, by co-firing biomass from willows and switchgrass in existing coal plants and through biomass gasification using paper industry by-products; and,
- **commercial products**, such as chemicals, glues, paints – even furniture and textiles.

Meeting the President’s goal of tripling U.S. use of bioenergy and bioproducts will **create high-tech jobs and \$15-20 billion in new income for farmers and rural communities.**

Cleaner Energy, Cleaner Environment. Bioenergy and bioproducts can **drastically reduce greenhouse gas emissions that contribute to global warming.** Since biomass 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 result in reduced greenhouse gas emissions of over 100 million tons – the equivalent of taking 83 million cars off the road.
- The deep-rooted plants commonly used for biomass are helpful in controlling erosion, filtering chemicals from water runoff, and slowing floodwaters.

Energy Security. Meeting the President’s goal of tripling our use of bioproducts and bioenergy will allow us to cut back on the almost 4 billion barrels of oil we are projected to import in 2010.

Federal Leadership. Today’s Executive Order acts on the advice of a number of scientific and industry groups to create a powerful new research management team focused on an ambitious set of goals.

- The Order establishes a permanent council consisting of the Secretaries of Energy and Agriculture, the EPA Administrator, the Director of the National Science Foundation, and other agency heads to develop a detailed biomass research program to be presented annually as part of the Federal budget.
- The plan will be reviewed by an outside advisory group with representatives from bio-based industries, farm and forestry sectors, universities, and environmental groups.
- The Order instructs the council to review major agency regulations, incentives and programs to ensure that they effectively promote the use of bioproducts and bioenergy.
- In a separate Executive Memorandum, the President instructed the Secretaries of Energy and Agriculture to prepare a report within the next 120 days on options for modifying existing DOE and USDA programs with a goal of tripling U.S. use of bio-based products and bioenergy by 2010.

PRESIDENT CLINTON: LEADING THE FIGHT AGAINST GLOBAL WARMING

JUNE 3, 1999

President Clinton, in a Cabinet meeting today, issued an Executive Order to help meet the challenge of global warming by significantly improving energy efficiency in Federal buildings. By 2010, the resulting energy savings will reduce annual greenhouse gas emissions by 2.4 million tons – the equivalent of taking 1.7 million cars off the road – and save taxpayers over \$750 million a year. As a prime example of the savings that can be achieved, the President also announced a major contract to retrofit over 800 buildings at five military installations in the Washington, D.C. area, saving over \$219 million in energy and related costs.

Leading By Example. The Federal Government is the nation's largest energy consumer with an annual bill of over \$8 billion – more than \$4 billion to heat, cool, and power its 500,000 buildings. Federal agencies have already reduced energy consumption 17% per square foot relative to 1985 levels. Today's Order builds on that progress by:

Setting Aggressive Goals – The Order requires Federal agencies to achieve by 2010:

- **35% greater energy efficiency** in buildings relative to 1985 levels; and,
- **30% cut in greenhouse gas emissions** from building-related energy use relative to 1990.

Mobilizing Cutting-Edge Strategies – The Order directs agencies to maximize the use of:

- **Energy Saving Performance Contracts and Utility Contracts**, in which private companies make energy improvements on Federal facilities at their own expense and receive a portion of the resulting savings;
- **Life-cycle cost analysis**, so agencies see the long-term savings from energy investments;
- **ENERGY STAR & other energy efficient products**, everything from light bulbs to boilers; and,
- **Renewable energy** technologies and sources (solar, wind, geothermal, and biomass).

Strengthening Accountability – The Order requires that annual scorecards evaluating agency progress be submitted to the President; gives OMB, in consultation with the Department of Energy (DOE), oversight authority; and directs agencies to appoint energy management teams to help meet the goals of the Order.

Concrete Steps, Concrete Savings. The partnership announced today between the Department of Defense and Viron/Pepeco Energy Services – the largest-ever Energy Saving Performance Contract – will cut energy use in 837 buildings at Ft. Belvoir, Ft. A.P. Hill, Ft. Meyer, Ft. McNair, and Ft. Meade. Other examples of energy-saving actions of the kind today's Order is designed to promote include:

- The Defense Logistics Agency (DLA) and the DOE have teamed up to offer high efficiency compact florescent light bulbs at half price to Federal purchasers;
- 18 Federal agencies (including the Smithsonian Institution, NASA, and the Postal Service) will receive DOE funding for more than 100 renewable energy systems;
- A New York GSA building housing the FBI and the IRS has been retrofitted to ENERGY STAR Building standards, with an annual energy cost savings of \$1.3 million; and,
- Environmental Protection Agency's laboratory in Richmond, California has become the first major Federal facility supplied 100% with renewable energy (geothermal and biomass).

Incentives For Businesses and Consumers, Too. To help American businesses and consumers reap the same kinds of energy and cost savings, the President today also called on Congress to enact his proposed **\$3.6 billion package of tax incentives** for the purchase of energy efficient homes, appliances, cars, and energy from renewable sources.

THE WHITE HOUSE

Office of the Press Secretary

For Immediate Release

June 3, 1999

STATEMENT BY THE PRESIDENT

The Rose Garden

2:52 P.M. EDT

THE PRESIDENT: Good afternoon. I have just completed a very good meeting with the Cabinet. We discussed many issues, three in particular I would like to discuss with you.

First, with regard to Kosovo. As you know, we have been working closely with President Ahtisaari and Mr. Chernomyrdin to try to achieve an agreement that would allow the refugees to go home with security, safety and self-government. Movement by the Serbian leadership to accept these conditions, established by NATO and the international community, is, of course, welcome. But based on our past experience, we must also be cautious.

First, we must have clarity that the Serbian leadership has fully accepted these conditions and intends to fully implement them. Until then, and until Serb forces begin a verifiable withdrawal from Kosovo, we will continue to pursue diplomacy, but we will also continue the military effort that has brought us to this point.

In a few moments, I will meet with the Joint Chiefs of Staff to speak about the progress of our campaign and our planning for the force that would enter Kosovo when NATO's conditions are met. NATO and our military have been working hard to ensure that we can sustain our campaign and deploy KFOR quickly and effectively when that is necessary. We have worked to ensure that we can do this while maintaining our overall military posture around the world. They have my complete confidence and support as we move forward.

The second thing we discussed today was the budget and the importance of maintaining fiscal discipline, which has helped our nation reach historic levels of prosperity, honored our values of opportunity, responsibility and community, and enabled us to begin to meet the challenges of America in the 21st century.

Last fall, my Cabinet and I worked very hard to put together a budget that reduces the publicly-held debt to its lowest point since before World War I, safeguards the solvency of Social Security and Medicare and makes improvements in both programs, offers targeted tax cuts for long-term retirement savings, stays within the budget caps and makes substantial new investments in the benefit of the American people, from education to the environment, to new technology.

Unfortunately, the Republican majority in Congress is moving ahead with a budget plan that, in the end, may do none of these things. It fails to extend the solvency of Social Security and Medicare. It fails to make new, crucial investments. It requires deep cuts in areas of great national need -- from law enforcement, to education, to the environment. These cuts would be so damaging that Congress, itself, to

date has been unwilling and unable to move some of the most basic and normally noncontroversial spending bills out of their committees.

The majority budget plan is simply not realistic. It is a blueprint for chaos and we can do better. I urge Congress when it returns to work with me in a bipartisan way for a budget that is both fiscally responsible and honors our values and prepares for our future.

I also discussed with the Cabinet new actions to deal with what, in my State of the Union address, I said was our most fateful environmental challenge -- global warming. Almost every month, we see disturbing new evidence of climate change. Scientists now believe that last year, 1998, was very likely the warmest year in a millennium. Whole species of frogs are disappearing from forests in Costa Rica because the air there is getting hotter and drier. In the Arctic, the permafrost has started to warm and the sea ice is shrinking. These are alarming signs for what it means to biodiversity and the potential of a rising water level around the globe.

Yet some still insist that the vast majority of scientists are simply wrong, and that we should do nothing. Others call for a raft of new regulations and new taxes.

I believe there is a third way here, a better way -- to invest in technologies that reduce greenhouse gases while also spurring economic growth. Many of those technologies are on hand right now.

As the single largest consumer of energy in our country, the federal government should be leading the way. That is why today I am directing all federal departments and agencies to take steps to markedly improve the energy efficiency of our buildings. With new technologies and contracts with private companies, the federal government will cut its greenhouse gas emissions by 30 percent. That is the equivalent of taking 1.7 million cars off the road. By taking these steps, we will also save the taxpayers over \$750 million a year when they are fully implemented.

I'm also pleased to announce that the Defense Department will award, by the end of this month, the largest energy-saving contract in the history of the federal government. Under this contract, the government pays no up-front costs, the contractor wins a share of the energy savings, greenhouse pollution is reduced, and taxpayers will save over \$200 million.

I want to express my thanks to Secretary Cohen and Secretary Richardson for turning the idea of these win-win energy contracts into a reality. And I want to urge Congress, again, to pass the new research investments and the new tax incentives I have proposed in my balanced budget, so that America's consumers and businesses can reap the benefits of energy-saving technologies that exist today, and the new, better technologies that are soon to be developed.

So, in closing, let me say we have some encouraging news on Kosovo, but we should be cautious, and we should see real results.

We have presented a good budget to the Congress; the one they have come back with won't work. We've got to work together to give the American people one that will. The problem of climate change and global warming is real, but we don't have to have an economic breakdown to deal with it; what we need is a vigorous embrace of effective technologies -- first by the federal government and then by all the American people.

Thank you very much.

Q Mr. President, can you assure the Serbs that retreating troops will not come under attack, sir?

END

3:00 P.M. EDT

MEETING THE CHALLENGE OF GLOBAL CLIMATE CHANGE

APRIL 1999

Global climate change is one of our greatest environmental challenges. The overwhelming weight of scientific authority tells us that the build-up of greenhouse gases in the atmosphere creates dangers -- such as severe storms and droughts, increases in respiratory and infectious diseases, and rising sea levels -- that are too serious to ignore.

The Clinton Administration is working at home and abroad to meet the challenge of climate change. Domestically, we are working on a wide range of initiatives to reduce greenhouse gas emissions by developing and deploying energy efficient technologies and spurring the broader use of renewable energy. Internationally, we are working to secure the meaningful participation of developing countries in addressing global warming and to complete the other unfinished business of the Kyoto Protocol.

THE SCIENCE OF CLIMATE CHANGE

Greenhouse gases trap heat from the sun. These gases warm the Earth's surface by an estimated 60° Fahrenheit (F), sustaining our existence on the planet. However, the burning of fossil fuels and deforestation have increased the concentration of carbon dioxide (the principal greenhouse gas) by more than 30% since preindustrial times.

Scientists predict that, if we continue on our current course, concentrations of greenhouse gases in the atmosphere will reach roughly twice current levels by 2100 -- a level not seen on this planet for the past 50 million years. The Intergovernmental Panel on Climate Change (IPCC), which represents the work of more than 2,000 of the world's leading climate scientists, estimates that this will lead to an increase in global temperature of 2 to 6.5° F. By way of comparison, the last ice age was only 5 to 10° F colder than today.

Over the past year, new data from satellites, tree rings, ice cores, and deep boreholes drilled in the Earth's surface have reinforced the broad scientific consensus that human activities have started to affect the climate and that continuing on a "business as usual" course will lead to substantial warming in the next century. Studies have shown that the 20th century has been the warmest century in the past 1,000 years and that the 1990s have been the warmest decade in that period, while 1998 has been the single warmest year on record.

POTENTIAL IMPACTS OF CLIMATE CHANGE

Scientists predict a range of likely effects from global warming:

- **Extreme weather.** As temperatures increase, so does the rate of evaporation. This acceleration of the so-called hydrologic cycle is projected to increase the frequency and intensity of extreme weather events such as floods and droughts. Last year's El Nino -- which produced warmer and wetter conditions akin to those anticipated from global warming -- offered us a window on the type of extreme weather that climate change may bring, from heat waves and drought in Texas, to wildfires in Florida, Mexico and Indonesia, ice storms in the northeastern United States, and devastating floods in China and Bangladesh.

- **Human health.** Warmer temperatures are projected to increase fatalities from heat stress and expand the geographic ranges for diseases like malaria and dengue fever. Additional smog caused by warmer temperatures could increase the incidence of asthma and other respiratory illnesses, particularly among children and the elderly.
- **Sea level rise.** Scientists project that the sea level will rise by an additional 6 to 37 inches by 2100, endangering island states and coastal areas. A 20-inch rise could inundate 7,000 square miles of the U.S. coastline, with Florida and the Gulf Coast at greatest risk.
- **Agricultural impacts.** Changes in growing seasons, water availability, soil moisture, and precipitation are expected to cause significant regional shifts in food productivity, with decreased production in many of the world's poorest regions. Water supplies and water quality may also be affected, posing threats to irrigation, fisheries, and drinking supplies.
- **Damage to ecosystems.** Many species are highly adapted to particular climate conditions and may not survive substantial climate shifts. For example, the United States may lose beech trees and sugar maples, and western conifer forests are likely to shrink, as the tolerable climate zones for these species shift hundreds of miles to the north.

PRESIDENT CLINTON'S DOMESTIC PLAN

Since 1993, President Clinton has put into place dozens of win-win programs to develop and deploy energy efficient technologies and spur the development and broader use of renewable energy. These efforts have accelerated since the Kyoto climate change conference in 1997.

- **Climate Change Technology Initiative.** This vigorous program of *tax incentives* and *investments* focuses on energy efficiency and renewable energy technologies. The FY 1999 appropriations for these programs totaled over \$1 billion and represented a 25% increase over the prior year. The President's FY 2000 budget proposes a still more accelerated effort.
 - The **tax incentive package** contains \$3.6 billion over five years for consumers who purchase energy efficient products and for producers of energy from renewable sources. Highlights include: a tax credit of up to \$2000 for energy efficient new homes; a 10-20% credit for selected energy efficient products for homes and buildings; a credit of up to \$2000 for rooftop solar systems; a credit of up to \$4000 for qualifying electric, fuel cell or hybrid vehicles; extension of the current 1.5 cents/kilowatt hour credit for the production of electricity from wind and biomass; an expansion of the biomass credit to cover additional sources; and a 1.0 cent/kilowatt hour credit for cofiring coal and biomass in power plants.
 - The **investment package** contains nearly \$1.4 billion in FY 2000 to research, develop, and deploy clean energy technologies. This represents a 34% increase over the amount appropriated in FY 1999. Highlights include: increased funding for the *Partnership for a New Generation of Vehicles*, a government-industry effort to develop cars that get up to three times the fuel efficiency of today's cars; the *Partnership for Advancing Technology in Housing*, which aims to improve the energy efficiency of new homes by more than 50% and to retrofit 15 million existing homes to make them 30% more energy efficient within a decade; a stepped-up *Bioenergy Initiative* to develop advanced bioenergy technologies; expanded research and development efforts in other key renewable energy technologies, such as solar, wind, and geothermal energy; and a *Carbon Cycle Initiative*, to deepen our understanding of carbon "sinks," such as forests and farmlands.

- **Electricity restructuring.** Another core element of the President's plan involves restructuring the electricity industry by introducing competition that will save consumers millions on their energy bills while reducing greenhouse gas emissions. The Administration's restructuring proposal would provide a profit incentive for generators to produce more electricity with less fuel and to improve energy efficiency. It also includes an aggressive, 7.5 percent renewable portfolio standard to increase the use of electricity from renewable sources and a \$3 billion Public Benefits Fund to spur greater investment in energy efficiency and renewables.
- **Industry Partnerships.** The Administration is also engaged in a wide range of consultations with key industry sectors to improve energy use and reduce emissions. For example, the *Industries of the Future* program works cooperatively with the nation's most energy-intensive industries -- such as aluminum, glass, chemicals, forest products, mining, petroleum refining, and steel -- to develop technologies that increase energy and resource efficiency.
- **Credit for Early Action.** The Administration is committed to working with Congress and industry on legislation to reward companies taking early, voluntary action to reduce their greenhouse gas emissions or increase carbon sequestration.
- **Clean Air Partnership Fund.** The President's FY 2000 budget proposes \$200 million for the creation of a new Clean Air Partnership Fund to support state and local projects to reduce both greenhouse gas emissions and ground-level air pollutants.
- **Federal energy use and procurement.** The President's plan seeks to substantially reduce the Federal government's own greenhouse gas emissions by improving the energy efficiency of Federal facilities and activities and reforming procurement practices. These actions are important in their own right, since the Federal government is the nation's largest single energy user, but they also set an important example for the private sector.
- **Domestic emissions trading.** The President has proposed a domestic emissions trading system to begin by 2008 so that we can achieve our emissions target at the lowest possible cost. The U.S. has used emissions trading successfully to reduce the pollution that causes acid rain -- exceeding environmental objectives at about 50% the expected cost.
- **Scientific research.** The Administration is continuing its strong support for the U.S. Global Change Research Program, with nearly \$1.8 billion in funding requested for FY 2000. This program provides a sound science foundation for policy decisions by furthering our understanding of human- and naturally-induced changes in the Earth's environment and assessing the likely consequences of global warming.

DIPLOMATIC AGENDA

Thanks largely to U.S. leadership, the international climate change agreement reached at Kyoto, Japan in December 1997, combines strong environmental targets with elements of flexibility that will allow nations to meet their targets in a cost-effective manner, including:

- **Flexible market mechanisms.** The Protocol includes critically important market mechanisms that can dramatically cut the cost of reducing emissions. Chief among these are *international emissions trading* and the so-called *Clean Development Mechanism (CDM)*, which will allow U.S. companies to participate in joint clean energy ventures in the developing world and earn credits from verified reductions in greenhouse gas emissions.

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

At the November 1998 UN climate change conference in Buenos Aires, the parties agreed on a two-year timetable for filling in the key details of the Kyoto Protocol in areas such as emissions trading, the CDM, compliance, and the scope and use of carbon sinks. Buenos Aires also saw progress on the issue of developing country participation as Argentina and Kazakhstan announced their intention to take on binding emissions targets for the 2008-2012 time period. The President has made clear that he will not submit the Kyoto Protocol to the Senate without meaningful participation from key developing countries in efforts to address global warming.

ECONOMIC COST OF KYOTO

The Administration's economic analysis of the Kyoto Protocol concludes that, if we do it right, the cost to the United States of meeting our Kyoto target should be modest. Even without counting the impact of domestic policies or the environmental, health, and economic benefits of limiting climate change, estimates derived from economic modeling suggest an emissions price in the range of \$14 to \$23 per ton of greenhouse gases. In 2010, that would translate into an increase of \$70 to \$110 per year for an average family's energy bill. This increase, however, would be substantially offset by the decline in electricity prices resulting from increased competition in a restructured electricity industry, as the Administration and others have proposed. In addition, noted economists have estimated the ancillary benefits of reducing greenhouse gas emissions -- such as reduced air pollution -- could produce savings equal to one quarter of the costs of meeting our Kyoto target.

