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# CLIMATE CHANGE

# Federal Agencies Should Do More to Make Funding Reports Clearer and Encourage Progress on Two Voluntary Programs

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Natural Resources and Environment

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Highlights

Highlights of GAO-06-1126T, testimony before the Subcommittee on Energy and Resources, Committee on Government Reform, House of Representatives

# CLIMATE CHANGE

# Federal Agencies Could Do More to Make Funding Reports Clearer and Encourage Progress on Two Voluntary Programs

## Why GAO Did This Study

The Office of Management and Budget (OMB) reports on federal funding for climate research and to develop technologies to reduce greenhouse gas emissions, among other things. The Climate Change Science Program (CCSP), which coordinates many agencies' activities, also reports on science funding. The Environmental Protection Agency's (EPA's) Climate Leaders and the Department of Energy's (DOE's) Climate VISION programs aim to reduce such emissions through voluntary industry efforts.

This testimony is based on GAO's August 2005 report *Climate Change: Federal Reports on Climate Change Funding Should Be Clearer and More Complete* (GAO-05-461) and its April 2006 report *Climate Change: EPA and DOE Should Do More to Encourage Progress Under Two Voluntary Programs* (GAO-06-97), which addressed (1) reported changes in federal climate change funding and (2) the status and progress of two federal voluntary climate programs.

## What GAO Recommends

GAO recommended actions to improve OMB's and CCSP's reporting. GAO recommended that both EPA and DOE develop written policies on what to do about participants not meeting program expectations. All four agencies appear to have taken steps to implement our recommendations, but we have not fully reviewed the extent to which they have done so.

www.gao.gov/cgi-bin/getrpt?GAO-06-1126T.

To view the full product, including the scope and methodology, click on the link above. For more information, contact John Stephenson at (202) 512-3841 or StephensonJ@gao.gov.

## What GAO Found

Federal funding for climate change, as reported by OMB, increased from $2.35 billion in 1993 to $5.09 billion in 2004 (117 percent), or from $3.28 billion to $5.09 billion (55 percent) after adjusting for inflation. OMB reports show that, during this period, funding increased for technology, science, and--before adjusting for inflation--international assistance. CCSP, which reports only science funding, generally presented totals that were consistent with OMB's, but provided more detail. However, changes in reporting methods used by both OMB and CCSP limit the comparability of funding data over time, and therefore it was unclear whether total funding actually increased as reported. Furthermore, we were unable to compare changes in the fourth category (climate-related tax expenditures), because from 1993 to 2004 OMB reported estimates for proposed but not existing tax expenditures. With regard to individual agencies' funding, OMB reported that 12 of the 14 agencies receiving funding for climate change programs in 2004 received more funding in that year than they had in 1993, but it is unclear whether funding changed as OMB reported because of unexplained changes in what was defined as climate change funding. Reported funding for DOE, the agency with the most reported climate-related funding in 2004, increased from $963 million to $2.52 billion (162 percent), or from $1.34 billion to $2.52 billion (88 percent) after adjusting for inflation. DOE and the National Aeronautics and Space Administration accounted for 81 percent of the reported increase in funding from 1993 through 2004. However, because agency funding totals are composed of individual accounts, changes in the reports' contents, such as the unexplained addition of accounts to the technology category, limit the comparability of agencies' funding data over time, making it difficult to determine if these are real or definitional increases.

EPA and DOE expected participants in their voluntary climate programs to complete several program steps within general time frames, but participants' progress in completing those steps within the time frames was mixed. Furthermore, DOE did not have a system for tracking groups' progress in completing program steps, and neither DOE nor EPA had a written policy specifying the consequences for participants not proceeding as expected. In addition, EPA and DOE had both estimated the share of total U.S. greenhouse gas emissions attributable to participants in their respective programs and were working through an interagency process to quantify emissions reductions attributable to their programs. However, determining reductions attributable to each program will be challenging because of the overlap between these programs and other voluntary programs and because it is difficult to determine how much of a participant's emissions reductions can be attributed to its participation in the program, since the participant's emissions in the absence of the program cannot be known.

Mr. Chairman and Members of the Subcommittee:

I am pleased to participate in the Subcommittee's hearing and to discuss some of our recent work on federal climate change funding and voluntary programs.

Increases in the earth's average temperature that have already occurred over the last 100 years, combined with additional future increases projected by a consensus of scientists, have the potential to dramatically change life on earth. For example, changes in the frequency and intensity of rainfall, both possible effects of climate change, could affect human health, agriculture, forests, and water supplies in certain locations. Effects on planetary biodiversity are projected to be even more pronounced. The Congress and the president have supported research to improve scientific understanding of the climate system and to develop new technologies to reduce greenhouse gas emissions. They have also created various federal programs to help reduce such emissions. These programs are largely voluntary and encourage private and public sector entities to adopt goals for reducing emissions.

