



Resources, Community, and  
Economic Development Division

B-279345

March 24, 1998

The Honorable Henry Waxman  
Ranking Minority Member  
Committee on Government Reform and Oversight  
House of Representatives

Subject: Department of Energy: Voluntary Reporting Program for Greenhouse Gas Emissions Reductions

As requested, we are providing information on our review of selected aspects of the Voluntary Reporting Program for Greenhouse Gas Emissions Reductions, as established under section 1605(b) of the Energy Policy Act of 1992 (P.L. 102-486). Specifically, you wanted us to (1) determine the efforts taken to help ensure the accuracy of data collected by the Voluntary Reporting Program, (2) identify the incentives for accurate reporting, (3) determine the types of projects reported and their contributions to reducing greenhouse gas emissions, and (4) identify the reasons organizations participating in the Voluntary Reporting Program pursue activities to reduce greenhouse gas emissions. The enclosure to this letter was used to brief your staff, on March 18, 1998 (see enc. D).

In summary, several efforts have been taken to help ensure the accuracy and the quality of the data reported. These efforts include developing and implementing program guidelines and procedures to assemble and present emissions data in standardized reports, establishing a report review and assistance process to check the arithmetic accuracy of emissions data and the internal consistency of all data reported, requiring each reporter to provide certification of the accuracy of the data submitted to the program, and asking each reporter to provide a self-assessment of the accuracy of the data.

The Department of Energy (DOE) cites several incentives to promote accurate reporting. One is the potential benefits of public recognition and goodwill that can accrue to an entity from reporting emissions reductions. Another incentive to be accurate is the potential economic value of early actions to reduce emissions of greenhouse gases. For example, a future regulatory system may offer emissions reduction credits for such actions if properly documented.

Finally, there are criminal penalties for falsifying data on a federal form that the reporter has certified as accurate. Some environmental groups, however, believe that the economic value of future credits may be an incentive to overstate emissions reductions. To prevent this, they believe a more rigid review process may be needed.

For 1994 and 1995, the most recent years for which data are available, the two largest groups of projects reported for reducing emissions were electricity generation, transmission, and distribution activities, totaling 515 projects, and energy end-use activities, such as lighting and appliance efficiency improvements, totaling 484 projects. Altogether, there were 1,612 projects reported during those 2 years. Emissions reductions for all reported projects were estimated to be about 257 million metric tons of carbon dioxide equivalents of all greenhouse gases.<sup>1</sup> For 1995, the estimated U.S. emissions of greenhouse gases were 6,219 million metric tons of carbon dioxide equivalents.

For 1,335 of the 1,612 projects, organizations gave reasons for their activities when reporting to DOE. For 1,227 projects, the reasons cited for their activities were "voluntary," which DOE interprets to mean that the reporters were motivated by a variety of reasons, ranging from environmental stewardship to anticipating emissions reduction credits in the future. For 100 projects, the reason cited was state or federal regulatory requirements. For eight projects, the reason cited was a plant closing.

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To prepare the information in this report, we reviewed DOE's documentation on the Voluntary Reporting Program, including program guidelines, summary reports on program activities, and database information. We also interviewed DOE program managers and staff and several reporting entities—as well as representatives from EPA and public and industry interest groups, including the Natural Resources Defense Council, the World Resources Institute, and the Edison Electric Institute. We performed our review from September 1997 through March 1998 in accordance with generally accepted government auditing standards.

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<sup>1</sup>Calculations for carbon dioxide equivalents are used to provide for the relative comparison of the global warming potential of carbon dioxide and of the other greenhouse gases.

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We provided DOE with a draft of this report for review and comment. We met with the Director and staff of the International, Greenhouse Gases, and Macroeconomic Division, Office of Integrated Analysis and Forecasting, Energy Information Administration, to obtain DOE's comments. DOE agreed with the facts presented and said our report fairly characterized this program.