CONCLUSION

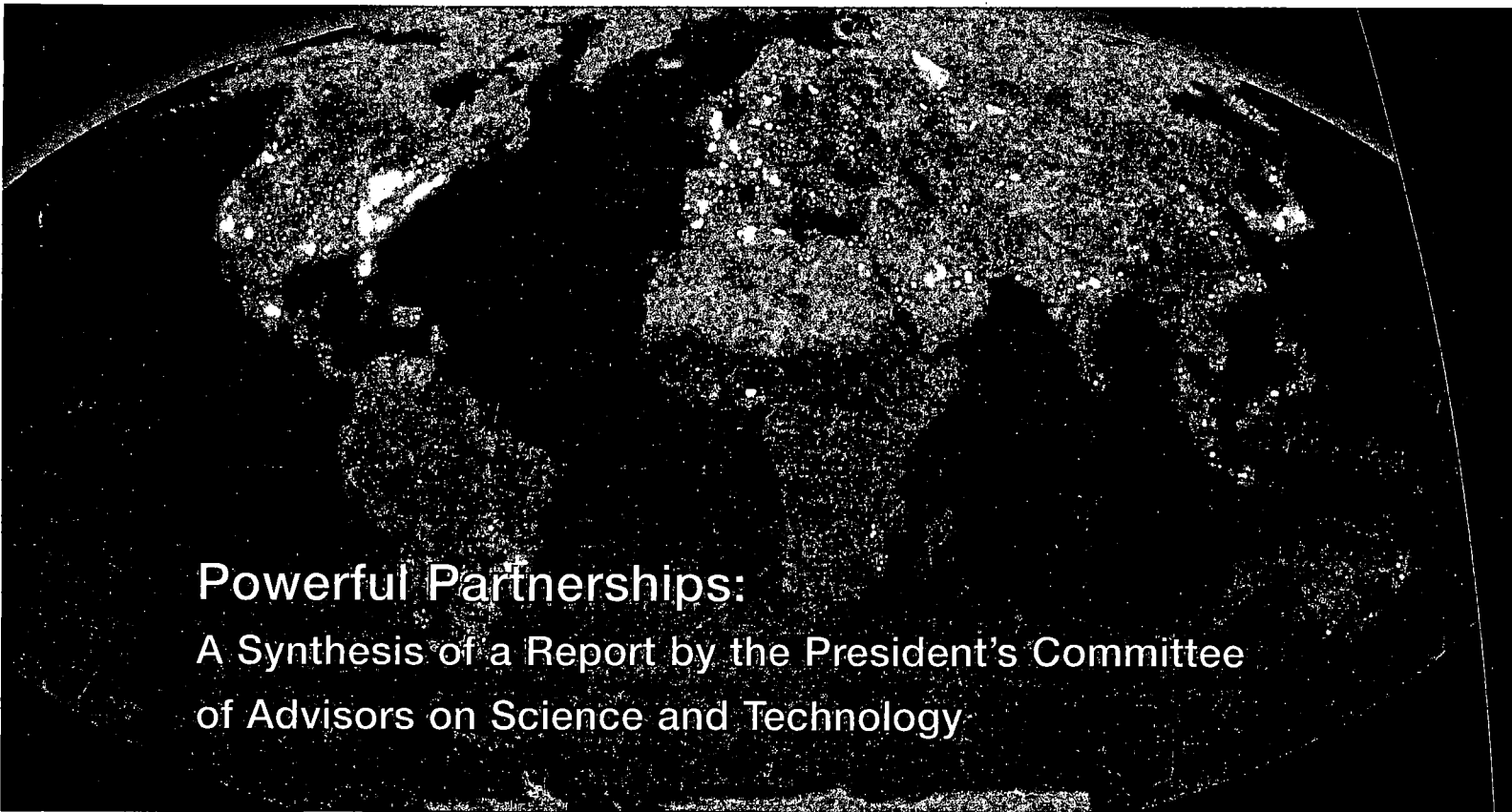
For the past 25 years, efforts to protect the environment, whether by cleaning our air, our water, or eliminating acid rain, have been repeatedly assailed as a threat to our economy. Yet today, we have the cleanest environment in a generation and the strongest economy in a generation. President Clinton's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

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Powerful Partnerships: A Synthesis of a Report by the President's Committee of Advisors on Science and Technology

“Advanced energy technologies can help meet the challenges of economic development, national security, and environmental quality.” President Bill Clinton, July 23, 1998

It is in our fundamental National interest to greatly strengthen international cooperation in energy innovation. The President's Committee of Advisors on Science and Technology (PCAST) concluded that continuing our current energy trajectory would be “problem plagued and potentially disastrous.” Unless innovation to increase energy end-use efficiency and to improve energy supply technologies is both rapid and global, world energy demand is likely to soar in the next century to four times today's level, entailing higher consumer costs for energy, greater oil-import dependence, worse local and regional air pollution, more pronounced climate disruption from greenhouse gases, and bigger nuclear energy risks than today. And if the United States abdicates leadership in international cooperation on energy technology while others forge ahead, it will cost U.S. firms dearly in their share of the multi-hundred-billion-dollar-per-year global market in energy-supply technologies, most of which is and will remain overseas. As the world heads into the next millennium, however, there is a window of opportunity — open now but closing fast — to move the world off this troublesome path. The choices the United States makes today will influence the evolution of the global energy system for many decades to come (Box 1). The United States has strong stakes in the future economic, national security, and environmental course of world energy development. (See references 1,2.)

Initiatives are recommended in four areas:

- **Strengthening capacities for energy technology innovation** through education and training; creation and support of regional centers for energy research and deployment; promotion of energy sector reform that attracts private capital while protecting the public interest; and creation of mechanisms for demonstration, cost-reduction and financing of advanced energy technologies;
- **Promoting technologies to limit energy demand** by increasing efficiency of energy use, particularly in buildings and appliances, small vehicles and buses, energy-intensive industries, and cogeneration of electricity;
- **Promoting technologies for a cleaner energy supply**, with emphasis on biomass, wind, solar, and other renewable energy sources, using fossil fuels far more efficiently, developing technologies to capture and store carbon, and nuclear fission and fusion; and
- **Improving management** of the Federal portfolio, including with external oversight.

These programs go beyond spurring research and development; they are designed to catalyze and facilitate efforts of the private sector, and will launch advanced energy technologies into substantial international markets, free of the need for ongoing government subsidies.



August 1999

NEW CLIMATE SCIENCE FINDINGS APRIL 1999

Significant new findings over the past year reinforce the broad scientific consensus that human activities have started to affect the climate and that continuing a "business as usual" course will lead to substantial warming in the next century.

Temperatures Warmest in 1000 years. In the last year, several independent studies have provided additional evidence of 20th century warming. In a study published last April in *Nature*, scientists analyzed tree rings, corals, ice cores, and lake sediments that showed this century's surface temperatures for the Northern Hemisphere to be the warmest since at least 1400. A more recent study of Northern Hemisphere temperatures published in *Geophysical Research Letters* found it highly likely that the 20th century has been the warmest century of the millennium; the 1990s have been the warmest decade; and 1998 has been the warmest year. A study of temperature data from 600-1800 foot deep boreholes in North America, Europe, Africa, and Australia, published last October in *Science* found that the Earth's average surface temperature has increased by about 1.8° Fahrenheit (F) over the last five centuries, and that half of this total warming occurred in this century.

1998 Sets Record for Warmest Year. In January 1999, NASA and NOAA researchers released data showing that 1998 was the warmest year recorded since reliable instrument records began over a century ago. Over this same span, 7 of the 10 warmest years on record have all occurred since 1990. The global average temperature in 1998 broke the previous record, set in 1997, by a quarter of a degree F. In addition, 1998 was also 1.2° F above the long-term average temperature – the 20th consecutive year in which this benchmark has been exceeded.

El Nino a Window on the Future. Last year's strong El Nino produced warmer and wetter conditions in some areas of the world similar to those anticipated from global warming. The heat waves and drought in Texas and other parts of the southwestern United States, wildfires in Florida, Mexico, and Indonesia, ice storms in the northeastern United States, and devastating floods in China and Bangladesh, are illustrative of the kinds of extreme events that are expected to become more frequent as average global temperatures increase.

Growing Season Lengthening Due to Warming. A new study analyzing 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. This confirms earlier studies which have used different methods to show, for example, that spring arrived about a week earlier in the early 1990s than it did in the early 1980s for regions north of the 45th parallel.

New Analysis of Satellite Temperature Measurements Finds Warming. A new analysis of satellite data published last August in *Nature* found that previous reports indicating a cooling trend in the lower atmosphere failed to account for the decaying (lowering) of satellite orbits. The corrected satellite record shows a slight warming trend more consistent with ground-based observations.

New Study Shows Role of CO₂ in Ice Age Warming. A study of Antarctic ice cores published in March in *Science* compared changes in temperature and levels of atmospheric carbon dioxide during several ice ages. The study showed that as the Earth began to warm due to minor changes in its orbit, carbon was released from the ocean into the air, raising atmospheric CO₂ levels that then greatly magnified and accelerated the warming process. The study confirms that small changes in the factors that affect climate can have large effects on global temperatures.

Human Imprint on Climate Change Grows Clearer

By WILLIAM K. STEVENS

As evidence that the earth's atmosphere is warming continues to accumulate, scientists are making slow progress toward an answer to the big question raised by the evidence: how much of the warming is due to human activity and how much to natural causes?

The United Nations' Intergovernmental Panel on Climate Change, the group of scientists widely considered the most authoritative voice on the subject, has already concluded that there is a "discernible human influence" on the global climate. Now the panel is deep into another of its periodic full-scale scientific assessments of global climate change, to be finished in about 18 months. While the group's conclusions are unformed, some experts on the problem say the human imprint on climate is becoming clearer, and may even have been the dominant factor in the global warming of recent decades. Not everyone agrees — there is a range of judgments — and virtually all experts say that in any case, a reliable estimate of the human imprint's magnitude still remains some distance off.

A number of influences, both natural and man-made, cause the planet's temperature to vary. The natural ones include changes in solar radiation, and sulfate droplets called aerosols cast aloft by erupting volcanoes, which cool the atmosphere by reflecting sunlight. The human influence stems mostly from emissions of waste industrial gases like carbon dioxide, which trap heat in the

A Warmer Planet

The earth's average surface temperature for the 12 months ended May, 31 was nearly 1 degree Fahrenheit above the baseline average for 1951 through 1980, according to NASA's Goddard Institute for Space Studies.

Map shows distribution of the change in degrees Celsius, which are nine-fifths of a degree on the Fahrenheit scale.

Data were unavailable for gray areas.

Source: NASA Goddard Institute for Space Studies

atmosphere, and sulfate aerosols from industrial smokestacks.

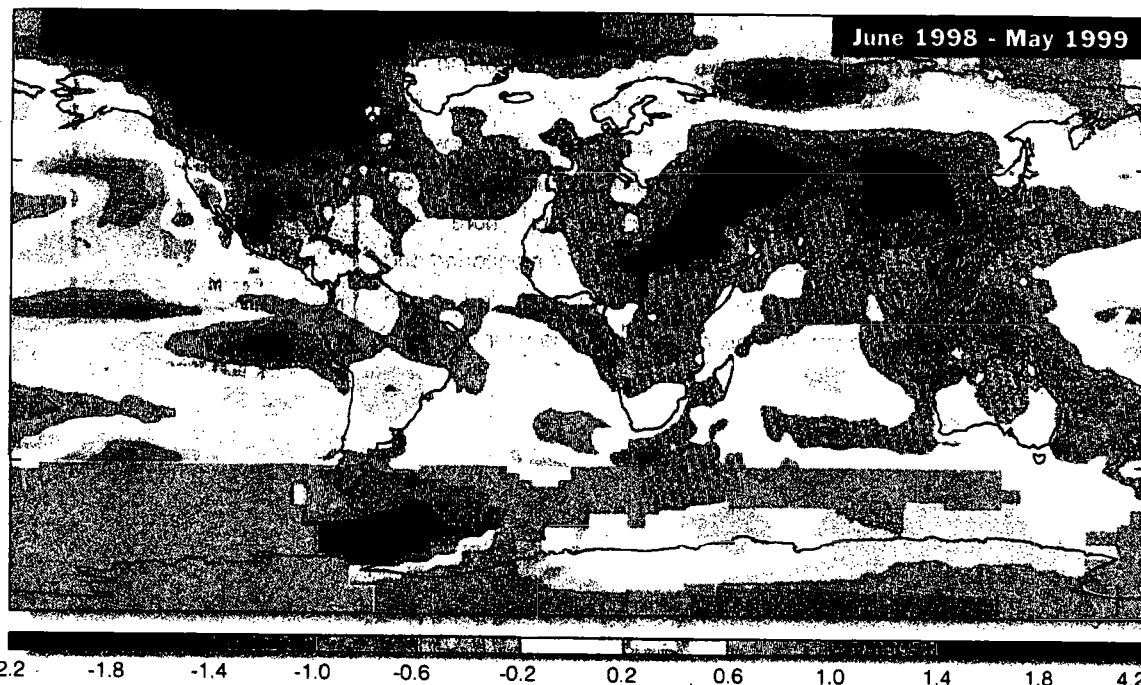
The combined impact of industrial aerosols and greenhouse gases creates complex and distinctive temperature patterns. It was mostly an analysis of those patterns that led the intergovernmental panel in 1995 to abandon its previous position that global warm-

ing observed over the past century might as easily be natural as human-induced. Human factors appeared to be playing a part, the panel said then, but it offered no judgment on whether that part was big, small or in between.

One recent piece of evidence suggesting a strong human influence, which seems likely

to carry some weight with the intergovernmental panel, appeared recently in the journal *Nature*. Scientists at the Hadley Center for Climate Prediction and Research, a British Government organization, analyzed the global climate record of the last century

Continued on Page 9



The New York Times

Human Influences on Changing Climate Are Becoming Clearer

Continued From First Science Page

in an effort to isolate and quantify the major factors producing the century's rise of about 1 degree Fahrenheit in the earth's average surface temperature.

The research team led by Dr. Simon F. B. Tett found that in the earlier part of the century, the rise could be explained either by an increase in solar radiation or a combination of stronger solar radiation and heat-trapping greenhouse gases emitted by industrial economies. But they found that after the mid-1970's, when about half the century's warming took place, the warming resulted largely from the greenhouse gases.

Other researchers have lately come to a similar conclusion.

The Tett study represents "another jigsaw puzzle piece," said one expert, Dr. Tom M. L. Wigley of the National Center for Atmospheric Research in Boulder, Colo. "There is still a long way to go" in completing the puzzle, he said, "but we're beginning to see the smile on the face of the Mona Lisa, I think — or perhaps it should be a frown."

Dr. Wigley was a principal author of the section of the intergovernmental panel's 1995 report dealing with detection of the human imprint on climate, but not for the new report. He and his co-assessors of four years ago "would now make a stronger statement" if they were writing their

report today, he said at a recent panel discussion sponsored in Washington by Resources for the Future, an independent research group.

But other participants in the discussion were more cautious. One, Dr. Michael E. Schlesinger, a climatologist at the University of Illinois at Urbana-Champaign, says that experts have insufficient knowledge of the magnitude of natural climatic variations, especially solar radiation, to gauge how large the human impact is by comparison.

Another, Dr. Ronald Prinn of the Massachusetts Institute of Technology, said that although there was "accumulating evidence that humans are having an influence on the climate system," it would not be possible to discern its magnitude until the degree of natural climate variability could be pinned down better.

Meanwhile, though, evidence of warming and its effects continues to mount. Earlier this year, scientists at the University of Massachusetts and the University of Arizona reconstructed the average annual surface temperature trend of the Northern Hemisphere for the last 1,000 years. While cautioning that the margin of error was large enough to render data from the early centuries untrustworthy, they found that the 20th century was the warmest of the millennium, by far.

This and other analyses have found that the warmest years of all occurred in the 1990's, with 1998 the warmest on record. El Niño, the great pool of warm water in the tropical Pacific Ocean that from time to time heats the atmosphere and disrupts weather patterns, was responsible for some of the 1998 heating. A preliminary analysis by Dr. Wigley, however, has shown that when El Niño's effects are filtered out of the global temperature record statistically, 1998 still ranks as the warmest year. (This year is also shaping up as unusually warm, but not as warm as 1998.)

Two studies reported in *Nature* this month suggest that the warming is being reflected in patterns of wildlife behavior and distribution. In one study, Dr. Camille Parmesan, a biologist at the National Center for Ecological Analysis in Santa Barbara, Calif., and 12 colleagues analyzed distribution patterns of 35 species of European butterflies. They found that for two-thirds of the species, their range of habitat had shifted northward by 22 to 150 miles, coincidentally with Europe's warming trend.

In the other study, Humphrey Q. B. Crick of the British Trust for Ornithology and Timothy H. Sparks of the Institute of Terrestrial Ecology in Cambridgeshire, England, analyzed the nesting habits of 20 species of birds in Britain. They found that, again coincident with a recent warming trend, the birds were laying their eggs earlier in the spring. This is the latest in a series of studies indicating that meteorological spring is coming earlier in the Northern Hemisphere. Some have also shown that fall is coming later.

A third study in *Nature* this month reports, on the basis of bubbles of atmospheric gas contained in ice cores extracted from the Antarctic ice sheet, that present-day atmospheric levels of heat-trapping carbon dioxide are higher than at any other time in the last 420,000 years. At 360 parts per million, they are 20 percent higher than in any previous warm period between ice ages, and double the typical concentrations during an ice age.

If greenhouse gas emissions are not reduced, the United Nations scientific panel has consistently said, atmospheric concentrations will continue to rise and warm the earth further. In its 1995 report, it projected a warming of 2 to 6 degrees Fahrenheit, with a best estimate of 3.5 degrees, by the year 2100. The warming would not end in 2100, the panel found, but would continue. By comparison, the earth has warmed by 5 to 9 degrees since the depths of the last ice age some 20,000 years ago.

The amount of warming projected

by the panel, it said, would create widespread climatic and ecological changes, including a shift in climatic zones, an increase in heat waves, warmer northern winters, increased precipitation when it rains but worse droughts when it does not, and a rise in sea level that could inundate many small island nations and drive tens of millions of people away from the coasts when storm surges develop.

For a long time, the global warming debate focused on how much warming a given increase in greenhouse gases — say, a doubling of atmospheric concentrations — would produce. Though skeptics say it would be small, the dominant view for 20 years has been that a doubling would produce a warming of 3 to 8 degrees, other things being equal. This is a measure of the climate system's sensitivity to "forcing." As experts call it, by external heating and cooling influences, and many mainstream scientists say confidence that it is right has grown.

Now attention is shifting to the relative strength of the external forcings. This is the crux of the problem of figuring out the magnitude of human influence on the climate. There are basically three main forcings: greenhouse gases, and solar radiation, which warm the atmosphere, and sulfate droplets, or aerosols, from both volcanoes and industrial sources, which cool it.

The amount of carbon dioxide and other greenhouse gases in the atmosphere has been firmly established and continuously monitored, though it is difficult if not impossible to predict how much there will be in the future. Once greenhouse gases diffuse throughout the entire lower part of the atmosphere they remain there for decades to centuries.

Sulfate aerosols from volcanoes sometimes spread to the stratosphere, where they, too, diffuse globally and cool the earth. But they dissipate in two or three years. That is what happened with Mount Pinatubo in the Philippines, which temporarily cooled the earth by about 1

degree Fahrenheit after it erupted in 1991.

Sulfate aerosols from industry generally rise only into the lower part of the atmosphere and fall out, as acid rain, within a few days. Moreover, their extent and impact is mostly regional rather than global. Until recently, they affected primarily the industrial countries of Europe and North America, but scientists now believe that they are diminishing in that part of the world because of controls on pollution. They are growing fast, however, in India, China and Southeast Asia.

Experts have difficulty in getting a handle on the constantly shifting amounts and patterns of industrial

Studies suggest wildlife is adapting to warming climate.

aerosols, and they have a similarly hard time establishing the varying strength of solar radiation.

Some mainstream scientists say that because the earth's average surface temperature has not varied by more than a degree or two since the last ice age, variations in the strength of the sun's radiation must be relatively small during the present interglacial period. Satellite measurements show some small variations, less than one-tenth of a percent, in concert with the 11-year sunspot cycle. But for the years before 1978, when satellite measurements began, scientists must estimate the variations from proxy indicators like sunspots. These estimates say that solar irradiance did not increase by more than 1 percent from 1908 to 1952.

In the recent Tett study, the British scientists fed into a computer model of the climate system varying estimates, based on different proxy

studies, of past solar irradiance. They also fed in the observed and estimated changes in greenhouse gas concentrations and aerosols from both volcanoes and industrial sources. They ran many simulations of the effect of each of these forcings and then averaged them together to see if they explained the observed global temperature rise — and to determine what weight each should be given. Since the 1970's, the simulations revealed, global warming cannot be explained without a large impact from greenhouse gases.

Dr. Schlesinger, the University of Illinois climatologist, says he has "a couple of problems" with the study. First, he says, the data on solar variability before 1978 are unreliable. Second, the climate system's natural internal variability, apart from external forcings, is quite large relative to the observed warming and has not been well quantified. For example, he says, there is a growing body of evidence that the warming in the early part of the century resulted from a natural oscillation in the surface temperature of the North Atlantic Ocean.

