

April 2006

CLIMATE CHANGE

EPA and DOE Should Do More to Encourage Progress Under Two Voluntary Programs



G A O

Accountability * Integrity * Reliability



Highlights of [GAO-06-97](#), a report to congressional requesters

Why GAO Did This Study

To reduce greenhouse gas emissions linked to climate change, two voluntary programs encourage participants to set emissions reduction goals. The Climate Leaders Program, managed by the Environmental Protection Agency (EPA), focuses on firms. The Climate VISION (Voluntary Innovative Sector Initiatives: Opportunities Now) Program, managed by the Department of Energy (DOE) along with other agencies, focuses on trade groups.

GAO examined (1) participants' progress in completing program steps, the agencies' procedures for tracking progress, and their policies for dealing with participants that are not progressing as expected; (2) the types of emissions reduction goals established by participants; and (3) the agencies' estimates of the share of U.S. greenhouse gas emissions that their programs account for and their estimates of the programs' impacts on U.S. emissions.

What GAO Recommends

GAO recommends that DOE develop a system for tracking groups' progress in completing program steps. Also, GAO recommends that both agencies develop written policies on what to do about participants not progressing as quickly as expected. EPA did not comment on the recommendation, and DOE agreed with the recommendation on a tracking system and said it will consider the recommendation on establishing a written policy.

www.gao.gov/cgi-bin/getrpt?GAO-06-97.

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.

CLIMATE CHANGE

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What GAO Found

EPA expects Climate Leaders firms to complete several program steps within general time frames, but firms' progress on completing those steps is mixed. For example, EPA asks firms to set an emissions reduction goal, generally within 2 years of joining. As of November 2005, 38 of the program's 74 participating firms had set a goal. Of the 36 firms that had not set a goal, 13 joined in 2002 and thus took longer than expected to set a goal. EPA is developing a system for tracking firms' progress in completing these steps, but it has no written policy on what to do about firms that are not progressing as expected. Trade groups generally established an emissions reduction goal before joining Climate VISION, and DOE generally expects them to develop a plan for measuring and reporting emissions within about 1 year of joining. As of November 2005, 11 of the 15 participating groups had such a plan, but 2 of the groups without a plan joined in 2003, the program's first year. DOE has no means of tracking trade groups' progress in completing the steps in their plans and no written policy on what to do about groups that are not progressing as expected. A tracking system would enable the agency to ascertain whether participants are meeting program expectations in a timely manner, thereby helping the program to achieve its goals. By establishing a written policy on the consequences of not progressing as expected, both agencies could better ensure that participants are actively engaged in the programs, thus helping to achieve the programs' goals.

The types of emissions reduction goals established by Climate Leaders firms and Climate VISION groups vary in how reductions are measured and the time periods covered, among other things. For example, one Climate Leaders firm's goal is to reduce its domestic emissions by 5 percent over 10 years; another's is to reduce its worldwide emissions per dollar of revenue by 35 percent over 7 years. Similarly, one Climate VISION group's goal is to reduce emissions of one greenhouse gas by 10 percent, while another's is to reduce its emissions per unit of output by 12 percent. GAO noted that some Climate VISION groups said meeting their goals may be linked to reciprocal federal actions, such as tax incentives or regulatory relief.

EPA officials estimated that the first 50 firms to join Climate Leaders account for at least 8 percent of U.S. greenhouse emissions. DOE estimated that Climate VISION participants account for at least 40 percent of U.S. greenhouse gas emissions. EPA and DOE are working through an interagency process to quantify the emissions reductions attributable to their programs; the process is expected to be completed in 2006. However, determining the reductions attributable to each program will be challenging because of the overlap between these programs and other voluntary programs, as well as other factors.

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Abbreviations

DOE	Department of Energy
EIA	Energy Information Administration
EPA	Environmental Protection Agency
GHG	Greenhouse gas
HFCs	Hydrofluorocarbons
IMP	Inventory Management Plan
MMTCE	Million metric tons of carbon equivalent
PFCs	Perfluorocarbons
SF ₆	Sulfur hexafluoride
USDA	U.S. Department of Agriculture

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United States Government Accountability Office
Washington, D.C. 20548

April 25, 2006

The Honorable John McCain
The Honorable John Kerry
United States Senate

For over a century, scientists have known that concentrations of carbon dioxide and other greenhouse gases can alter the atmosphere in ways that affect the earth's climate. Humans continue to release large quantities of carbon dioxide and other greenhouse gases into the atmosphere through, among other things, the combustion of fossil fuels, industrial and agriculture processes, landfills, and some land use changes. 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 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 with trade groups 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.

This report examines the progress EPA and DOE have made in implementing their respective programs. Specifically, for each program, this report discusses (1) the key steps that the agencies expect participants to complete (such as preparing a plan for measuring emissions and reporting data), the progress participants have made in completing these steps, the agencies' efforts to track participants' progress, and the agencies' strategies for dealing with participants not progressing as expected; (2) the types of emissions or emissions intensity reduction goals being established by participants in this program; and (3) the agencies' estimates of the programs' current coverage (that is, the share of U.S. emissions that participants contribute to total U.S. emissions) and impact (in terms of emissions reduced). In addition, as you requested, a list of other federal voluntary climate change programs is presented in appendix I.

In conducting our work, we reviewed and analyzed EPA and DOE documents on the Climate Leaders and Climate VISION programs, as well as other voluntary climate programs and met with these agencies' officials. 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. Similarly, we refer to all Climate VISION participants as trade groups, even though one participant, the Tennessee Valley Authority, is a utility. For the sake of consistency, we describe both Climate Leaders and Climate VISION participants' emissions or emissions intensity targets as goals, even though DOE describes Climate VISION participants' targets as commitments. Most of the information in the report, except where otherwise noted, reflects the status of the two programs as of November 2005. As of March 2006, an additional 10 firms had joined Climate Leaders. To assess the reliability of the 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 this report. We conducted our work between June 2004 and March 2006 in accordance with generally accepted government auditing standards, including an assessment of data reliability. Additional details on our scope and methodology are presented in appendix II.

Results in Brief

EPA and DOE each 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, has 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 program participation, but are 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 have 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 later 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, they said that DOE would remove groups from the program if they did not seem to be taking sufficient action. However, DOE has not yet established specific deadlines for reporting emissions. Because DOE does not have a system for tracking how long participants take to complete key program steps—and neither agency has established written policies for taking action against entities not progressing as expected—it will be difficult for the agencies to ensure that all participants are meeting expectations, and hence that the programs are contributing to meeting the President's emissions intensity reduction goal.

The specific types of emissions reduction goals being established by Climate Leaders firms and Climate VISION groups varied. Of the 38 firms participating in Climate Leaders that had established emissions reduction goals as of November 2005, 19 committed to reduce their total greenhouse gas emissions, 18 committed to reduce their emissions intensity (emissions per unit of output), and 1 firm 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. In contrast to EPA's program, 14 of the 15 trade groups participating in 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 set goals to improve their emissions intensity, 2 groups established a goal of reducing emissions of specific greenhouse gases, 2 groups set goals to improve energy efficiency, and 1 group 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 without reciprocal federal actions, such as tax incentives or regulatory relief.

EPA and DOE both estimated the share of total U.S. greenhouse gas emissions attributable to participants in their respective programs and are 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. This is a conservative estimate, according to EPA, because it was based solely on emissions from the program's first 50 participants. DOE estimated that Climate VISION participants account for over 40 percent of U.S. greenhouse gas emissions and noted that this estimate is conservative. Both agencies are participating in an interagency process to estimate the effect of their programs on reducing emissions, which is 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 participate in one or more other EPA programs, and 3 of the 14 Climate VISION participants with quantitative goals also participate 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 produce emissions reductions, making it difficult to distinguish reductions attributable to participation in the program versus other causes.

To ensure that the Congress and the public have information with which to evaluate the effectiveness of these voluntary programs and to increase the opportunities for these programs to contribute to the President's emissions intensity reduction goal, we are recommending that DOE develop a system for tracking participants' progress in completing key steps associated with the program. Also, we are recommending 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. We provided EPA and DOE with a draft of this report for their review and comment. EPA did not comment on our recommendation to the agency. DOE stated that the report provided a useful overview of the Climate VISION program. It agreed with our recommendation on a tracking system and said it will consider our recommendation regarding a written policy. EPA's and DOE's written comments are included in appendixes IV and V, respectively.

Background

Carbon dioxide is by far the most prevalent greenhouse gas emitted in the United States, as shown in table 1. The other principal greenhouse gases, in order of percentage of emissions in 2003, are methane, nitrous oxide, and three types of synthetic gases—hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF₆).

Table 1: Shares, Sources, and Global Warming Potentials of U.S. Greenhouse Gas Emissions, 2003

Greenhouse gas	Major sources	Percentage of 2003 emissions	Global warming potential ^a
Carbon dioxide	Fossil fuel combustion, nonenergy use of fuels, iron and steel production	85	1
Methane	Landfills, natural gas and petroleum systems, agriculture, coal mining	8	21
Nitrous oxide	Agricultural soil management, transportation, manure management	6	310
Synthetic gases	Substitution of ozone-depleting substances, electric power transmission and distribution, aluminum production	2	140 to 23,900

Source: EPA.

Note: Components do not sum to 100 percent due to independent rounding.

^aSince greenhouse gases differ in their potential to contribute to global warming, each is assigned a unique weight, called a global warming potential, which is based on its heat-absorbing ability relative to carbon dioxide over a fixed time period. This provides a way to convert emissions of various greenhouse gases into a common measure, such as carbon equivalent. Thus, each molecule of methane, for example, has 21 times as much effect on warming as a molecule of carbon dioxide.

In response to the May 1992 United Nations Framework Convention on Climate Change, the United States developed the Climate Change Action Plan aimed at reducing domestic greenhouse gas emissions. As a part of this plan, programs were developed during the 1990s to provide information and tools to encourage participants to voluntarily undertake changes to reduce their emissions of carbon dioxide, methane, and other greenhouse gases. The intent of programs such as Energy STAR is to help organizations improve energy efficiency, thereby helping to reduce emissions. Other programs, such as the Coalbed Methane Outreach Program, encourage emissions reductions in other greenhouse gases, such as methane.