As agreed with your office, unless you publicly announce its contents earlier, we plan no further distribution of this report until 30 days from the date of this letter. At that time, we will make copies available upon request. If you have any questions or need any additional information, please contact me at (202) 512-3841. Major contributors to this report were Charles W. Bausell, Jr., and Richard E. Iager.

Sincerely yours,



Susan D. Kladiva  
Associate Director, Energy,  
Resources, and Science Issues

Enclosure

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GAO Resources, Community, and Economic  
Development Division

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**Review of DOE's Voluntary  
Reporting Program for  
Greenhouse Gas  
Emissions Reductions**

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## Objectives of the Review

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(1) What efforts were taken to ensure the data's accuracy?

(2) What incentives exist for accurate reporting?

(3) What types of projects were reported and what were their contributions to reducing greenhouse gas (GHG) emissions?

(4) What were the reasons organizations pursued activities to reduce GHG emissions?

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Scope and Methodology

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- Reviewed program guidance and documents.
  - Interviewed DOE program managers and staff, selected reporters and public interest groups, and EPA officials.
  - Examined Energy Information Administration's data on the number and types of projects reported for 1994 and 1995, the emission reductions reported by project type, and the reasons given by reporters for reducing emissions.
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**GAO Background: Section 1605(b), Public Law  
102-486 (Energy Policy Act of 1992)**

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- Law directed DOE to
    - issue guidelines for data collection, reporting, and accuracy after public comment;
    - develop and make available forms for reporting under these guidelines;
    - establish a database of information voluntarily reported; and
    - consult with EPA as appropriate.
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GAO Background: 1992 Energy Policy Act

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- Companies and others reporting reductions must also certify the accuracy of submitted information.
  - Information included in the database may be used by a reporter to demonstrate achieved reductions of greenhouse gases.
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GAO Background: Program Status

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- DOE collected data from 1994 and 1995 and placed it in the program's public database and is reviewing data from 1996.
  - 108 companies and others filed reports in 1994 and 142 in 1995; many of them were electric power utilities that also participated in DOE's Climate Challenge Program.
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**GAO****Background: Program Budget**

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**Budgeted Resources for 1605(b) Activities**

| <u>Fiscal year</u> | <u>Amount</u> |
|--------------------|---------------|
| 1994               | \$1,000,000   |
| 1995               | 1,400,000     |
| 1996               | 400,000       |
| 1997               | 580,000       |
| 1998               | 400,000       |

Note: These amounts do not include federal full-time equivalents (FTE), which average about two per year at \$80,000 per FTE and certain management overhead costs; amounts for 1994 and 1995 were higher because of program start-up costs.

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GAO Objective 1: Efforts to Help Ensure  
Data Accuracy

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- DOE developed program guidelines on reporting criteria, reporting formats, and suggested methodologies for developing emissions data.
  - DOE instituted a report review process and provides assistance to reporters; and
  - DOE requires certification and requests a reporter self-assessment of data accuracy.
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## Objective 1: Program Guidelines

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- DOE and EPA cosponsored workshops to develop program guidance and procedures for accurately reporting emissions and reductions.
  - Industry and public interest and environmental groups participated in these workshops.
  - DOE wanted to accommodate a variety of views and adopted guidelines that provided structure with flexibility for reporters to present their emissions data in a clear and understandable way.
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GAO Objective 1: Program Guidelines

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- Views of workshop participants varied on what, if any, steps should be taken to verify estimates. A rigid verification protocol was not made part of the program because of concerns that it might discourage voluntary reporting.
  - The program was primarily viewed by DOE senior management as an opportunity to permit any interested parties to have their claims of emission reductions recorded in a public database.
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## Objective 1: Program Guidelines

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- EPA helped to develop the guidelines and wanted more specific criteria for reporting. EPA wanted reporting to be entitywide rather than projectwide. EPA preferred using a historical emissions baseline from which to measure reductions rather than a baseline based on what the reporter claimed a facility would have emitted.
  - Believing that rigidity would discourage participation, DOE chose a more flexible reporting system.
  - Most of the reporters we contacted believe that the guidelines are adequate.
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## Objective 1: Report Review Process