The larger point, Dr. Schlesinger says, is that the climate system's internal variations may be so large that they render the Tett findings' statistical significance weaker. Nonetheless, Dr. Tett says he believes the findings strengthen the United Nations panel's 1995 conclusion about a human impact on climate.

The struggle to gauge that impact goes on. "The important question," Dr. Prinn says, "is numbers" — precise estimates of the relative weight of natural and human factors. "It could be there are big environmental issues involved here," he says, "or relatively modest ones."

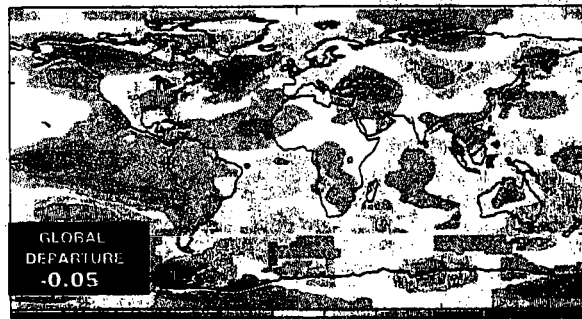
THE FRESH AIR FUND: 123D SUMMER

Tracking the Globe's Hot Spots

While the earth's average surface temperature has warmed over the last century, the warming has not been geographically uniform, and many influences combined to produce different temperature profiles at different times. Here are illustrative snapshots from the last 25 years. In each case, the snapshot presents an average for the 12 months ended with July of the year shown.

Global Warming Since 1974

Maps show temperature departure in degrees Celsius from a benchmark average of 1951-1980



1973-74

This was one of the last years of a relatively cool period beginning in the 1950's.



1982-83

A combination of global warming and El Niño (exceptionally warm area off South America) pushed this year above average.



1988-89

Global warming was moderated by the cooling impact of La Niña (cool area off tropical Pacific west of South America).



1992-93

Global haze of sun-reflecting sulfate droplets from eruption of Mount Pinatubo volcano interrupted global warming trend.



1997-98

A combination of global warming and El Niño (exceptionally warm area off South America) pushed this year above average.

Source: NASA/Goddard Institute for Space Studies

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Depending on how questions are worded, polls give wildly conflicting impressions. Wirthlin Worldwide finds that 68 percent would not support the Kyoto Protocol "because it unfairly forces developed countries to reduce pollutants, while allowing other countries to continue polluting." The PIPA poll, with differently worded questions with different emphases, suggests that a majority of

It's unlikely that the Clinton administration's intention to postpone work on the Kyoto treaty until after the next presidential election will cause even a ripple in public opinion.

people support the treaty "even without limits on developing countries."

PIPA suggests that Americans "support the level of emissions cuts proposed" in the treaty. Yet 84 percent in the Wirthlin survey agreed that "scientists need to do additional research on global warming ... before we limit ourselves to what we can or cannot do as an industrialized nation."

PIPA purports to show that people would be willing to pay \$25 per month per household in increased energy costs for the treaty, but a plurality would not pay \$50. Most of us have a lot of things we would like government to do and all of them cost money. CBS News recently found that 56 percent would be willing to spend \$100 a year for alternate schools in their communities for troubled youth.

To ask only about reactions to increased costs in one area (and one that is not at the top of the environmental priority list for most Americans) and to ignore costs of increased spending in other areas presents a misleading picture. Asked in isolation, the PIPA question tells us nothing more than at some point cost is a factor.

People clearly want policy-makers to be attentive to toxic waste problems and they want a reasonable balance between protecting endangered species and jobs, but they don't have opinions on how Congress should proceed in reauthorizing complex legislation like Superfund or the Endangered Species Act.

Americans think global warming is a problem and want policy-makers to pay attention to it. They also, not surprisingly, think treaties should be fair, decisions should be based on sound science, cost should be a factor in decision-making and we should help other countries make their industries pollute less. Going beyond these broad general sentiments invites the kind of contradictory responses polls on global warming show and devalues the polling currency.

POLLitics

By Karlyn Bowman

Revisiting Attitudes About Global Warming As Summer Heats Up

Americans are deeply committed to protection of the environment and favor actions to keep it clean and healthy. Most Americans say they're environmentalists, but when asked to be more specific, far more say they are sympathetic than active.

Huge majorities say they do things for the environment that are relatively easy (recycling), but far fewer say they have done more difficult things like cutting down on use of their cars. And people still believe environmental protection and economic growth can go hand in hand — they don't want to choose between the two, nor do they think they have to choose.

A substantial collection of survey data from the past few years suggests that problems such

as education and crime occupy a more central place in people's thinking today than do environmental concerns. When asked in a June 10 to 15 **Harris Poll** about the two most important problems the government should address, the environment (cited by 4 percent) trailed far behind these issues.

At the national level, Democrats continue have a big advantage as the party best able to handle the issue, but at the state level, particularly in the Mountain states, there is more competition between the parties. In national Election Day polls of voters, fewer than 5 percent of voters have selected the environment as the most important issue to them in casting their votes.

Only 8 percent who answered an April **Gallup** question said the country has made "hardly any" progress in dealing with environmental problems "in the past few decades." Fifty-five percent said we had made some, and 36 percent said we have made a great

deal of progress. Asked how satisfied they were with the nation in terms of protection of the environment, 69 percent pronounced themselves very or somewhat satisfied, up from the 52 percent who gave that response in 1993.

Progress aside, Americans aren't complacent about the issue. Seventy-four percent told **Gallup** that business and industry are not worried enough about the environment, and 57 percent said government and, separately, the public weren't worried enough.

Polls continue to show that people are most concerned about tangible environmental problems. Thus, 68 percent said in the **Gallup** poll said they worried a great deal about pollution of drinking water, 63 percent the contamination of soil and water by toxic waste. Only 34 percent were worried a great deal about global warming.

The public asserts the kind of general values that the findings above summarize. They rarely give specif-

ic guidance on complex policy debates. Nor do they usually follow these debates closely. Thus, it's not surprising that a poll taken by the **Program on International Policy Attitudes**, a joint project by two academic centers at the University of Maryland, found from February to April 1998 that only 24 percent had heard a great deal or some about the Kyoto conference on global warming. In September 1998, just 14 percent told **Wirthlin Worldwide** that they had heard of the Kyoto Protocol on global warming.

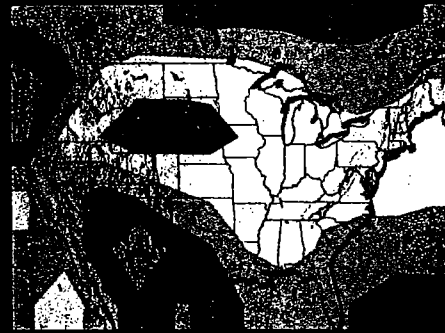
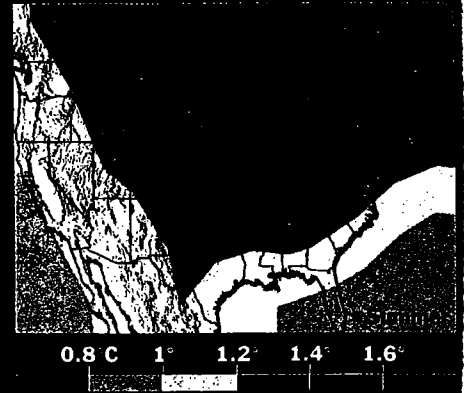
Given this low level of attentiveness, it's unlikely that the Clinton administration's intention to postpone work on the treaty until after the next presidential election will cause even a ripple in public opinion.

Even though most people have little awareness of what happened at Kyoto, the **Wirthlin Worldwide**, **PIPA** and other polls show that majorities are aware of global warming and think it is a problem. But many surveys go beyond this picture to suggest that opinion is firm on enormously complicated issues associated with the treaty.



IT'S HOT, AND GETTING HOTTER

What will summers be like in 2040? No one can say for sure, of course, but using the crystal ball of modern computer modeling, climatologists have produced this map showing how mean temperatures will rise in much of the Northern Hemisphere. In such northern-tier states as Minnesota and Maine, it will be noticeably hotter; even Canadians will feel the heat.



As any good weather forecaster knows, even tomorrow's showers are hard to predict. But that hasn't kept climate modelers from making some admittedly rough estimates of rainfall patterns in the summer of 2040. Their map shows less rain in the upper plains, California and the Midwest, but wetter summers in the Southwest and the already moist Northwest.

Source: Peta Center's *The Science of Climate Change* by Tom M. Wigley

ENVIRONMENT

CAPITOL HILL MELT

While the nation sizzles, Congress fiddles over measures to slow down

By **DICK THOMPSON** WASHINGTON

JAY GILBO, 21, MAY HAVE THE HOTTEST job on Capitol Hill. Each workday he puts on two suits, one over the other, both made of materials that seal out dust but trap heat. Then he wraps his wrists and ankles, pulls a rubber respirator over his head and climbs more than 200 ft. into the narrow space between the Capitol's inner and outer domes. Gilbo, who lives in Georgetown, Mass., is part of a 10-man crew removing poisonous lead paint from cast-iron walls in temperatures that regularly soar above 100°F. "It's a pretty hostile environment," says Gilbo, who says he

sweats off 4 lbs. during every 12-hour shift.

Millions of Americans last week knew the feeling; sauna-like conditions have gripped much of the country, from the East Coast to the Rockies. The sweltering heat has left at least 100 people dead since mid-July, mostly in the Midwest. Drought emergencies were declared in scores of counties, from Montana to Maryland. Roads buckled under a blazing sun. Crops shriveled after weeks without rain. And with air conditioners and fans at full tilt, utilities strained to meet electrical demand.

But for all the heat Gilbo and his fellow citizens were experiencing, the legislators working under those sizzling domes seemed remarkably cool—not just about

the weather outside but also about what it might portend. While a single heat wave doesn't make a worldwide meltdown (see *following story*), a great many scientists believe that by continuing to pump greenhouse gases into the atmosphere, humans are forcing drastic climate changes. Yet Congress seems determinedly indifferent. As the lawmakers prepare for their summer adjournment, legislative efforts to slow that warming by reducing greenhouse emissions have all but ground to a halt. Withering too, like so many cornstalks, are other major pro-environmental bills: increased funding for research on energy sources other than fossil fuels; incentives to encourage industries to cut emis-

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sions; efforts to clean up power plants; and measures to raise fuel-efficiency standards for gas-slurping suvs, vans and light trucks. Just about the only measure likely to pass is, of all things, an order requiring the Environmental Protection Agency to give equal time to dissenting views whenever it conducts educational programs on climate. Congress, says Environmental Defense Fund lobbyist Steve Cochran, has become "completely dysfunctional" on global warming. It is a case of dysfunction that has drawn scant public attention. Instead of putting together a large single proposal, Congress has been nibbling at the global-warming issue piecemeal, with opponents throwing up obstacles at almost every turn

in the form of directives and riders tacked on to major spending bills so they slip through the legislative process virtually unnoticed. This tactic has environmentalists, no slouches at publicity themselves, crying foul. "A lot of these [proposals] could never be moved in the light of day," says Greg Wetstone, a congressional watchdog for the Natural Resources Defense Council.

One example of congressional road-blocking involves attempts to raise fuel-efficiency standards for popular sport-utility vehicles and vans, which have long had a free ride by being classified as light trucks. For the past four years, opponents have annually attached a rider to the Department of Transportation's budget prohibiting the DOT from raising the standards to equal those for ordinary cars—a move environmentalists say would save 1 million bbl. of oil a day. Backers of the rider argue that they are protecting auto-industry jobs and giving consumers the vehicles they want, but now they are running into stronger opposition. Next week the Senate may consider a complicated parliamentary move proposed by three Senators—one Re-

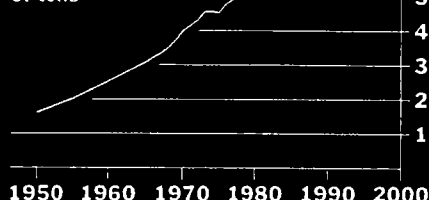
publican, Slade Gorton of Washington, and two Democrats, Dianne Feinstein of California and Richard Bryan of Nevada—that could finally overturn the rider, though at last count they were still three votes shy.

While Congress remains bitterly divided along party lines on other issues, opposition to climate-change initiatives has surprisingly broad support on both sides of the aisle. Some lawmakers dismiss worries about global warming as little more than "liberal claptrap," as California Republican Representative Dana Rohrabacher puts it. Others interpret the climate moves as a sly attempt by the Administration to enact by bits and pieces what the Senate declared it would not do when it voted 95-0 to oppose the Kyoto treaty, an international pact to reduce greenhouse-gas emissions that is strongly supported by Vice President Al Gore. Moreover, some politicians fall back on the uncertainty argument, asserting that the enactment of costly preventive measures now, before all the evidence is in, would invite economic disaster. Still others use the debate as an opportunity to portray Democratic presidential contender Gore,

GLOBAL WARMING: HOW IT WORKS, AND WHAT CONGRESS IS DOING

MORE GREENHOUSE GAS ...

World carbon emissions from fossil-fuel burning in billions of tons



Source: Worldwatch Institute; International Institute for Space Studies

... TRAPS MORE HEAT ...

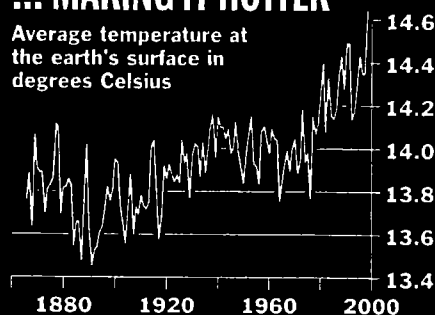
The sun's rays pass through the atmosphere, heating the earth's surface. The earth radiates the heat as infrared rays. Some escapes to space, but the rest is trapped by carbon dioxide and other gases in the atmosphere.



TIME Graphic by Joe Lattas

... MAKING IT HOTTER

Average temperature at the earth's surface in degrees Celsius



Source: Worldwatch Institute

author of the environmental tract *Earth in the Balance* and the U.S. representative at Kyoto, as an environmental extremist.

The White House admits it has no grand strategy for pushing its climate-change initiatives on Capitol Hill, other than to wait for the evolving science and climbing temperatures to overwhelm the critics. Instead the Administration is concentrating on energy efficiency, which President Clinton calls a "win-win" approach, arguing that it is a win for the environment as well as the economy. But it also

has political drawbacks—offending such traditional Democratic constituencies as the miners who could lose their jobs if the demand for coal drops, and rallying the opposition of powerful industries like oil and the utilities, which would face traumatic changes by a switch away from fossil fuels.

As for the presidential candidates, they range from naysayers to true believers on global warming. Is it really happening? Undoubtedly, said Gore, his party's top contender, when *TIME* questioned the major candidates. He added, "There is

overwhelming scientific consensus that human activity is contributing to global warming." Former New Jersey Senator Bill Bradley, another Democratic hopeful, acknowledged that it was a "serious threat." But the G.O.P. candidates sounded less certain. Texas Governor George W. Bush, his party's front runner, and Elizabeth Dole both agreed that the earth is getting warmer but professed to be agnostic about the cause, saying only that the question should be taken "seriously." Steve Forbes, for his part, had no doubts: "I

THE CASE FOR A SHIFTING CLIMATE IS HEATING UP

FOR WELL IN EXCESS OF A thousand years, Peru's Quelccaya ice cap has sparkled like a trillion-carat diamond. But satellites reveal that a flaw has appeared on its frozen face. That, Ohio State University glaciologist Lonnie Thompson believes, signifies the incipient birth of an Andean lake, meaning that the ice may be melting faster than he had feared. During the past two decades, Thompson has watched Quelccaya's surface shrink nearly a fifth. Now that the pace appears to be accelerating, he says wor-

riedly, "it could be completely gone in another 20 years."

Is the earth warming? Few questions have provoked more noisy wrangling or more impassioned debate—or, during hot spells and droughts like those now affecting large swaths of the U.S., more overblown rhetoric. In the verbal heat, all too often the scientific case for warming gets lost. While one side overstates the certainty of cataclysmic change, reading doom into every rise of temperature, the other categorically dismisses any threat. In fact, the science

is more finely nuanced—and more firmly grounded—than either side will concede.

For starters, it seems indisputable that the earth's mean temperature has advanced about 0.6°C (1°F) over the past 120 years. The question scientists continue to debate is why. One possibility is that the worldwide warming so far is due entirely to natural long-term shifts, like changes in the sun's luminosity. The other possibility is that the warming bears the fingerprints of greenhouse gases.

The problem, observes

British climatologist Phil Jones of the University of East Anglia, is that it's not a simple case of either-or. That's because purely natural swings of climate can operate in both directions, enhancing or masking the greenhouse effect. To complicate matters further, scientists expect the buildup of heat-trapping gases to manifest itself in ways that mimic the natural variability of climate. Some places, in other words, may even grow colder.

Take, for example, the large-scale atmospheric feature known as the North Atlantic Oscillation, whose swings of pressure strongly affect the weather of northern

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FUEL EFFICIENCY

For four years, a G.O.P. budget rider has kept the Administration from raising fuel-efficiency standards for light trucks, including popular vans and SUVs

WHERE IT STANDS

Three Senators are maneuvering to let the President veto the bill—thus opening the way to raise standards to save 1 million bbl. of oil a day—but they may be three votes short



FEDERAL FUEL BILL

The White House is sponsoring an initiative to cut \$750 million from the Federal Government's annual energy bills and reduce fossil-fuel emissions 30%

WHERE IT STANDS

A Senate committee acted to scuttle the program, even though it would cost taxpayers nothing. But the full Senate is not likely to go along with that effort

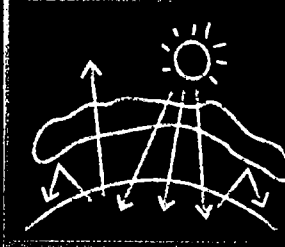


TAX CREDIT

To promote use of more efficient air conditioners, fuel-saving vehicles and rooftop solar units, the Administration wants a tax credit for buyers

WHERE IT STANDS

Republicans didn't put such provisions in their tax-cut bills, even though they would have benefited several industries, but G.O.P. lawmakers did include tax breaks for oil producers



BOOSTING R. AND D.

To reduce dependence on such fossil fuels as coal and oil, the Administration wants a boost in R.-and-D. expenditures on renewable energy sources

WHERE IT STANDS

Instead of increasing funds for research into solar, wind and other alternative forms of energy, Congress cut allocations for such programs 8% from current budgetary levels

JOE DIMAGIO—STOCK MARKET; TED HOROWITZ—STOCK MARKET; MARK LAWRENCE

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don't believe it," he said of global warming.

But there is pressure on Congress to confront the issue, and it is coming from an unexpected quarter: the business community. While commercial interests joined forces to block the Kyoto treaty in the Senate two years ago, the opposition has since splintered. Even such big oil companies as BP Amoco concede that global warming demands a serious response. Just two weeks ago, a subgroup of FORTUNE 500 companies known as the Business Roundtable called on government to encourage

the development of advanced technologies to "address concerns about climate change." And when he visited Washington recently, Ford Motor chairman Bill Ford said, "We believe that for the public—which includes our customers and shareholders—environmental preservation is going to be one of the most important issues of the 21st century."

Still, since today's greenhouse gases will remain in the atmosphere for a century even if all further emissions are cut off immediately, environmentalists are grow-

ing increasingly concerned that their window of opportunity to slow down warming is slamming shut. Says Michael Oppenheimer, the Environmental Defense Fund's chief scientist: "The world is already committed to a significant level of warming, no matter what we do."

As for the current heat wave, the National Weather Service says there won't be much relief until late August. And from Joe Gilbo's perch high in the Capitol, the hot air may be felt for much longer than that. —With reporting by Brian Allen/Washington

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SHRINKING If temperatures continue to rise, Peru's Quelccaya ice cap, in 1978, left, and today, could vanish completely in 20 years

latitudes. Over the past several decades, the phenomenon has reliably sent warm air shooting across Northern Europe and Siberia during wintertime and



simultaneously enveloped Labrador in frigid cold. And although this shift could be the result of natural fluctuations, some scientists are beginning

to suspect that it occurs because the same greenhouse gases that warm the lower reaches of the atmosphere cool the stratosphere, and the latter somehow affects the direction and speed of Arctic winds.