The amount of energy used to generate each dollar of national output has declined over time. The ratio of energy used to economic output is called energy intensity. According to the Energy Information Administration (EIA), the independent statistical and analytical agency within DOE, energy intensity declined between 1990 and 2003, at an average rate of 1.8 percent

per year.¹ The rate of decline was the result of, among other things, energy efficiency improvements in industrial and transportation equipment and in commercial and residential lighting, heating, and refrigeration technologies.² In early 2006, EIA projected that energy intensity will decline at an average annual rate of 1.8 percent between 2005 and 2025.³

The U.S. economy has also become more efficient in terms of emissions intensity. (According to EIA, energy and emissions intensity are closely related because energy-related carbon dioxide emissions make up more than 80 percent of total U.S. greenhouse gas emissions.)⁴ U.S. emissions intensity declined between 1990 and 2003 at a rate of 1.9 percent a year. The reasons for the decline include general improvements in energy efficiency and a long-term shift toward a service economy. Other reasons include greater use of nuclear power, development of renewable resources, substitution of less emissions-intensive natural gas for coal and oil, and the use of transportation fuels with biogenic components, such as ethanol. EIA projected in early 2006 that between 2005 and 2025, emissions intensity will decline at a rate of 1.7 percent per year (see fig. 1).⁵

¹EIA, *Annual Energy Outlook 2005*, DOE/EIA-0383(2005) (Washington, D.C.: February 2005).

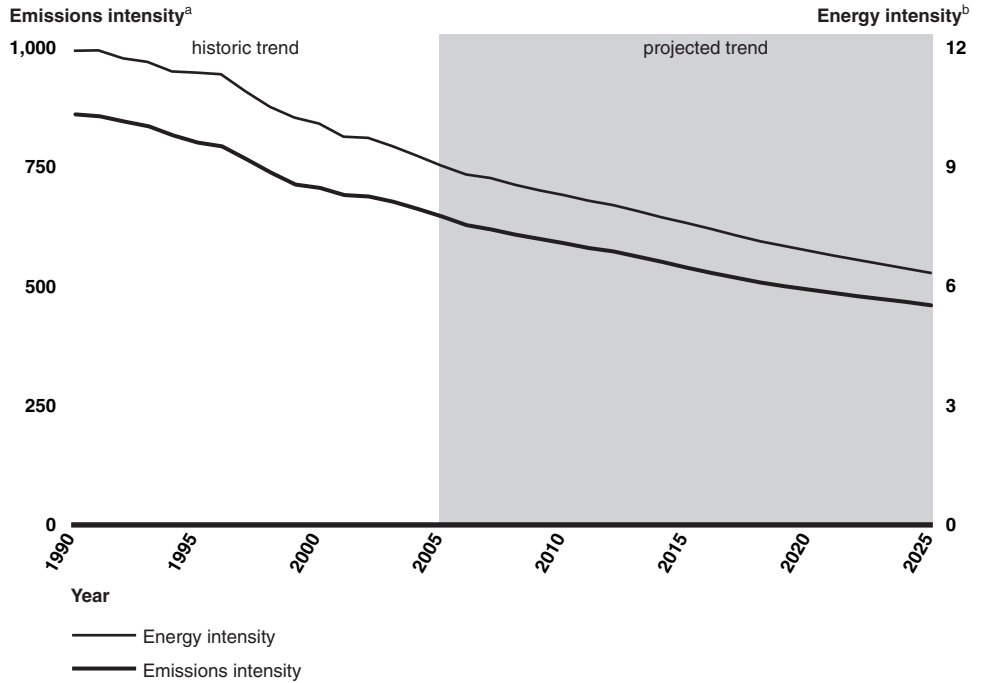
²EIA, *Emissions of Greenhouse Gases in the United States 2003*, DOE/EIA-0573(2003) (Washington, D.C.: December 2004).

³EIA, *Annual Energy Outlook 2006*, DOE/EIA 0383(2006) (Washington, D.C.: February 2006).

⁴EIA, *Emissions of Greenhouse Gases in the United States 2003*, DOE/EIA-0573(2003) (Washington, D.C.: December 2004).

⁵EIA, *Annual Energy Outlook 2006*, DOE/EIA 0383(2006) (Washington, D.C.: February 2006).

Figure 1: U.S. Energy and Emissions Intensity Trends, 1990-2025



Source: EIA.

Note: These data are used for background purposes only to demonstrate trends in U.S. energy and emissions intensity. We did not assess the reliability of the data.

^aEmissions intensity is defined as metric tons of carbon dioxide equivalent per million constant (2000) dollars of gross domestic product.

^bEnergy intensity is defined as thousand British thermal units (Btu) per constant (2000) dollars of gross domestic product.

The goal of the President’s 2002 initiative was to reduce the emissions intensity of the U.S. economy by 18 percent between 2002 and 2012, a reduction 4 percentage points greater than would be expected absent any new policy. In particular, according to EIA projections cited by the administration, without the initiative, emissions would increase from 1,917 million metric tons of carbon equivalent (MMTCE)⁶ in 2002 to 2,279 MMTCE in 2012. Under the initiative, emissions will increase to 2,173

⁶Carbon equivalent is a metric measure commonly used to compare the emissions of different greenhouse gases based on their different specific contributions to warming the atmosphere.

MMTCE in 2012, which is 106 MMTCE less than otherwise expected.⁷ In 2002, EIA projected that U.S. emissions intensity would decline (improve) by 14 percent between 2002 and 2012 without any new policy. In 2006, EIA updated its estimate, projecting a decline in emissions intensity of 17 percent between 2002 and 2012. According to EIA, further reductions in emissions intensity are projected to result from, among other things, increasing energy prices that will tend to reduce energy consumption growth below prior estimates. Nevertheless, according to this estimate, total greenhouse gas emissions will continue to rise. Specifically, EIA projected in 2006 that total emissions would increase by 14.2 percent between 2002 and 2012.⁸

The President's 2002 initiative comprised about 30 elements. In addition to challenging businesses and industry to voluntarily reduce emissions, it included tax incentives for renewable energy and conservation, transportation programs, and other efforts. Climate Leaders and Climate VISION are two of the federal government's newest voluntary climate programs. According to a DOE official, they are the only federal programs that ask potential members for an emissions or emissions intensity reduction goal in order to participate. According to EPA, for firms that are already participating in other EPA voluntary programs, Climate Leaders can serve as a coordinating umbrella to comprehensively manage their voluntary climate change activities.

⁷See GAO's October 2003 testimony, *Climate Change: Preliminary Observations on the Administration's February 2002 Climate Initiative*, [GAO-04-131T](#) (Washington, D.C.: Oct. 1, 2003).

⁸EIA, *Annual Energy Outlook 2006*, DOE/EIA 0383(2006) (Washington, D.C.: February 2006).

Some Climate Leaders and Climate VISION Participants Have Not Completed Program Steps as Soon as Expected, and Both Agencies Lack a Written Policy for Dealing with Such Participants

According to EPA officials, all program participants agree to complete four program steps, and EPA guidelines suggest that these steps generally be completed within about 1 year, although the goal negotiation process can take as long as 2 years. The first step is to prepare a greenhouse gas emissions inventory; the second step is to prepare an inventory management plan (IMP); the third step is to enter into negotiations with EPA regarding a goal; and the fourth step is to report annually. (However, EPA does not insist that firms perform all four steps in that order). Overall, we found that some firms were taking longer to complete these steps and that EPA has no written policy for dealing with such firms. According to DOE officials, all program participants agree to complete two program steps: the first within about 1 year of joining the program, and the second after they have finished training their members in the use of reporting protocols, most in 2006. Overall, we found that some groups had not completed the first step within the specified time frame. EPA has started to develop a system for tracking participants' progress; DOE does not yet have such a system. Neither agency has written criteria detailing expected time frames for meeting expectations or the consequences of not meeting expectations.

EPA Expects Firms to Complete Certain Program Steps, but Not All Have Done So

First, firms complete their base-year inventories, which EPA encourages and expects them to do, on average, within 1 year of joining the program. The base-year inventory contains the data that will be used to measure firms' progress toward their goals. As of November 2005, 61 of the 74 firms had submitted base-year inventory data to EPA. After the inventory has been submitted, the participant works with EPA to refine its inventory. Eleven of the 61 inventories had been finalized and approved by EPA. The other 50 were still in development or review. An EPA official noted that some firms did not submit inventories earlier because EPA's reporting guidelines were not completed until April 2004. In addition, these officials told us that it often takes firms more than a year to prepare their base-year inventory because firms start at different levels of sophistication with respect to developing an inventory. Some firms start with no knowledge of how to develop an inventory and no infrastructure in place for doing so. Furthermore, some corporate inventories may take longer due to their complexity, including complicated corporate structures, a wide variety of emissions sources, and the lack of available emissions data. Corporate reorganizations and staff turnover also contribute to delays. An EPA official told us that the average amount of time it takes firms to complete their base-year inventory once they join the program has been 2 years, but

the average amount of time firms have taken since EPA completed its reporting guidelines is 1 year.

Firms have two options for having their inventories reviewed. They can either submit their data to EPA for review, or they can choose third-party verification, in which an outside organization, such as an environmental engineering firm with greenhouse gas verification experience, reviews their data.

After they have submitted base-year inventory data to EPA, firms work with EPA to refine the inventory, usually resulting in some revisions. In reporting data, firms are to follow guidance developed by EPA that is based on a standardized reporting protocol established by the World Resources Institute and the World Business Council for Sustainable Development.⁹ The protocol consists of corporate emissions accounting standards developed by representatives from industry, government, and nongovernmental organizations.

Second, EPA officials told us that EPA expects all firms to prepare an IMP, which is the firm's plan for collecting data, preparing the inventory, and managing inventory quality. EPA officials informed us that, as of November 2005, 60 of the 74 firms had submitted draft IMPs. Firms that choose to have EPA review their emissions inventories must also submit their IMP to EPA, while firms that choose to undergo third-party verification must submit a letter from the third party stating that all the specified components of the IMP checklist are in place and that at least one site visit was conducted. The IMP checklist consists of 30 components in seven major categories, including, among other things, boundary conditions (i.e., which parts of the facility will be covered under the program), emissions quantification methods, and data management processes. Nineteen of the 30 IMP components are to be in place within 1 year of joining the program and must be in place for base-year reporting to be finalized. Fifty-four of the 60 firms completing IMPs submitted their IMPs to EPA for review, while the other 6 chose to have their inventories and IMPs reviewed by third parties. According to EPA officials, the remaining 14 firms had not submitted a draft IMP or informed EPA of their intention to choose

⁹The World Resources Institute is a nonprofit environmental research and policy organization that, among other things, works to reverse global warming. The World Business Council for Sustainable Development is a coalition of 175 international companies that provides business leadership on sustainable development issues.

third-party verification, although eight of these firms joined the program within the past year and so, according to EPA officials, would not be expected to have completed these steps. EPA officials told us that these remaining firms are still working on the necessary documentation.

