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Voluntary Reporting of Greenhouse Gases 1998

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This publication is on the WEB at:
www.eia.doe.gov/oiaf/1605/vrrpt/index.html.

For More Information

Individuals or members of organizations wishing to report reductions in emissions of greenhouse gases under the auspices of the Voluntary Reporting of Greenhouse Gases Program can contact the Energy Information Administration (EIA) at:

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The EIA has both a long form (EIA-1605) and a short form (EIA-1605EZ) available, as well as an electronic version of the form. They are available upon request or on EIA's web site at www.eia.doe.gov/oiaf/1605/ftphelp.html.

The reports submitted to EIA are compiled into a database that can be obtained on CD-ROM by contacting the Voluntary Reporting of Greenhouse Gases Program Communications Center at 1-800-803-5182 or can be downloaded from EIA's web site at www.eia.doe.gov/oiaf/1605/frntvrgg.html.

General or specific technical information concerning the contents of this report may also be obtained by contacting the Voluntary Reporting Program.

Preface

Title XVI, Section 1605(b) of the Energy Policy Act of 1992 (EPACT) directed the Energy Information Administration (EIA) to establish a mechanism for "the voluntary collection and reporting of information on . . . annual reductions of greenhouse gas emissions and carbon fixation achieved through any measures, including fuel switching, forest management practices, tree planting, use of renewable energy, manufacture or use of vehicles with reduced greenhouse gas emissions, appliance efficiency, methane recovery, cogeneration, chlorofluorocarbon capture and replacement, and power plant heat rate improvement . . . ."

The legislation further instructed EIA to create forms for the reporting of greenhouse gas emissions and reductions, and to establish a database of the information voluntarily reported under this subsection of EPACT. The reporting Forms EIA-1605 and EIA-1605EZ, "Voluntary Reporting of Greenhouse Gases," were first made available to the public in July 1995, providing a vehicle for voluntary reporting on activities that occurred before and during 1994. This publication summarizes data reported for 1998, the fifth year of data collection for the Voluntary Reporting of Greenhouse Gases Program.

The data reported to the program are available through several media. All nonconfidential reports received by the program are compiled into a public-access database, available either on CD-ROM or on a set of diskettes. The software is interactive and modular by design, allowing the user to select, view, or print the reports filed by the voluntary reporters, for each year of their participation. Structured queries allow the user to access and print a variety of summary reports. The user can also connect to and query the database with Microsoft Access 2.0 or other software that supports 16-bit open database connectivity (ODBC).

The Public Use Database and the current reporting software are also available at the program's FTP (File Transfer Protocol) site on the World Wide Web at *http://www.eia.doe.gov/oiaf/1605/ftphelp.html*. Interested parties are encouraged to visit the program's home page at *http://www.eia.doe.gov/oiaf/1605/frntvrgg.html* for more information and background on the program. Software, additional copies of this report, paper reporting forms, and technical support information can be downloaded from that web site or obtained from the Voluntary Reporting of Greenhouse Gases Communications Center by e-mail at *infoghg@eia.doe.gov*, toll-free at 1-800-803-5182, or locally at 202-586-0688.

This report was prepared under the guidance of Mary J. Hutzler, Director of EIA's Office of Integrated Analysis and Forecasting. Significant contributions to the program, the current software, and the preparation of this report have been made by Stephen Calopedis, Timothy Carlson, Jette Findsen, Laura Gehlin, William LaPerch, Perry Lindstrom, Molly Milgrom, Chris Minnucci, Michael Mondshine, Dick Richards, Arthur Rypinski (formerly with the EIA and now with the U.S. Department of Energy's Office of Policy), and Charles L. Smith.

EIA would like to express special thanks to the voluntary reporters, without whom this program would be impossible.