If it's difficult to disentangle what is natural from what is not, that's because the earth's climate machine is almost unimaginably intricate, filled with myriad interlocking gears and shock absorbers. But the lack of clarity about where we're headed will not last forever. By the end of the next century, calculates climatologist Tom Wigley of the National Center for Atmospheric Research, the

earth's mean temperature is likely to have risen somewhere between 1.3°C and 4.0°C (2.3°F and 7.2°F), with consequences, such as rising sea levels, that will be hard to mistake.

Will future generations regard the vanishing Quelccaya ice cap as a false prophet or as a climatological Cassandra whose warnings were not heeded? Ohio State's Thompson, for one, believes nature has already answered this question. An ice cap has no political opinions, he observes. "Quelccaya is melting because the earth's temperature is going up," he says, "and it's foolish to argue that it's not." —By J. Madeleine Nash

DRAFT TALKING POINTS

The Administration has an aggressive effort to reduce emissions in the auto and utility sector, most of which is being blocked by the Congress. These efforts include:

Promoting clean power production

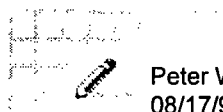
- Tax credit for wind and biomass would reduce emissions by 15-23 million tons by 2009. GOP tax package includes only the wind portion of the tax credit.
- Renewable R&D -- \$399 million request. Congress under-funding by \$90 million or 23%.
- 7.5% Renewable Portfolio Standard, the Public benefits fund and Right-To-Know provisions in electricity restructuring proposal would reduce emissions in the electric power sector 40-60 million tons annually by 2010.
- Clean Air Partnership Fund would reduce soot, smog, toxic air pollutants, and greenhouse gases through innovative approaches developed by state and local governments. Congress has cut the funding by 80%.
- New bioenergy Executive Order – tripling bioenergy use would reduce greenhouse gas emissions by 100 million tons – equal to taking more than 70 million cars off the road -- some of which will be in the utility sector.
- New national goal of 5% of electricity production from wind will reduce greenhouse gas emissions.
- Million Solar Roofs Program would reduce emissions equal to the annual emissions of 850,000 cars.

Promoting efficiency to reduce electricity demand

- Tax credits for energy efficient homes, building equipment, and rooftop solar systems that would reduce greenhouse gases by 37-55 million tons by 2009. Not included in GOP tax package.
- New Executive Order on federal building efficiency reduces power plant emissions and promotes green power.
- EPA and DOE technology deployment programs reduce energy demand in buildings. The 51% in EPA's budget alone would cause the unnecessary release of 350 million tons of greenhouse gases, 850,000 tons of nitrogen oxides and 1,500,000 tons of sulfur dioxide, in addition to wasting \$35 billion in energy expenses by 2010 – most of which will come from electric power production. DOE's budget cuts would increase emissions by 20 million tons in the power and buildings sectors and waste \$7.5 billion in energy.
- PATH aims to make new homes 50% more energy efficient and 15 million existing homes 30% more efficient within a decade

Promoting Clean Cars

- Opposition to House CAFÉ rider. SAP said, “The Administration strongly opposes, and urges the House to drop, the prohibition on corporate average fuel economy (CAFÉ) standards. These standards have resulted in a doubling of the fuel economy of the car fleet, saving the nation billions of gallons of oil and the consumer billions of dollars. Because prohibitions such as this have been enacted in recent years, the Department of Transportation has been unable to fully analyze this important issue. These prohibitions have limited the availability of important information that directly influences the Nation’s environment.”
- Tax credit for electric or fuel cell vehicles and highly fuel efficient hybrid vehicles would get clean cars in the marketplace and eliminate 36-54 million tons by 2009.
- R&D for the Clean Car Initiative to triple fuel economy. Administration has requested \$264 million, and this has been cut \$58 million or 22%.
- New Bioenergy Executive Order will promote clean fuels.



Peter W. Backlund
08/17/99 05:52:40 PM

Record Type: Record

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

cc:

Subject: Climate Change Opinion Piece in August 18 Washington Post

OSTP Chief of Staff Holly Gwin asked me to send you the following background and questions on a Climate Change Op-ed we expect in tomorrow's Washington Post. My telephone extension is 66081 if you need further information on this.

Peter Backlund

Background:

We have learned that David Ignatius (*Washington Post*) will publish an opinion article on climate change tomorrow (August 18). We expect the article to refer to the National Assessment of Climate Change that is currently being conducted by the US Global Change Research Program.

The U.S. Global Change Research Program (USGCRP) is conducting the National Assessment in response to a Congressional mandate to conduct periodic assessments of the consequences of global changes for the U.S. (included in the Global Change Research Act of 1990, which is the authorizing legislation of the USGCRP). The National Synthesis Report, which will be completed in early 2000, will be submitted to the Congress. Research conducted as part of the U.S. National Assessment will also contribute to the Intergovernmental Panel on Climate Change (IPCC) Third Assessment Report.

Questions and Answers:

What is the current status of the National Assessment?

Regional and sectoral analyses are underway by teams that include academic and government, and private sector scientists and stakeholders. Another team of scientists from academia, industry, and non-governmental organizations is drafting a national synthesis report that will outline conclusions, uncertainties, and research needs on a national level. The synthesis report is expected to undergo a multi-stage review process this fall, and to be issued in early 2000. Focused regional and sectoral reports will also be reviewed and published during 2000.

The Synthesis report is in its early draft stages. Conclusions and findings are still tentative and subject to change and refinement as additional work is completed. The peer-review process for the report will be very rigorous, and the report will not be considered final until after the peer-review process is completed.

Why is the USGCRP conducting the National Assessment of the potential consequences of climate change?

Climate variability and change pose challenges and opportunities for our nation, both now and in the future. To be better prepared, the U.S. has developed a national assessment process to identify and analyze the potential consequences of climate variability and change for the country. The Global Change Research Act of 1990 (the authorizing legislation of the USGCRP), instructs the program to conduct periodic assessments of the consequences of global changes for the U.S.

What is the relationship between this National Assessment and activities related to implementing the Kyoto Protocol?

These are separate activities. The National Assessment is looking at *potential impacts* of climate change on various regions of the US, the possible vulnerability of US agriculture, coastal zones, forests, human health, and water resources, and at strategies to cope with change. The Kyoto Protocol is primarily concerned with *mitigation* of climate change through emissions reductions.

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**TALKING POINTS
ADMINISTRATION INTERNATIONAL ACTIVITIES
AND THE KYOTO PROTOCOL**

In October 1997, President Clinton articulated two essential elements for any international agreement on climate change. These are:

- first, mechanisms that allow countries and businesses to find **cost-effective emission reductions**, and
- second, **the meaningful participation of key developing countries.**

The Administration is now engaged in a full court press in international negotiations to ensure that these elements are fully incorporated into the Kyoto Protocol and any related agreements before the treaty is submitted to the Senate.

These negotiations include:

- vigorously advancing US interests;
- sharing with other countries the United States' successful experiences with market-based mechanisms as a tool for fighting pollution;
- working with other countries to find ways that these lessons could be applied to address greenhouse gas emissions; and
- providing technical assistance to developing countries so that they may build the capacity to more effectively limit greenhouse gas emissions.

These actions promote the U.S. national interest and the goals of the Byrd-Hagel resolution.

- Climate change is a global problem that requires a global solution. We can't solve this problem alone.
- Developing countries must be engaged. But many are unfamiliar with market-based mechanisms.
- The U.S. Senate recognized the importance of engaging developing countries in the Byrd-Hagel resolution. Byrd-Hagel called on the President to support an international approach to climate change that protects the economic interests of the United States and engages developing countries.
- The Administration actions listed above are essential to help pursue the goals of the Byrd-Hagel resolution.

In no way do these actions "implement" the Kyoto Protocol.

- These actions advance the foreign policy objectives and interests of the United States. The actions have no domestic impact.
- They will have no domestic impact unless the Protocol and any related agreements receive the Senate's advice and consent to ratification.
- No federal agency is proposing or issuing any rule, regulation, order or decree. As Senator Bond stated in connection with the "no implementation" language contained in last year's VA-HUD appropriations bill, "Our only goal here is to prevent the

issuance of federal regulations designed solely for the purpose of Kyoto Protocol implementation.”

- The actions listed above are solely concerned with improving the Protocol through diplomacy, not enforcing it domestically.
- As the Administration has stated on numerous occasions, it has no intention of implementing the Protocol without the advice and consent of the U.S. Senate.

Reducing costs and engaging developing countries are bipartisan objectives.

- The Administration should be encouraged to continue advancing these objectives in international negotiations.
- Any restrictions on the Administration’s efforts to advance these objectives in international negotiations would raise serious Constitutional concerns.
- Even if such restrictions were constitutionally permissible, they would be highly undesirable. Such restrictions could provide considerable assistance to countries (such as China) advancing views contrary to US interests in the international negotiations.

DOE is in the process of developing new minimum energy standards for Central Air Conditioners.

Secretary Richardson has asked that the Office of Energy Efficiency and Renewable Energy accelerate their development to late 2000. (See clip)

If the standard were set about 20% above current levels, the national energy savings over 30 years would be equivalent to the amount of power produced by about 115 average sized (270 MW) coal power plants.

Background

- On a warm day, one-third to one-half of residential electrical energy consumption is for space cooling.
- Every five degree increase in outdoor temperature increases cooling energy consumption by roughly 20%.
- If a homeowner replaces in 10 SEER (Seasonal Energy Ratio) air conditioner with a 12 SEER unit, it will decrease seasonal energy consumption by 20% and peak load by 14%.
- In 1997, 3.66 quads of electrical energy was used in residences. 0.54 quads was used for space cooling.
- In the commercial sector, 3.44 quads of electrical energy was used. 0.34 quads was used for space cooling.
- One quad is the amount of power produced by 35 average sized (270MW) coal power plants per year.
- One quad is the total energy consumed in a year in the state of Arkansas.
- Residential air conditioning use is forecast to double by the year 2030.
- If the standard is set at 12 SEER, cumulative energy savings by the year 2030 would be 3 quads. If the standard is set at 14 SEER, cumulative energy savings by the year 2030 would be 6.5 quads.

August 4, 1999

State and USAID Climate Change Activities

The following reflects State Department and AID activities on climate change. The activities are consistent with the intent of the Byrd-Hagel Resolution that the Administration address climate change internationally in a manner that would minimize the cost to the American economy and secure greater participation by developing countries.

- Conducting negotiations and other diplomatic discussions under the Climate Convention and at the Intergovernmental Panel on Climate Change.
- Negotiating to strengthen market-based mechanisms under the Kyoto Protocol (e.g. emissions trading and clean development mechanism). Obtaining acceptable rules for the mechanisms is essential to seek global engagement in addressing climate change and to our ability to send to the Senate for its advice and consent a Protocol package that meets US national interests, including business interests, and to provide a cost-effective way of meeting US emissions targets.
- Meeting with representatives of key developing countries to discuss climate change issues, including greater developing country action and the importance of creating market-based mechanisms to minimize costs. This includes providing technical advice that would help these countries assume commitments and meet reporting requirements.
- Hosting educational workshops on climate change involving developing countries, which also promote their consideration of additional commitments and help secure support for other US Government climate policy initiatives.
- Promoting sustainable development in developing countries through programs designed to increase energy efficiency, reduce air pollution, conserve forest resources and promote energy practices that limit greenhouse gas emissions.

Congress and Global Warming: Short-Changing Our Future

While the evidence of global warming continues to mount, some in Congress are trying to strangle common-sense programs that save energy, save consumers and businesses money, and reduce global warming pollution. Appropriations bills working their way through Congress deny funding increases proposed by President Clinton to accelerate research and development of clean energy technologies for the 21st century. What's more, many of the bills include legislative "riders" that would throw roadblocks in the way of any Administration efforts to address climate change.

Special-Interest Assaults on Common-Sense Programs. Restrictive language attached to a number of fiscal year 2000 spending bills would put climate policy in a straitjacket. The Administration recently fought off or weakened some of the most far-fetched of these special-interest "riders." One sought to suppress scientific research on climate, and another tried to bar implementation of the President's new executive order to reduce federal energy use and save taxpayers \$750 million a year.

Still alive, however, is the Knollenberg rider. Building on a similar provision in last year's VA-HUD Appropriations bill, the language purports merely to prohibit implementation of the Kyoto Protocol in advance of Senate ratification. In practice, though, it would give naysayers in Congress a toe-hold to object to virtually all aspects of Administration climate policies, even when they clearly save money for consumers and businesses. Potential impacts include:

- ***Rolling back voluntary programs to reduce energy waste and greenhouse gas emissions.*** Report language from the House VA-HUD Appropriations Subcommittee seeks to vastly expand the prohibition on Kyoto-related activities to cover "non-regulatory actions, such as programs and initiatives." This undoes an agreement reached last year to ensure continuation of successful voluntary programs such as Green Lights and Energy Star, which have a proven track record of saving money for both consumers and businesses. In addition, it would block legitimate climate research and policy analysis.
- ***Dictating Scientific Process.*** The Report language also would require that a small minority of critics be given equal standing with mainstream scientists in educational seminars or activities -- even on questions about which there is broad scientific consensus. This is the kind of "balance" that tobacco companies used to fight for on the dangers of smoking.
- ***Unconstitutional interference?*** This year the rider has been attached to a wide range of spending bills, including those funding the State Department, the Agency for International Development, the Department of Energy, the Department of the Interior, the Environmental Protection Agency, NASA, the National Oceanic and Atmospheric Administration, and the National Science Foundation. Applying these restrictions to international negotiations and activities raises serious Constitutional concerns and could prevent the Administration from advancing bipartisan objectives of engaging developing countries and reducing the cost of addressing climate change.

Smart Investments At Risk. The Administration secured a record \$1 billion in fiscal year 1999 for the Climate Change Technology Initiative (CCTI), a package of investments to research, develop and deploy energy efficiency technology and renewable energy. For fiscal year 2000, the Administration is proposing \$1.37 billion for investments in forward-thinking clean energy technologies -- a 34 percent increase over. So far, Congress has appropriated almost none of this increase. Examples where CCTI and other climate-related investments are being under-funded include:

- **Weatherization Assistance Program.** *FY 2000 request: \$154 million; Congress under-funding by \$21 million.* The same week dozens of older Americans are dying from the heat, Congress is short-changing this program to deliver conservation services, such as insulation, to millions of low-income families. The program improves health and safety, reduces carbon emissions, and reduces energy costs for those least able to afford them.
- **Renewable Energy.** *FY 2000 request: \$399 million; Congress under-funding by over \$90 million.* Federal R&D investments can help make clean energy technologies such as wind, solar, bioenergy, and geothermal energy affordable for American consumers. Current spending bills, however, would *cut these efforts below FY 1999 levels* by some \$27 million-\$35 million.
- **Partnership for a New Generation of Vehicles.** *FY 2000 request: \$143 million; Congress currently under-funding by \$28 million.* PNGV is a partnership between the federal government and automakers to develop cars with three times the fuel economy of today's models with no sacrifice in comfort or performance. At current House and Senate levels, the program would not meet its technical objectives and would have to terminate a number of promising efforts, such as developing highly efficient high-power energy storage devices and the development of advanced fuel cells.
- **Clean Air Partnership Fund.** *FY 2000 request: \$200 million; Congress under-funding by \$159 million.* This initiative would provide grants to state and local governments for projects that reduce both greenhouse gases and pollutants like soot, smog and air toxics.

MEETING THE CHALLENGE OF GLOBAL CLIMATE CHANGE

MARCH 1999

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

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

THE SCIENCE OF CLIMATE CHANGE

Greenhouse gases in nature trap heat from the sun to keep the Earth's temperature an estimated 60 degrees Fahrenheit warmer than it would be absent such gases, thus sustaining our existence on the planet.

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

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

POTENTIAL IMPACTS OF CLIMATE CHANGE

Scientists predict a range of likely effects from global warming:

- **Human health.** Warmer temperatures are projected to increase fatalities from heat stress of the kind that killed 400 in Chicago in 1995 and expand the geographic ranges for diseases like malaria and dengue fever. The incidence of asthma and other respiratory illnesses, particularly among children and the elderly, is expected to increase from the additional smog caused by warmer temperatures.
- **Extreme weather.** As temperatures increase, so does the rate of evaporation. This acceleration of the hydrologic cycle is projected to increase the frequency and intensity of extreme weather events such as floods and droughts. Last year's El Nino offered us a window on the type of extreme weather that global warming may bring -- droughts and

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

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

PRESIDENT CLINTON'S DOMESTIC PLAN

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

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

economy -- buildings, transportation, industry, and electricity. This represents a 34 percent increase over the amount appropriated in FY 1999. Highlights include: increased funding for the *Partnership for a New Generation of Vehicles*, a government-industry effort to develop cars that get up to three times the fuel efficiency of today's cars; the *Partnership for Advancing Technology in Housing*, which aims to improve the energy efficiency of new homes by more than 50 percent and to retrofit 15 million existing homes to make them 30 percent more energy efficient within a decade; and research partnerships for key renewable energy technologies, such as solar, wind, bioenergy, photovoltaics, and geothermal energy.

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

expected cost.

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

DIPLOMATIC AGENDA

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

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

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

ECONOMIC COST OF KYOTO

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

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

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

CONCLUSION

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

CEQ Press Guidance
VP Announcement on Climate Change
August 2, 1999

BACKGROUND: The Vice President today will announce the declassification and release of 59 satellite images of the Arctic that will be used by scientists to research the interaction between polar ice caps and global warming. The images were requested by the National Science Foundation in connection with SHEBA, an international expedition to the Arctic that has documented changes in the ice pack consistent with those expected as a result of global warming. Release of the images was facilitated by MEDEA, a group of scientists that works with the intelligence community to make national security data available for scientific research. MEDEA was created in 1991 as an outgrowth of discussions initiated by then-Senator Gore. The Vice President also is calling on Congress to fully fund the Administration's Climate Change Technology Initiative (\$1.37 billion in FY2000) and to drop riders that would hamper the Administration's climate change programs.

TALKING POINTS:

- The Vice President today is announcing the declassification and release of 59 satellite images of the Arctic that will be used by scientists study the complex interaction between polar ice caps and global warming. The ice caps are more sensitive to global warming than any other place on Earth, and release of these images is an important step toward better understanding and meeting the challenge of global warming.
- These images will be used by scientists involved with SHEBA, an international expedition to the Arctic in 1997 and 1998 that documented changes in the ice pack consistent with those expected as a result of global warming. For instance, the Arctic ice sheet is roughly five percent smaller, and one meter thinner, than in the 1970s.
- The Vice President was instrumental in creating the partnership between the scientific community and the intelligence community that made this release possible. He believes strongly that, when possible, we should make national security data available for research on issues like climate change.
- The Vice President also is calling on Congress to approve the Administration's request for increased funding to research and develop clean, efficient energy technologies – programs that will save energy, save consumers money, and reduce global warming pollution. He's also urging Congress to drop riders that would hamper – and in some cases roll back – a wide range of efforts aimed at addressing global warming.

Will the President veto appropriations bills containing these global warming riders?

The President, time and again, has called on Congress to end these backdoor assaults on the environment. He has vetoed bills before because they contained anti-environmental riders and, if

necessary, will do so again. As always, though, that decision will depend on the final shape of the bill.

THE WHITE HOUSE

Office of the Vice President

For Immediate Release
Monday, August 2, 1999

Contact:
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STATEMENT BY THE VICE PRESIDENT

I am very pleased to release today the new report by the President's Committee of Advisors on Science and Technology, *Powerful Partnerships: The Federal Role in International Cooperation on Energy Innovation*. Prepared by distinguished leaders in business, academia, and science, this report recommends a strengthened partnership between American business and the federal government to step up to the global energy and environmental challenges of the next century.

