

GAO

Testimony

Before the Committee on Energy and Natural Resources,
U.S. Senate

For Release
on Delivery
Expected at
9:30 a.m. EDT
Thursday
June 4, 1998

GLOBAL WARMING

Administration's Proposal in
Support of the Kyoto
Protocol

Statement of Victor S. Rezendes,
Director of Energy, Resources, and Science Issues,
Resources, Community, and Economic
Development Division



Mr. Chairman and Members of the Committee:

We are pleased to be here today to discuss the preliminary results of our analysis, being conducted at your request, of the administration's proposal on global climate change. Our statement is also based on our recently issued report on the Department of Energy's part in the proposal.¹ As you know, the President introduced a three-stage proposal on climate change in October 1997, in anticipation of an international agreement to be negotiated 2 months later in Kyoto, Japan. He listed voluntary actions to be taken during stage 1 (the next 5 years) to reduce the emission of greenhouse gases by stimulating the development and use of energy-efficient products and technologies. The administration proposes to increase spending for climate change by \$6.3 billion during this period. The agreement, known as the Kyoto Protocol, was negotiated in December 1997 by the United States and other nations. The protocol must be signed by the President and ratified by the Senate before its provisions apply to the United States.

To comply with the Kyoto Protocol, the United States will need to reduce greenhouse gas emissions substantially—by about 31 percent by 2010, according to the Department of Energy's Energy Information Administration. Concerned about the potential impact of efforts to comply with the protocol, you asked us to answer the following questions: (1) Does the administration have an overall goal for stage 1 and a plan for accomplishing that goal? (2) If funded, to what extent will the \$6.3 billion stage 1 climate change proposal help the United States meet the protocol's emissions target? (3) What are the implications for the United States if the Senate ratifies the protocol, given the current status of the administration's efforts to implement the climate change proposal?

In summary, our work to date and our recently issued work have shown the following:

- The administration has several broad goals for what it wants to accomplish in stage 1 and a broad plan for accomplishing them. Both the broad goals and plan are contained in the President's October 1997 speech. However, the administration has not established a quantitative goal for reducing greenhouse gas emissions by the end of stage 1—a primary focus of its initiative. Furthermore, while Office of Management and Budget officials acknowledge that the plan is broad, they have no

¹Department of Energy: Proposed Budget in Support of the President's Climate Change Technology Initiative (GAO/RCED-98-147, Apr. 10, 1998).

specific time frame for preparing a more detailed plan that would include overall performance goals and measures to meet the spirit of the Government Performance and Results Act.

- The extent to which the \$6.3 billion stage 1 proposal will help the United States meet the protocol's target for emission reductions is unclear. The largest investment under the proposal, tax credits, with an estimated cost of about \$3.6 billion, has no estimate of the expected benefits and thus is not explicitly tied to the protocol's target for reduced emissions. The administration has set performance goals for most of the \$2.7 billion proposed for research and development and the increased use of energy-efficient products and has estimated potential emissions reductions. However, the Department of Energy only recently provided its estimates, while commenting on a draft of this testimony, and we have not analyzed them. In addition, the Environmental Protection Agency's estimates may be overstated. Therefore, it is uncertain how much these activities will help the United States meet the target specified by the protocol.
- Without an overall goal and plan for stage 1 and complete information on expected outcomes and links to the protocol's emissions reduction target, it is uncertain whether stage 1 will effectively lay the foundation for the 31-percent emissions reduction required by the protocol. Although the administration's response to the protocol is relatively recent, a firm foundation in stage 1 is important because the protocol's targets for reduced emissions are binding on the nations that agree to the protocol, and penalties for noncompliance with the targets are to be discussed by the parties to the protocol in November 1998.

Background

Emissions of heat-trapping greenhouse gases are believed to contribute to global warming. Carbon dioxide, generated both naturally and by the burning of fossil fuels, accounts for the majority of emissions.² According to administration representatives, the potential environmental, health, and economic consequences of increasing accumulations of greenhouse gas emissions are serious. For example, according to an Assistant Administrator of the Environmental Protection Agency (EPA), without significantly decreased emissions, over the long term, 15 percent or more of the nation's coastal wetlands could be submerged, the quality of drinking water in certain states could be severely degraded, malaria and

²Other greenhouse gases targeted under the Kyoto Protocol include methane, nitrous oxide, and three other gases. These gases have various effects on the atmosphere, as measured by their global warming potentials over a specified period of time. To arrive at a common measure for the various gases, these global warming potentials are applied to the volume of emissions. The measure is expressed in million metric tons of carbon equivalent.

other infectious diseases could increase, and severe droughts and floods could increase personal and property damage.