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Executive Summary

The Voluntary Reporting of Greenhouse Gases Program, required by Section 1605(b) of the Energy Policy Act of 1992, records the results of voluntary measures taken to reduce, avoid, or sequester greenhouse gas emissions. One hundred eighty-seven U.S. companies and other organizations reported to the Energy Information Administration that, during 1998, they had undertaken 1,507 projects that achieved greenhouse gas emission reductions and carbon sequestration equivalent to 212 million metric tons of carbon dioxide, or about 3.2 percent of total U.S. emissions for the year. The emission reductions reported for these projects usually were measured by comparing an estimate of actual emissions with an estimate of what emissions would have been had the project not been implemented.

Since 1994, the number of projects reported each year has increased by 134 percent, and the quantity of emission reductions reported each year has roughly tripled (Table ES1). Sixty-five of the organizations reporting for 1998 provided estimates of emissions and/or emission reductions for the entire organization. Sixty-seven reporters recorded commitments to take action to reduce emissions in future years, mostly by the year 2000.

Of the 65 organizations reporting at the entity level, 62 estimated their total 1998 emissions. Their combined total was 1.6 billion metric tons carbon dioxide equivalent, equal to about 23 percent of all U.S. emissions. Sixty-two entity-level reporters also estimated corporate-wide emission reductions in addition to (or instead of) the reductions reported for individual projects. The combined total reported reduction for these 62 companies was 178 million metric tons carbon dioxide equivalent.

The Voluntary Reporting of Greenhouse Gases Program is used as a registry by several U.S. Government-sponsored voluntary programs that limit greenhouse gas emissions—notably, the Climate Challenge program for electric utilities and the Climate Wise program for manufacturers. The majority (54 percent) of the reporters to the Voluntary Reporting Program were electric utilities, usually participants in the Climate Challenge program; however, electric utility dominance of the program has decreased steadily since the first reporting cycle, when 88 percent of reporters were electric utilities. Participants from outside the electric power sector for 1998 included manufacturers such as General Motors, IBM, Dow, Johnson & Johnson; facilities such as Alcan's Sebree aluminum plant, Motorola's Austin, Texas, integrated circuit fabrication plant and 3 California Portland Cement Company plants; a coal company (Peabody Holding Company, Inc.); 18 operators and developers of landfill methane recovery projects; a trade association (the Integrated Waste Services Association); and private voluntary organizations, such as American Forests and World Parks Endowment.

Electric power sector reporters (including independent power producers) accounted for 1,147 (76 percent) of the projects reported. Also reporting were industrial concerns (120 projects), agriculture and forestry organizations (112 projects), and alternative energy providers (102 projects). Organizations in other sectors (government, commercial, and residential) submitted reports on 26 projects.

Most of the projects reported for 1998 affected energy supply or use in some way. Some 420 of the projects were related to the generation, transmission, or distribution of electricity, and almost all of those were reported

Table ES1. Reporting Indicators for the Voluntary Reporting of Greenhouse Gases Program, Data Years 1994-1998

Indicator	1994	1995	1996(R)	1997(R)	1998
Number of Entities Reporting	108	142	150	162	187
Number of Projects Reported	645	967	1,040	1,288	1,507
Number of Entity-Level (Organization-Wide) Reports Received	40	51	56	60	65
Project-Level Reductions Reported (Million Tons Carbon Equivalent)	74	146	155	149	212

(R) = revised.
Source: Energy Information Administration, Forms EIA-1605 and EIA-1605EZ.

by electric power sector reporters. Another 354 were related to energy end use, 20 were cogeneration projects, and 70 were transportation projects. Another 161 projects reduced emissions of methane from waste disposal facilities, oil and natural gas systems, and coal mines, and almost all of those included use of the methane as fuel, displacing fossil fuels. Other projects included the reuse of fly ash in concrete (45 projects) and materials recycling (30 projects), which reduce emissions at least in part by reducing energy consumption. The largest reductions were reported for projects that improved the performance of nuclear power plants. The non-energy-related projects reported fell into two major categories: sequestration of carbon, usually in forests (350 projects); and the recycling, reuse, or destruction of halogenated substances such as hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride (30 projects).