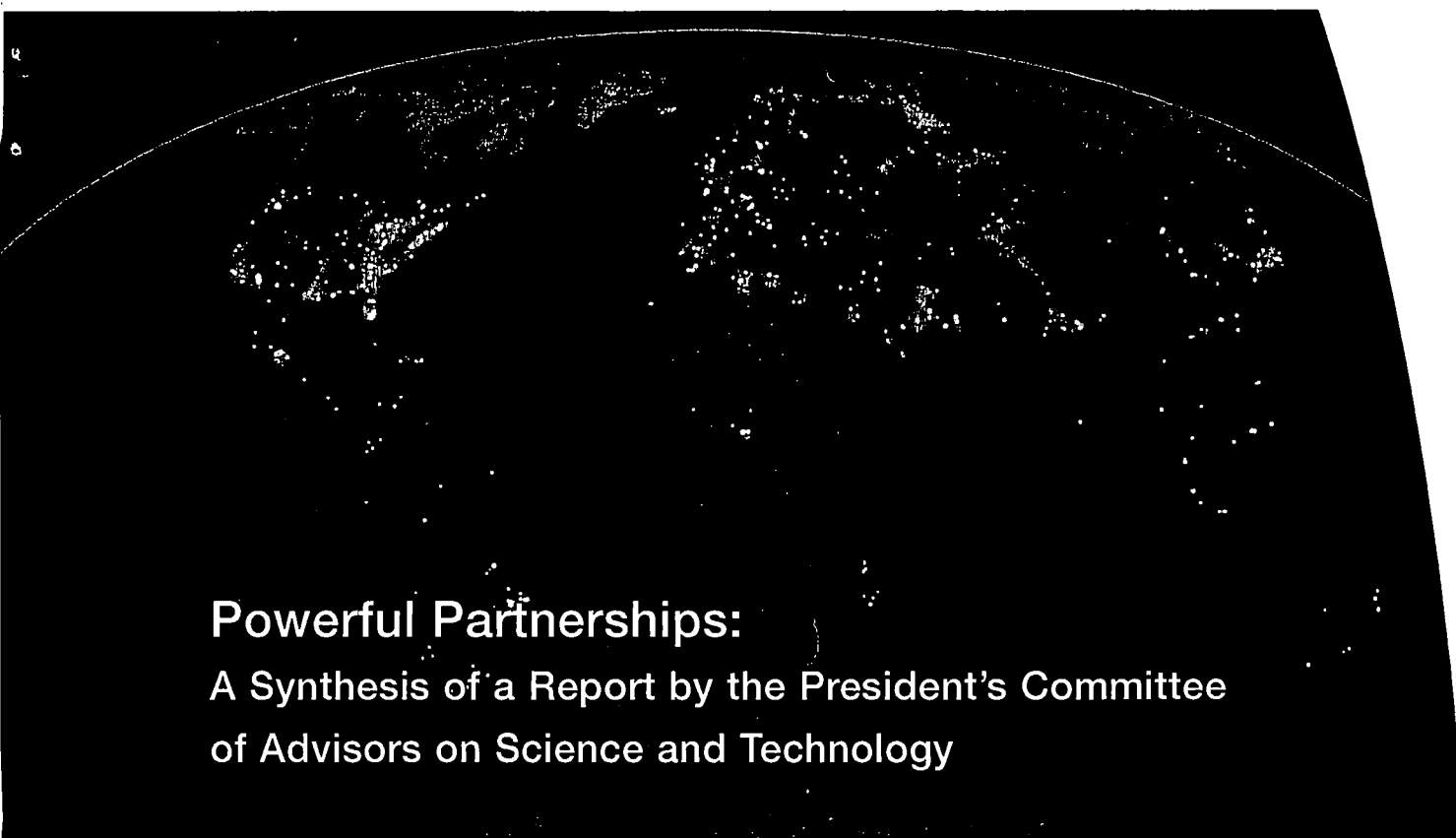
International energy markets, already worth hundreds of billions of dollars a year, are growing dramatically to meet exploding demand in developing countries. This translates into big market potential for competitive U.S. energy technology companies. But it also poses a critical environmental challenge. If developing countries rely only on traditional energy technologies, we will lose the battle to limit greenhouse gas emissions and assure a livable environment in the coming century.

This report to the President highlights the strategic importance to the United States of maintaining scientific and market leadership in energy technology, and identifies many opportunities to improve energy efficiency in buildings, industry, transportation, and clean energy generation. The redoubled effort called for in this report will help reduce dependence on imported oil and spur economic growth in developing countries while minimizing emissions of greenhouse gases.

An earlier PCAST report provided the foundation for the Administration's Climate Change Technology Initiative. This new report extends that work and provides a global strategic vision for energy innovation. It comes at a time when increasing numbers of Americans and American businesses are recognizing the need to accelerate clean energy technologies for economic and environmental gains. This Administration is committed to active international engagement to address climate change and build new markets for American technology companies.

I urge Congress to join with us in fully funding our Climate Change Technology Initiative and implementing key recommendations in this vital report.

###



Powerful Partnerships: A Synthesis of a Report by the President's Committee of Advisors on Science and Technology

"Advanced energy technologies can help meet the challenges of economic development, national security, and environmental quality." President Bill Clinton, July 23, 1998

It is in our fundamental National interest to greatly strengthen international cooperation in energy innovation. The President's Committee of Advisors on Science and Technology (PCAST) concluded that continuing our current energy trajectory would be "problem plagued and potentially disastrous." Unless innovation to increase energy end-use efficiency and to improve energy supply technologies is both rapid and global, world energy demand is likely to soar in the next century to four times today's level, entailing higher consumer costs for energy, greater oil-import dependence, worse local and regional air pollution, more pronounced climate disruption from greenhouse gases, and bigger nuclear energy risks than today. And if the United States abdicates leadership in international cooperation on energy technology while others forge ahead, it will cost U.S. firms dearly in their share of the multi-hundred-billion-dollar-per-year global market in energy-supply technologies, most of which is and will remain overseas. As the world heads into the next millennium, however, there is a window of opportunity — open now but closing fast — to move the world off this troublesome path. The choices the United States makes today will influence the evolution of the global energy system for many decades to come (Box I). The United States has strong stakes in the future economic, national security, and environmental course of world energy development.

Initiatives are recommended in four areas:

- **Strengthening capacities for energy technology innovation** through education and training; creation and support of regional centers for energy research and deployment; promotion of energy sector reform that attracts private capital while protecting the public interest; and creation of mechanisms for demonstration, cost-reduction and financing of advanced energy technologies;
- **Promoting technologies to limit energy demand** by increasing efficiency of energy use, particularly in buildings and appliances, small vehicles and buses, energy-intensive industries, and cogeneration of electricity;
- **Promoting technologies for a cleaner energy supply**, with emphasis on biomass, wind, solar, and other renewable energy sources, using fossil fuels far more efficiently, developing technologies to capture and store carbon, and nuclear fission and fusion; and
- **Improving management of the Federal portfolio**, including with external oversight.

These programs go beyond spurring research and development: they are designed to catalyze and facilitate efforts of the private sector, and will launch advanced energy technologies into substantial international markets, free of the need for ongoing government subsidies.



August 1999

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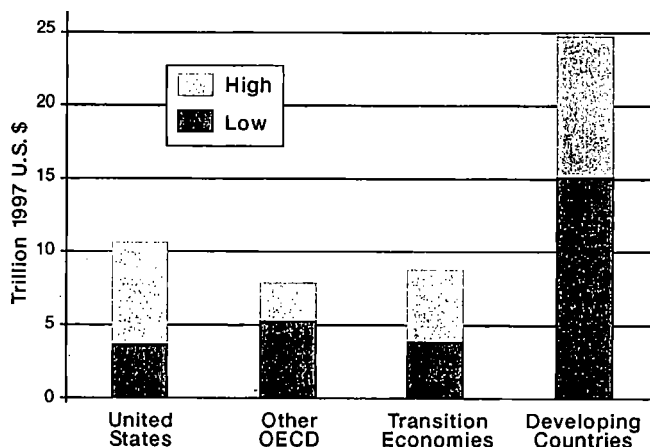
Executive Secretary
Joan P. Porter

Energy use will grow dramatically worldwide—particularly in developing nations. Most of the twenty-fold world energy growth since 1850 has occurred in the industrial countries, and fossil fuels account for 78 percent of the world's energy supply (Figure 2). In the next two decades, however, over half of global energy growth will be in the developing and transition economies as those nations improve their standard of living. This growth will reduce the disparities in present per capita energy use (Figure 3) and improve well-being for the poorer inhabitants of the planet, but this rapid growth in total world energy use could further exacerbate the energy-linked problems and challenges already of great concern today.

Technological innovation and the policies adopted to promote efficient and clean energy technologies will determine the quantity of energy used in the future and the impact of that energy use. An energy future that continues recent trends, including heavy reliance on conventional fossil fuel technologies, would commit the world to increased smog, acid rain, and other conventional air pollution problems, as well as the risk of climate change from increasing atmospheric carbon dioxide, approaching levels not seen on the planet for millions of years. Vigorous deployment of energy efficiency technologies, on the other hand, would mean the difference between doubling and quadrupling world energy supply by 2100 — a quantity of energy equal to the current oil output of nearly 50 Saudi Arabias — reducing the economic and national security consequences of such massive growth. Use of clean fossil, nuclear and renewable energy technologies means avoiding many of the environmental impacts looming in the coming century (Figure 2).

A significant portion of the demand for new energy technologies will be outside of the United States under any future scenario. Between now and 2050, investments in new energy technologies in developing nations will likely approach \$15 to \$25 trillion dollars, accounting for more than half of the global investments in energy supply (Figure 1). Ninety percent of the markets for coal, nuclear, and renewable energy technologies are expected to be outside of the United States in the coming decades. Strategic investments today — by the U.S. government and the private sector — will assist strong participation in those markets tomorrow.

Figure 1: Projected Total Investment in Energy-Supply



Future investments in energy supply technologies will be much larger outside the United States. Developing countries will account for the largest share—roughly \$15-25 trillion from 1990-2050. Energy efficiency investments will be of similar magnitude as countries develop their buildings, industry, and transport infrastructures. Adapted from (3).



Box 2: The Window of Opportunity

- *Energy-sector restructuring and regulatory reform* in many countries will be largely completed over the next decade and will "lock in" the mechanisms determining success or failure in the dual aims of attracting private capital and addressing public benefits.
- *Rapid urbanization* will "lock in" land-use patterns and infrastructure — including the configuration of urban transportation networks, patterns of urban sprawl, and building design — for a century or more.
- *Investments in energy research, development, demonstration, and deployment made today* will influence the characteristics of the world energy system for many decades. Many energy technologies deployed between now and 2020 will still be in operation in 2050. Investments made today in research and development will determine the new technologies available for deployment between 2020 and 2050. Thus, today's choices will strongly influence energy costs, greenhouse gas emissions, oil dependence, proliferation resistance, and public-health impacts for the balance of the next century.

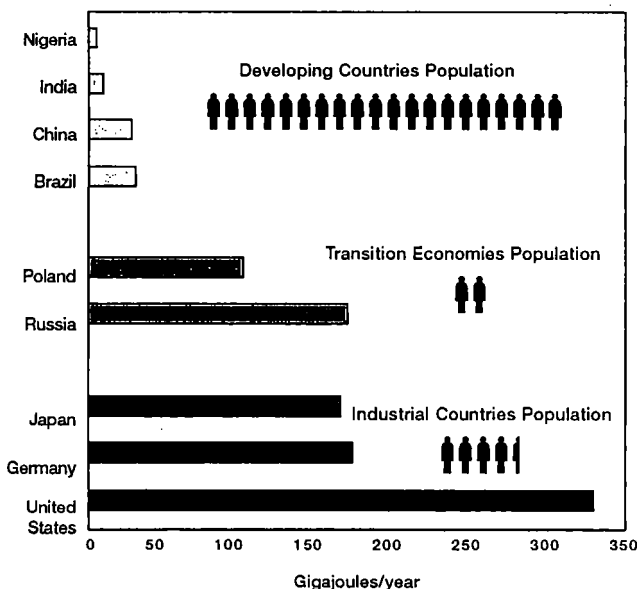
Government has a critical and legitimate role to play. The private sector plays the major role in energy innovation and related international cooperation. Private-sector investments alone, however, will not adequately capture the full range of public benefits — like reduced pollution, increased energy security, long-term technology innovation, and developmental equity issues. Government activities focused on filling the gaps in private-sector investment can achieve significant benefits for the United States.

Current government programs cannot meet the challenges of future global energy growth. Current government expenditures on international cooperation on energy innovation amount to about \$250 million per year, but these funds are primarily in nuclear fission and fusion. The government has few programs to bridge the gap between R&D and commercial deployment. The lack of government programs for the middle part of the technology innovation "pipeline" — demonstration and early deployment — impedes the commercialization of innovative energy technologies (Figure 4). To address the full spectrum of energy technology needs, PCAST recommends doubling the present funding for federal programs in international energy cooperation in FY 2001, focusing on programs that build stronger foundations for energy technology innovation, promote innovation in energy end-use, and promote clean and efficient energy supply. (See Table 1.)

Strengthening North-South cooperation on clean and advanced energy technologies is a promising approach to helping secure developing country participation in an international framework for addressing global climate change. The United Nations Framework Convention on Climate Change — signed by President Bush and ratified by the U.S. Senate — calls explicitly for such cooperation. This cooperation would help provide the alliances, information, and foundations needed to achieve specific developing nation commitments to greenhouse gas emissions-reductions targets and timetables.

Greater cooperation with other industrial countries can help build the scientific and technological basis for more rapid innovation in the energy sector. Industrial country cooperation can also play a key role in developing the competitive mechanisms needed to bridge the gap in the innovation pipeline (Figure 4) for technologies with significant public benefits.

Figure 3: Per Capita Energy Use and Population



Current per capita energy use shown for selected countries and total population in developing countries, reforming economies, and OECD countries. (Excludes traditional biomass.) One icon = 200 million people. 1 Gigajoule = 0.95 million Btus = 7 gallons of gasoline. Data drawn from (4).

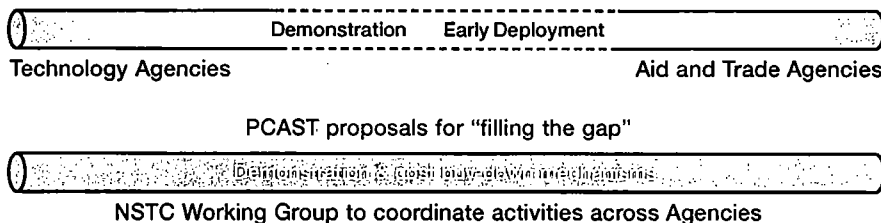


A unified vision and coordinated management structure will enhance U.S. international cooperative efforts on energy. PCAST calls for a new Interagency Working Group on Strategic Energy Cooperation under the National Science and Technology Council, to provide overall coordination and assess agency programs. The Working Group should have an Advisory Board drawn from the private, academic, and NGO sectors. PCAST recommends that the Working Group conduct portfolio assessments to help oversee development of a coordinated Strategic Energy Cooperation Fund, designed to promote and support programs in international energy cooperation.

The Panel concluded:

"The needs and opportunities for enhanced international cooperation on energy-technology innovation supportive of U.S. interests and values are thus both large and urgent. The costs and risks are modest in relation to the potential gains. Now is the time for the United States to take the sensible and affordable steps outlined here to address the international dimensions of the energy challenges to U.S. interests and values that the 21st century will present."

Figure 4: The "technology innovation" pipeline today, with primary Agency supports



The innovation pipeline for energy technology has a significant gap between government programs for R&D and government programs to support successful commercialization. This gap constrains the deployment of innovative technologies. To bridge that gap, PCAST recommends mechanisms for demonstrating technologies, competitively buying-down their price, and for coordinating the work of the technology development, aid, and trade agencies. Agencies involved include the Departments of Commerce, Energy, and State, the United States Agency for International Development, the Environmental Protection Agency, Export-Import Bank, Overseas Private Investment Corporation, and the Trade and Development Agency, among others.

This study responds to President Clinton's request to identify "ways to improve the U.S. program of international cooperation on energy R&D to best support our nation's priorities and address the key global energy and environmental challenges of the next century." A PCAST Panel investigated these issues intensively for 9 months and wrote a comprehensive report. This Panel included fourteen experts drawn from a diverse mix of industry, academic, non-governmental and other organizations, and with a wide variety of backgrounds and perspectives. Despite this diversity, these members were unanimous in making the recommendations in this report, noting that there is a narrow window of opportunity for the United States to respond to the urgent needs they identified (Box 2). The full PCAST has also endorsed this report. The PCAST serves as the highest level private sector science and technology advisory group for the President and the National Science and Technology Council.

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The PCAST Panel on International Cooperation in Energy Research, Development, Demonstration, and Deployment

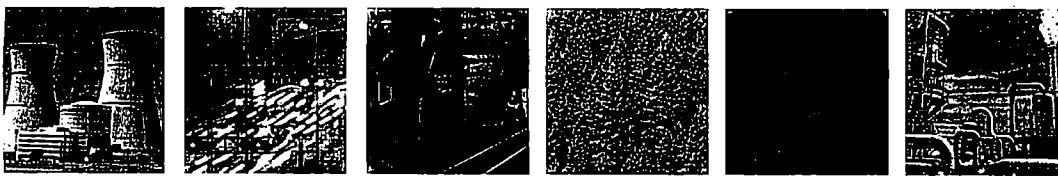
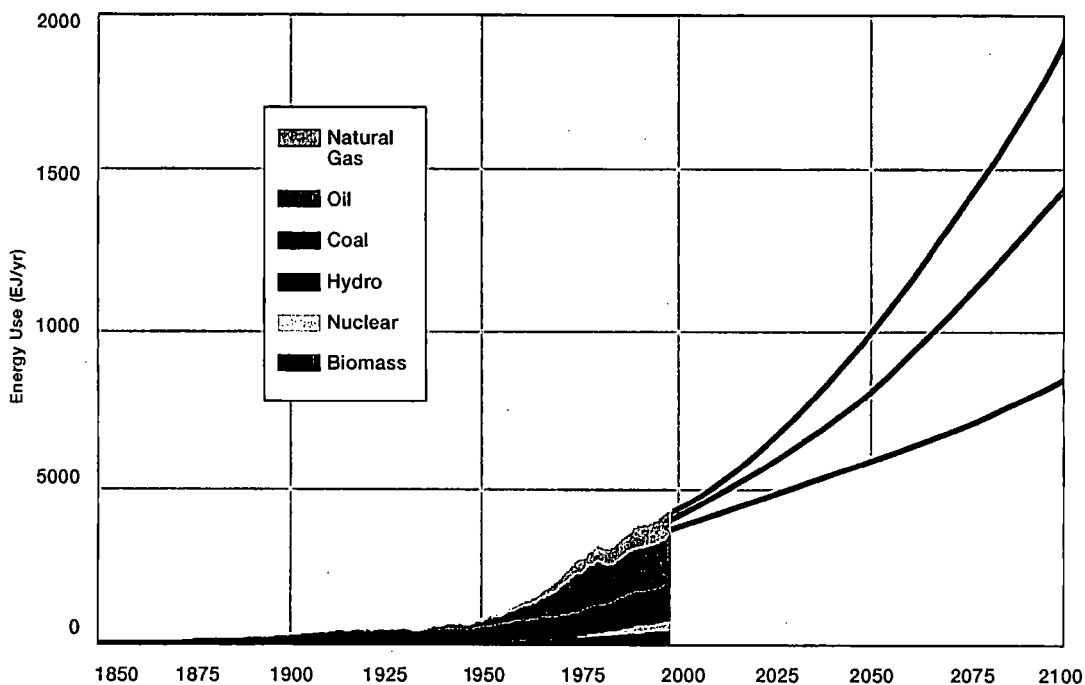


Figure 2: Historical and Projected Energy Use



World energy use is growing rapidly and is dominated by fossil fuels. The future path depends on economic growth, technological change, and investments in energy efficiency. 1 Exajoule = 0.95 Quad = 160 million barrels of oil. Adapted from (3).