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- DOE has a report review process to check clarity, arithmetic accuracy, and consistency of data reported. DOE wants the data reported to be clearly understandable.
  - DOE does not verify that reductions actually occur and does not prohibit double reporting of reductions by different entities. DOE believes most cases of double reporting are identified, but this may become an issue if there is a substantial increase in participation.
  - An example of double reporting would occur if an end user adopts more energy-efficient lighting and reports the reduction in emissions resulting from less energy used, and, at the same time, an electric utility reports the same reduction because of the need to generate less power.
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**GAO** Objective 1: Report Review Process

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- Questions raised in DOE's reviews are usually resolved before information enters the public database. On occasion, information is unavailable to address concerns.
  - Examples of questions raised during reviews dealt with baselines; incomplete, omitted, or contradictory information; and editorial suggestions to improve clarity of the reports.
  - A baseline question on emissions might concern the clarity of the baseline used to estimate the reduction of emissions. For example, DOE might seek to clarify whether a reporter used actual historical emissions as a baseline or used an estimate of emissions as a baseline.
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## Objective 1: Report Review Process

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- DOE believes it conducted an effective review of the 1994 and 1995 data submitted by reporters but acknowledges that the quality of the review could fall if workloads rose without additional resources.
  - Reporters we contacted said the issues raised during DOE's reviews improved the quality and clarity of their reports. They believe their data were accurate to the best of their ability.
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GAO Objective 1: Certification of the  
Accuracy of Data Reported

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- Reporters certify that they have taken appropriate steps to ensure the accuracy of the information submitted.
  - According to DOE, typically, an officer or senior staff of a reporting corporation signs the required certification statement.
  - Penalties exist for making materially false statements to federal agencies (18 U.S.C.1001).
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## GAO Objective 1: Reporter Self-Assessment of Accuracy

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- Reporters are asked to assess the relative accuracy of their GHG emissions by designating their data to have "high accuracy" or "moderate accuracy" or by designating "not determined."
- There were 633 designations for high accuracy, 1697 for moderate accuracy, and 209 for not determined.

Note: Because most reporters made designations for reductions of each GHG from their project(s), the number of accuracy designations exceeds the number of projects.

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## GAO Objective 1: Reporter Self-Assessment of Data Accuracy by Project Category

| Project category             | High accuracy | Moderate accuracy | Not determined |
|------------------------------|---------------|-------------------|----------------|
| Electricity                  | 221           | 414               | 39             |
| Cogeneration                 | 22            | 10                | 4              |
| End-Use Activity             | 193           | 298               | 57             |
| Transportation               | 19            | 78                | 11             |
| Waste Treat. & Disposal      | 32            | 38                | 3              |
| Agriculture                  | 0             | 2                 | 0              |
| Oil & Gas Sys. & Coal Mining | 15            | 14                | 4              |
| Sequestration                | 99            | 730               | 52             |
| Halogenated Substances       | 12            | 59                | 29             |
| Other                        | 20            | 54                | 10             |
| <b>Total</b>                 | <b>633</b>    | <b>1,697</b>      | <b>209</b>     |

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GAO Objective 2: DOE's and Reporters' Views  
on Incentives for Accurate Reporting

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- DOE and reporters we contacted believed adequate incentives exist for accurate reporting because companies may receive
  - public recognition and goodwill for their early efforts to reduce GHG emissions and valuable emissions reduction credits, or
  - public scrutiny and penalties for inaccurate reporting.
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**GAO Objective 2: Some Environmental Groups' Views on Incentives for Accurate Reporting**

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- Valuable reduction credits in a future regulatory scheme could lead to overstated reductions, and DOE's review may not be rigorous enough to identify overstatements.
  - Public disclosure of reporting abuses, spot checks of reporters' supporting documents, a verification process, and significant penalties would strengthen incentives.
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**GAO Objective 3: Projects Reported for  
1994 and 1995**