My remarks today are based on our August 2005[1] report on federal climate change funding from 1993 through 2004 and our April 2006[2] report on voluntary programs that encourage industry participants to set greenhouse gas emissions reduction goals.[3] I will focus on (1) how total funding, funding by category, and funding by agency as reported by the Office of Management and Budget (OMB) and the Climate Change Science Program (CCSP) changed and the extent to which such funding data are comparable over time, and (2) the expectations for, and progress being made by, participants in two federal voluntary programs–the Environmental Protection Agency's (EPA's) Climate Leaders and the Department of Energy's (DOE's) Climate VISION–and these agencies' estimates of the programs' current coverage (the share of U.S. emissions

[1]U.S. Government Accountability Office, *Climate Change: Federal Reports on Climate Change Funding Should be Clearer and More Complete.* GAO-05-461 (Washington, D.C.: August 25, 2005).

[2]U.S. Government Accountability Office, *Climate Change: EPA and DOE Should Do More to Encourage Progress Under Two Voluntary Programs.* GAO-06-97 (Washington, D.C.: April 25, 2006).

[3]For the sake of consistency, we describe both Climate Leaders and Climate VISION participants' targets as goals, even though DOE describes Climate VISION participants' targets as commitments.

that participants contribute to total U.S. emissions) and impact (emissions reduced).

To determine how federal climate change funding by category—science, technology, international assistance, and tax expenditures—and agency changed, we analyzed data from annual OMB and CCSP reports as well as congressional testimony. To determine the extent to which the data on climate change funding were comparable over time, we analyzed and compared the contents of the reports and interviewed responsible officials. The term "funding" in this testimony reflects discretionary budget authority, or the authority provided in law to incur financial obligations that will result in outlays, as reported by OMB and CCSP in their reports.[4] Unless otherwise stated, we report funding in nominal terms (not adjusted for inflation), and all years refer to fiscal years.[5] To evaluate the EPA and DOE voluntary programs, we reviewed and analyzed EPA and DOE documents and met with these agencies' officials. Most of the information in the report, except where otherwise noted, reflects the status of the two programs as of November 2005. As of September 20, 2006, an additional 18 firms had joined Climate Leaders. To assess the reliability of EPA, DOE, and other data, we spoke with agency officials about data quality control procedures and reviewed relevant documentation. We determined that the data were sufficiently reliable for the purposes of our reports. We performed our work on the federal funding report between July 2004 and August 2005 and on the voluntary programs report between June 2004 and March 2006 in accordance with generally accepted government auditing standards.

[4]An OMB official stated that there is no mandatory budget authority for climate change programs.

[5]When we adjusted for inflation, we used a fiscal year price index that we calculated based on a calendar year price index published by the Department of Commerce's Bureau of Economic Analysis. Unless otherwise specified, figures represent actual funding (not estimates), with the exception of 1993, 1994, and 2004, where we present estimated funding reported by CCSP because actual data are not available. For the purposes of this testimony, the term "agency" includes executive departments and agencies, and we use the term "account" to describe the budget accounts, line items, programs, and activities presented in OMB and CCSP reports. Throughout this testimony, we characterize all climate change science reports from 1993 through 2004 as CCSP reports, even though CCSP has been in existence only since 2002, and reports prior to 2002 were published by a predecessor organization. Totals and percentages may not add due to rounding.

In summary, we found that:

- As reported by OMB, federal funding for climate change increased from $2.35 billion in 1993 to $5.09 billion in 2004 (117 percent), or from $3.28 billion to $5.09 billion (55 percent) after adjusting for inflation. During this period, federal funding increased for science, technology, and before adjusting for inflation, international assistance, according to OMB reports. CCSP, which reports only science funding, provided more detail, but generally presented totals that were consistent with OMB's. However, changes in methods used by both OMB and CCSP to report funding data made it difficult to compare the data over time, and therefore, to determine whether total funding actually increased as reported. We were unable to compare changes in the fourth category (climate-related tax expenditures), because from 1993 to 2004 OMB did not report estimates for existing tax expenditures. For individual agencies, OMB reported that 12 of the 14 agencies that received funding for climate change programs in 2004 received more funding in that year than they had in 1993. However, unexplained changes in what was defined as climate change funding made it difficult to determine whether funding changed to the extent that OMB reported. Funding for the Department of Energy (DOE), the agency with the most reported climate-related funding in 2004, increased from $963 million to $2.52 billion (162 percent), or from $1.34 billion to $2.52 billion (88 percent) after adjusting for inflation. DOE and the National Aeronautics and Space Administration (NASA) accounted for 81 percent of the reported increase in funding from 1993 through 2004. However, because agency funding totals are composed of individual accounts, changes in the reports' contents, such as the unexplained addition of accounts to the technology category, make it difficult to compare funding data over time. This, in turn, makes it difficult to determine if these are real or definitional increases.

- EPA and DOE expected the participants in their voluntary climate change programs to complete several program steps within general time frames, but participants' progress in completing those steps within the time frames varied. Moreover, DOE did not have a system to track the participants' progress in completing the required steps, and neither DOE nor EPA had a written policy specifying what actions would be taken to address participants' not proceeding as expected. In addition, EPA and DOE had both estimated the share of total U.S. greenhouse gas emissions that could be attributed to the participants in their programs and were working through an interagency process to quantify emissions reductions attributable to their programs. However, determining reductions attributable to each program will be challenging because these programs

overlap with other voluntary programs and because it is difficult to determine how much of a participant's emissions reductions can be attributed to its participation in the program, versus what they would have done anyway in the absence of the program.