Box 1: Global Energy Challenges and the U.S. National Interest

- **Economic:** International cooperation provides economic opportunities for U.S. companies to access global energy supply technology markets, worth hundreds of billions of dollars each year. Action now can give U.S. companies access to the best innovative ideas in the world and open doors to these markets, the bulk of which will be outside of the United States in the coming century (Figure 1). Such innovation will also lower the cost of energy for the U.S. consumers.
- **National Security:** New technology to power vehicles with greater efficiency or with alternative fuels reduces domestic and international dependence on oil supplies from politically volatile regions. Advanced reactor designs can potentially reduce nuclear proliferation risks. Clean energy supplies for economic development enhance the political and economic stability needed for sound markets and international trade.
- **Environmental:** Clean, low-carbon sources of energy—renewable, advanced fossil, and nuclear—together with energy-efficient cars, buildings, and industries, can reduce air pollution and greenhouse gas emissions and nuclear reactor waste and safety concerns domestically and internationally. It can also help create a framework for wider cooperation on the energy climate challenge in which developing, transition, and industrialized countries alike will participate.

References:

1. President's Committee of Advisors on Science and Technology, Panel on Energy Research and Development, *Federal Energy Research and Development for the Challenges of the Twenty-First Century*, (Washington, DC: Office of Science and Technology Policy, November 1997), http://www.whitehouse.gov/WH/EOP/OSTP/html/OSTP_Home.html
 2. President's Committee of Advisors on Science and Technology, Panel on International Cooperation in Energy Research, Development, Demonstration, and Deployment, *Powerful Partnerships: The Federal Role in International Cooperation on Energy Innovation*, (Washington, DC: Office of Science and Technology Policy, June 1999), http://www.whitehouse.gov/WH/EOP/OSTP/html/OSTP_Home.html
 3. N. Nakićenović, A. Grübler, and A. MacDonald, eds., *Global Energy Perspectives* (Cambridge, UK: Cambridge University Press, 1998).
 4. World Bank, *World Development Report 1998-99: Knowledge for Development*, (New York, NY: Oxford University Press, 1999).
- The cover photo shows electric lights on earth at night, adapted from satellite imagery. Courtesy of NASA.

Initiatives and Budgets (Budgets in Millions of \$ Supplemental Spending)

FOUNDATIONS OF ENERGY INNOVATION		FY2001	FY2005
Capacity Building	Increase the capacity for energy innovation by investing in education and training programs and supporting regional centers for energy research, development, demonstration, and deployment.	\$20M	\$40M
Energy Sector Reform	Provide assistance for energy-sector reform that attracts private investment and includes mechanisms to protect the public's interest in energy innovation that reduces environmental impacts, addresses the energy needs of society's poorest members, and provides other societal benefits not captured in markets. Provide assistance in establishing regulatory frameworks for natural gas grids.	20	40
Demonstration and Cost Reduction	Establish an international Demonstration Support Facility to promote pre-commercial, private-sector-sponsored demonstrations of clean and efficient energy technologies. Allow energy-production tax credits for U.S. firms participating in demonstration projects abroad. Promote market-based mechanisms to reduce the difference in cost between advanced and conventional energy technologies by means of the learning that accompanies increased production.	40	80
Financing	Encourage the World Bank and other multilateral development banks to increase financing for clean and efficient energy technologies; provide trust funds to the banks for analytical and assessment activities in support of such lending. Facilitate market-based finance of these technologies by creating a fund administered by the Overseas Private Investment Corporation to mitigate financing risks in private and joint public-private projects of this type abroad.	40	80
A PORTFOLIO OF ENERGY EFFICIENCY RESEARCH, DEVELOPMENT, DEMONSTRATION AND DEPLOYMENT			
Buildings	Reduce energy use of new buildings in developing and transition economies by 50% by 2020 by assisting them to develop efficiency standards, ratings, and labeling for building equipment as well as design tools, energy codes, and standards for building shells. Encourage multilateral development banks and the Global Environment Facility to support such measures.	20	40
Transport	Expand research, development, demonstration, and cost-reduction efforts to achieve inexpensive, efficient, and clean small vehicles and buses. Assist in analysis and implementation of vehicle emissions testing and standards. Engage the multilateral development banks and the Global Environment Facility in support of these measures.	20	40
Industry	Invent the factories of the 21 st century through U.S. public/private/foreign partnerships to develop and implement energy-efficient technology roadmaps for energy-intensive industries.	10	20
Combined Heat and Power (CHP)	Maximize CHP's (cogeneration's) share of the market for new power generation in developing countries through collaborative assessments of potential CHP sites, addressing regulatory/market barriers, attracting funding for demonstrations, helping secure financing, and through information and training programs.	10	20
A PORTFOLIO OF ENERGY SUPPLY RESEARCH, DEVELOPMENT, DEMONSTRATION AND DEPLOYMENT			
Renewables	Achieve widespread use of renewables, comparable to fossil fuel use today, by 2025-2030. Conduct research, development, demonstration, and cost-reduction efforts on industrial-scale use of biomass to generate power and coproducts and on integrated renewable energy and hybrid systems for use in rural areas. Accelerate deployment of grid-connected intermittent renewable/hybrid systems.	40	80
Fossil Fuel	Develop economic fossil fuel decarbonization and carbon-storage technologies with near-zero carbon and pollutant emissions, including low-cost hydrogen production and byproduct carbon recovery. Evaluate carbon-reservoir potential.	20	40
Nuclear Energy	Preserve nuclear energy as a 21 st century option by expanding the Nuclear Energy Research Initiative with increased international cooperation addressing cost, safety, waste, and proliferation issues for nuclear fission. Increase international cooperation on spent-fuel management and high-level wastes. Pursue new international agreement on fusion R&D.	10	20
A SET OF MANAGEMENT RECOMMENDATIONS			
Agency Management	Establish an interagency working group under the National Science and Technology Council, with an external Advisory Board, to provide strategic vision, interagency coordination, portfolio analysis, and strengthened evaluation. Agencies would use competitive solicitations to identify best approaches. Strengthen agency international capabilities.		
TOTAL	Strategic Energy Cooperation Fund	\$250M	\$500M

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Also Available on the PCAST Home Page via Link from the OSTP Home Page at:

http://www.whitehouse.gov/WH/EOP/OSTP/html/OSTP_Home.html



**POWERFUL PARTNERSHIPS:
THE FEDERAL ROLE IN INTERNATIONAL COOPERATION
ON ENERGY INNOVATION**

**A REPORT FROM THE
PRESIDENT'S COMMITTEE OF ADVISORS ON SCIENCE AND TECHNOLOGY
PANEL ON INTERNATIONAL COOPERATION IN
ENERGY RESEARCH, DEVELOPMENT, DEMONSTRATION, AND DEPLOYMENT**

JUNE 1999

About the President's Committee of Advisors on Science and Technology

President Clinton established the President's Committee of Advisors on Science and Technology (PCAST) by Executive Order 12882 at the same time that he established the National Science and Technology Council (NSTC). The PCAST serves as the highest level private sector science and technology advisory group for the President and the NSTC. The Committee members are distinguished individuals appointed by the President, and are drawn from industry, education and research institutions, and other non-governmental organizations. The Assistant to the President for Science and Technology co-chairs the Committee with a private sector member selected by the President.

The formal link between the PCAST and the NSTC ensures that national needs remain an overarching guide for the NSTC. The PCAST provides feedback about Federal programs and actively advises the NSTC about science and technology issues of national importance.

THE PRESIDENT'S COMMITTEE OF ADVISORS ON SCIENCE AND TECHNOLOGY

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This was a Panel of fourteen persons of diverse backgrounds and viewpoints, tackling an immensely complex subject. Inevitably, not every member of the Panel is entirely happy with every formulation in the report. But we are unanimous that the main messages and overall balance in this joint product are correct and appropriate.

EXECUTIVE SUMMARY

This Panel has reviewed the U.S. stake in international cooperation on energy innovation, the complementary roles of the public and private sectors in pursuing such cooperation, and the existing array of activities being carried out by the Federal government to this end. Based on that review, we conclude that existing Federal programs for energy cooperation—which were funded in FY 1997 at less than \$250 million per year—are not commensurate with either the needs or the opportunities. We therefore recommend substantially strengthening these programs—expanding their coverage, increasing their funding, improving the processes for their evaluation, and providing for them an over-arching strategic vision and a mechanism for coordinating its implementation.

We propose specific initiatives for strengthening the foundations of energy-technology innovation and international cooperation relating to it (including capacity building, energy-sector reform, and mechanisms for demonstration, cost-buy-down, and financing of advanced technologies); for increased cooperation on research, development, demonstration, and deployment (RD³) of technologies governing the efficiency of energy use in buildings, energy-intensive industries, and small vehicles and buses, as well as of cogeneration of heat and power; and for increased cooperation on RD³ of fossil-fuels-decarbonization and carbon-sequestration technologies, biomass-energy and other renewable-energy technologies, and nuclear fission and fusion.

Most importantly—for without this none of the other initiatives we propose are likely to achieve their potential—we recommend creation of a new Interagency Working Group on Strategic

Energy Cooperation, under the auspices of the National Science and Technology Council, to provide a strategic vision of and coordination for the government's efforts in international cooperation on energy-technology innovation. The government's contribution to this expansion of international energy cooperation activities would be provided by a new Strategic Energy Cooperation Fund, amounting to \$250 million for FY2001 and increasing to \$500 million in FY2005, the proposed allocation of which to the relevant agencies in the President's budget request would be determined with the help of the Interagency Working Group.

*U.S. interests and values at stake in energy
can only be effectively addressed
in a global context*

The U.S. Stake in International Cooperation on Energy Innovation

*E*nergy is tightly linked to U.S. economic, environmental, and national-security interests.

- ◆ U.S. economic interests in energy-technology innovation include controlling costs of energy to U.S. consumers and industries; avoiding inflation and recession (in this country and worldwide) from oil-price shocks; limiting the impact of energy imports on the U.S. balance of trade; expand-

ing the market share of U.S. companies in the multi-hundred-billion dollar per year global energy-technology market; and enhancing long-term markets for other U.S. exports by building the energy basis for sustainable prosperity in developing and transition economies.

U.S. economic interests in energy-technology innovation include expanding the market share of U.S. companies in the multi-hundred-billion dollar per year global energy-technology market

- ◆ Environmentally, accelerated energy-technology innovation can increase the pace and decrease the cost at which high-environmental-impact technologies and practices are replaced with low-impact ones in the United States and abroad. This will reduce the health impacts of air pollution and the ecological effects of acid deposition in this country and elsewhere, improve the safety of nuclear reactors everywhere, reduce oil spills in the world's oceans, slow the pace of greenhouse-gas-induced climate change, and help create a framework for long-term cooperation on the energy/climate challenge in which developing, transition, and industrialized countries alike will participate.
- ◆ U.S. security interests in energy-technology innovation include reducing the potential for conflict over access to oil and gas resources; minimizing links between the use of nuclear-energy technologies and the acquisition of nuclear-weapons capabilities by nations of proliferation concern or by subnational groups; and avoiding, for all countries, energy problems with economic, environmental, or political consequences severe enough to aggravate or generate possibilities for armed conflict.

- ◆ Not only U.S. interests but also basic U.S. values—respect for human dignity and human rights, belief in equity and opportunity, commitment to assistance for the least fortunate and to stewardship for future generations and for the environment—dictate U.S. leadership in international cooperation on energy innovation for sustainable development.

U.S. interests and values at stake in energy can only be effectively addressed in a global context.

- ◆ The problems and opportunities related to oil, energy-technology markets, nuclear proliferation, climate change, and development/security interactions are all inherently global.
- ◆ Effective responses to these issues must take into account the globalization of capital markets, manufacturing, innovation capacities and activities, and information flow.

A “business as usual” energy future—without rapid technological innovation and increased cooperation to diffuse the results worldwide—would be problem-plagued and potentially disastrous.

- ◆ World energy demand under business-as-usual would double from its 1997 value by 2025 or 2030, triple by 2050 or 2060, and more than quadruple by 2100; by far the largest part of this growth would take place in the countries currently classified as developing.
- ◆ Oil imports, oil prices, and the potential for oil-induced economic disruption and conflict would all rise.
- ◆ U.S. understanding of, access to, and creation of products for global energy-technology markets all would become increasingly inadequate.

- ◆ U.S. withdrawal from nuclear energy-technology innovation and cooperation would reduce U.S. leverage to minimize nuclear energy's global safety and proliferation risks.
- ◆ Attempts to fuel the bulk of developing-country economic growth with conventional coal and oil technologies would create a collision between economic aspirations and the environmental underpinnings of well-being, with the potential to wreck both.
- ◆ The atmospheric concentration of carbon dioxide under business-as-usual would be likely to reach 3 times its pre-industrial level by 2100, an increase regarded by most climatologists as well beyond the bounds of prudence.
- ◆ lower the emissions intensity of energy supply with respect to greenhouse gases, particulate matter, and gaseous precursors of regional smogs, hazes, and acid deposition (SO_x , NO_x , hydrocarbons);
- ◆ reduce, below what they would otherwise be, the monetary costs of delivering energy services in environmentally sustainable ways;
- ◆ broaden the range of energy options available to the United States and other countries, thus increasing the capacity of the national and global energy system to cope with the inevitable surprises.

U.S. participation in international cooperation in pursuit of these innovations is clearly needed to:

U.S. security interests in energy-technology innovation include avoiding, for all countries, energy problems with economic, environmental, or political consequences severe enough to aggravate or generate possibilities for armed conflict

Although aspects of the energy future are inevitably uncertain, within a wide range of possibilities the acceptable outcomes all require major innovations in energy technology in order to:

- ◆ lower the energy intensity of economic activity, thus reducing chances that constraints on expanding energy supply will constrain economic growth, reducing the pressure of high energy growth to use higher-environmental-impact sources along with lower-impact ones, and reducing environmental impacts of the energy-supply system overall in proportion to its size;
- ◆ increase the pace and lower the cost of U.S. acquisition of the innovations it needs for itself;
- ◆ gain access for U.S. firms to the large overseas markets for innovative energy technologies;
- ◆ address the global dimensions of energy challenges by accelerated development and deployment of innovations worldwide.

Private-Sector & Public-Sector Roles in International Energy Cooperation

The private sector already plays a large role in energy-technology innovation and in international cooperation relating to it, and this role is growing over time.

- ◆ The large role is evident in the size of the private shares in U.S. total R&D (about 65 percent private in 1997), U.S. energy-technology R&D (about 60 percent private in 1997), and global North-South capital flows (about 85 percent private in 1997).

- ◆ Growth in these private roles over time reflects trends in privatization and globalization of the world economy and in the privatization, deregulation, and restructuring of the energy industries.

There remains a need for government involvement because the public interest in energy outcomes goes beyond the sum of perceived private interests.

- ◆ Privatization, deregulation, and restructuring of energy industries help bring private capital into the energy sector, but these same forces can lead to neglect of the ways the composition and operation of energy systems affect the wider public interest (including meeting the basic needs of the poor, as well as addressing the other macroeconomic, environmental, international-security, and values issues listed above).
- ◆ Many of these public interests will only be adequately addressed if investments in energy-technology innovation are made with longer time horizons (lower discount rates) and less risk aversion than the discount rates and degrees of risk aversion prevailing in the commercial marketplace.
- ◆ The gap between what the private sector does and what society's interests require is further enlarged by a variety of barriers to efficient market performance, which may include inadequate information, excessive concentration or fragmentation in markets, high transactions costs, and more.
- ◆ Additional rationales for government engagement include complementarity of government and private capabilities and the desirability of reducing the deleterious effects on international energy-technology cooperation of existing government policies (including not only those focused on energy and environmental issues *per se* but also trade policy, foreign policy, intellectual property rights policy, and so on).

Government interventions should nonetheless always be cognizant of the large and growing role of the private sector, whose resources for energy-technology R&D somewhat exceed, and whose resources for energy-technology deployment far exceed, those of governments. This means that government initiatives in ERD³ should be:

- ◆ structured to encourage, catalyze, and complement the corresponding activities of the private sector, not replace them;
- ◆ focused on lowering specific barriers or addressing specific shortfalls relating to the private sector's incentives and capacity to fully address society's interests in energy innovation;
- ◆ designed to be limited in the rate and duration of the government's investment, with specific criteria for terminating projects that fall short and for handing off successful ones to the private sector.

There is a wide array of mechanisms through which the government can support international ERD³ cooperation, including participation in, funding for, or other encouragement of cooperative efforts in:

- ◆ the conduct of fundamental energy-related research and applied energy-technology R&D;
- ◆ demonstration and niche and pre-commercial deployment of innovative energy technologies;
- ◆ shaping the environment for commercial deployment of innovative energy technologies—increasing incentives, lowering barriers (especially in relation to finance), and setting appropriate standards—to reflect their public benefits;
- ◆ capacity building, integrated assessment, and institutional innovation in support of these approaches.

Existing U.S. government activities in international ERD³ cooperation are significant and often effective, but they are insufficient in relation to the challenges and the opportunities. The deficiencies are in scale, comprehensiveness and appropriateness of matching mechanisms to needs, coordination, and evaluation.

- ◆ A study conducted by RAND for this Panel indicates that Federal government spending on international ERD³ activities by DOE, USAID, EPA, and the Nuclear Regulatory Commission in FY1997 was about \$230 million, more than half of it on fusion and fission.
- ◆ The international ERD³ activities of these agencies, while generally well focused and effective, are inadequate in relation to the opportunities and insufficiently coordinated with each other and with the efforts of the other Federal agencies engaged in the financing of energy-technology deployment, which include the Ex-Im Bank, the Trade and Development Agency, and the Overseas Private Investment Corporation.
- ◆ There is neither an over-arching strategic vision integrating and ensuring the comprehensiveness of the array of Federal activities on international energy RD³ cooperation nor a mechanism for implementing such a vision in a coherent and efficient way.

Initiatives

We believe that initiatives in four categories—foundations of energy innovation and cooperation, energy end-use efficiency, energy-supply technologies, and management of the government's activities in support of ERD³ cooperation—are required to narrow the gap between the Federal programs that exist and the needs they seek to address.

- ◆ Each category contains three to four initiative clusters. The elements that the Panel

agreed deserve highest priority in each cluster are described in this Executive Summary. The body of the report expands on these high-priority elements and presents other elements that the panel regarded as important.

Existing Federal Programs for energy cooperation are not commensurate with either the needs or the opportunities

- ◆ All of our recommendations proceed from the presumption that the recommendations of the 1997 PCAST study of U.S. domestic energy R&D programs are being implemented. Effective international outreach must have sturdy domestic roots.
- ◆ Estimated budgets are provided here at the level of the initiative clusters—covering both the “high priority” and “other important” elements in each—in the form of an initial funding level for FY2001 and a level for FY2005 (in as-spent dollars). These figures are intended to be supplemental to existing budgets for international ERD³ activities and to the budgets proposed in the 1997 PCAST study for domestic energy R&D programs; and they are intended to cover both the “high priority” and “other important” initiative elements described.
- ◆ The great diversity of technical options and even greater diversity of geographic, economic, and institutional environments in which these options might be applied made it impractical, within the limited time and resources available for a study of this kind, to develop a fully comprehensive and prioritized set of recommendations for all of the cooperative activities that could and should be done in the decades ahead. But we believe what we are proposing here constitutes the core of a sensible program for the next five years.

- ◆ The list of high-priority opportunities we present here is based on a preliminary attempt to take into account the potential leverage of different options against U.S. interests and values affected by the energy challenges in different regions and worldwide, the likelihood of success based on the strengths and experience the partners would bring to the prospective cooperative efforts, the timeliness of the efforts in terms of windows of opportunity and maturity of needed technical and institutional ingredients, complementarity with private-sector efforts, and likely cost-effectiveness.
- ◆ Success in international cooperation depends strongly on engagement of all of the partners and technology users, from the beginning, in defining goals, outlining tasks, and setting priorities. While our recommendations have been developed in consultation with experts from many other countries, the details of what specific projects should go forward at what levels, under the auspices of what U.S. agencies, with what partner countries and institutions will need to be worked out with the help of an interactive process in which the agencies, the Interagency Working Group described further below, the foreign partners, and the users are all involved.