Public interest in the Voluntary Reporting Program has continued to increase, in part because of growing awareness of climate change issues inspired by the signing of the Kyoto Protocol, and in part because of public interest in the concept of credit for early reductions. In October 1997, the White House announced that it favored offering "credit for early reductions" as a means to limit future U.S. greenhouse gas emissions. Generally, a credit for early reduction program would offer regulatory credit—in the form of "carbon allowances" against a future cap on greenhouse gas emissions—for organizations that take steps to reduce their emissions now. Neither "credits" nor "reductions" were defined, however, and the exact nature of such a program is a subject of ongoing debate among policymakers, interest groups, and private organizations. In March 1999, Senators Chafee (R-RI), Lieberman (D-CT), Mack (R-FL), and seven other Senators introduced S. 547, the "Credit for Voluntary Reductions Act," which among its other provisions would make it possible, subject to several conditions, for participants to receive "credit" for reductions reported to the Voluntary Reporting Program. In July 1999, a modified version of the bill (H.R. 2520) was introduced in the House of Representatives by Rep. Lazio (R-NY).

In June 1999, Senators Murkowski (R-AK), Hagel (R-NE), and Byrd (D-WV) introduced S. 882, which provides for a review of potential changes to the Voluntary Reporting Program. A version of this bill (H.R. 3384) was introduced in the House by Rep. Barton (R-TX) in November 1999.

1. Voluntary Reporting of Emission Reduction Actions: An Overview

Introduction

The Energy Policy Act of 1992 (EPACT) directed the Energy Information Administration (EIA) to develop a program to document voluntary actions that reduce emissions of greenhouse gases or remove them from the atmosphere (see box on page 2).[1] The Voluntary Reporting of Greenhouse Gases Program was developed in cooperation with the Office of Policy, U.S. Department of Energy (DOE), and with the U.S. Environmental Protection Agency (EPA). In addition to providing recognition for entities that reduce emissions or sequester carbon voluntarily, this program serves to identify innovative and effective ways to reduce greenhouse gas emissions.

To date, U.S. policy initiatives aimed at stabilizing greenhouse gas emissions have relied on voluntary approaches. President Clinton's Climate Change Action Plan[2] sought to identify and implement actions that could reduce emissions of greenhouse gases through an array of government/industry partnerships. Most of the reporters to the Voluntary Reporting Program are affiliated with one or more government-sponsored voluntary programs.

This report presents information on the fifth reporting cycle of the Voluntary Reporting Program, which accepted reports including information on emissions, emission reductions, and carbon sequestration activities through 1998. The report is divided into this overview and five brief sections that summarize the reports received from the following sectors: electric power (including independent power producers), industry, alternative energy providers, agriculture and forestry, and other sectors (including government, commercial, and residential entities). The appendix provides additional summary information, including lists of reporters and projects.

The reports submitted to EIA are compiled into a database that can be obtained on CD-ROM by contacting the Voluntary Reporting of Greenhouse Gases Program Communications Center at 1-800-803-5182 or downloaded from EIA's World Wide Web site at *http://www.eia.doe.gov/oiaf/1605/ftphelp.html*.

Benefits of the Voluntary Reporting Program

The Voluntary Reporting Program is unique among the many voluntary emission reduction programs initiated during the early 1990s in its diversity of project types, participation, and approaches. The Program's database provides a wealth of examples of the types of concrete actions that organizations can undertake to reduce greenhouse gas emissions. Some of the most important benefits of the Voluntary Reporting Program are as follows:[3]

- The program has served to teach staff at many of the largest corporations in the United States how to estimate greenhouse gas emissions and has educated them on a range of possible measures to limit emissions.
- The program has helped to provide concrete evidence for the evaluation of activities reported to the many government voluntary programs launched since 1993.
- Reporters have been able to learn about innovative emission reduction activities from the experiences of their peers.
- The program has created a "test" database of approaches to emission reductions that can be used to evaluate future policy instruments aimed at limiting emissions.

[1]Title XVI of the Energy Policy Act, Public Law 102-486 (October 24, 1992), in Section 1605(a) called for an annual report on national aggregate emissions of greenhouse gases. EIA has issued the report—*Emissions of Greenhouse Gases in the United States*—every year since 1993. Section 1605(b) called for the establishment of a database on annual reductions of emissions as reported on a voluntary basis.