With regard to reporting of federal climate change funding, we recommended that OMB and CCSP use the same format for presenting data from year-to-year, explain changes in report content or format when they are introduced, and provide and maintain a crosswalk comparing new and old report structures when changes in report format are introduced. We also recommended that OMB include data on existing climate-related tax expenditures in future reports.

Regarding the voluntary programs, we recommended that DOE develop a system for tracking participants' progress in completing key steps associated with its Climate VISION Program, and that both EPA and DOE develop written policies establishing the actions the agencies will take if participants are not completing program steps on time.

All four agencies appear to have taken steps to implement our recommendations, but we have not comprehensively reviewed the extent to which they have done so.

## Background

In 1990, the Congress enacted the Global Change Research Act.[6] This act, among other things, required the administration to (1) prepare and at least every 3 years revise and submit to the Congress a national global change research plan, including an estimate of federal funding for global change research activities to be conducted under the plan; (2) in each annual budget submission to the Congress, identify the items in each agency's budget that are elements of the United States Global Change Research Program (USGCRP), an interagency long-term climate change science research program; and (3) report annually on climate change "expenditures required" for the USGCRP.[7]

[6]Pub. L. No. 101-606, 104 Stat. 3096 (1990) (partially terminated pursuant to the Federal Reports Elimination and Sunset Act of 1995, Pub. L. No. 104-66, § 3003 (1995)).

[7]The annual reporting requirement for climate change expenditures was terminated effective May 15, 2000. The reporting requirement had called for "(A) the amounts spent during the fiscal year most recently ended; (B) the amounts expected to be spent during the current fiscal year; and (C) the amounts requested for the fiscal year for which the budget is being submitted."

In response to the requirements of the 1990 act, the administration reported annually from 1990 through 2004 on funding for climate change science.[8] From 1990 through 2001, the reports presented detailed science funding data for the USGCRP. Federal climate change science programs were reorganized in 2001 and 2002. In 2001, the Climate Change Research Initiative (CCRI) was created to coordinate short-term climate change research focused on reducing scientific uncertainty, and in 2002, CCSP was created to coordinate and integrate USGCRP and CCRI activities. CCSP is a collaborative interagency program designed to improve the government wide management of climate science and research.

With respect to federal research, OMB, in annual reports and testimony before the Congress, reported climate change funding for 1993 through 2004 using four categories:

- **Technology,** which includes the research, development, and deployment of technologies and processes to reduce greenhouse gas emissions or increase energy efficiency. Funding for this category focuses on programs for energy conservation, renewable energy, and related efforts.
- **Science,** which includes research and monitoring to better understand climate change, such as measuring changes in forest cover and land use.
- **International assistance,** which helps developing countries address climate change by, for example, providing funds for energy efficiency programs.
- **Tax expenditures** related to climate change, which are federal income tax provisions that grant preferential tax treatment to encourage emission reductions by, for example, providing tax incentives to promote the use of renewable energy.[9]

[8]To maintain consistency with OMB data, which are available from 1993 to 2004, we reviewed reported science funding from 1993 to 2004.

[9]The revenue losses resulting from provisions of federal tax laws may, in effect, be viewed as expenditures channeled through the tax system. The Congressional Budget and Impoundment Control Act of 1974, as amended, requires that the budget include the level of tax expenditures under existing law. Like the annual lists of tax expenditures prepared by the Department of the Treasury, this testimony considers only tax expenditures related to individual and corporate income taxes and does not address excise taxes.

Over the same time period, the administration also has reported annually on funding specifically for climate change science. CCSP is currently responsible for preparing these climate change science reports, which duplicate to some extent data provided by OMB in the science category.

In 1992, the United States ratified the United Nations Framework Convention on Climate Change, which has as its objective the stabilization of greenhouse gas concentrations in the earth's atmosphere but does not impose specific goals or timetables for limiting emissions. In response, federal agencies developed a plan for reducing greenhouse gas emissions, primarily through voluntary efforts by companies, state and local governments, and other organizations. Since that time, federal agencies have sponsored voluntary programs that encourage private and public sector entities to curb their greenhouse gas emissions by providing technical assistance, education, research, and information sharing. The administration has promoted such voluntary programs, along with other measures, as an alternative to mandatory emissions reductions.

In February 2002, the president announced a Global Climate Change Initiative to reduce the rate of increase in greenhouse gas emissions in the United States. Specifically, he established the goal of reducing the emissions intensity of the United States by 18 percent between 2002 and 2012. Emissions intensity is a ratio calculated by dividing emissions in a given year by economic output for that year. In support of this goal, the president announced two new voluntary programs aimed at securing private sector agreements to voluntarily reduce greenhouse gas emissions or emissions intensity.