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- Reporters submitted data on 1,612 projects (645 in 1994 and 967 in 1995):
    - About 32 percent, or 516 projects, reported carbon dioxide reductions at electricity generation, transmission, and distribution facilities.
    - 30 percent, or 483 projects, reported reductions from energy end use activities.
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**GAO Objective 3: Number of Projects by Category and Percent for 1994 and 1995**

| Project category              | Number of projects | Percentage of projects reported |
|-------------------------------|--------------------|---------------------------------|
| Electricity                   | 515                | 32                              |
| End-Use Activity              | 484                | 30                              |
| CO <sub>2</sub> Sequestration | 277                | 17                              |
| Methane                       | 101                | 6                               |
| Other                         | 97                 | 6                               |
| Transportation                | 83                 | 5                               |
| Halogenated Substances        | 37                 | 2                               |
| Cogeneration                  | 18                 | 1                               |
| <b>Total</b>                  | <b>1,612</b>       | <b>100</b>                      |



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GAO Objective 3: Emissions Reductions by  
Type of Greenhouse Gas

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- Reported emissions reductions for all types of greenhouse gases increased substantially from 1994 to 1995 and are attributed to more companies reporting and more reporting by previous reporters.
  - Most of these reductions were for carbon dioxide--86 percent of the combined reported reductions for 1994 and 1995.
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**GAO Objective 3: 1994 and 1995 Reported Emissions  
Reductions by Project Category in Metric Tons of Carbon  
Dioxide Equivalents**

| Project category       | Carbon dioxide     | Methane           | Nitrous oxide    | Other GHGs       |
|------------------------|--------------------|-------------------|------------------|------------------|
| Electricity            | 145,230,640        | 300,081           | 319,731          | 0                |
| Cogeneration           | 1,704,040          | 1                 | 1,166,375        | 0                |
| End-Use Activity       | 27,264,934         | 30,234            | 124,289          | 0                |
| Transportation         | 108,490            | 98                | 1,227            | 0                |
| Methane                | 33,463,010         | 26,635,458        | 1,181            | 0                |
| Sequestration          | 7,810,255          | 0                 | 0                | 0                |
| Halogenated Substances | 0                  | 0                 | 0                | 6,658,459        |
| Other                  | 5,659,645          | 93,464            | 0                | 0                |
| <b>Total</b>           | <b>221,241,013</b> | <b>27,059,336</b> | <b>1,612,803</b> | <b>6,658,459</b> |

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**GAO** Objective 3: Emissions Reductions by GHG in  
Metric Tons of Carbon Dioxide Equivalents

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| <b>GHG</b>                | <b>1994</b>       | <b>1995</b>        |
|---------------------------|-------------------|--------------------|
| Carbon dioxide            | 65,896,349        | 155,344,664        |
| Methane                   | 3,197,145         | 23,862,191         |
| Nitrous oxide             | 358,050           | 1,254,753          |
| Halogenated<br>substances | <u>3,257,100</u>  | <u>3,401,359</u>   |
| <b>Total</b>              | <b>72,708,644</b> | <b>183,862,967</b> |

Note: Reductions are measured as metric tons of carbon dioxide equivalents, not the gas itself.

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GAO Objective 4: Reasons Why Projects  
Were Undertaken

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- 1,335 projects, or 83 percent, chose a reason from three response categories on DOE's reporting form:
  - 1,227 projects were marked "voluntary;"
  - 100 projects were marked "federal, state, or local requirements;" and
  - 8 projects were marked "plant closing."

Note: DOE has interpreted the voluntary category to capture a variety of reasons, such as economic decisions, goodwill benefits, environmental stewardship, and anticipated emission credits in the future.

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GAO Objective 4: Reasons Why Projects Were Undertaken

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- Reporters we contacted indicated various reasons for pursuing emissions reduction projects; among the major ones were to
  - obtain some goodwill and be seen as a good steward of the environment,
  - share information on their experiences, and
  - document their actions in anticipation of emissions reduction credits from a future GHG emissions regulatory system.
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