[2]U.S. Department of State, *Climate Action Report*, Publication 10496 (Washington, DC, July 1997), http://www.state.gov/www/global/oes/97climate_report/index.html.

[3]Testimony of Jay Hakes, EIA Administrator, before the National Economic Growth, Natural Resources, and Regulatory Affairs Subcommittee of the House Government Reform Committee about the Voluntary Reporting of Greenhouse Gases Program (July 15, 1999). The full text of the testimony is available at http://www.eia.doe.gov/neic/speeches/htest715/testmony.htm.

The Energy Policy Act of 1992, Sections 1605(b) and (c)

(B) Voluntary Reporting.—

(1) ISSUANCE OF GUIDELINES.—Not later than 18 months after the date of the enactment of this Act, the Secretary shall, after opportunity for public comment, issue guidelines for the voluntary collection and reporting of information on sources of greenhouse gases. Such guidelines shall establish procedures for the accurate voluntary reporting of information on—

(A) greenhouse gas emissions—

(i) for the baseline period of 1987 through 1990; and

(ii) for subsequent calendar years on an annual basis;

(B) annual reductions of greenhouse gas emissions and carbon fixation achieved through any measures, including fuel switching, forest management practices, tree planting, use of renewable energy, manufacture or use of vehicles with reduced greenhouse gas emissions, appliance efficiency, methane recovery, cogeneration, chlorofluorocarbon capture and replacement, and power plant heat rate improvement;

(C) reductions in greenhouse gas emissions achieved as a result of—

(i) voluntary reductions;

(ii) plant or facility closings; and

(iii) State or Federal requirements; and

(D) an aggregate calculation of greenhouse gas emissions by each reporting entity.

Such guidelines shall also establish procedures for taking into account the differential radiative activity and atmospheric lifetimes of each greenhouse gas.

(2) REPORTING PROCEDURES.—The Administrator of the Energy Information Administration shall develop forms for voluntary reporting under the guidelines established under paragraph (1), and shall make such forms available to entities wishing to report such information. Persons reporting under this subsection shall certify the accuracy of the information reported.

(3) CONFIDENTIALITY.—Trade secret and commercial or financial information that is privileged or confidential shall be protected as provided in section 552(b)(4) of title 5, United States Code.

(4) ESTABLISHMENT OF DATA BASE.—Not later than 18 months after the date of the enactment of this Act, the Secretary through the Administrator of the Energy Information Administration shall establish a data base comprised of information voluntarily reported under this subsection. Such information may be used by the reporting entity to demonstrate achieved reductions of greenhouse gases.

(C) Consultation.—

In carrying out this section, the Secretary shall consult, as appropriate, with the Administrator of the Environmental Protection Agency.

- The program has helped to clarify emissions accounting issues that must be addressed in designing any future approaches to emission limitations.

Who Reported?

Reports for the 1998 data year were received from 187 participants in 24 different industries or services, representing a continuing increase in both the number and diversity of participants. In comparison, reports for the 1994 data year—the first year of the program—were received from 108 participants in 9 different industries or services (Table 1).

As in previous years, most of the reporters for 1998 were actively involved in the production and distribution of electricity; however, the dominance of voluntary reporting by the electric power sector has been steadily declining. Electric power producers accounted for 57 percent of the entities reporting for 1998, down from 88 percent for 1994 (Figure 1). In addition, the number of electric power sector reporters also declined, from 115 in 1997 to 105 in 1998. The change is attributed in part to the ongoing restructuring of the industry, which has been accompanied by several mergers and acquisitions involving reporters to the program.