- *Climate Leaders*, an Environmental Protection Agency (EPA)-sponsored government-industry partnership established in February 2002, works with firms[10] to develop long-term climate change strategies. According to EPA officials, as of November 2005, 74 firms were participating in the program.
- *Climate VISION* (Voluntary Innovative Sector Initiatives: Opportunities Now), introduced in February 2003 and coordinated by the Department of Energy (DOE) in cooperation with EPA and other federal agencies, works

[10]For the sake of brevity, we refer to all participants in the Climate Leaders programs as firms, even though one of them, the National Renewable Energy Laboratory, is a federal research laboratory.

with trade groups[11] to develop strategies to reduce their members' greenhouse gas emissions intensity. Most industries participating in the program are represented by a single trade group. As of November 2005, 14 industry sectors and the Business Roundtable—an association of chief executive officers representing diverse sectors of the economy—were participating in the program. According to DOE, the trade groups participating in Climate VISION typically have high energy requirements.

## The Extent of Changes in Federal Climate Change Funding Are Difficult to Determine

OMB reports indicated that federal funding on climate change increased from $2.35 billion in 1993 to $5.09 billion in 2004, or from $3.28 billion to $5.09 billion after adjusting for inflation, and that funding increased in three of the four categories between 1993 and 2004. However, changes in reporting methods limit the comparability of funding data over time, making it unclear whether total funding actually increased as reported. OMB reports also indicated that 12 of the 14 federal agencies receiving funding for climate change programs in 2004 received more funding in that year than they had in 1993, but again, unexplained modifications in the reports' contents limit the comparability of agencies' funding data, making it difficult to determine whether funding increased as OMB reported.

### Reported Federal Climate Change Funding Increased for Three of the Four Funding Categories, but Data May Not Be Comparable Over Time

We found that federal funding for climate change, as reported by OMB, increased from $2.35 billion in 1993 to $5.09 billion in 2004 (117 percent), or from $3.28 billion to $5.09 billion (55 percent) after adjusting for inflation, and reported funding increased for three of the four categories between 1993 and 2004. However, changes in reporting methods limit the comparability of funding data over time, and therefore it was unclear whether total funding actually increased as OMB reported. We were unable to compare changes in the fourth category–climate-related tax expenditures–because OMB reported estimates for proposed but not existing tax expenditures from 1993 to 2004. Specifically, for 1993 through 2004, we found the following:

- **Technology** funding, as reported by OMB, increased from $845 million to $2.87 billion (240 percent), or from $1.18 billion to $2.87 billion (143 percent) in inflation-adjusted dollars. The share of total climate change funding devoted to technology increased from 36 percent to 56 percent.

[11]We refer to all Climate VISION participants as trade groups, even though one participant, the Tennessee Valley Authority, is a utility.

However, we identified several ways that technology funding presented in OMB's more recent reports may not be comparable to previously reported technology funding. For example, OMB added accounts to the technology category that were not reported before or were presented in different categories and did not explain whether these accounts reflected the creation of new programs or a decision to count existing programs for the first time. OMB also expanded the definitions of some accounts to include more activities without clarifying how the definitions were changed. Furthermore, OMB reports include a wide range of federal climate-related programs and activities, some of which–such as scientific research on global environmental change–are explicitly climate change programs, whereas others–such as technology initiatives promoting emissions reduction or encouraging energy conservation–are not solely for climate change purposes.

- **Science** funding increased from $1.31 billion to $1.98 billion (51 percent), according to both OMB and CCSP, or from $1.82 billion to $1.98 billion (9 percent) in inflation-adjusted dollars. However, science's share of total climate change funding decreased from 56 percent to 39 percent. OMB and CCSP generally presented consistent climate change science funding totals from 1993 through 2004. CCSP reports also presented more detailed data, but these data were difficult to compare over the entire period because CCSP periodically introduced new categorization methods without explaining how the new methods related to the ones they replaced. Specifically, over the period CCSP used seven different methods to present detailed science funding data, making it impossible to develop consistent funding trends for the entire timeframe.

- **International assistance** funding reported by OMB increased from $201 million to $252 million (25 percent), but decreased from $280 million to $252 million (10 percent) in inflation-adjusted dollars. Moreover, its share of total climate change funding decreased from 9 percent to 5 percent. International assistance funding reported by OMB was generally comparable over time, although several new accounts were added without explanation.

- **Tax expenditures** were not fully reported by OMB for any year, even though climate-related tax expenditures amounted to hundreds of millions of dollars in forgone federal revenue in fiscal year 2004. Although not required to do so, OMB reported proposed climate-related tax expenditures. However, OMB did not report revenue loss estimates for existing climate change-related tax expenditures. Whereas OMB reported no funding for existing climate change-related tax expenditures in 2004, the federal budget for that year listed four tax expenditures related to

climate change, including estimated revenue losses of $330 million for incentives to develop certain renewable energy sources.

Table 1 shows federal climate change funding by category between 1993 and 2004.

**Table 1: Reported Federal Climate Change Funding by Category, Selected Years**

| Discretionary budget authority in millions of dollars | | | | |
|---|---|---|---|---|
| **Category** | **1993** | **1997** | **2001** | **2004** |
| Technology | $845 | $1,056 | $1,675 | $2,868 |
| Science | 1,306 | 1,656 | 1,728 | 1,976 |
| International assistance | 201 | 164 | 218 | 252 |
| Tax expenditures | [a] | [a] | [a] | [a] |
| **Total** | **$2,352** | **$2,876** | **$3,603** | **$5,090** |

Source: GAO analysis of OMB data.