EPA conducts at least one site visit per firm to review facility-level implementation of the IMP to determine whether there are ways to improve the plan's accuracy, among other things. The site to be visited is mutually agreed upon; EPA aims to review the company facility with the highest overall risk to the accuracy of reported emissions. (Such a site should be a large emitter, have many of the largest emission types, and represent the firm's most common business activity, among other criteria.) As of November 2005, EPA had conducted 25 site visits (about one-third of all firms), with 10 more visits scheduled before the end of 2005.

The base-year inventory is not considered final until EPA has reviewed both it and the IMP and conducted a site visit. An EPA official told us that initial inventories generally contain about 95 percent of each member's total emissions, so only minor and incremental revisions are needed at the on-site review stage.

EPA provides up to 80 hours of technical assistance to help each firm complete its base-year inventory and develop and document its IMP. Technical assistance can include implementing greenhouse gas accounting methods as well as measuring, tracking, and reporting emissions. After the firm's base-year inventory is complete, EPA experts continue to offer up to 10 hours annually of technical assistance during subsequent years.

Since Climate Leaders provides technical assistance to each firm as it develops and documents its inventory and IMP, an EPA official stated that most major issues that might arise in inventory design and development are addressed informally at the technical assistance stage. However, according to EPA, some issues are identified during the site visits. In general, the site visits have identified only a few areas where EPA asked for revisions. These usually involved missing small sources of on-site emissions (such as those from propane for forklifts or on-site diesel purchases for a yard truck). EPA officials told us that most of the items they identified during the site visits were minor calculation errors or ways to improve the firm's data quality assurance and quality control processes. They said that the majority of these areas are corrected on location during the site visit, and any others are verified by the submission of an updated IMP and greenhouse gas reporting form that describe respectively, the changes to

the inventory process and the greenhouse gas emissions that were made in response to the findings.

As noted earlier, firms choosing third-party verification instead of EPA review are to submit an independent verifier's report stating that at least one site visit was conducted and that all the necessary components of the IMP checklist were successfully implemented. As of November 2005, six firms had chosen to have their data verified by a third party, and all of these firms had undergone their third-party verification. Three firms had submitted inventory data and initial auditor reports to EPA. EPA is awaiting letters from the other three firms indicating that all of the components of the IMP checklist are in place and that any corrective actions identified in the verification process have been addressed.

Third, EPA officials told us that the agency expects firms to enter into negotiations with EPA to set their reduction goals once their base-year inventory is finalized, generally within about 1 year after joining the program, and to complete negotiations within 1 year after that. However, we found that some firms have taken longer to do so. Thirty-eight of the 74 participating firms had set goals as of November 2005.¹⁰ Of the 36 firms without goals, 20 were working with EPA to develop goals. Seven of these 20 firms were still working on their base-year inventories, and 9 had joined the program within the past year and hence would not be expected to have set goals. The 36 firms without goals included 18 firms that joined the program in 2002 or 2003. Specifically, of the 35 firms that joined in 2002, the program's first year, 22 had set goals, 9 firms were in the process of negotiating their goals with EPA, and 4 more had not begun such negotiations. Of the 16 firms that joined in 2003, 11 had set goals, 3 were in negotiation with EPA regarding goals, and 2 had not yet begun such negotiations. According to EPA officials, the 6 firms had not begun negotiations because their base-year inventories were not finalized.

In describing why it may take a long time to set goals, EPA officials told us that many firms require considerable time to develop their inventories, which can be complex. Firms must also obtain internal approval of their emissions reduction goals from their senior management, and some firms lack enough resources to devote to inventory development to meet the time frame of EPA's reporting guidelines. Other reasons also exist. For example,

¹⁰EPA officials informed us that, as of March 20, 2006, 10 additional firms had joined the program, for a total of 84 firms, 46 of which had announced goals.

one firm disagreed with EPA regarding whether to report a certain type of emission in its inventory and needed to come to agreement with EPA on addressing those emissions. Another firm is involved in litigation that will likely affect its future emissions levels and does not want to set an emissions reduction goal until the case is resolved, while yet a third firm is facing regulation that could affect its ability to meet an aggressive reduction goal.

Finally, according to EPA's reporting guidelines, all firms agree to report to EPA annually on their emissions using EPA's Annual Greenhouse Gas Inventory Summary and Goal Tracking Form. This form describes the firm's emissions at a corporate level broken out by emissions type for both domestic and international sources and details progress toward the firm's emissions reduction goal. As of November 2005, 10 of the 11 firms with finalized inventories had submitted annual data through 2004 to EPA. An EPA official told us that the other firm was currently resolving some outstanding issues and would likely submit a report in early 2006.

Although all firms are expected to complete all four steps listed above, EPA officials told us that firms do not need to complete the steps in any particular order. For example, some firms may choose to finalize their base-year inventory before submitting annual reports with multiple years of data, while other firms may choose to submit annual data before the inventory is fully finalized.

EPA Is Developing a System to Track Participants' Progress, but It Lacks a Written Policy for Dealing with Firms That Do Not Complete Program Steps in a Timely Manner

EPA officials told us that they had started to develop a database to track firms' progress and are currently in the process of entering and validating the data. Although some firms are not completing the various program steps as quickly as EPA expected, the agency has not yet established a written policy for dealing with such firms. An EPA official noted that firms that voluntarily agree to participate in the program are aware of program expectations and are generally proactive in meeting them. EPA officials further stated that the agency has three options for dealing with firms that do not appear to be proceeding in a timely manner: (1) telephone calls from EPA or its contractor to reinvigorate the process, (2) a letter to firms urging them to act more expeditiously, or (3) removal from the program if the firm is not putting forth a good-faith effort to meet the program's expectations. However, EPA believes that it is better for the environment to work with firms that are making a good-faith effort to implement appropriate management systems than to remove them from the program. To date, EPA has not removed any firm from the program for lack of progress, although

one firm voluntarily left after realizing it did not have sufficient resources to continue participation. According to EPA officials, as of November 2005, two firms did not appear to be working toward completing their reporting duties in a timely manner, and EPA anticipated sending letters to those firms. EPA officials noted that, since Climate Leaders is a voluntary program, it is difficult for EPA to sanction firms that do not meet all of the program's expectations in a timely manner. These officials said that, although they do not currently have a written policy on how to deal with firms that are not progressing as expected, including specific standards for time frames and consequences, they expect to begin developing such a policy in the near future.

DOE Expects Trade Groups to Complete Two Steps, but Not All Have Done So

DOE has defined two program steps that it expects participating trade groups to complete: developing a work plan and reporting emissions data. According to agency officials, after establishing its goal to reduce emissions, each industry group is asked to develop a work plan following a standard template developed by DOE, generally within 1 year of joining the program. The template includes four items: (1) emissions measurement and reporting protocols; (2) plans to identify and implement near-term, cost-effective opportunities; (3) development of cross-sector projects for reducing greenhouse gas emissions intensity; and (4) plans to accelerate research and development and commercialization of advanced technology. However, DOE officials explained that specific elements of each industry group's work plans are different because each industry is different. The work plans are intended to help ensure that the trade groups' goals and activities are significant, clearly understood by the public, and aimed at producing results in a time frame specified by the group.

Preparing the work plan is a collaborative process between the trade groups and program officials. Each work plan is reviewed three times by (1) a representative of the federal agency having the lead for that industry (e.g., DOE for the American Chemistry Council, and DOE and the Department of Agriculture for the American Forest & Paper Association); (2) Climate VISION program staff; and (3) a DOE contractor to ensure that the plan provides a suite of activities that will enable the group to meet its reduction goal. DOE officials told us that all work plans completed to date were subjected to at least one round of revisions before being finalized and posted to the program's Web site.

According to DOE officials, as of November 2005, 11 of the 15 trade groups had completed their work plans. Of the four groups that had not completed

their work plans, two were new members, joining Climate VISION in 2005; the other two—the Association of American Railroads and the National Mining Association—were original members, joining in 2003. DOE officials said they were still working with the groups to finalize their work plans. They also noted that getting the trade groups to adhere to DOE's time lines can be challenging because the groups often have to clear all their activities through their individual member companies or through their boards of directors, which can be time consuming.

In addition to developing a work plan, trade groups are expected to report data on their greenhouse gas emissions. As of November 2005, 5 of the 15 groups had reported data: 2 groups reported data to DOE, and 3 groups that have been working with EPA as participants in EPA-sponsored programs reported to that agency. According to a DOE official, as the trade groups finish developing and training their members in the use of reporting protocols, they are expected to begin reporting on their emissions, most in 2006. DOE will then ask the groups to report annually. Program officials explained that, at least in one case, a group did not report earlier because, among other things, DOE was revising its interim final voluntary emissions reporting guidelines, which were released in late 2005.

DOE does not specify a particular format that trade groups should use in reporting emissions data, since all industries are different and the nature of the goals differ. However, the program encourages the groups to have their individual members report using EIA's Voluntary Reporting of Greenhouse Gases program¹¹ or another appropriate reporting system, such as EPA's. Trade groups have developed or are developing reporting protocols as part of their work plans.

DOE officials told us that once they receive data from the trade groups, they would arrange for a contractor to review these data and check them against EIA or EPA data for the reporting industry's sector for accuracy. The officials also told us they would post trade groups' emissions reports on DOE's Web site to provide transparency, thereby providing an incentive for groups to report accurate information. An industry may also choose on its own to hire an independent expert to review reports for accuracy. For example, the American Chemistry Council has required third-party certification of each of its member companies' environmental, health, and

¹¹Section 1605(b) of the Energy Policy Act of 1992 directed DOE to issue guidelines establishing a voluntary greenhouse gas reporting program.

safety and security management systems, including the program under which members measure and report greenhouse gas emissions.

DOE Plans to Track Participants' Progress in Completing Program Steps, but It Lacks a Written Policy For Dealing with Those That Do Not Progress as Expected

Program officials told us that they do not have a system for tracking participants' actions, including completing work plans, reporting, and the other steps identified in its work plan, but they said a contractor is working to establish a reporting system for 2006. The officials also said that DOE would remove trade groups from the program if they did not appear to be taking actions to complete program steps, but DOE has not yet established any deadline by which groups' emission reports must be submitted. However, the officials stated that they are currently working on setting such a deadline. The officials said that they do not believe it will be necessary to remove groups, since the groups are very enthusiastic about the program and understand the political stakes involved. Therefore, these officials expressed confidence that the groups will meet DOE's expectations to the best of their abilities.