Although the number of reporters for 1998 from other industries remained relatively small, in many cases reports were received from key companies in those industries: for example, General Motors in the automotive products industry, Noranda and an operating

Table 1. Forms Filed by Standard Industrial Classification, Data Years 1994-1998
(Number of Reports)

SIC Code	Description	Data Year				
		1994	1995	1996(R)	1997(R)	1998
01	Agricultural Production: Crops	0	0	0	0	1
08	Forestry	1	2	1	1	3
12	Coal Mining	1	2	2	1	4
14	Nonmetallic Minerals, Except Fuels	0	0	0	0	1
20	Food and Kindred Products	0	0	0	0	1
27	Printing and Publishing	0	1	0	1	0
28	Chemical and Allied Products	1	3	2	3	5
29	Petroleum Refining and Other Related Industries	0	0	2	3	7
32	Stone, Clay, Glass, and Concrete Products	0	0	2	4	5
33	Primary Metals	2	2	4	4	5
34	Fabricated Metal Products, Except Machinery and Transportation Equipment	0	2	1	1	3
36	Electronic Equipment	1	1	2	4	4
37	Transportation Equipment	1	1	1	2	3
38	Instruments and Related Products	0	0	0	0	1
39	Miscellaneous Manufacturing Industries	0	1	1	0	2
49	Electric, Gas, and Sanitary Services	98	123	125	129	132
57	Furniture and Home Furnishings Stores	0	0	0	0	1
65	Real Estate	0	1	1	1	1
67	Holding and Other Investment Offices	0	0	1	1	1
80	Health Services	0	0	0	0	1
82	Educational Services	1	2	2	2	0
86	Membership Organizations	0	0	0	1	1
87	Engineering and Management Services	0	0	2	2	2
88	Private Households	2	1	1	1	1
89	Services Not Elsewhere Classified	0	0	0	1	1
91	Executive, Legislative, and General	0	0	0	0	1
Total		**108**	**142**	**150**	**162**	**187**

(R) = revised.
Source: Energy Information Administration, Forms EIA-1605 and EIA-1605EZ.

division of Alcan in the metals industry, Consol and Peabody in the coal mining industry, BP Amoco in the petroleum industry, Johnson & Johnson and The Dow Chemical Company in the chemicals industry, and IBM and Motorola in the electronic equipment industry. A complete listing of all reporters is provided in Table A1 of the Appendix.

Most reporters indicated that their projects were affiliated with one or more government-sponsored voluntary programs. Of the 1,507 projects reported for 1998, 952 were affiliated with the Climate Challenge Program, 94 with the Climate Wise Recognition Program, 94 with the Landfill Methane Outreach Program, 34 with the U.S. Initiative on Joint Implementation, 24 with EPA's Green Lights Program, 12 with Energy Star Buildings, 9 with the Coalbed Methane Outreach Program, and 5 with the Natural Gas STAR Program. Other voluntary programs cited included Energy Star Computers, Energy Star Transformers, the Voluntary Aluminum Industrial Partnership, Motor Challenge, WasteWi$e, and the Cool Communities Program. Not all participants in the various voluntary programs provided information to the Voluntary Reporting Program.

What Was Reported?

The Voluntary Reporting Program permits three distinct types of reporting:

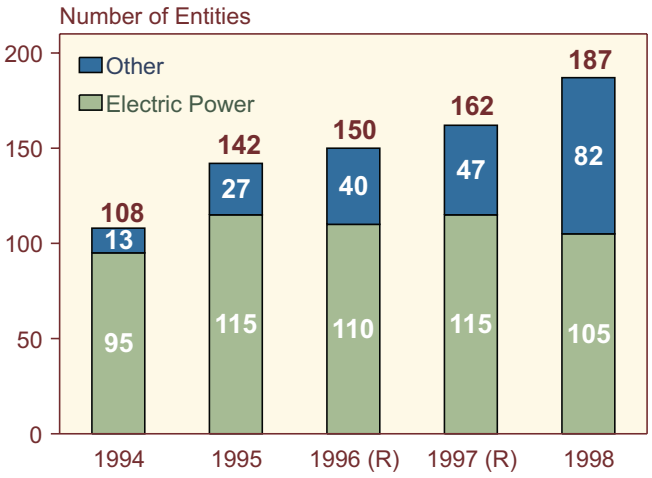
- Project-level emissions and reductions, defined as the emission reductions consequences of a particular action
- Entity-level emissions and reductions, defined as the emissions and reductions of an entire organization, usually defined as a corporation
- Commitments to take action to reduce emissions in the future.