[a]OMB did not report revenue loss estimates for existing climate-related tax expenditures for this year.

Table 2 shows funding data for the seven largest technology accounts, which accounted for 92 percent of technology funding in 2004.

**Table 2: Reported Technology Funding for Selected Accounts and Years**

| Discretionary budget authority in millions of dollars | | | | | |
|---|---|---|---|---|---|
| **Agency** | **Account** | **1993** | **1997** | **2001** | **2004** |
| Department of Energy | Energy Conservation | $346 | $414 | $810 | $868 |
| | Energy Supply — Fossil Energy Research and Development (R&D) | 250 | 201 | 292 | 455 |
| | Energy Supply —Renewable Energy | 249 | 244 | 370 | 352 |
| | Science (Fusion, Sequestration, and Hydrogen) [a] | [b] | [b] | 35 | 333 |
| | Energy Supply – Nuclear[c] | [b] | [b] | 39 | 309 |
| National Aeronautics and Space Administration | Exploration, Science, and Aeronautics | [b] | [b] | [b] | 227 |
| Environmental Protection Agency | Environmental Programs and Management | [b] | 70 | 96 | 89 |
| Other | | [b] | 127 | 33 | 235 |
| **Total** | | **$845** | **$1,056** | **$1,675** | **$2,868** |

Source: GAO analysis of OMB data.

[a]Sequestration can be defined as the capture and isolation of gases that otherwise could contribute to global climate change.

[b]OMB did not report a value in the technology category for this account for this year.

[c]For 2001 Energy Supply — Nuclear funding, we counted the Nuclear Energy Research Initiative and Energy Supply — Nuclear budget accounts as presented by OMB. OMB did not separately present these accounts for 2004, and included funding for the Nuclear Energy Research Initiative within the Energy Supply—Nuclear account.

OMB and CCSP officials told us that time constraints and other factors contributed to changes in report structure and content over time. For example, OMB officials said that the short timeline for completing the report required by the Congress (within 45 days of submitting the upcoming fiscal year's budget for the three most recent reports) limited OMB's ability to analyze data submitted by agencies. OMB and CCSP officials also noted that each report was prepared in response to a one-time requirement and that they were not directed to use the same report format over time or to explain differences in methodology from one report to another. The director of CCSP told us that changes to climate change science reports, such as the creation and deletion of different categorization methods, were made because CCSP was changing towards a goals-oriented budget, and categorization methods changed as the

program evolved. The director also said that future reports will explicitly present budget data as it was reported in prior reports to retain continuity, even if new methods are introduced. Regarding tax expenditures, OMB officials said that they consistently included in the reports those proposed tax expenditures where a key purpose was specifically to reduce greenhouse gas emissions. They also stated that they had not included existing tax expenditures that may reduce greenhouse gas emissions but that were enacted for other purposes, and that the Congress had not provided any guidance to suggest that additional tax expenditure data should be included in the annual reports.

## Reported Funding For Most Agencies Increased, but Unexplained Changes in Report Content Limit the Comparability of Data Over Time

OMB reported that 12 of the 14 agencies receiving funding for climate change programs in 2004 received more funding in that year than they had in 1993. However, it is unclear whether funding changed as OMB reported because of, among other things, unexplained changes in what was defined as climate change funding. Reported funding for the Department of Energy (DOE), the agency with the most reported climate-related funding in 2004, increased from $963 million to $2.52 billion (162 percent), or from $1.34 billion to $2.52 billion (88 percent) after adjusting for inflation. DOE and NASA accounted for 81 percent of the reported increase in funding from 1993 through 2004. However, because agency funding totals are composed of individual accounts, changes in the reports' contents, such as the unexplained addition of accounts to the technology category, limit the comparability of agencies' funding data over time, making it difficult to determine if these are real or definitional increases. OMB stated that it consistently reported funding data for the 3 years presented in each of its reports and that there had been no requirement to use a consistent format from one report to the next or to explain differences in methodology from one report to another.

We recommended that OMB and CCSP use the same format for presenting data from year-to-year, explain changes in report content or format when they are introduced, and provide and maintain a crosswalk comparing new and old report structures when changes in report format are introduced. We also recommended that OMB include data on existing climate-related tax expenditures in future reports. OMB agreed with the recommendations relating to report content and format and said it was studying the other recommendations. CCSP agreed with all of our recommendations. Both agencies appear to have taken actions in response to our recommendations, but we have not comprehensively reviewed the extent to which they may have done so.

## Voluntary Programs Have Shown Mixed Progress

EPA and DOE expect participants in their respective programs to complete a number of actions within certain timeframes. However, participants' progress toward completing those actions was mixed, and neither agency had a written policy for dealing with this situation. EPA estimated that the first fifty Climate Leaders participants accounted for at least 8 percent of U.S. emissions on average for the years 2000 through 2003, and DOE estimated that Climate VISION participants account for over 40 percent of U.S. greenhouse gas emissions; both agencies believe these to be conservative estimates. While EPA and DOE are participating in an interagency process to estimate the impact of their programs on emissions, we found that accurately attributing specific emissions reductions to either program would be difficult.