Working with Federal Agencies, Most Participants in Both Programs Have Set Quantitative Emissions-Related Goals, Although Some Climate VISION Goals Were Qualified Based upon the Asserted Need for Reciprocal Federal Actions

EPA worked with firms to set emissions-related goals, and more than half of the firms participating in Climate Leaders have set goals for reducing their emissions or improving their emissions intensity. The firms' goals vary in terms of the metric used, their geographic scope, and the time period covered. DOE or another federal agency conducted discussions with the industry groups on establishing their goals, and all participating groups had established a goal before joining Climate VISION. The participants' goals varied in terms of the type of goal (emissions, emissions intensity, or energy efficiency) and the period covered by the goal (start and end dates.) Finally, many groups qualified their goals based upon their stated need for reciprocal federal actions, such as tax incentives or regulatory relief.

EPA Helps Firms Set Goals

EPA works with all firms to set goals and offers flexibility in goal-setting, since each firm has a unique set of emissions sources and reduction opportunities. First, as discussed earlier, EPA works with firms to develop inventories and IMPs to document their base-year emissions. Second, EPA creates an industry standard, or benchmark, against which to evaluate each firm's goal. EPA uses a suite of modeling tools and statistical tables to develop the benchmark for each industry sector. The firm's goal is evaluated against a projected emissions improvement rate for its sector; EPA expects every firm's goal to be markedly better than the projected benchmark for the firm's sector. EPA also checks each firm's reported emissions data over the goal period to ensure that the firms are not reducing emissions simply by shrinking their size or by outsourcing.

EPA encourages each firm to set a goal that is aggressive but that also considers company and sectoral variations. Nonetheless, each goal must be (1) entitywide (including at least all U.S. operations), (2) based on the most recent base year for which data are available, (3) achieved over 5 to 10 years, (4) expressed as an absolute emissions reduction or as a decrease in emissions intensity, and (5) aggressive compared with the projected greenhouse gas emissions performance for the firm's industry.

More Than Half of the Participants in Climate Leaders Have Set Goals, and These Goals Vary

As of November 2005, 38 of the program's 74 firms had set emissions or emissions intensity reductions goals. The remaining 36 firms were working with EPA to set goals. The firms' goals vary in terms of three characteristics: (1) the metric used (absolute emissions or emissions intensity), (2) the geographic scope of the goal (reductions at U.S. or worldwide facilities), and (3) the time frame in which the reductions will occur.

First, 19 firms pledged to reduce total emissions, while 18 pledged to reduce emissions intensity, and 1 pledged to reduce both total emissions and emissions intensity. Of the 19 companies with intensity goals, 15 measured emissions intensity in terms of their physical units of output (such as tons of cement or barrels of beer produced), while the other 4 firms measured emissions intensity in financial terms (such as dollar of revenue.) In addition, EPA expects that many firms that meet their intensity goals will also achieve absolute emissions reductions. In fact, EPA projected that four of the five firms that were expected to reach their goals in 2005 would also achieve absolute emissions reductions, even though only one of them has an absolute target. Second, 29 of the 38 companies

established goals relating to their U.S. or North American facilities only, while the other 9 established goals relating to their global facilities. Third, the time periods covered ranged from 5 to 10 years, and all goal periods began in 2000 or later because EPA asked firms to use the most recent data available when establishing the base year for their goal. EPA did this to prevent firms from counting reductions made prior to joining the program and to prevent them from selecting as their baseline a year in which their emissions were particularly high, hence making reductions appear steeper than they actually were, relative to average conditions.

Reflecting various combinations of the three characteristics, the firms' goals are expressed in different terms. For example, Cinergy Corporation pledged to reduce its total domestic greenhouse gas emissions by 5 percent from 2000 to 2010, while Miller Brewing Company pledged to reduce its domestic greenhouse gas emissions by 18 percent per barrel of production (a unit of production intensity goal) from 2001 to 2006, and Pfizer, Inc., pledged to reduce its worldwide emissions by 35 percent per dollar of revenue (a monetary intensity goal) from 2000 to 2007. Table 2 presents information on the 38 firms' goals.

Table 2: Climate Leaders' Goals as of November 2005

Company	Metric used and percent to be reduced			Geographic scope of goal		Time period covered
	Emissions	Emissions intensity	Metric for measuring emissions intensity	United States	Global	
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
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			x ^b		2000-05
Green Mountain Energy Company	Net 0 ^a			x		2005-09
Hasbro, Inc.	30			x		2000-07
Holcim (U.S.) Inc.		12	Ton of cement	x		2000-08
IBM Corporation ^c	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 Laboratory		10	Square foot	x		2000-05
Pfizer, Inc.		35	Dollar of revenue		x	2000-07

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Company	Metric used and percent to be reduced		Geographic scope of goal		Time period covered
	Emissions	Emissions intensity	Metric for measuring emissions intensity	United States	
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.

^aNet 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.

^bGeneral Motors pledged to reduce total greenhouse gas emissions from its North American facilities.

^cIBM 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.

DOE and Other Agencies Worked with Groups to Establish Goals Before Joining the Program, and Certain Groups' Goals Were Developed for Participation in Other Voluntary Programs

According to program officials, DOE or another federal agency, such as EPA or the U.S. Department of Agriculture (USDA), conducted discussions with the industry groups on establishing a goal upon entering the program. These officials stated that, since a key element of the program is allowing industry groups to take ownership of their goals, DOE and its partner agencies generally did not actively negotiate the goals' specific terms. DOE officials told us that the agency remained flexible on goal setting because some groups had initiated their own internal emissions reduction programs before joining the program or had an existing arrangement with another agency, such as EPA. In addition, DOE officials believe it is important for the groups to establish goals that meet their unique circumstances. The officials told us that they compared the trade groups' goals with projected emissions for their respective industries to gauge their robustness. DOE calculates expected conditions for many industrial sectors using EIA data, where they are available. (We did not independently review EIA's data or DOE's analysis of the data.) Further, DOE officials also told us that the trade groups have an interest in ensuring that their goals are credible.

According to a DOE official, participants need not establish a new goal as a condition of joining the program, and certain trade groups had already initiated internal emissions reduction programs before joining Climate VISION or had an existing arrangement with a voluntary program at another agency, such as EPA. For example, the nine firms in the aluminum industry established a goal of reducing perfluorocarbon emissions by 30 to 60 percent from a 1990 baseline as part of EPA's Voluntary Aluminum Industrial Partnership. In 2003, as part of Climate VISION, the Aluminum Association updated this goal. Similarly, the Semiconductor Industry Association's goal was established in 1999, also in conjunction with an EPA program. The International Magnesium Association likewise participates in an EPA program but did not establish a quantitative goal for reducing emissions until it joined Climate VISION in 2003.

Fourteen Climate VISION Participants Have Set Goals, and These Goals Vary

Fourteen groups established quantitative emissions-related goals. More specifically, nine pledged to take actions to improve their emissions intensity. For example, the American Forest & Paper Association stated that it expected to reduce emissions intensity by 12 percent between 2002 and 2012. Another two groups aimed to reduce emissions of specific greenhouse gases. For example, the Semiconductor Industry Association pledged to support efforts to reduce PFC emissions by 10 percent over 1995 levels by 2010. Two more groups established a goal for improving energy efficiency. For example, the American Iron and Steel Institute agreed to a 10 percent, sectorwide increase in energy efficiency by 2012, relative to 2002. Finally, one industry—the National Mining Association—established a goal of both reducing its overall emissions and improving its energy efficiency. The Business Roundtable did not set a quantified emissions reduction goal, owing to the diversity of its membership. Table 3 outlines the type and time frame of industry group goals.

Table 3: Climate VISION Trade Groups' Goals as of November 2005

Industry/ participant	Type of goal		Goal metric	Start and end dates
	Reduce emissions	Reduce emissions intensity		
Aluminum • Aluminum Association		53%	Combined direct carbon emissions intensity based on PFC reductions and reduced anode carbon consumption	1990-2010
Automobiles • Alliance of Automobile Manufacturers		10%	Carbon dioxide emissions per vehicle produced	2002-12
Cement • Portland Cement Association		10%	Carbon dioxide emissions per ton of cementitious product produced or sold	1990-2020
Chemicals • American Chemistry Council		18% ^a	Greenhouse gas emissions intensity ^b	1990-2012
Electric power • American Public Power Association • Edison Electric Institute • Electric Power Supply Association • Large Public Power Council • National Rural Electric Cooperative Association • Nuclear Energy Institute • Tennessee Valley Authority		The equivalent of 3 to 5%	Ratio of carbon equivalent emissions to generation in megawatt hours	2002-02 to 2010-12
Forest products • American Forest & Paper Association		12%	Greenhouse gas intensity	2000-12
Iron and steel • American Iron and Steel Institute			10% Millions of British thermal units per ton of steel produced	2002-12
Lime • National Lime Association		8%	Fuel used per ton of lime produced	2002-12
Magnesium • International Magnesium Association	100%		Sulfur hexafluoride emissions	by 2010 ^c
Minerals • Industrial Minerals Association North America		4.2%	Greenhouse gas emissions from fuel combustion	2002-12

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Industry/ participant	Type of goal			Goal metric	Start and end dates
	Reduce emissions	Reduce emissions intensity	Improve energy efficiency		
Mining • National Mining Association			10%	Energy efficiency	2002-12
	25 MMTCE			Methane emissions in million metric tons carbon dioxide equivalent per year	2002-12 ^d
	2 MMTCE			Million metric tons of carbon equivalent	2002-15 ^e
Oil and gas • American Petroleum Institute			10%	Energy efficiency	2002-12
Railroads • American Association of Railroads		18%		Transportation-related greenhouse gas emissions intensity adjusted for traffic levels in ton miles	2002-12
Semiconductors • Semiconductor Industry Association	10%			PFC emissions in million metric tons of carbon equivalent	1995-2010

Source: Climate VISION Web site.

^aAccording to the American Chemistry Council, the U.S. chemistry industry reduced its greenhouse gas intensity by 12 percent from 1990 to 2000, with projections to 2002.

^bThe American Chemistry Council 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.

^cThe 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.

^dThe National Mining Association committed to maintain annual reductions in methane emissions achieved since 1990.

^eThe 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.

As shown in table 3, the majority of the groups' goals were based on time frames that began shortly before the program's initiation in 2003. Specifically, nine groups used 2000 or 2002 as a base year. For example, the National Lime Association stated its intention to reduce emissions intensity by 8 percent between 2002 and 2012. However, four goals had a base year of 1995 or earlier. For example, the Portland Cement Association pledged to reduce its emissions intensity by 10 percent between 1990 and 2020. DOE officials told us that, even though some participants are using 1990 or another pre-2003 year as a base year, DOE will count only reductions

occurring between 2002 and 2012 as part of the program's contribution toward the President's 18 percent emissions intensity reduction goal.