Most reporters (176) reported project-level reductions, and 65 reported entity-level emissions and/or reductions. As the numbers imply, most (54) of the reporters that reported entity-level emissions also reported project-level emissions. One hundred twenty-two organizations submitted only project-level reports, whereas 11 reported only entity-level information. Sixty-seven reporters provided information on their commitments to reduce emissions or increase sequestration in the future.

Project Level

Of the 187 reporters, 176 (94 percent) provided information on a total of 1,507 projects (Table 2). The total number of projects reported increased by 219, or 17 percent, compared with the previous reporting cycle.[4] The electric power sector, which includes regulated electric utilities and independent power producers (IPPs), accounted for three-quarters of the projects reported. The industrial, agriculture and forestry, and alternative energy sectors each reported between 7 and 8 percent of the projects. Entities in other sectors (government, commercial, and residential) reported 26 projects (2 percent). Most projects involve actions within the United States; however, some are foreign based, designed to test various concepts of joint implementation with other nations (Table 3). Fifty-six of the 83 foreign projects represent shares in two forestry programs in Belize and Malaysia sponsored by the U.S. electric utility industry.

Figure 1. Electric Power Sector and Other Entities Submitting Reports to the Voluntary Reporting of Greenhouse Gases Program, Data Years 1994-1998



(R) = revised.

Source: Energy Information Administration, Forms EIA-1605 and EIA-1605EZ.

Most of the emission reductions (76 percent of the carbon dioxide equivalent) reported for 1998 were reported by electric power sector entities (Table 4). Alternative energy providers were responsible for 17 percent of the total carbon dioxide equivalent reported, followed by industry (5 percent), agriculture and forestry (1 percent), and other (1 percent). Carbon dioxide accounted for 79 percent of the emission reductions reported on a carbon dioxide equivalent basis. Reported reductions of other gases included methane (19 percent), perfluorocarbons (PFCs) (2 percent), and sulfur hexafluoride (SF_6) and nitrous oxide (N_2O) (less than 1 percent each) (Table 5). The reports received for 1998 reflect a net increase in hydrofluorocarbon (HFC) emissions resulting from their use as substitutes for chlorofluorocarbons (CFCs) and hydrochlorofluorocarbons (HCFCs).

Entity Level

Most of the 65 reporters providing entity-level information included data on both emissions and emission reductions or sequestration. Three reporters (Central and South West Corporation, Columbia Falls Aluminum Company, and The Gillette Company) provided data on emissions only. Three reporters (Commonwealth Bethlehem Energy, Seattle City Light, and World Parks Endowment) provided data on emission reductions or sequestration only.

Table 2. Distribution of Projects by Sector, Data Year 1998

Sector	Number of Projects	Number of Reporters
Electric Power	1,147	105
Alternative Energy Providers	102	33
Agriculture and Forestry	112	6
Industry	120	35
Other (Government, Commercial, and Residential)	26	8
Total	**1,507**	**187**

Source: Energy Information Administration, Forms EIA-1605 and EIA-1605EZ.

[4]The number of projects reported for 1997 has increased from 1,229 to 1,288 with the receipt of several additional reports after, and revision of reports that had not been accepted by, the time the database was used to prepare the 1997 annual report and Public Use Database. See note to Table 3.

Table 3. Geographic Scope of Reports Received and Location of Emission Reduction Projects, Data Years 1994-1998

Geographic Scope	Reports Received					Projects Reported				
	1994	1995	1996(R)	1997(R)	1998	1994	1995	1996(R)	1997(R)	1998
U.S. Only	102	124	125	130	147	636	931	1,007	1,216	1,424
Foreign Only	2	2	1	1	1	9	36	33	72	83
Both U.S. and Foreign	4	16	24	31	39	NA	NA	NA	NA	NA
Total	**108**	**142**	**150**	**162**	**187**	**645**	**967**	**1,040**	**1,288**	**1,507**

NA = not applicable.
(R) = revised.