In October 1997, the President proposed a three-stage response to climate change, covering a period of 14 years. Stage 1 (1999-2003) is intended to put the nation “on a smooth path” to reducing greenhouse gases through research and development, tax credits for energy-efficient products, and eight other voluntary actions (listed in app. I). During stage 2 (2004-07), the results of stage 1 would be studied, and a system would be designed, and perhaps tested, for awarding and trading permits to emit greenhouse gases. In stage 3 (2008-12), mandatory limits on emissions would be put in place through a market-based domestic and international emissions trading system.

Under the Kyoto Protocol, the United States agreed to limit its emissions during the 5-year period 2008 through 2012 to 7 percent below the 1990 emissions level. To achieve this new level, emissions would have to be cut by 31 percent by 2010 (the midpoint of the 5-year period), or the equivalent of about 552 million metric tons of carbon.³ In February 1998, the administration submitted its budget for fiscal year 1999, including a request to add \$6.3 billion over the 5 years of stage 1 to existing funding levels for climate change activities. The majority of this sum (\$3.6 billion) was for tax incentives administered by the Department of the Treasury. The balance was designated for the Department of Energy (DOE) (\$1.9 billion), EPA (\$677 million), the U.S. Department of Agriculture (\$86 million), the Department of Commerce (\$38 million), and the Department of Housing and Urban Development (\$10 million). According to an Office of Management and Budget (OMB) official, that office and seven other government entities will also be involved—the departments of Defense and State, the General Services Administration, the National Science Foundation, the Office of Science and Technology Policy, a White House task force, and the Council of Economic Advisers.

In recent years, the Congress has emphasized the need for good planning practices to ensure that federal funds are spent effectively and has directed federal agencies to focus their planning efforts on the results to be achieved. The Government Performance and Results Act of 1993 requires, among other things, that federal agencies set program goals and measure their performance in achieving those goals. In doing this, agencies are to set annual performance goals that have objective, quantifiable, and measurable target levels and that focus on results to the

³Energy Information Administration, International Energy Outlook 1998, Apr. 1998.

extent possible. In addition, the act implies that federal programs attempting to achieve the same or similar results should be closely coordinated to ensure that goals are consistent and, as appropriate, program efforts are mutually reinforcing.

To answer the three questions you asked us, we interviewed officials at DOE, EPA, and Treasury because of their responsibilities for stage 1 actions; we also reviewed budget documents, agencies' strategic and performance plans, and other documents relating to their programs. In addition, we discussed the governmentwide scope of stage 1 efforts with OMB officials.

Of the 10 proposed stage 1 actions, we selected 3 for detailed review because of their significant budgeted costs and our past work: (1) tax credits, (2) research and development, and (3) the increased use of energy-efficient products. These three actions account for nearly all of the requested \$6.3 billion in additional funding.

We did not attempt to determine the reasonableness of the administration's cost estimates. We performed our review from January through June 1998 in accordance with generally accepted government auditing standards.

The Administration Has Several Broad Goals and a Broad Plan for Stage 1

The administration has several broad goals for what it wants to accomplish in stage 1 and a broad plan for accomplishing those goals. However, the administration has not established a quantitative goal for reducing greenhouse gas emissions by the end of stage 1—a primary focus of its initiative. Furthermore, while OMB officials acknowledge that the plan is broad, they have no specific time frame for preparing a more specific plan that would include overall performance goals and measures to meet the spirit of the Government Performance and Results Act.

The administration's goals and plan for accomplishing its goals are contained in the President's October 1997 speech, according to OMB's Office of Natural Resources, Energy and Science. There are at least three major goals, according to this office: (1) to spur energy efficiency and encourage the development and deployment of energy sources that produce lower levels of carbon, (2) to provide an immediate incentive for near-term action to reduce greenhouse emissions, and (3) to seek win-win solutions to reduce carbon emissions that can improve energy efficiency and save consumers money. However, the administration has not established a quantitative goal for reducing greenhouse gas emissions by

the end of stage 1. According to OMB's Associate Director for Natural Resources, Energy and Science, the administration expects to establish emissions reduction goals for stage 1 but has not yet done so because the effort is so new. He also pointed out that DOE and EPA have performance measures related to their respective activities. He said that OMB expects to continue coordinating and monitoring the efforts of individual agencies.

While OMB officials acknowledge that the existing stage 1 plan is broad, they have no specific time frame for preparing a more detailed plan that would include overall performance goals and measures to meet the spirit of the Government Performance and Results Act. We believe a quantitative overall stage 1 goal, and a plan to implement that goal, are desirable primarily because the proposed federal response is extensive—involving 14 federal entities and budgeted to cost \$6.3 billion in additional funding. Coordinated program efforts could help ensure that federal funds are used efficiently and could contribute to the overall effectiveness of the federal effort.