In addition to setting emissions-related goals, some groups also set other kinds of goals. For example, the American Petroleum Institute committed to 100 percent member participation in EPA's voluntary Natural Gas STAR program (which helps U.S. natural gas companies adopt technologies and practices to reduce emissions of methane) and DOE's Combined Heat and Power Program (which works to eliminate barriers to the adoption of combined heat and power technology systems.) Similarly, the Business Roundtable established a goal of 100 percent member participation in voluntary actions to reduce, avoid, offset, and sequester greenhouse gas emissions.

Many Climate VISION Participants Said Goals May Be Difficult to Achieve without Reciprocal Federal Actions

Although all Climate VISION participants established goals, a majority of the groups qualified their participation by stating that their ability to meet their goals would depend on some reciprocal government action. This includes 9 of the 14 groups with a quantitative goal as well as 5 of the 7 electric power groups. For example, the American Chemistry Council stated that "it will be difficult, if not impossible, for the chemical industry to do its share to reach the President's goal of reducing emissions intensity" without an aggressive government role in removing barriers to progress and providing incentives, such as tax code incentives. Similarly, the American Petroleum Institute stated that "future progress will be particularly difficult because of the increased energy and capital requirements at refineries due to significant tightening of gasoline and diesel fuel specifications in the coming decade." The group said it would look to the administration "to aggressively work to eliminate any potential regulatory barriers to progress in these areas." Likewise, the Association of American Railroads stated that the industry's efforts will depend upon DOE's continued funding of a government/rail industry cooperative venture to improve railroad fuel efficiency. Appendix III lists the reciprocal federal actions outlined in participants' statements.

Both Agencies Have Estimated Their Programs' Coverage and Are Working to Estimate Their Impact, but It Will Be Difficult to Determine Specific Emissions Reductions from Each Program

EPA and DOE both estimated the share of U.S. greenhouse emissions attributable to their participants. Both agencies are also working to estimate the effect of their programs on reducing emissions, and they expect the estimates to be completed in 2006. Preparing such estimates will be challenging because there is considerable overlap between these two programs and other voluntary programs.

Both Agencies Estimated the Share of U.S. Emissions Generated by Current Program Participants

EPA estimated in 2005 that participating firms accounted for at least 8 percent of U.S. emissions on average for the years 2000 through 2003. EPA based this estimate on emissions data from the first 50 program participants and believes the estimate is conservative, in part, because (1) it does not reflect data from the other 24 participating firms and (2) it does not include all types of emissions from each firm. For example, the estimate does not include indirect emissions (such as emissions from the use of purchased electricity or steam) or what EPA refers to as "optional" emissions, such as employee commuting and employee business travel.

Because the electric utility sector accounts for about one-third of U.S. greenhouse emissions, we used an EPA database to determine the share of greenhouse gas emissions produced by Climate Leaders firms¹² in that sector. As shown in table 4, we found that participating firms accounted for nearly 18 percent of carbon dioxide emissions from U.S. electricity generation (i.e., power plants only) in 2000 (latest available data), or about 6 percent of total U.S. emissions.

¹²We used EPA's e-GRID database, which represents emissions from U.S. power plants greater than a megawatt in size. EPA estimates that the database captures 90 to 95 percent of U.S. carbon dioxide emissions from the generation of electric power in 2000.

Table 4: Climate Leaders' Carbon Dioxide Emissions from Electricity Generation (i.e., Power Plants Only), 2000^a

Climate Leaders firms	Carbon dioxide emissions (millions of tons)	Percent of U.S. carbon dioxide emissions
American Electric Power	225.9	8.5%
Calpine Corporation	4.2	0.2%
Cinergy Corporation	66.8	2.5%
Entergy Corporation	50.8	1.9%
Exelon Corporation	16.7	0.6%
FPL Group, Inc.	45.0	1.7%
Green Mountain Energy Company	0.07	^b
Nisource Inc.	20.0	0.8%
PSEG	18.2	0.7%
We Energies	26.0	1.0%
Total - Climate Leaders	473.7	17.9%
Total - U.S. electricity generation	2,652.9	100%^c

Source: GAO analysis of EPA data.

^aEmissions data are for the year 2000 but have been updated to reflect corporate structures as of December 2002.

^bLess than 0.05 percent.

^cThe "100 percent" refers only to those power plant emissions captured by the e-GRID database, about 90 to 95 percent of the U.S. total.

EPA program managers said they have set a participation goal of 200 firms by 2012, and EPA is almost on track to meet this goal. However, a program manager told us that EPA has not tried to estimate the share of U.S. emissions that the 200 firms might account for because it is difficult to predict with any accuracy the size and types of firms that may join the program in the future and the firms' emissions reduction goals.

Climate Leaders program staff, with assistance from contractors, recruit new participants through various means. For example, they attend industry sector meetings and corporate environmental meetings as well as meetings of participants in other EPA programs, such as Energy STAR. In addition, EPA publishes public service announcements in trade and industry journals.

According to DOE, the thousands of individual companies that are members of the participating trade groups (not including Business

Roundtable members) contribute over 40 percent of total U.S. greenhouse gas emissions. DOE officials told us they believe this estimate, based largely on EIA and EPA data, is conservative, because the utility sector alone accounts for one-third of U.S. greenhouse gas emissions. (We did not independently review EIA's or EPA's data or the estimate based on these data.)

DOE officials told us that they regularly seek to recruit new members and expect at least one more trade group to join the program, but they do not have a specific goal for the number of new participants expected to join. DOE also does not have a goal for the share of U.S. emissions contributed by future participants.

While Both Agencies Are Working to Estimate Program Impacts, It Will Be Challenging to Determine Specific Emissions Reductions Attributable to Each Program

EPA and DOE are working, as part of an interagency program, to estimate their programs' effect on reducing U.S. greenhouse gas emissions. Agency officials said that the estimates would be completed in 2006, in fulfillment of a U.S. commitment under the 1992 Framework Convention on Climate Change. (Under the Convention, the United States committed to report periodically on policies and measures undertaken to reduce greenhouse gas emissions.)

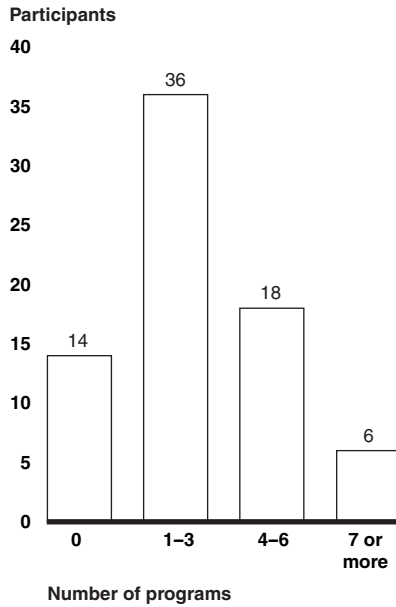
In 2005, EPA estimated that participating firms' actions were reducing U.S. emissions by 8 MMTCE a year. This amount is equivalent to the annual emissions of 5 million automobiles and represents less than one-half of 1 percent of U.S. emissions in 2003 (the latest year for which data are available.) EPA derived this estimate by adding up the average annual expected emissions reductions for the first 35 firms that had set goals. (Three other firms set goals later.) However, EPA officials cautioned that this figure does not represent an official estimate of emissions reductions attributable to the program because many Climate Leaders firms participate in other voluntary programs to which their emissions reductions may be credited.

A DOE official said that, to determine the emissions reductions attributable to the Climate VISION program, DOE will compare participating trade groups' reported emissions with comparable EIA projections for the time period. If the trade group comprises an entire industry, DOE will use the EIA projection for the entire industry; if the trade group comprises less than the entire industry, DOE will prorate the industry total based on the trade group's share of the industry.

Estimating the effect of the two programs, as opposed to other voluntary programs and other factors, will be challenging for two reasons. First, because the firms and trade groups participating in these two programs may also participate in other voluntary programs, it will be difficult to determine the two programs' effect on reducing emissions, as opposed to other programs' effects on reducing emissions. Unless EPA and DOE find an effective way to disaggregate the emissions reductions attributable to each program, there is the possibility that total emission reductions from voluntary federal programs will be overstated because the same emissions reductions reported by organizations participating in Climate Leaders, Climate VISION, and other programs will be counted by more than one program. EPA officials told us that they recognize the challenge of attributing the effects of the various voluntary programs and stated that they are trying to avoid double counting of the programs' results. Second, the reductions in a participants' emissions that are due to a program are the difference between its actual emissions generated during a period of time and the amount of emissions that it would have generated for that period if it were not participating in the program. Although a participant can estimate its future emissions based on its estimate of future conditions (e.g., energy prices and other factors), all of these conditions may change during the time period. Any such change would need to be assessed to determine how it might have affected the participant's emissions.

There are three types of overlap involving the firms and trade groups participating in Climate Leaders and Climate VISION. First, as of November 2005, most Climate Leaders firms also participate in other voluntary EPA programs. Specifically, 60 of the 74 firms took part in one or more other programs, while the other 14 firms did not take part in any other programs, as shown in figure 2. Of the 60 firms, 36 took part in one to three other voluntary climate programs. For example, Calpine participated in three programs, including the Combined Heat and Power Partnership, and Natural Gas STAR. Another 18 firms participate in four to six other programs. For example, Cinergy Corporation participated in EPA's Coalbed Methane Outreach Program, Combined Heat and Power Partnership, and Natural Gas STAR, among others. Additionally, six firms participate in seven or more programs. IBM, for example, participates in 11 other programs, including Energy STAR and the PFC Emissions Reduction Partnership for the Semiconductor Industry.

Figure 2: Climate Leaders Members' Participation in Other EPA-Sponsored Voluntary Programs, as of November 2005



Source: GAO analysis of EPA data.

Second, some firms participating in Climate Leaders are members of trade groups participating in Climate VISION. We identified such firms in the automobile manufacturing, cement, electric power, and paper industries. For example, General Motors, a Climate Leaders participant, is a member of the Alliance of Automobile Manufacturers, a Climate VISION participant.

Finally, three of the Climate VISION trade groups also participate in EPA voluntary programs. Specifically, the Aluminum, Magnesium, and Semiconductor Associations also participate in industry-focused EPA programs. Further, the Aluminum and Semiconductor Associations previously developed their goals in conjunction with other EPA voluntary programs.