The first category of initiatives comprises measures to build stronger foundations for energy-technology innovation and international cooperation relating to it. It consists of initiative clusters focused on capacity building, energy-sector reform, demonstration and cost buy-down, and financing.

- ◆ The capacity-building cluster, designed to prepare the ground for rapid and sustainable energy-technology innovation, is recommended for funding at \$20 million per year in FY2001, increasing to \$40 million per year in FY2005. It contains as high-priority elements:
 - (1) increased support for existing regional centers for RD³ of sustainable energy

options (such as the PROCEL national electricity-conservation program in Brazil, energy-efficiency centers in Eastern Europe and Russia, and other centers in Africa, Asia, and Latin America) and establishment of new sustainable-energy centers in regions with significant need that cannot be met by other means; and

- (2) expansion of existing—and development of new—training programs for energy analysts and managers, to include traveling workshops and internet-based courses and expert assistance, as well as a requirement that in-country technical and managerial training be a component of NGO technology demonstration and deployment projects supported by the U.S. government.

Government initiatives should be structured to encourage, catalyze, and complement the corresponding activities of the private sector, not replace them

- ◆ The energy-sector reform cluster is designed to support and shape energy-sector reform and restructuring—moving towards open competitive markets with improved financial performance—while retaining incentives for energy-technology innovation that address public goods and externalities. Recommended for funding at \$20 million per year in FY2001, increasing to \$40 million per year in FY2005, it has as high-priority elements:
 - (1) technical and policy advice—including through direct provision of personnel to the relevant partner-country organizations or through multilateral institutions—to countries considering or undergoing energy-sector reform, with emphasis on (a) “getting prices right”

through elimination of price controls and subsidies for conventional energy sources and through internalizing environmental costs, and (b) creating Public Benefits Funds (PBFs) to provide resources for advancing public benefits in the restructured energy sector—with funds raised through non-bypassable wires/pipes charges or by other means, including initial support from debt swaps in appropriate cases; and

- (2) assistance in establishing evolutionary regulatory frameworks for natural gas grids, beginning with simple pipeline systems linking large gas producers with large users and growing into grids serving a much wider range of producers and consumers.
- ◆ The cluster on demonstration and cost buy-down mechanisms is designed to facilitate the demonstration, in foreign contexts, of advanced energy technologies with significant public benefits and to provide the means to “buy down” to competitive levels the costs of technologies in this category that have learning-curve characteristics making this practical. Recommended for funding at \$40 million per year in FY2001, increasing to \$80 million per year in FY2005, it has as high-priority elements:

- (1) provision of assistance in establishing a Demonstration Support Facility (DSF), preferably at the Global Environment Facility (GEF), to provide a framework for clean-energy demonstration projects that would attract support from the private sector as well as from various public-sector sources (including the GEF and PBFs and government grants in host countries);
- (2) awarding of energy-production tax credits to U.S. firms participating in demonstration projects that are carried out under the DSF and that meet approved criteria (including being formu-

lated so as not to conflict with U.S. opposition to tied aid); and

- (3) provision of assistance in establishing a Clean Energy Technology Obligation (CETO), preferably at the GEF, that would use competitive instruments to “buy down” the costs of targeted innovative technologies with incremental cost support provided by the GEF and by the host country through PBFs or government grants.

- ◆ The financing cluster, aimed at overcoming financial barriers to deployment of clean and efficient energy technologies in developing and transition economies, is recommended for funding at \$40 million per year in FY2001, increasing to \$80 million per year in FY2005. Its high-priority elements are:

- (1) measures to encourage increased financing for clean and efficient energy technologies from the Multilateral Development Banks (MDBs), including (a) establishing or expanding “trust funds” through the relevant U.S. agencies (such as DOE, USAID, EPA, and the U.S. Trade and Development Agency), which the MDBs can draw upon to support agency-approved technical assistance for project planning work, and (b) developing contingency plans and mechanisms for reinforcing, if necessary, the transition in World Bank and other MDB energy-project funding away from conventional energy technologies in favor of clean energy technologies (which is being driven by the ability of reformed energy markets to attract private capital for conventional technologies and the desirability of not distorting these markets with publicly supported MDB funds); and
- (2) additional measures implemented by U.S. agencies to facilitate market-based finance of clean and efficient energy technologies, including creating a fund administered by the Overseas Private

Investment Corporation (OPIC) to provide financing for these types of projects (to be phased out as the MDBs complete the transition to supporting clean energy technologies and advancing other public benefits).

*The second category of initiatives addresses specific opportunities for **international co-operation for innovation on energy-end-use technologies**. It consists of initiative clusters focused on energy-efficient buildings, improved small vehicles and buses, factories of the 21st century, and cogeneration of heat and power.*

- ◆ The buildings cluster has the goal of reducing energy use in new appliances, homes, and commercial buildings in developing and transition countries by 50 percent over the next two decades compared to current performance. Recommended for funding at \$20 million per year in FY2001, increasing to \$40 million per year in FY2005, its high-priority elements are:

- (1) technical and policy assistance—with participation from DOE, EPA, and USAID—for the development and implementation of efficiency standards for, and ratings and labeling of, building equipment and appliances, including co-operation in setting up appliance and equipment testing laboratories and programs, in developing and analyzing standards, in harmonizing test procedures and standards where there is U.S. interest in doing so, and in implementing voluntary energy-efficiency labeling and promotion programs similar to the DOE/EPA “Energy Star” program;
- (2) similarly organized technical and policy assistance for development, distribution, and training in the use of building-design software that minimizes energy use in residential and commercial buildings while enhancing building livability and amenity value; for development and monitoring of building design competitions to push the envelope of

building energy performance; and for development, analysis, and implementation of building energy codes and standards, including assistance with training, monitoring, compliance, and enforcement programs and with software tools;

- (3) U.S. encouragement for the GEF, World Bank, and other multilateral financing institutions to support development and adoption of the measures described here as part of an aggressive pursuit of building-energy efficiency improvements throughout their grant and lending programs.

- ◆ The vehicles cluster is aimed at research, development, and demonstration of cleaner, more energy-efficient buses and two- and three-wheeled vehicles and at accelerating the deployment of such vehicles in developing and transition countries. Recommended for funding at \$20 million per year in FY2001, increasing to \$40 million per year in FY2005, its high-priority elements are:

- (1) integration and expansion of activities of DOE, EPA, and USAID, and encouragement of the same in the GEF, on co-operative RD³ of low-cost, clean, efficient power sources for transportation—particularly fuel-cell systems for two- and three-wheeled vehicles and hybrid and fuel-cell systems for buses, as well as electric and alternative-fuel propulsion systems where appropriate, and encouragement of joint ventures involving U.S. and foreign companies to manufacture these vehicles and fuel-production systems;
- (2) U.S. encouragement for the GEF, International Finance Corporation, World Bank, and other multilateral development banks to help finance the vehicle-manufacturing capacity, infrastructure, and consumer-credit systems necessary for large-scale deployment of these advanced vehicles;

- (3) EPA assistance to developing and transition countries for the analysis and implementation of emissions standards, including establishment of vehicle testing and inspection programs for all types of motor vehicles.

*A "Business-as-Usual" energy future
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- ◆ The factories of the 21st century cluster aims at engaging U.S. industry in partnerships to reduce the energy intensity of major energy-using industrial processes in key developing and transition countries over the next two decades by 40 percent compared to their current performance, while improving labor and capital productivity. This effort will be guided by the on-going U.S. "Industries of the Future" program, focusing on areas of high foreign market growth in energy-intensive materials. Recommended for funding at \$10 million per year in FY2001, increasing to \$20 million per year in FY2005, its high-priority elements are:

- (1) cooperation between the U.S. public and private sectors and foreign counterparts to develop "technology roadmaps" for more productive and energy-efficient industrial processes geared to local circumstances, with emphasis on energy-intensive basic-materials industries such as iron and steel, chemicals, pulp and paper, and cement;
- (2) cooperative development and implementation, starting from these roadmaps, of RD³ workplans including human and institutional capacity building, precompetitive research and development, technical exchanges, and pilot demonstration programs;

- (3) support by U.S. and partner governments for project development and implementation, joint-venture creation, and licensing to facilitate technology transfer between U.S. firms and their partners.

- ◆ The cogeneration cluster is aimed at promoting the use of combined-heat-and-power (CHP) technologies for new power supply, with a goal of providing 20 percent of new generating capacity in developing countries over the next few decades using CHP. Recommended for funding at \$10 million per year in FY2001, increasing to \$20 million per year in FY2005, it contains as its high-priority elements:

- (1) cooperation between the U.S. public and private sectors and foreign counterparts on CHP information and education programs, including regional workshops, for public- and private-sector participants;
- (2) collaborative assessments of power and heat loads and output ratios at potential CHP sites in order to identify favorable conditions for CHP, address potential regulatory and market barriers, help attract funding for demonstrations, and help secure financing for deployment; and
- (3) support of reforms in domestic regulatory structures, through assistance by U.S. experts from DOE, AID, and EPA, to "level the playing field" for CHP and for U.S. CHP equipment, including provision for power sales to the grid at market rates, nondiscriminatory power buy-back rates, interconnection and emissions standards, and nondiscriminatory international standards for CHP equipment.

The third category of initiatives addresses specific opportunities for international co-operation for innovation on energy-supply

technologies. It consists of initiative clusters focused on widespread use of renewable energy technologies, fossil-fuel decarbonization and CO₂ sequestration, and nuclear fission and fusion.

◆ The widespread renewables cluster is aimed at accelerating the development and deployment of biomass, wind, photovoltaic, solar thermal, and other renewable energy technologies, including tailoring and deploying these to support rural development in developing countries, such that in the second quarter of the 21st century renewables could make contributions to world energy supply comparable to the contributions from fossil fuels today. Recommended for funding at \$40 million per year in FY2001, increasing to \$80 million in FY2005, its high-priority elements are:

- (1) promotion of collaborative RD³ on industrial-scale biomass energy conversion technologies, emphasizing those that provide both electricity and one or more co-products (heat, fluid fuels, chemicals, food, fiber), as well as collaborative research on the restoration of degraded lands and their use for growing crops optimized to yield multiple products;
- (2) expansion of existing programs with selected developing- and transition-country partners to develop integrated systems involving renewable energy technologies and their hybrids with fossil energy to provide complete energy services for agricultural, residential, and village-scale commercial and industrial applications in rural areas;
- (3) collaboration in measures to accelerate the deployment of grid-connected intermittent renewable electric technologies and their hybrids with fossil energy using competitive instruments (such as CETO competitions), including facilitation of participation of U.S. firms in this process; and

- (4) development, in collaboration with appropriate partners, of assessments of renewable energy resources on a region-by-region basis.

Basic U.S. values—respect for human dignity and human rights, belief in equity and opportunity, commitment to assistance for the least fortunate and to stewardship for future generations and for the environment—dictate U.S. leadership in international cooperation in energy innovation

◆ The fossil-fuel decarbonization and CO₂ sequestration cluster is designed to develop, via a broad multinational collaborative effort, fuels decarbonization and carbon-sequestration technologies that would eventually make possible the economic use of fossil fuels with near-zero lifecycle CO₂ emissions and near-zero pollutant emissions, as well as to advance, in developing and transition countries in the near term, syngas-based technologies that would facilitate the transition toward near-zero lifecycle CO₂ emissions. This initiative would build on activities under DOE's "Vision 21". Recommended for funding at \$20 million per year in FY2001, increasing to \$40 million per year in FY2005, its high-priority elements are:

- (1) cooperation to promote energy-sector and environmental reforms in developing and transition countries, making it more advantageous to produce multiple clean products from syngas derived from natural gas, coal, and other carbonaceous feedstocks;
- (2) collaborative R&D and demonstrations of technologies designed to reduce the cost of making hydrogen from carbonaceous feedstocks while facilitating the

recovery of byproduct CO₂ for ultimate disposal; and.

- (3) collaborative efforts on CO₂ sequestration to develop standards for security of CO₂ storage, conduct environmental impact studies, carry out both region-by-region assessments of sequestration potential and detailed reservoir-by-reservoir analyses of storage capacity and other characteristics, and carry out demonstrations with monitoring of storage security;

- ◆ The nuclear cluster, aimed at preserving and enhancing the possibility that nuclear energy could play an expanding role in addressing climate change and other energy-related challenges in the next century, is recommended for funding at \$10 million per year in FY2001, increasing to \$20 million per year in FY2005. It contains as high-priority elements:

- (1) addition of an explicit international component to the DOE's new Nuclear Energy Research Initiative (NERI), promoting bilateral and multilateral research focused on advanced technologies for improving the cost, safety, waste management, and proliferation resistance of nuclear fission energy systems;
- (2) expansion and strengthening of international cooperative efforts in studies and information exchange on geologic disposal of spent fuel and high-level wastes, to include expanded participation, studies of international interim-storage facilities, and development of a consistent and rigorous international regulatory framework for both interim storage and geologic disposal of these materials;
- (3) pursuit of a new international agreement on fusion R&D that commits the parties to a broad range of collaborations on all aspects of fusion energy development,

while selectively enhancing U.S. participation in existing fusion experiments abroad and inviting increased foreign participation in new and continuing smaller fusion experiments in the United States.

Our last category of initiatives addresses mechanisms and institutions through which the U.S. government, in cooperation with the private sector, can more effectively develop, manage, and coordinate a portfolio of governmental activities in support of international ERD³ cooperation consistent with an overarching vision of what this portfolio is to accomplish. Our high-priority recommendations in this category are as follows:

- ◆ The President should establish a new Inter-agency Working Group on Strategic Energy Cooperation in the National Science and Technology Council (NSTC) to further develop and promote a strategic vision of the role of the government's contributions to international ERD³ cooperation in support of this country's interests and values. This NSTC working group would:

- (1) have an interagency secretariat and an Advisory Board drawn from the private, academic, and NGO sectors;
- (2) be responsible for continuing assessment of the government's full portfolio of activities in international ERD³ cooperation—building on this study and in consideration of the overarching strategy of the effort, the needed components of the innovation “pipeline” and links between these, and appropriate diversity and public-private-interface criteria—and for using the results of such portfolio assessment to help guide and coordinate the evolution of the relevant agency programs;
- (3) assist the agencies to strengthen their internal and external mechanisms for monitoring and reviewing projects, for terminating unsuccessful ones, and for

handing off successful ones to the private sector at the appropriate time.

- ◆ In addition to these strengthened review procedures and the interagency portfolio assessment effort, needed improvements in the mechanisms for development and management of international ERD³ cooperation programs within the agencies include

- (1) use of competitive solicitations by the agencies, in cooperation with foreign counterparts, to identify the most promising approaches to achieving portfolio and program goals, with a well developed business plan for moving a technology through the RD³ pipeline a prerequisite for winning a competition;
- (2) identification, by the Cabinet Secretaries or administrators of the key agencies implementing the ERD³ cooperation portfolio, of appropriate accountable management chains with authority and budgets for implementing international ERD³ programs;
- (3) strengthening these agencies' international capabilities through training, targeted hiring, and rotating national laboratory staff and outside academic and industrial technical experts through the agencies on a systematic basis, giving these persons senior professional status with significant responsibility for guiding program planning and policy.

- ◆ The costs of the U.S. government contributions to the initiatives described in this report would be covered by a new Strategic Energy Cooperation Fund, supplementing existing budgets for international ERD³ activities and the budgets proposed in the 1997 PCAST study for U.S. domestic energy R&D programs. The amounts estimated for the four "foundation", four "end-use-efficiency", and three "energy-supply" initiative clusters we have recommended sum to \$250 million per year in FY2001 and \$500 million per year in FY2005. (The in-

crement for FY2001 adds an amount of new money for these types of activities approximately equal to the total that was spent on them in FY1997.) The money from the Strategic Energy Cooperation Fund would be

- (1) allocated to the relevant agencies in the President's budget request as the outcome of a process engaging the agencies, the Office of Management and Budget, and the Interagency Task Force on Strategic Energy Cooperation and its Advisory Board;
- (2) multi-year in duration in most instances, to diminish the influence of annual funding cycles on project selection and continuation and to promote the continuity of commitment that has often been lacking in U.S. international-cooperation efforts.

Money made available, within the program's indicated FY2001-2005 trajectory, by phasing out support for projects that either fail or that succeed and get taken over by the private sector could be used for further high-leverage projects identified through the continuing interactions of agencies, the Interagency Task Force and its Advisory Board, foreign partners, and other energy-technology users.

Conclusion

The United States and the world face an historic window of opportunity.

- ◆ Processes of energy-sector restructuring and regulatory reform that will be completed largely over the next decade will "lock in" the mechanisms that will determine success or failure in the dual aims of attracting the private capital needed to meet energy needs for economic development while addressing the huge public-goods and externality issues that the energy sector presents.

- ◆ Continuing processes of rapid urbanization in the developing countries mean that decisions made in those countries in the next few decades about the interaction of urban energy supply, transportation networks, information infrastructure, land-use planning, and building characteristics will likewise substantially “lock in”, for the next century and even beyond, important aspects of the energy requirements and quality of life of the large majority of the world’s inhabitants living in these urban agglomerations.
- ◆ The time requirements for moving new technologies through the innovation pipeline mean that much of the research intended to affect deployments in the 2020s, 2030s, and 2040s needs to be underway in the next decade. And the long service lifetimes of most energy-supply technologies and much of the equipment and infrastructure governing energy end-use efficiency means that much of what is deployed in the 2020s, 2030s, and 2040s will still be in place toward the end of the next century.
- ◆ Thus the energy technologies and related infrastructures that are developed and deployed over the next few decades—supporting rapid energy growth in developing and transition economies and replacing existing capital stock in industrialized ones—will strongly influence the trajectories of energy costs and end-use efficiencies, greenhouse-gas emissions, public-health impacts of air pollution, oil-import dependence, nuclear-energy-system safety and proliferation resistance...and much else of importance about the world energy system for most of the next century.
- ◆ The globalization of innovation capacities, together with tightening constraints on domestic R&D spending, have sharply increased the attractiveness of cooperation to the United States for purposes of developing the energy technologies this country will require for domestic use. Simultaneously, the globalization of energy markets has in-

creased the necessity of cooperation to gain access for United States energy companies to many of the largest markets for new technologies; and the globalization of environmental and security risks from inadequacies in the global portfolio of deployed energy options is sharply increasing the benefits to the United States of cooperation to improve that portfolio.

- ◆ Strengthening North-South cooperation on advanced energy technologies that can lower greenhouse-gas emissions while fueling sustainable economic development is by far the most promising available approach to securing developing-country participation in a larger collaborative framework for addressing the global energy-climate-development challenge.

The energy technologies and related infrastructures that are developed and deployed over the next few decades will strongly influence the world energy system for most of the next century

The needs and opportunities for enhanced international cooperation on energy-technology innovation supportive of U.S. interests and values are thus both large and urgent. The costs and risks are modest in relation to the potential gains. Now is the time for the United States to take the sensible and affordable steps outlined here to address the international dimensions of the energy challenges to U.S. interests and values that the 21st century will present.