Extent to Which Stage 1 Will Meet Kyoto Target Is Unclear

The extent to which the \$6.3 billion stage 1 proposal will help the United States meet the protocol's target for reduced emissions is unclear. The largest investment under the proposal, tax credits, with an estimated cost of about \$3.6 billion, has no estimate of the expected benefits and thus is not tied to the protocol's emissions reduction target. The administration has set performance goals for most of the \$2.7 billion proposed for research and development and the increased use of energy-efficient products and has estimated potential emissions reductions. However, DOE only recently provided its estimates, while commenting on a draft of this testimony, and we have not analyzed the method or assumptions used to support them. Such an assessment would require a detailed examination of DOE's impact analysis for the technology sectors involved. In addition, EPA's estimates may be overstated. Therefore, it is uncertain how much these activities will help the United States meet the target specified by the protocol.

Tax Credits Lack Estimates of Expected Benefits

The administration has proposed a package of nine tax credits designed to accelerate the adoption of more energy-efficient technologies. Treasury will be responsible for administering the tax credits, which are estimated to cost \$421 million in fiscal year 1999 and a total of \$3.6 billion during stage 1. The credits are primarily intended to encourage more energy-efficient buildings, transportation, industrial processes, and

electricity generation. However, the administration has not estimated the benefits that would result from the credits. According to the Deputy Assistant Secretary for Tax Analysis, official estimates of the benefits are being prepared but are not yet available.

Results of Research and Development Are Uncertain

DOE is responsible for implementing most of the research and development activities under the administration's climate change proposal. It plans to increase its spending to \$1.06 billion for climate change research and development in fiscal year 1999, a \$331 million increase in funding from the 1998 level. The \$331 million increase, as well as the remaining \$729 million, will continue to support and expand existing research and development programs in energy efficiency and renewable energy, as well as other programs related to climate change. Over the 5-year period, DOE estimates that it will increase spending for climate change research and development by about \$1.9 billion.

While DOE plans to spend over \$1 billion for research and development in fiscal year 1999, the results of that spending are uncertain. Because the research and development efforts address multiple objectives, a senior DOE official told us that the agency's performance goals do not specifically quantify the extent to which these activities could decrease greenhouse gas emissions. These multiple objectives include decreasing U.S. dependence on foreign oil, improving air quality, decreasing energy costs for consumers and businesses, increasing economic competitiveness, and decreasing greenhouse gas emissions, according to departmental officials. However, DOE recently provided us with estimates while commenting on a draft of this testimony.

The Department's estimates assume a continuation of its proposed fiscal year 1999 funding of approximately \$1.06 billion per year during the 5-year period. DOE estimates reductions in carbon ranging from 31 million to 48 million metric tons by 2005; 87 million to 140 million metric tons by 2010; and 189 million to 338 million metric tons by 2020.⁴ Because we received the estimates so recently, we have not analyzed the method or assumptions used to support them. Such an assessment would require a detailed examination of DOE's impact analysis for the technology sectors involved—renewable energy, transportation, industry, buildings, and federal energy use. Nonetheless, we are concerned about the reasons why these estimates have not been expressed as performance goals and

⁴DOE notes that these estimates are strictly for the technology research, development, and deployment programs and do not include the effects of complementary policies (such as tax incentives and electricity restructuring).

measures in DOE's annual performance plan. As such, they would be useful in helping DOE benchmark its progress in this area.

Furthermore, in our April 1998 report, we pointed out five common questions the Congress may want to consider before funding DOE's proposed increase for research and development or any research and development: (1) Would the private sector do the research without federal funding? (2) Will consumers buy the product? (3) Do the benefits exceed the costs? (4) Have efforts been coordinated? (5) Have implementation concerns been addressed? In discussing these themes, we cited previous GAO reports—concerning DOE and other agencies—to illustrate these areas.

Estimates of Results for the Increased Use of Energy-Efficient Products May Be Overstated

The primary focus of EPA's responsibilities under the climate change initiative is to increase the use of energy-efficient products. As with DOE's research and development activities, EPA's efforts will largely continue and expand ongoing activities. For fiscal year 1999, the agency is proposing to spend about \$142 million in that effort; this is an increase of about \$77 million over the previous year's \$65 million. EPA has specified performance goals for this action. The goals include reducing U.S. energy consumption by over 45-billion kilowatt-hours and reducing emissions by 40-million metric tons of carbon equivalent per year. However, the goals may overstate the potential results of EPA's programs.

In a 1997 report on selected voluntary climate change programs, which are now included in EPA's portion of the Climate Change Technology Initiative, we found that, in some cases, EPA did not adjust reported reductions to take account of nonprogram factors that may have contributed to the reported results.⁵ For example, for the Green Lights Program (which is intended to encourage businesses and others to install energy-efficient lighting), we found that EPA did not take into account the fact that utility companies' financial incentives and other factors may have induced participants to undertake some energy-saving activities. In commenting on our 1997 report, EPA said it would further study the programs' impact. In commenting on a draft of this statement, an EPA official stated that the results of the further study support EPA's position that it has adequately accounted for nonprogram factors in reporting results. We have not had an opportunity to review the basis for this statement.