The fact that there is overlap among the organizations participating in both Climate Leaders and Climate VISION, and among participants in these programs and other federal voluntary programs, creates the possibility that their emissions reductions will be counted more than once. For example, the emissions reductions claimed by firms participating in Climate Leaders who are also members of trade groups participating in Climate VISION may

be counted twice—the individual firm’s achievement may be credited under the Climate Leaders program, while the same achievement may be counted toward the trade group achieving its goal under Climate VISION. Further, for those trade groups that participate in Climate VISION and other EPA voluntary programs, it is possible that the same actions and the same emissions reductions will be counted by both programs. If participants’ emissions reductions are counted by multiple programs, it is possible that any attempt to estimate the overall impact of voluntary federal climate change programs on greenhouse gas emissions will be overstated.

In addition, it will be challenging to accurately estimate the programs’ effects because it is difficult to determine the level of emissions for a firm or trade group in the absence of these programs and other factors. For example, increases in energy prices can be expected to reduce energy consumption, which is significant because carbon dioxide emissions from energy use account for more than 80 percent of U.S. emissions. According to EIA’s 2002 estimate, which was reflected in the President’s February 2002 plan, U.S. emissions intensity was projected to improve 14 percent by 2012. However, according to EIA’s 2006 estimate, largely because of an increase in energy prices, emissions intensity is now projected to improve 17 percent over the same period. If participants had anticipated such an improvement, they might have projected lower emissions over time. This means that the difference between their reported emissions and their projected emissions would be smaller, which would decrease the emissions reductions attributable to participation in a voluntary program.

Conclusions

The administration has chosen to pursue voluntary rather than mandatory activities to reduce greenhouse gas emissions. Given the potential gravity of the climate change problem, programs such as Climate Leaders and Climate VISION will need to be especially robust and involve a substantial portion of the economy if they are going to achieve the desired results. To date, according to EPA and DOE estimates, these two voluntary programs involve companies and industries representing less than one-half of total U.S. emissions, which immediately limits their potential impact. This makes it all the more important that the voluntary programs maximize the extent to which their potential is achieved.

To this end, we found that opportunities remain to improve the management of both programs. First, while many participants appear to have made considerable progress in completing program steps in a timely

manner, some participants in both programs appear not to be progressing at the rate expected by the sponsoring agencies. For example, although EPA expects that firms will generally take about 2 years to establish their emissions reduction goals, of the 51 firms that joined in 2002 and 2003, the first 2 years of the program, 18 firms had not done so as of November 2005. Second, while 12 of these 18 firms are currently negotiating their goals with EPA, 6 others had not begun negotiations because their inventories had not been finalized. Similarly, although DOE expects that groups will generally complete their work plans within about a year of joining the program, of the 13 groups that joined during 2003, the program's first year, 2 had not completed their plans as of November 2005. EPA is developing a system for tracking firms' progress in completing key steps under Climate Leaders, but DOE does not have a system for tracking trade group's progress under Climate VISION. We believe that, without a system to track how long participants take to complete key program steps, DOE cannot ensure that the program's goals are being accomplished. Moreover, neither agency has a written policy on what action to take when a firm is not making sufficient progress in setting goals and completing other key program steps. We believe that, by establishing written policies regarding consequences for not completing these steps on schedule, the agencies could more easily ensure participants' active involvement in the programs, thereby increasing the opportunities for contributing to the President's emissions intensity reduction goal.

Both agencies are working this year to estimate the emissions reductions attributable to their programs. No matter how many firms and trade groups have joined the programs and how well they are meeting program expectations, to demonstrate the value of voluntary programs—as opposed to mandatory reductions—the agencies will need robust estimates of the programs' effect on reducing emissions. However, as we noted, making this estimate will be challenging for two reasons. First, the overlaps between organizations participating in these two programs and other voluntary programs make it difficult to attribute specific emissions reductions to one program. EPA and DOE will need to find a way to determine the emissions reductions attributable to each program so that the same emissions reductions reported by organizations participating in Climate Leaders, Climate VISION, and other voluntary programs are not counted by more than one program. Otherwise, estimates of total emission reductions from voluntary federal programs could be overstated. Second, it will be difficult to determine the emissions reductions stemming from participants' involvement in the program, as opposed to higher energy prices or other factors, because it is difficult to determine what participants' emissions

would be in the absence of these programs. It will therefore be difficult to evaluate the merits of these voluntary programs. Nevertheless, it will be important for the agencies to overcome these challenges in determining their programs' emission reduction contributions.

Recommendations

To ensure that the Congress and the public have information with which to evaluate the effectiveness of these voluntary programs and to increase the opportunities for contributing to the President's emissions intensity reduction goal, we are recommending that DOE develop a system for tracking participants' progress in completing key steps associated with the program. We are also recommending that both EPA and DOE develop written policies establishing the consequences for not completing program steps on schedule.

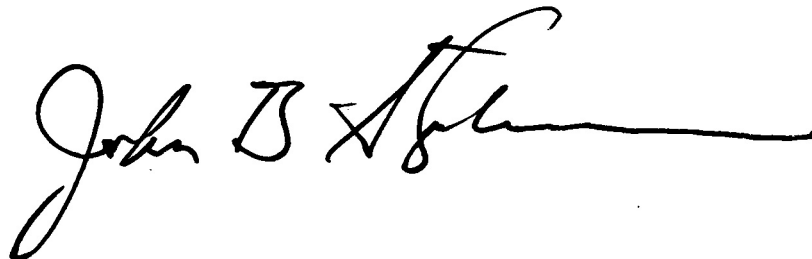
Agency Comments and Our Evaluation

We provided a draft of this report to EPA and DOE for their review and comment. EPA did not comment on our recommendation, but rather provided a summary of the program's accomplishments, noting that 85 firms now participate in Climate Leaders and that 5 firms had met their emissions reduction goals (see app. IV). DOE stated that, overall, the draft report provided a useful overview of the Climate VISION program and agreed with our recommendation regarding a tracking system and said it will consider our recommendation regarding establishing a written policy (see app. V). However, DOE stated that the Climate VISION Web page contains a wealth of information on the program, which may be sufficient to ensure the active involvement of participating groups. Because DOE's Web site does not contain information regarding the expected time frames for completing key program steps or the consequences for groups not meeting the agency's expectations, we continue to believe that DOE should establish a written policy regarding what actions it will take when a trade group is not making sufficient progress in completing key steps. Although DOE agreed with our statement that Climate VISION participants account for at least 40 percent of total U.S. greenhouse gas emissions, it noted that the program covers about four-fifths of total U.S. industrial- and power-related greenhouse gas emissions, which makes the potential impact of the program substantial. Also, although DOE agreed that higher energy prices may lead to lower emissions overall, it noted that, in the power sector, higher energy prices may lead to greater emissions. This can occur if electric power producers use less oil or natural gas (which produce fewer emissions per unit of electricity) and more coal (which produces more

emissions, relative to oil or natural gas). Both EPA and DOE provided technical comments, which we have incorporated in this report as appropriate.

As agreed with your offices, unless you publicly announce the contents of this report earlier, we plan no further distribution of this report until 30 days after the date of this letter. At that time, we will send copies to the Secretary of Energy; the Administrator, EPA; and other interested officials. The report will also be available on GAO's home page at <http://www.gao.gov>.

If you have questions concerning this report, please contact me at (202) 512-3841 or stephensonj@gao.gov. Contact points for our Offices of Congressional Relations and Public Affairs may be found on the last page of this report. GAO staff who made major contributions to this report are listed in appendix VI.

A handwritten signature in black ink, reading "John B. Stephenson". The signature is written in a cursive style with a long horizontal flourish at the end.

John B. Stephenson
Director, Natural Resources and
Environment

U.S. Government Voluntary Climate Change Programs

In addition to Climate Leaders and Climate VISION, the U.S. government supports numerous other voluntary programs that encourage participants to reduce their greenhouse gas emissions, as shown in the following table, arranged alphabetically by sector. For the purposes of this report, we define voluntary greenhouse programs as those programs that

- do not involve regulation, government-sponsored research and development, tax incentives, financial assistance, or government/industry cost-sharing components;
- were created for the specific purpose of reducing greenhouse gases or were created to reduce other pollutants but had the additional benefit of reducing greenhouse gases; and
- involve only dissemination of information to nonfederal parties.

Table 5: Other U.S. Voluntary Greenhouse Gas Emissions Reduction Programs

Sector/Program	Affected greenhouse gases	Implementing agencies	Purpose
Energy: commercial, and residential			
Emerging Technologies	Carbon dioxide	DOE	Increase demand for, and bring new, highly efficient technologies to market for buyers, while assisting manufacturers, energy service companies, and utilities. The focus is on highly energy-efficient products for commercial and residential building applications.
Energy STAR for the Commercial Market	Carbon dioxide	EPA	Promote strategies for strong energy management by engaging top company leadership, promoting standardized measurement tools to assess performance of buildings, and providing information on best practices in energy efficiency.
Energy STAR - Labeled Products	Carbon dioxide	EPA/DOE	Provide information to consumers and homeowners so that they can make sound investments when buying a new home or when undertaking a home improvement project.
Energy STAR for the Residential Market	Carbon dioxide	EPA	Provide guidance for homeowners on designing efficiency into kitchen, additions, and whole-home improvement projects and work with major retailers and other organizations to help educate the public.
Federal Energy Management Program (FEMP)	Carbon dioxide, methane, nitrous oxide	DOE	Promote energy efficiency and renewable energy use in federal buildings, facilities, and operations.
Voluntary Reporting of Greenhouse Gases Program ^a	All	DOE	Record the results of voluntary measures undertaken by companies and other organizations to reduce, avoid, or sequester greenhouse gas emissions.