### Some Climate Leaders and Climate VISION Participants Have Not Completed Program Steps as Soon as Expected, and Neither Agency Had a Written Policy For Dealing with Such Participants

EPA and DOE expect participants in their voluntary emissions reduction programs to complete a number of actions; however, participants' progress toward completing those actions, as well as the agencies' efforts to track accomplishments, varied. For example, within about 1 year of joining the program, EPA expects firms to enter into discussions with the agency to establish an emissions reduction goal and to complete these negotiations, generally within another year. As of November 2005, 38 of the 74 firms had established goals, while most of the other 36 firms, including 13 that joined in 2002, were still working to establish goals; most of the remaining firms had joined the program recently and had not yet established goals. EPA officials told us that they were developing a system for tracking firms' progress in accomplishing the key steps associated with participating in the program, but were still in the process of obtaining and validating data from participants. While EPA officials told us that they would be willing to remove participants from the program if they were not progressing as expected, they had not specified the conditions under which they would do so. DOE asks that trade groups participating in its Climate VISION program develop a work plan for measuring and reporting emissions information within about 1 year after joining the program and report their emissions levels. As of November 2005, 11 of the 15 participating trade groups had completed their work plans and 5 groups had reported on emissions. As of November 2005, DOE officials said that the agency did not have a system for tracking how long each group takes to complete its work plan and report emissions data. Furthermore, while DOE officials said that the agency would remove groups from the program if they did not seem to be taking sufficient action, DOE had not yet established specific deadlines for reporting emissions. Because DOE did not have a system for tracking how long participants take to complete key program steps—and neither DOE nor EPA had established written policies

for taking action against participants not progressing as expected—it will be difficult for them to ensure that all participants are meeting program expectations.

We recommended that DOE develop a system for tracking participants' progress in completing key steps associated with its Climate VISION Program, and that both EPA and DOE develop written policies establishing the actions the agencies will take if participants are not completing program steps on time. DOE and EPA appear to have taken steps to implement our recommendation regarding a written policy, but we have not conducted a comprehensive review to determine the extent to which the recommendations have been implemented.

## Participants in Both Programs Have Set Quantitative Emissions-Related Goals

The specific types of emission reduction goals being established by Climate Leaders firms and Climate VISION groups varied. Of the 38 firms participating in Climate Leaders that had established emission reduction goals as of November 2005, 19 had committed to reduce their total greenhouse gas emissions, 18 had committed to reduce their emissions intensity (emissions per unit of output), and 1 firm had committed to reduce both its total emissions and its emissions intensity. Furthermore, firms' goals differed in their geographic scope and the time period they covered. For example, Cinergy Corporation pledged to reduce its total U.S. domestic greenhouse gas emissions by 5 percent from 2000 to 2010, while Pfizer, Inc., pledged to reduce its worldwide emissions by 35 percent per dollar of revenue from 2000 to 2007. Table 3 presents information on the 38 firms' goals.

**Table 3: Climate Leaders Goals as of November 2005**

| | Metric used and percent to be reduced | | | Geographic scope of goal | | |
|---|---|---|---|---|---|---|
| Company | Emissions | Emissions intensity | Metric for measuring emissions intensity | United States | Global | Time period covered |
| 3M | 30 | | | x | | 2002-07 |
| Advanced Micro Devices, Inc. | | 40 | Manufacturing index | | x | 2002-07 |
| American Electric Power | 4 | | | x | | 2001-06 |
| Ball Corporation | | 16 | Production index | x | | 2002-12 |
| Bank of America Corporation | 9 | | | x | | 2004-09 |
| Baxter International Inc. | | 16 | Unit of production value | x | | 2000-05 |
| Calpine | | 4 | Megawatt hour | x | | 2003-08 |
| Caterpillar | | 20 | Dollar of revenue | | x | 2002-10 |