⁵For other programs, EPA did adjust reported reductions to take into account nonprogram factors. For example, for the Coalbed Methane Outreach Program, EPA officials determined that 60 percent of the reductions reported by participating companies was due to factors other than EPA's program. See [Global Warming: Information on the Results of Four of EPA's Voluntary Climate Change Programs \(GAO/RCED-97-163, June 30, 1997\)](#).

Lack of Key Information on Stage 1 Has Implications for the Future

Because stage 1 lacks a quantitative goal for reducing greenhouse gas emissions, does not have a specific performance plan, and contains incomplete information on expected outcomes and links to the protocol's target, stage 1 may not provide a firm foundation for stages 2 and 3. The success of voluntary efforts in stage 1 would make it easier for the United States to adjust to the mandatory measures envisioned in stage 3 and to achieve the substantial reductions in emissions specified in the Kyoto Protocol. These mandatory measures would be implemented in the third stage (2008-12), when the protocol's target must be reached. There may be penalties for noncompliance if the United States ratifies the protocol but does not reach the target, although the specific penalties have not been agreed upon.

The various stage 1 actions are designed to stimulate the development and use of energy-efficient products and technologies, according to administration officials. In so doing, they are meant to improve the nation's energy efficiency, thus reducing greenhouse gas emissions, and to smooth the transition to the mandatory measures that are to be implemented in stage 3. However, because there is no emissions reduction goal and only a broad plan for stage 1, it is not clear how the transition is to be accomplished. A number of factors, including the short time period for achieving the emissions reduction target, make an effectively planned and implemented stage 1 important.

First, the United States would be required by the protocol to meet the emissions target during the 5-year period, 2008 through 2012. This time period coincides with stage 3 of the President's proposal.

Second, the projected growth in U.S. carbon emissions will make the protocol's target challenging to meet, according to an April 1998 estimate by the Energy Information Administration. Taking into account both the growth expected from 1990 through 2010⁶ and the protocol's target of reducing emissions to 7 percent below the 1990 level, the United States will need to reduce its emissions by 31 percent in 2010.

Finally, according to the Department of State, the protocol's targets are binding on nations that enter into the accord, and noncompliance could eventually carry penalties. The parties are to begin discussing procedures for eventually establishing penalties for noncompliance in Buenos Aires in November 1998.

⁶In the protocol, the United States agreed to limit its emissions during the 5-year period 2008 through 2012, with the midpoint being 2010.

Mr. Chairman, this concludes my statement. I would be pleased to answer any questions you may have.

Proposed Stage 1 Actions

The administration has outlined 10 actions in stage 1, listed below:

1. Tax cuts to spur energy efficiency and the development of lower-carbon energy sources.
2. Research and development to accomplish the same goals.
3. Use of energy-efficient products, through a broad-based effort to expand the use of existing energy-efficient technologies.
4. Credit for early action, to provide an immediate incentive for companies to take near-term actions to cut emissions.
5. Industry-by-industry consultations, for key industry sectors to prepare plans for reducing emissions.
6. Focus on federal procurement and energy use as a means to reduce greenhouse gas emissions from federal sources.
7. Electricity restructuring, to change the rules that can impede the introduction of cleaner technologies.
8. The setting of a concentration goal for greenhouse gases in the atmosphere.
9. Bilateral dialogues with key developing countries to promote clean energy.
10. Economics and science reviews.

Ordering Information

The first copy of each GAO report and testimony is free. Additional copies are \$2 each. Orders should be sent to the following address, accompanied by a check or money order made out to the Superintendent of Documents, when necessary. VISA and MasterCard credit cards are accepted, also. Orders for 100 or more copies to be mailed to a single address are discounted 25 percent.

Orders by mail:

**U.S. General Accounting Office
P.O. Box 37050
Washington, DC 20013**

or visit:

**Room 1100
700 4th St. NW (corner of 4th and G Sts. NW)
U.S. General Accounting Office
Washington, DC**

**Orders may also be placed by calling (202) 512-6000
or by using fax number (202) 512-6061, or TDD (202) 512-2537.**

Each day, GAO issues a list of newly available reports and testimony. To receive facsimile copies of the daily list or any list from the past 30 days, please call (202) 512-6000 using a touchtone phone. A recorded menu will provide information on how to obtain these lists.

For information on how to access GAO reports on the INTERNET, send an e-mail message with "info" in the body to:

info@www.gao.gov

or visit GAO's World Wide Web Home Page at:

<http://www.gao.gov>

**United States
General Accounting Office
Washington, D.C. 20548-0001**

**Bulk Rate
Postage & Fees Paid
GAO
Permit No. G100**

**Official Business
Penalty for Private Use \$300**

Address Correction Requested