Appendix I
U.S. Government Voluntary Climate Change
Programs

(Continued From Previous Page)

Sector/Program	Affected greenhouse gases	Implementing agencies	Purpose
Energy: Industrial			
Best Practices Program	Carbon dioxide, methane, nitrous oxide	DOE	Offer industry tools to improve plant energy efficiency, enhance environmental performance, and increase productivity.
Energy STAR for Industry (formerly Climate Wise)	Carbon dioxide	EPA	Enable industrial companies to evaluate and cost-effectively reduce their energy use through established energy performance benchmarks, strategies for improving energy performance, technical assistance, and recognition for accomplishing reductions in energy.
Industrial Assessment Centers	Carbon dioxide	DOE	Provide no-cost energy assessments to small- and medium-sized manufacturers to help identify opportunities to improve productivity, reduce waste, and save energy.
Transportation			
Best Workplaces for Commuters	Carbon dioxide, methane, nitrous oxide	EPA and Department of Transportation	Advocate employer-provided commuter benefits and highlight the efforts of employers to help get employees to work safely, on time, and free of commuter-related stress.
Clean Cities	Carbon dioxide, methane, nitrous oxide	DOE	Advance the Nation's economic, environmental, and energy security by supporting local decisions to adopt practices that contribute to the reduction of petroleum consumption.
SmartWay Transport Partnership	Carbon dioxide	EPA	Reduce emissions from the freight sector by creating partnerships in which partners commit to measure and improve the efficiency of their freight operations using EPA-developed tools, reducing unnecessary engine idling, and increasing the efficiency and use of rail and intermodal operations.
Industry/Agriculture			
AgSTAR	Methane	EPA and Department of Agriculture	Reduce emissions from livestock waste management operations by promoting the use of biogas recovery systems.
Coalbed Methane Outreach Program	Methane	EPA	Reduce emissions by promoting the profitable recovery and use of coal mine methane by coal mining and other types of companies.
High GWP Environmental Stewardship Initiative ^b	High GWP gases	EPA	Aim to limit emissions of HFCs, PFCs, and SF ₆ in several industrial applications: semiconductor production, refrigeration, electric power distribution, magnesium production, and mobile air conditioning.
Natural Gas STAR	Methane	EPA	Reduce emissions from U.S. natural gas systems through the widespread adoption of industry best management practices.

**Appendix I
U.S. Government Voluntary Climate Change
Programs**

(Continued From Previous Page)

Sector/Program	Affected greenhouse gases	Implementing agencies	Purpose
Waste Management			
Landfill Methane Outreach Program	Methane	EPA	Promote the use of landfill methane gas as a renewable, green energy source. The program's focus is on smaller landfills not regulated by EPA's New Source Performance Standards and Emissions Guidelines.
Climate Change and Waste Program	All	EPA	Encourage recycling and waste reduction for the purpose of reducing greenhouse gas emissions. Provide technical assistance for waste prevention, recycling, and buying recycled products.
Other			
Clean Energy-Environment State Partnership Program	Carbon dioxide, methane, nitrous oxide	EPA	Encourage states to develop and implement a comprehensive strategy for using new and existing energy policies and programs to promote energy efficiency, renewable energy, and other clean energy sources.
State and Local Climate Change Outreach Program	Carbon dioxide, methane nitrous oxide	EPA	Enable state and local decision makers to incorporate climate change planning into their priority planning to help them maintain and improve their economic and environment assets.

Sources: U.S. Department of State, *U.S. Climate Action Report 2002*; DOE Web site, EPA Web site. Selection of programs is based on a list of current U.S. climate policies and measures provided by EPA.

^aThis initiative cuts across all sectors and greenhouse gas emissions sources. However, for the sake of simplicity, we list it here under commercial and residential energy.

^bThis initiative consists of six separate programs: the Voluntary Aluminum Industrial Partnership, the HFC-23 Emission Reduction Program, the PFC/Climate Partnership in the Semiconductor Industry, the SF6 Emissions Reduction Partnership for Electric Power Systems, the SF6 Emission Reduction Partnership for the Magnesium Industry, and the Mobile Air Conditioning Climate Protection Partnership.

Scope and Methodology

To determine the steps participants are expected to complete under each program and the expected time frames for completion, we reviewed agency documents, where available, and interviewed agency officials within the Environmental Protection Agency's (EPA) Office of Air and Radiation and the Department of Energy's (DOE) Office of Policy and International Affairs. We also obtained energy and emissions intensity data from Energy Information Administration (EIA) staff. To ascertain the extent to which agency officials assist participants in setting emissions reduction goals and the types of goals established, we reviewed agency documents and interviewed agency officials. We also reviewed commitment letters sent to DOE by the various trade groups, since each group prepared individualized letters, but we did not review the paperwork submitted by Climate Leaders participants to EPA, since each firm signed a standardized membership agreement with EPA.

To determine the extent to which participants' reductions are reported in each program, we reviewed agency guidance on reporting and verification and interviewed agency officials. In addition, we reviewed the recommended reporting protocols for each program, including EPA's Design Principles, which is EPA's emissions reporting guidance, and DOE's Draft Technical Guidelines for Voluntary Reporting of Greenhouse Gases Program. We also reviewed EPA's annual greenhouse gas inventory summary and goal tracking form, the Inventory Management Plan (IMP) desktop review form, the on-site IMP review facility selection form, and the IMP on-site review form.

To determine how EPA quantified the share of U.S. greenhouse gas emissions covered by Climate Leaders and the total reductions expected from the program, we interviewed EPA staff. To assess the size of the electricity generating sector participating in Climate Leaders, we used EPA's e-GRID database, which contains information on the environmental characteristics of almost all electric power generated in the United States. To ascertain how DOE quantified its estimate of Climate VISION coverage, we reviewed DOE documents and interviewed DOE staff. To determine the agencies' plans for future coverage and impact, we reviewed performance plans and an annual report (for EPA) and interviewed agency officials for both agencies. To assess the reliability of the EPA, DOE, and other data, we talked with agency officials about data quality control procedures and reviewed relevant documentation. We determined the data were sufficiently reliable for the purposes of this report.

To ascertain how many firms participating in Climate Leaders also participate in other EPA voluntary climate programs, we cross-referenced a Climate Leaders roster against EPA lists of membership in other EPA voluntary programs. Similarly, we reviewed membership in DOE's Climate VISION program and cross-referenced selected individual trade group members with the list of Climate Leaders members.

Finally, to create a list of other government-sponsored, voluntary greenhouse gas emissions reduction programs, we requested information from EPA on all current U.S. policies and measures designed to reduce greenhouse gas emissions. We narrowed the list to those programs that were voluntary. We defined voluntary programs to include only those programs in which private sector parties agree, of their own free will, to reduce greenhouse gas emissions. Therefore, we excluded regulatory programs. We also excluded programs consisting primarily of research and development, tax incentive, or financial assistance, and government/industry cost share arrangements. However, we determined that voluntary programs can include programs in which the government provides information to private sector parties, individuals, or state and local governments. We also included programs that were created both for the specific purpose of reducing greenhouse gas emissions and that were created to reduce other pollutants but have as a side benefit the reduction of greenhouse gases. We included programs that are supported by the Departments of Agriculture, Energy, and Transportation, as well as EPA.

We conducted our review from June 2004 through March 2006 in accordance with generally accepted government auditing standards.

Climate VISION Participant Qualifying Statements

Industry group	Qualifying statement
Alliance of Automobile Manufacturers	“Clearly, achievement of this commitment and the national goal will depend on a number of external factors, including economic stability, coordinated regulatory policies that avoid mandates and other market barriers, weather variations which skew energy use, and support from the utilities’ energy mix, including emission factors reductions.”
Aluminum Association	No qualifying statement noted.
American Chemistry Council	“. . . government can help by removing barriers that impede efficiency upgrades and by providing incentives for companies to implement state-of-the-art technology. Without an aggressive government role in removing barriers to progress and providing incentives, it will be difficult, if not impossible, for the business of chemistry to do its share to reach the president’s goal of reducing national greenhouse gas intensity by 18 percent during the 2002-2012 timeframe.”
American Forest & Paper Association	“As an organization, we believe that our success will depend in part on the Administration’s efforts to rationalize and manage the activities of all government agencies, especially with respect to the promulgation of regulatory requirements that may result in increases in greenhouse gas emissions. Our commitment also will naturally depend on the parameters of any implementation guidelines that may be developed. Specifically, we strongly encourage the Administration to address regulatory requirements where the negative climate impacts outweigh any environmental benefits.”
American Iron and Steel Institute	“We propose to use the [2001 DOE Steel Industry] Roadmap goals as a basis for addressing the President’s Business Challenge. The Roadmap goals, however, are expressed in terms of technical feasibility and are qualified by the fact that the cost of acquiring and implementing any new technology must be economically justifiable for it to achieve widespread adoption in the industry.”
American Petroleum Institute	“Future progress will be particularly difficult because of the increased energy and capital requirements at refineries due to significant tightening of gasoline and diesel fuel specifications in the coming decade. As part of this program, API will look to the Administration to aggressively work to eliminate any potential regulatory barriers to progress in these areas.”
Association of American Railroads	“Most recently we have embarked on a cooperative venture with DOE’s Office of Energy Efficiency and Renewable Energy to explore methods of improving railroad fuel efficiency. . . The industry’s efforts, of course, will also depend upon DOE’s funding the above-described government/rail industry cooperative venture to improve railroad fuel efficiency as DOE had previously indicated it was prepared to do. . . We concur with DOE that industry expertise and in-kind contributions—coupled with federal government funding and the resources of DOE’s national laboratories—are necessary for an effective program to be planned and executed.”
Business Roundtable	No qualifying statement noted.
Industrial Minerals Association – North America	“We encourage the Administration to do all that it can to support the domestic soda ash, borates, and sodium silicates industries, not only because they contribute significantly to the U.S. economy, but also because they are more protective of the environment than their competitors outside the U.S. Shifts in production to the U.S. from offshore producers of soda ashes, borates, and sodium silicates would decrease the world’s production of greenhouse gases.”
Magnesium Industry	No qualifying statement noted.