| | Metric used and percent to be reduced | | | Geographic scope of goal | | |
|---|---|---|---|---|---|---|
| Company | Emissions | Emissions intensity | Metric for measuring emissions intensity | United States | Global | Time period covered |
| Cinergy Corporation | 5 | | | x | | 2000-10 |
| The Collins Companies | 18 | | | x | | 2000-10 |
| Eastman Kodak Company | 10 | | | | x | 2002-08 |
| Exelon Corporation | 8 | | | x | | 2001-08 |
| First Environment, Inc. | Net 0[a] | | | x | | by 2008 |
| FPL Group, Inc. | | 18 | Kilowatt hour | x | | 2001-08 |
| Frito-Lay, Inc. | | 14 | Pound of production | x | | 2002-10 |
| GAP, Inc. | | 11 | Square foot | x | | 2003-08 |
| General Electric | 1 | | | | x | 2004-12 |
| General Motors Corporation | 10 | | | xb | | 2000-05 |
| Green Mountain Energy Co. | Net 0[a] | | | x | | 2005-09 |
| Hasbro, Inc. | 30 | | | x | | 2000-07 |
| Holcim (U.S.) Inc. | | 12 | Ton of cement | x | | 2000-08 |
| IBM Corporationc | 10 | 4 | Energy use | | x | Average annual reduction 2000-05 |
| Interface, Inc. | | 15 | Unit of production | x | | 2001-10 |
| International Paper | 15 | | | x | | 2000-10 |
| Johnson & Johnson | 14 | | | x | | 2001-10 |
| Marriott International, Inc. | | 6 | Available room | x | | 2004-10 |
| Melaver, Inc. | Net 0[a] | | | x | | 2006-09 |
| Miller Brewing Company | | 18 | Barrel of production | x | | 2001-06 |
| National Renewable Energy Lab. | | 10 | Square foot | x | | 2000-05 |
| Pfizer, Inc. | | 35 | Dollar of revenue | | x | 2000-07 |
| PSEG | | 18 | Kilowatt hour | x | | 2000-08 |
| Roche Group US Affiliates | 10 | | | x | | 2001-08 |
| SC Johnson | | 23 | Pound of product | x | | 2000-05 |
| Staples, Inc. | 7 | | | x | | 2001-10 |
| St. Lawrence Cement | | 15 | Ton of product | | x | 2000-10 |
| Sun Microsystems | 20 | | | x | | 2002-12 |
| United Technologies Corporation | | 16 | Dollar of revenue | | x | 2001-06 |
| Xerox Corporation | 10 | | | | x | 2002-12 |

Source: GAO analysis of EPA data.

[a]Net zero means that the company will substitute emissions it produces by some other activity such that no new, additional emissions are produced. Green Mountain Energy, for example, is substituting emissions from fossil fuel-based energy, such as coal or gas, with the purchase of renewable energy that produces few greenhouse gas emissions relative to fossil fuels.

[b]General Motors pledged to reduce total greenhouse gas emissions from its North American facilities.

[c]IBM pledged to achieve a reduction in its average annual carbon dioxide emissions equivalent to 4 percent of the emissions associated with the company's worldwide energy use. IBM also pledged to reduce its perfluorocarbon emissions from its semiconductor manufacturing processes by 10 percent from 2000 to 2005.

In contrast to EPA's program, 14 of the 15 trade groups participating in DOE's Climate VISION established an emissions-related goal in collaboration with DOE or another federal agency upon joining the program. (The remaining group, the Business Roundtable, did not establish a quantitative emissions goal because of the diversity of its membership). According to a DOE official, participants need not establish new goals as a condition of joining the program. Nine of the 14 groups had set goals to improve their emissions intensity, 2 groups had established a goal of reducing emissions of specific greenhouse gases, 2 groups had set goals to improve energy efficiency, and 1 group had established a goal of both reducing its total emissions and improving its energy efficiency. For example, the American Forest & Paper Association pledged to reduce emissions intensity by 12 percent between 2002 and 2012, while the American Iron and Steel Institute agreed to a 10-percent, sector wide increase in energy efficiency by 2012. Some of these groups stated that their goals would be difficult to achieve, however, without reciprocal federal actions, such as tax incentives or regulatory relief. Table 4 presents information on Climate VISION industry groups' goals.

**Table 4: Climate VISION Trade Groups' Goals as of November 2005**

| | Type of goal | | | | |
|---|---|---|---|---|---|
| Industry/ participant | Reduce emissions | Reduce emissions intensity | Improve energy efficiency | Goal metric | Start and end dates |
| Aluminum<br>Aluminum Association | | 53% | | Combined direct carbon emissions intensity based on PFC reductions and reduced anode carbon consumption | 1990-2010 |
| Automobiles<br>Alliance of Automobile Manufacturers | | 10% | | Carbon dioxide emissions per vehicle produced | 2002-12 |
| Cement<br>Portland Cement Association | | 10% | | Carbon dioxide emissions per ton of cementitious product produced or sold | 1990-2020 |

| Industry/ participant | Type of goal: Reduce emissions | Type of goal: Reduce emissions intensity | Type of goal: Improve energy efficiency | Goal metric | Start and end dates |
|---|---|---|---|---|---|
| Chemicals<br>American Chemistry Council | | 18%[a] | | Greenhouse gas emissions intensity[b] | 1990-2012 |
| Electric power<br>American Public Power Association<br>Edison Electric Institute<br>Electric Power Supply Association<br>Large Public Power Council<br>National Rural Electric Cooperative Association<br>Nuclear Energy Institute<br>Tennessee Valley Authority | | The equivalent of<br>3 to 5% | | Ratio of carbon equivalent emissions to generation in megawatt hours | 2002-02 to 2010-12 |
| Forest products<br>American Forest & Paper Assn. | | 12% | | Greenhouse gas intensity | 2000-12 |
| Iron and steel<br>American Iron and Steel Institute | | | 10% | Millions of British thermal units per ton of steel produced | 2002-12 |
| Lime<br>National Lime Association | | 8% | | Fuel used per ton of lime produced | 2002-12 |
| Magnesium<br>International Magnesium Assn. | 100% | | | Sulfur hexafluoride emissions | by 2010[c] |
| Minerals<br>Industrial Minerals Association North America | | 4.2% | | Greenhouse gas emissions from fuel combustion | 2002-12 |
| Mining<br>National Mining Association | | | 10% | Energy efficiency | 2002-12 |
| | 25 MMTCE | | | Methane emissions in million metric tons carbon dioxide equivalent/year | 2002-12[d] |
| | 2 MMTCE | | | Million metric tons of carbon equivalent | 2002-15[e] |
| Oil and gas<br>American Petroleum Institute | | | 10% | Energy efficiency | 2002-12 |
| Railroads<br>American Association of Railroads | | 18% | | Transportation-related greenhouse gas emissions intensity adjusted for traffic levels in ton miles | 2002-12 |
| Semiconductors<br>Semiconductor Industry Assn. | 10% | | | PFC emissions in million metric tons of carbon equivalent | 1995– 2010 |