Table ES-1: INITIATIVES AND BUDGETS
(Budget in \$Millions of Supplemental Spending Above Current Agency or PCAST 97 Levels)

Initiative	FOUNDATIONS OF ENERGY INNOVATION	Page	FY01	FY05
Capacity Building	--Increase support for regional centers of ERD ³ --Expand existing and develop new training programs on energy --(Interdisciplinary research—monitoring/evaluation/institutional change)*	3-14 3-15	\$20 M	\$40 M
Energy Sector Reform	--Technical/policy assistance for sector reform that gets “prices right,” including externalities, and advances public benefits --Assistance establishing evolutionary regulatory frameworks for gas grids	3-20	20	40
Demonstration And Buy-down	--Encourage development of a Demonstration Support Facility --Award production tax credits for demonstrations that meet criteria --Assist in establishing a Clean Energy Technology Obligation	3-26	40	80
Finance	--Encourage MDBs to increase financing for clean/efficient energy technology; support activities with trust funds for using US experts --Facilitate market-based finance of clean/efficient energy technologies, including creating a fund administered by OPIC --(Technical, Financial, and Feasibility Analysis Assistance for US Firms)*	3-34 3-38	40	80
A PORTFOLIO OF ENERGY EFFICIENCY RD³				
Buildings	--Technical/policy assistance to develop/adopt efficiency standards, ratings, labeling of building equipment; assist testing programs, etc. --Testing/policy assistance to develop/apply building design tools/design competitions/energy codes/standards for new buildings; training; etc. --Encourage MDBs/GEF to support building/equipment efficiency --(Develop/Disseminate Improved Cookstoves)*	4-11 4-15	20	40
Transport	--Integrate/expand RD ³ on low-cost, efficient, clean power for vehicles --Encourage GEF/MDBs to help finance production/use of clean vehicles --Assist in analysis/implementation of vehicle emissions testing/standards --(New Technologies for Public Transport Systems)*	4-19 4-22	20	40
Industry	--U.S. Public/private/foreign cooperation to develop technology roadmaps for energy-efficient processing of energy-intensive materials --Cooperative development/implementation of technology roadmaps --Support for joint-venture creation, licensing, between U.S. firms/partners	4-28	10	20
Combined Heat and Power (CHP)	--Public/private U.S./foreign cooperation on information programs, etc. --Collaborative assessments of potential CHP sites, address regulatory and market barriers, attract funding for demonstrations, help secure finance --Support reforms to “level the playing field” for CHP and U.S. equipment	4-29	10	20

Initiative	A PORTFOLIO OF ENERGY SUPPLY RD ³	Page	FY01	FY05
Widespread Renewables	--RD ³ on industrial-scale biomass power/coproducts; restore degraded land	5-11	\$40 M	\$80 M
	--Develop integrated renewable/hybrid systems for rural areas --Accelerate deployment of grid-connected intermittent/hybrid systems --Assess renewable energy resources by region --(RD ³ on solar thermal electric; support strong domestic RD ³ efforts)*	5-14		
Fossil Fuel	--Promote energy/environment reforms in support of coproduct strategies	5-21	20	40
	--RD&D on low-cost hydrogen production and byproduct carbon recovery --Carbon sequestration standards/regional assessments/ reservoir analyses --(R&D to exploit energy of methane hydrates in climate-friendly ways)*	5-23		
Nuclear Energy	--Add international component to Nuclear Energy Research Initiative	5-27	10	20
	--Expand/strengthen international studies of spent fuel/high-level waste --Pursue new international agreement on fusion R&D --(Improve safety and security of nuclear facilities worldwide)*	5-28		
A SET OF MANAGEMENT RECOMMENDATIONS				
Agency Management	Establish NSTC working group (WG) on Strategic Energy Cooperation	6-13		
	--NSTC WG would have interagency secretariat/external Advisory Board --WG would assess the IERD ³ portfolio, guide/coordinate agency programs --WG would strengthen agency internal/external review capabilities --Agencies to use competitive solicitations to identify best approaches --Agencies identify accountable management chains with authority/budgets --Strengthen agency international capabilities by training/detailing staff --Establish Strategic Energy Cooperation Fund	6-14		
TOTAL			\$250 M	\$500 M

* Initiatives in parentheses are described in the chapters but not in the Executive Summary; budget totals include these initiatives.

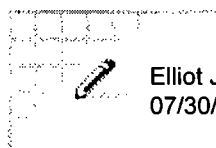
TALKING POINTS BY VICE PRESIDENT AL GORE
GLOBAL WARMING DISCUSSION, NATIONAL GEOGRAPHIC BUILDING
Monday, August 2, 1999

- I want to begin by thanking John Holdren for giving us such a good explanation of what global warming is, and what causes it. As Chair of the President's Committee of Advisors on Science and Technology, he is doing even more to help us solve it.
- And I want to offer a warm hello to Bill Nye the Science Guy, who makes TV look good even from a parent's point of view. His science program for kids is seen as the last word in cool for the middle school set, and along with being fun it helps kids understand a lot more about the world we all share.
- Kids are often smarter than adults when something's really wrong; they know that you can't just close your eyes and pretend it will go away -- and how important it is to put things right. A lot of kids I've met on my travels have said that they are quite worried about the environment, and especially about the planet getting hotter, and they don't understand why adults don't get how necessary it is to do something about it now.
- Kids today often know more about the environment than their parents do, and they also -- rightly -- expect grown-ups who have the power to solve these problems to wake up, get going, and act on their behalf. You don't have to explain to most kids I've met that everything else we leave them depends on the well-being of the world and the good balance of nature; they realize that often better than adults do, who can sometimes feel overwhelmed or helpless faced with global challenges and wondering just what can be done.
- I want you to feel encouraged today. There is so much we can do. Together -- and many parents who are not scientists tell me that this is news to them -- we can actually stop the polar ice caps from melting. We can stop the planet from getting any warmer. We can join hands around the world and create solutions -- the science for them exists already -- that will let us protect our precious seasons and avert all the difficulties projected ahead that you may have heard about and been concerned about. We can do it if we set our hearts and minds to it.
- It's pretty hot outside today. It's been so hot that school was closed in D.C. for a while earlier this summer. Of course, we had heat waves long before there was any threat of global warming. But global warming is real, and we should act together now, so we will not have to impose on our families more extreme weather of all kinds. And it is not just our families we can save from suffering: farmers should not have to keep losing their crops as they have this summer; communities should be saved from the droughts that are sapping their reservoirs; kids should be saved from the asthma and old people from the serious health burdens of the kind of heat we have endured.

- Let's take a quick look at the science. Bill, will you give me a hand? You're the pro at this. *[Nye should point at the charts or help in some way.]* How do we know the earth is getting warmer? Well, scientists have gone to the coldest places on Earth -- the North Pole and the South Pole -- and they're finding tell-tale signs of global warming. Just recently, they dug deeply into the ice in the Antarctic took ice samples like the ones we have here. They analyzed the gases trapped in that ice, and discovered that there's more carbon dioxide in the atmosphere today than at any time in 460,000 years. *[VP opens chart]*
- The more carbon dioxide we put into the atmosphere - by burning gas, and coal, and oil -- the worse global warming will get. In fact, if we keep using energy the way we've been using it *[VP opens chart further]*, CO2 will rise to almost double the current levels. But if we stop -- for instance, by joining forces to promote the greener cars that the auto industry is committed to developing -- we can clean up the mess. And restore the balance.
- Today, I want to share with you some brand new pictures of the Arctic, which are being seen for the very first time anywhere. We've worked with our military and intelligence leaders to release 59 new pictures of the Arctic -- taken by spy satellites way above the Earth. They are the most detailed and important information we have ever had to help scientists understand global warming -- and it is important to see what is happening in the Arctic, because the poles are the most sensitive region of the Earth to global warming.
- Scientists thought these pictures would show some thinning of the ice on the North pole, but they were shocked to find that it has been much greater than they thought; we have lost about three feet of ice since the 70's. *[VP shows 40x50 images]*
- When I was a Senator, I had a chance to go on a submarine to the North Pole. We actually went beneath the ice cap. That was eight years ago, and the ice was several feet thicker in some places. In fact, the crew that took these pictures had intended to set up camp on a nine-foot-thick ice floe area so it would be sturdy enough -- but they and couldn't find any!
- Fortunately, there are so many things we can do to reduce global warming. First, we can be a lot smarter about the way we generate and use energy. New technology -- such as the cleaner cars I mentioned, and greener home appliances -- can help us to do that in a way that actually creates good new jobs and makes money for our businesses. In fact, John Holdren and our top science advisors just gave us a report saying that the world will need \$10 trillion worth of new energy systems.
- There's a lot more we can do. President Clinton and I believe we need to invest more in research about global warming, and develop even more clean energy technologies, faster. We believe we can help people save energy in their homes, to help the

environment. We are working with car manufacturers to develop new cars that get three times as many miles on a gallon of gas. And we can unite with other countries to create imaginative new solutions – like tradable credits for polluting rights, so countries that need to develop can do so without harming the earth.

- It's your world, really; the grownups are just taking care of it for you for a while. When you inherit it, it should be as clean and lively, as full of wonderful animals and stable, nurturing seasons – the seasons God made in the first place – as it was when our generation inherited it. I am glad we have the technology and imagination to give you that gift, and I believe we can muster the will. If we act now, we can reduce global warming before it's too late and give you your world in the condition you deserve. It's the least we can do for our kids.
- And now we'd like to hear your questions...



Elliot J. Diringer
07/30/99 04:02:33 PM

Record Type: Record

To: Laura M. Quinn/OVP@OVP, Melissa B. Ratcliff/OVP@OVP
cc: See the distribution list at the bottom of this message
Subject: USE THIS ONE - Time Q&A

One figure corrected below:

1. Do you believe human activity is raising global temperatures?

What I believe isn't as important as what scientists think. There is overwhelming scientific consensus that human activity is contributing to global warming. The latest data show that carbon dioxide levels in the atmosphere are the highest in 420,000 years, and that this is likely the warmest decade in at least a millennium.

2. As the world's number one emitter of greenhouse gases, should the US take the lead in reducing emissions?

Yes. U.S. leadership was instrumental in achieving the Kyoto Protocol, which provides a solid international framework for addressing global warming. At home, despite strong resistance from Congress, this Administration secured a record \$1 billion this year for clean energy research and development and is vigorously pursuing other programs to reduce emissions. While the United States is firmly committed to reducing emissions, with or without Kyoto, climate change is a global challenge and all nations bear some responsibility for meeting it.

3. Would you support raising fuel efficiency standards for SUVs and vans to match autos'?

While Congress continues to bar any effort to raise fuel economy standards, this Administration is working in partnership with automakers to develop a new generation of vehicles that get three times the mileage of today's models with no sacrifice in comfort or performance.

4. Would you support tax credits to encourage consumer to buy more energy efficient goods?

Strongly. As part of the President's Climate Change Technology Initiative, we are proposing

\$3.6 billion in tax credits over five years for the purchase of fuel-efficient cars, homes and appliances, and to promote wind, solar and other renewable energy sources.

Message Copied To:

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VICE PRESIDENT GORE ANNOUNCES RELEASE OF DECLASSIFIED ARCTIC IMAGES TO HELP RESEARCH GLOBAL WARMING

Calls on Congress to Fully Fund the Administration's Climate Change Initiatives

Washington, D.C. – Vice President Gore today announced the declassification and release of 59 satellite images of the Arctic Ocean that will be used by scientists to better understand the interaction between polar ice caps and global warming.

Release of the high-resolution images was approved by the National Imagery Mapping Agency at the request of the National Science Foundation (NSF). NSF is the primary U.S. sponsor of SHEBA, an international expedition to the Arctic that has documented changes in the ice pack consistent with those expected as a result of global warming.

“No place on Earth is more sensitive to global warming than the Arctic, and these satellite images provide scientists with valuable data for understanding how climate change affects this complex region,” said Vice President Gore. “By making these satellite images available to the scientific community, we take another important step toward meeting the challenge of global warming.”

The Vice President announced the release at the National Geographic Society, where he led a discussion on climate change with a group of youngsters attending the Better World Science Camp. He was joined by Bill Nye, the host of Disney's *Bill Nye the Science Guy*, who helped teach the campers about the study of ice cores.

SHEBA – formally known as the Surface Heat Budget of the Arctic Ocean Project – is jointly sponsored by the governments of the United States, Canada, and Japan. As part of the project, a Canadian icebreaker was deliberately trapped in Arctic ice for a full year in 1997 and 1998 so that more than 100 scientists could take measurements of the atmosphere, ocean, and ice. Over the course of the year, the ship drifted 1500 miles with the shifting ice.

Preliminary findings from SHEBA show that the Arctic ice sheet is roughly five percent smaller, and one meter thinner, than in the 1970s. Scientists believe that continued shrinkage of the ice pack could accelerate global warming because ice reflects more incoming solar radiation than the ocean does.

The newly released satellite images show the area around the trapped icebreaker over a period of several months. SHEBA scientists will use the images, in conjunction with data gathered on the ice, to develop a better understanding of changes in the ice's surface and reflectivity.

Declassification of the images, taken by U.S. intelligence satellites, was facilitated by MEDEA, a group of scientists that works closely with the intelligence community to examine and use national security data for scientific research. MEDEA was established in 1991 as an

outgrowth of discussions initiated by then-Senator Gore.

“By working in partnership, our intelligence and scientific communities are advancing vital research that will help us understand, and meet, critical challenges like global warming,” the Vice President said.

Vice President Gore also called on Congress to fully fund the President’s Climate Change Technology Initiative and to drop legislative “riders” that would hamper the Administration’s efforts to address global warming.

The Administration, which secured a record \$1 billion this year for clean energy research and development, is proposing an increase to \$1.37 billion in fiscal year 2000. So far, Congress has appropriated almost none of the proposed increase. In addition, several appropriations bills include language that could block ongoing initiatives, including voluntary programs with industry that reduce energy waste and greenhouse gas emissions.

“The evidence of global warming grows stronger every day, yet Congress is trying to strangle common-sense programs that save energy, save consumers money, and reduce global warming pollution,” the Vice President said. “I urge Congress to work with us, not against us, to meet the challenge of climate change.”

VP Statement on Report of the President's Committee of Advisors on Science and Technology

I am very pleased to release today the new report by the President's Committee of Advisors on Science and Technology, *Powerful Partnerships: The Federal Role in International Cooperation on Energy Innovation*. Prepared by distinguished leaders in business, academia, and science, this report recommends a strengthened partnership between American business and the federal government to step up to the global energy and environmental challenges of the next century.

International energy markets, already worth hundreds of billions of dollars a year, are growing dramatically to meet exploding demand in developing countries. This translates into big market potential for competitive U.S. energy technology companies. But it also poses a critical environmental challenge. If developing countries rely only on traditional energy technologies, we will lose the battle to limit greenhouse gas emissions and assure a livable environment in the coming century.

This report to the President highlights the strategic importance to the United States of maintaining scientific and market leadership in energy technology, and identifies many opportunities to improve energy efficiency in buildings, industry, transportation, and clean energy generation. The redoubled effort called for in this report will help reduce dependence on imported oil and spur economic growth in developing countries while minimizing emissions of greenhouse gases.

An earlier PCAST report provided the foundation for the Administration's Climate Change Technology Initiative. This new report extends that work and provides a global strategic vision for energy innovation. It comes at a time when increasing numbers of Americans and American businesses are recognizing the need to accelerate clean energy technologies for economic and environmental gains. This Administration is committed to active international engagement to address climate change and build new markets for American technology companies. I urge Congress to join with us in fully funding our Climate Change Technology Initiative and implementing key recommendations in this vital report.

**TALKING POINTS
ADMINISTRATION INTERNATIONAL ACTIVITIES
AND THE KYOTO PROTOCOL**

In October 1997, President Clinton articulated two essential elements for any international agreement on climate change. These are:

- first, mechanisms that allow countries and businesses to find **cost-effective emission reductions**, and
- second, **the meaningful participation of key developing countries.**

The Administration is now engaged in a full court press in international negotiations to ensure that these elements are fully incorporated into the Kyoto Protocol and any related agreements before the treaty is submitted to the Senate.

These negotiations include:

- vigorously advancing US interests;
- sharing with other countries the United States' successful experiences with market-based mechanisms as a tool for fighting pollution;
- working with other countries to find ways that these lessons could be applied to address greenhouse gas emissions; and
- providing technical assistance to developing countries so that they may build the capacity to more effectively limit greenhouse gas emissions.

These actions promote the U.S. national interest and the goals of the Byrd-Hagel resolution.

- Climate change is a global problem that requires a global solution. We can't solve this problem alone.
- Developing countries must be engaged. But many are unfamiliar with market-based mechanisms.
- The U.S. Senate recognized the importance of engaging developing countries in the Byrd-Hagel resolution. Byrd-Hagel called on the President to support an international approach to climate change that protects the economic interests of the United States and engages developing countries.
- The Administration actions listed above are essential to help pursue the goals of the Byrd-Hagel resolution.

In no way do these actions "implement" the Kyoto Protocol.

- These actions advance the foreign policy objectives and interests of the United States. The actions have no domestic impact.
- They will have no domestic impact unless the Protocol and any related agreements receive the Senate's advice and consent to ratification.
- No federal agency is proposing or issuing any rule, regulation, order or decree. As Senator Bond stated in connection with the "no implementation" language contained in last year's VA-HUD appropriations bill, "Our only goal here is to prevent the

issuance of federal regulations designed solely for the purpose of Kyoto Protocol implementation.”

- The actions listed above are solely concerned with improving the Protocol through diplomacy, not enforcing it domestically.
- As the Administration has stated on numerous occasions, it has no intention of implementing the Protocol without the advice and consent of the U.S. Senate.

Reducing costs and engaging developing countries are bipartisan objectives.

- The Administration should be encouraged to continue advancing these objectives in international negotiations.
- Any restrictions on the Administration’s efforts to advance these objectives in international negotiations would raise serious Constitutional concerns.
- Even if such restrictions were constitutionally permissible, they would be highly undesirable. Such restrictions could provide considerable assistance to countries (such as China) advancing views contrary to US interests in the international negotiations.

NEW “ANTI-KYOTO” LANGUAGE THREATENS PUBLIC HEALTH AND THE ENVIRONMENT

Language before the VA-HUD Appropriations Subcommittee would roll back EPA’s highly successful voluntary programs to cut energy costs and prevent pollution, and could block common sense actions under existing law to protect the American people from harmful air pollution. The FY 2000 VA-HUD Appropriations bill contains a rider identical to one in last year’s bill prohibiting implementation of the Kyoto Protocol prior to Senate ratification. However, efforts are being made to insert language in this year’s committee report which would grossly expand and distort the meaning of the rider far beyond what is actually barred by the bill language. The Administration has repeatedly committed not to implement the Kyoto Protocol without Senate approval, and EPA has complied with last year’s restriction at all times.

Expansion of Language

The new report language purports to broaden last year’s prohibition by expanding:

- The type of activities covered by the language. This year’s prohibition would include “*non-regulatory actions, such as programs or initiatives*”, whereas the current language includes only “rules, regulations, decrees or orders”.
- The definition of prohibited purposes. Current language prohibits action taken “for the purpose of implementing the Kyoto Protocol”. Last year’s appropriations conference report explains that intention of this language is to prevent funds from being used “to implement actions called for solely under the Kyoto Protocol.” This year’s report drops the “solely” and prohibits actions taken “for the purpose of implementing, *or in contemplation of implementing, directly or indirectly*, the Kyoto Protocol”.

Expanded Impact of New Language

The impact of these changes would be sweeping. Specifically, the new language would:

- **Roll back EPA’s voluntary programs to reduce energy waste and greenhouse gas emissions such as Green Lights and Energy Star.**

These programs are clearly legal and have many benefits, including reducing energy costs and helping fulfill the United States’ obligations under the UN Framework Convention on Climate Change – an international treaty to which the U.S. Senate has given its advice and consent. Last year, Congress rejected language that would have had the effect of prohibiting EPA’s voluntary programs and educational activities related to climate change. This year, they could be swept back into the ban through the words “other non-regulatory actions, such as programs and initiatives.”

- **Block legitimate research and policy analysis on climate change**

Last year, Congress limited the restriction to “proposing or issuing” regulations but rejected a ban on “*developing*” regulations out of concern that this could effectively prohibit scientific research and analysis that EPA should continue to undertake. Congress also rejected a broad ban on simply contemplating climate change. This year’s proposed report would reintroduce these sweeping

restrictions and, thus, could block legitimate climate research and policy analysis.

- **Interfere with EPA's authority to implement and enforce the Clean Air Act.**

The proposed language is so broad that its meaning could have dangerous and presumably unintended consequences. For instances, the restrictions could undercut EPA's authority to implement and enforce the Clean Air Act. The proposed ban on "actions" and "initiatives" could block EPA enforcement actions because the steps that firms may take to clean up those air pollutants may incidentally also reduce greenhouse gases. The language could also undermine EPA's authority to reduce public exposure to conventional pollutants, such as smog, sulfur dioxide, oxides of nitrogen and toxic air pollutants because such actions might incidentally reduce greenhouse gas emissions. The language could prevent EPA from even considering greenhouse gas emissions during rulemaking, even though such consideration was authorized by law and even though such emissions may pose a threat to public health or welfare.