**Appendix III
Climate VISION Participant Qualifying
Statements**

(Continued From Previous Page)

Industry group	Qualifying statement
National Lime Association	<p>“There is much that the government can do to address regulatory barriers that inhibit progress towards these goals, as well as to support voluntary efforts by the lime industry . . . In particular, we encourage the Administration to rationalize and manage the implementation of regulations that impede the permitting of projects to improve the efficiency and environmental performance of lime manufacturing operations.” (Attached is a list of specific activities that will enhance the ability of the Lime Association to meet its Climate VISION goals. These activities include regulatory streamlining, government assistance in obtaining permits to use alternative fuels; tax code improvements in two areas; funding assistance for small businesses; assistance in persuading some lime customers to accept changes in product characteristics resulting from GHG intensity reductions; and assurance that domestic companies do not lose market share to foreign industries).</p>
National Mining Association	No qualifying statement noted.
Portland Cement Association	No qualifying statement noted.
Power Partners (electric power sector)	<p>Some of the seven members of the Power Partners coalition included, in their individual commitment letters, expectations of the federal government. For example:</p> <ul style="list-style-type: none"> • The American Public Power Association and the Large Public Power Council joint letter states that, “Full realization [of hydropower potential] hinges on achieving targeted reforms to the current Federal Energy Regulatory Commission (FERC) regulatory process.” . . . and “ Although estimates vary, opportunities exist to improve the generation efficiency of existing coal-fired capacity by 4 to 8 percent. . . Our ability to implement such energy efficiency projects will hinge on removal of regulatory barriers to such projects under the Clean Air Act.” • The Edison Electric Institute (EEI) states that, “A combination of power sector and government efforts will be necessary, including . . . government laws, regulations, and policies favoring the full utilization or maintenance of nuclear and hydroelectric plant generating capacity; adequate supplies and delivery infrastructure for natural gas; economic incentives for renewables; and the full benefits of energy efficiency and DSM, as well as offset projects.” Attached to the letter is a list of specific government policies that would help EEI meet its goals. These policies include, among other things, hydroelectric licensing reform, nuclear power plant licensing extensions, reform of New Source Review regulations under the Clean Air Act, transmission siting authority for the federal government, and tax policies, such as accelerated depreciation and amortization of pollution control equipment and tax credits for renewable energy. • The Electric Power Supply Association states that, “EPSA member companies are committed to utilizing this generation capacity to the fullest extent possible and will work diligently to develop and maximize electricity production for clean energy sources to levels that are necessary to achieving the greenhouse gas intensity goals outlined above. The ability of our members to realize these industry goals is tied to the advancement of policies for promoting competitive markets for electricity. Specifically, it depends on actions and policies to expand wholesale electric competition and rationalize regulations, such as Federal Energy Regulatory Commission’s standard electric market design and Regional Transmission Organization initiatives; advance market-based multi-emissions legislation; streamline current regulatory programs, and seek better disclosure and market transparency.” • The Nuclear Energy Institute states that, “The nation’s ability to realize the promise of nuclear energy after 2012 will depend on actions and policies we undertake in the next one to two years, particularly new policy initiatives designed to stimulate investment in technologies that require large capital investments and long lead times.”
Semiconductor Industry Association	<p>As part of the SIA Memorandum of Understanding with EPA, EPA’s responsibilities include: (1) participating in and supporting conferences to share information on emission reduction technologies; (2) addressing regulatory barriers that may impede voluntary, worldwide emission reduction strategies; (3) recognizing SIA and the participating companies for their emission reduction commitment, technical leadership, and achievements over time.</p>

Source: Information from DOE’s Web site.

Comments from Environmental Protection Agency



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

APR 07 2006

OFFICE OF
AIR AND RADIATION

Mr. John B. Stephenson
Director, Natural Resources and Environment
U.S. Government Accountability Office
Washington, DC 20548

Dear Mr. Stephenson:

The U.S. Environmental Protection Agency (EPA) appreciates the opportunity to review and comment on the Government Accountability Office (GAO) report, "Climate Change: EPA and DOE Should Do More to Encourage Progress Under Two Voluntary Programs" (GAO-06-97, April 2006).

The Climate Leaders program was launched in February 2002 in order to encourage companies to develop long-term comprehensive climate change strategies. EPA partners with companies from a variety of economic sectors who have agreed to take significant voluntary steps to reduce their climate change footprint. Specifically, Partners have agreed to inventory their corporate-wide greenhouse gas (GHG) emissions, develop a high-quality GHG management system, set an aggressive GHG reduction goal, and report annually to EPA on their progress.

EPA has seen substantial progress by companies in the four years since Climate Leaders was launched. The program now numbers 85 companies, and continues to expand its reach into additional sectors. Companies report that joining the program and initiating a GHG management process has led them to identify additional opportunities for significant efficiency gains. In January of this year, EPA announced that five corporations had achieved their initial Climate Leaders GHG reduction goals. These are real reductions that are helping to improve our environment today. EPA looks forward to reaching this important milestone with the rest of our Partners.

Thank you again for the opportunity to respond.

Sincerely,

A handwritten signature in black ink, appearing to read "W. L. Wehrum".

William L. Wehrum
Acting Assistant Administrator

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Comments from the Department of Energy



Department of Energy
Washington, DC 20585

April 6, 2006

John B. Stephenson
Director
Natural Resources and Environment
Government Accountability Office
441 G St., NW
Washington, DC 20548

Dear Director Stephenson:

The Department of Energy (DOE) appreciates the opportunity to review and comment on the Government Accountability Office (GAO) draft report, *Climate Change: EPA and DOE Should Do More to Encourage Progress Under Two Voluntary Programs* (GAO-06-97, April 2006). Overall, we believe this report provides a useful overview of the Climate VISION program.

In February 2002, President Bush set a goal of reducing the greenhouse gas intensity of the U.S. economy by 18 percent between 2002 and 2012. Climate VISION (Voluntary Innovative Sector Initiatives: Opportunities Now) is one of many voluntary and incentive programs designed to help achieve the President's goal. In February 2003, the Departments of Energy, Transportation, and Agriculture, the Environmental Protection Agency (EPA), and 13 industry organizations representing thousands of companies from energy-intensive economic sectors joined to launch the program. Today, business associations and trade groups representing 14 industry sectors and the Business Roundtable are Climate VISION partners, and 14 of the 15 have issued a letter of intent to meet specific targets for improving the energy efficiency or greenhouse gas emissions intensity for its sector that will contribute to meeting the 18 percent intensity goal.¹ The responsibility for meeting these goals rests with the relevant trade groups; the participating federal agencies in this program have not undertaken any obligations with respect to these commitment letters.

The draft report states that taken together Climate VISION and Climate Leaders "... involve companies and industries representing less than one-half of total U.S. emissions, which places an immediate limit on their potential impact." As GAO notes, we estimate, based only on those emissions addressed by the partners' quantitative commitments, that the sectors in the Climate VISION program account for (conservatively) between 40 and 45 percent of total U.S. greenhouse

¹ Because of its diverse membership, which cuts across many different sectors, the Business Roundtable has committed to 100 percent participation by members in voluntary efforts to reduce, avoid, offset, or sequester greenhouse gas emissions.



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Appendix V
Comments from the Department of Energy

gas emissions.² However, of even greater significance is that the program also accounts for a large portion of industrial emissions, which is the program's primary focus. We estimate that the program covers about four fifths of total U.S. industrial- and power-related greenhouse gas emissions. When viewed in these terms, the potential impact of the program is substantial.

Voluntary programs by their very nature place a premium on flexibility. This is evident in the disparate commitments the Climate VISION sectors have made, not only in the parameters they selected (e.g., energy efficiency or greenhouse gas emissions intensity), but also in their starting and ending years (from 1990 to 2020). While GAO is correct that for the purposes of measuring the program's contribution to the President's goal we will consider only those emissions intensity reductions that occur from 2002 to 2012, we want to make clear that we value all the voluntary activities these trade groups undertook before 2002 or will undertake after 2012.

The draft report devotes considerable attention to the difficulty in quantifying emissions intensity reductions attributable to voluntary programs such as Climate VISION, citing overlaps with other voluntary programs and the inherent difficulty in determining what a sector's emissions would be absent the program. We recognize the challenges associated with this process.

The Energy Information Administration's (EIA) projections of emissions intensity improvement, for example, may vary considerably from year to year. GAO notes the significant difference between EIA's 2002 to 2012 business as usual baseline intensity projections for the United States from the EIA's *Annual Energy Outlook (AEO) 2002* and the most recent *AEO2006* (14% vs. 16.8%), a difference attributed primarily to expectations of greater conservation and efficiency prompted by high energy prices. From this, the draft report infers: "This means that the difference between their [the sectors'] reported emissions and their projected emissions would be smaller, which would decrease the emissions reductions attributable to the program." This assumes that EIA's higher emissions intensity baseline of 16.8 percent for the entire U.S. economy will be reflected to one degree or another across each Climate VISION industry sector. This is may be the case for some, but not necessarily for all, sectors. In particular, relatively high oil and natural gas prices may make coal more attractive for electricity generation and thus *increase* the power sector's potential contribution under the program.

These and other issues highlight the need for a standard baseline. DOE has plans to engage a contractor to help develop a baseline forecast, consistent with the original analysis used to set the 18 percent intensity reduction goal, for evaluating the progress of the industrial sector (including power generation) as a whole. As

² This estimate is based on EIA (*Emissions of Greenhouse Gases in the United States 2004* and *Annual Energy Outlook 2005*) and EPA (*Trajectory of U.S. Greenhouse Gas Emissions and Sinks 2005*) emissions data and information in the letters of intent submitted by the trade groups.

Appendix V
Comments from the Department of Energy

Climate VISION sectors account for roughly four fifths of total U.S. industrial emissions, these emissions can serve as a reasonably good proxy for measuring progress for Climate VISION and other programs focusing on the industrial sector. Using this type of baseline, we hope to track progress in a common metric, capture quantitative as well as qualitative commitments, create a baseline that is independent of future *AEO* projections that can change (sometimes appreciably) from year to year, and measure intensity as well as tonnage of emissions avoided.

One of the primary recommendations emerging from the GAO draft report concerns the issue of ensuring that sectors fulfill their commitments and meet key program steps. Overall, DOE is pleased with the progress Climate VISION trade groups have made in meeting their commitments. We would note that since GAO completed its interviews with DOE, the agency has received, and is currently reviewing, drafts of three of the outstanding four work plans. Nonetheless, we agree with GAO that a tracking system would prove useful in helping us gauge the progress being made by the partners. With the assistance of a contractor, DOE began work on such a system late last year, and in 2006 we intend to develop this system further.

GAO also recommends that DOE establish a written policy on what action the program will take when a trade group is not making sufficient progress in completing key program steps. We expect that our partners will continue to work diligently to meet their goals. These goals were established by the partners with a great deal of forethought and care and were approved by their membership. The role of the Climate VISION program is best described as one of coordinator and facilitator, ensuring transparency and verifiability, so that the actions of the partners may be clearly understood. The Climate VISION web page—which has a wealth of material on the program and the activities of participating trade groups—plays a significant role in this effort. While we believe the transparency afforded by the program's web page provides sufficient incentive to ensure the active involvement of the partners, we will consider establishing a written policy in consultation with our other agency partners.

Thank you again for giving DOE the opportunity to respond.

Sincerely,



KAREN HARBERT
Assistant Secretary
Office of Policy and International Affairs

GAO Contact and Staff Acknowledgments

GAO contact

John Stephenson (202) 512-3841 or stephensonj@gao.gov

Acknowledgments

In addition to the contact named above, David Marwick, Assistant Director; John Delicath; Anne K. Johnson; Chester Joy; Micah McMillan; and Joseph D. Thompson were the major contributors to this report. Kisha Clark, Heather Holsinger, Karen Keegan, Jean McSween, Bill Roach, and Amy Webbink also made important contributions.

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