Sources: Climate VISION web site.

[a]According to the American Chemistry Council (ACC), the U.S. chemistry industry reduced its greenhouse gas intensity by 12 percent from 1990 to 2000, with projections to 2002.

[b]ACC measures its greenhouse gas emissions intensity using a special index that is particularly suited for an industry with a diverse product base. The index measures changes in the physical quantity of production, and where these data are unavailable, the index is based on changes in electricity consumption and production worker hours.

[c]The International Magnesium Association committed to eliminate all SF6 emissions by 2010 and did not define a baseline year because of the nature of its goal.

[d]The National Mining Association committed to maintain annual methane emissions reductions achieved since 1990.

[e]The National Mining Association committed to maximize efforts to reduce annual carbon reductions projected as a result of the partnership with DOE. These projections are 600,000 metric tons of carbon equivalent by 2010 and 2 million metric tons by 2015.

## Both Agencies Had Estimated Their Programs' Coverage and Were Working to Estimate Their Impact, But It Will Be Difficult to Attribute Specific Emissions Reductions From These Programs

EPA and DOE both estimated the share of total U.S. greenhouse gas emissions attributable to participants in their respective programs and were working to develop an estimate of the programs' impacts. EPA estimated that Climate Leaders participants accounted for at least 8 percent of U.S. emissions. According to EPA, this was a conservative estimate, because it was based solely on emissions from the program's first 50 participants. DOE estimated that Climate VISION participants accounted for over 40 percent of U.S. greenhouse gas emissions and noted that this was a conservative estimate. Both agencies were participating in an interagency process to estimate the effect of their programs on reducing emissions, which was expected to be completed in 2006. However, preparing accurate estimates of these programs' impacts will be difficult. First, there is considerable overlap between these two programs and other voluntary programs. For example, 60 of the 74 Climate Leaders participants also participated in one or more other EPA programs, and 3 of the 14 Climate VISION participants with quantitative goals also participated in EPA voluntary programs. Such overlap makes it difficult to determine the effects that are attributable to a given program. Second, it will be difficult to determine how much of a firm's or trade group's emissions reductions can be attributed to its participation in the program because the level of a participant's emissions in the absence of the program is unknown. For example, higher energy prices or changes in business operations could lead to emissions reductions, making it difficult to distinguish reductions attributable to participation in the program versus other causes.

# Conclusions

In conclusion, we found that the lack of consistency and clarity in OMB's and CCSP's reports made it difficult to identify trends in federal climate

change funding. A better understanding of these expenditures is needed before it is possible to assess CCSP's and other federal agencies' progress towards their climate change goals. We therefore made a total of seven recommendations to OMB and three to CCSP to clarify how they present climate change funding information. OMB agreed with most of our recommendations and CCSP agreed with all of our recommendations. Both agencies appear to have taken steps to implement our recommendations, but we have not comprehensively reviewed the extent to which they have done so.

We found that opportunities remain to improve the progress of both voluntary programs, since some industry participants in both programs appeared not to be progressing at the rate expected by the agencies. We also found that it will be difficult for the agencies to estimate the emissions reductions attributable to their programs, due to overlaps between organizations participating in more than one voluntary program and to the fact that it was difficult to know how much of a participant's emissions reductions were a direct result of the program or other factors, such as higher energy prices, which generally lead to lower emissions. Therefore, we recommended that DOE develop a system for tracking participants' progress in completing key steps associated with the program, and that both EPA and DOE develop written policies that establish the actions the agencies will take if participants are not completing program steps on time. EPA did not comment on our recommendation; DOE stated that it agreed with our recommendation regarding a tracking system and would consider our recommendation regarding establishing a written policy. We have not fully reviewed the extent to which the recommendations have been implemented.

Mr. Chairman, this concludes my prepared statement. I would be pleased to respond to any questions you or other Members of the Subcommittee may have.

## Contact and Staff Acknowledgements

For further information regarding this testimony, please contact me at (202) 512-3841 or stephensonj@gao.gov. John Healey, Anne K. Johnson, and Vincent P. Price made key contributions to this testimony. John Delicath, Karen Keegan, and Charles Egan also made important contributions.

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