Note: The number of reports received and number of projects reported for 1996 and 1997 were revised to reflect the receipt of reports after the finalization of the Public Use Database for last year's annual report. For 1997, 6 additional reports were received from Cinergy, Arizona Portland Cement Company, California Portland Cement Co.–Colton Plant, California Portland Cement Co.–Mojave Plant, Delta Electric Power Association, and DuPont Company. For 1996, Taunton Municipal Lighting Plant submitted a report with information on four projects. The numbers of projects reported for 1996 and 1997 have also been revised to include the additional projects reported, as well as revisions to reports that were not finalized in the 1997 Public Use Database.

Source: Energy Information Administration, Forms EIA-1605 and EIA-1605EZ.

Table 4. Summary of Project-Level Emission Reductions by Sector, Data Year 1998
(Metric Tons Carbon Dioxide Equivalent)

Gas	Reductions by Sector					Total Reductions
	Electric Power	Alternative Energy	Agriculture and Forestry	Industry	Other	
Carbon Dioxide	149,517,578	9,242,245	2,046,935	4,658,554	1,113,881	**166,579,193**
Methane	10,342,413	27,823,400	33,072	1,427,282	1,256,555	**40,882,722**
Nitrous Oxide	131,685	93,649	—	—	—	**225,334**
HFCs	-1,738	—	—	—	—	**-1,738**
PFCs	6,536	—	—	3,770,560	—	**3,777,097**
SF_6	574,421	—	—	—	—	**574,421**
Total	**160,570,896**	**37,159,293**	**2,080,007**	**9,856,397**	**2,370,437**	**212,037,029**
CFCs, HCFCs	36,767	—	—	1,248,173	—	**1,284,940**

Notes: Totals include all nonconfidential emission reductions reported. No attempt has been made to correct for double counting, where more than one entity may have reported on the same emission reduction project. CFCs and HCFCs are not included in the totals because of the uncertainty associated with estimates of their net global warming potential. Their direct warming effects (positive radiative forcing) are offset by indirect cooling effects (destruction of stratospheric ozone, another greenhouse gas). The values shown for CFCs and HCFCs reflect direct warming effects only. Emission reductions include increases in carbon sequestration.

Source: Energy Information Administration, Forms EIA-1605 and EIA-1605EZ.

Table 5. Summary of Project-Level Emission Reductions, Data Years 1994-1998
(Metric Tons Carbon Dioxide Equivalent)

Gas	1994	1995	1996	1997	1998
Carbon Dioxide	6,217,993	118,634,468	116,922,967 (R)	124,657,268 (R)	166,579,193
Methane	3,197,079	23,861,796	34,015,736	20,233,935 (R)	40,882,722
Nitrous Oxide	584,811	200,752	201,580	197,869 (R)	225,334
PFCs	3,448,668	3,192,463	3,604,265	3,673,641	3,777,097
Other Gases	89,950	208,850	-57,569 (R)	556,345	572,683
Total	**73,538,501**	**146,098,329**	**154,686,979 (R)**	**149,319,058 (R)**	**212,037,029**
CFCs, HCFCs, and Methyl Chloroform	357,919	20,467,843	2,478,691	80,864	1,284,940

(R) = revised.

Notes: Totals include all nonconfidential emission reductions reported. No attempt has been made to correct for double counting, where more than one entity may have reported on the same emission reduction project. "Other Gases" includes SF_6 and HFCs. CFCs and HCFCs are not included in the totals because of the uncertainty associated with estimates of their net global warming potential. Their direct warming effects (positive radiative forcing) are offset by indirect cooling effects (destruction of stratospheric ozone, another greenhouse gas). For the same reason, methyl chloroform has been excluded from the "Other Gases" category. The values shown for CFCs, HCFCs, and methyl chloroform reflect direct warming effects only. Totals may not equal sum of components due to independent rounding. Emission reductions include increases in carbon sequestration.

Source: Energy Information Administration, Forms EIA-1605 and EIA-1605EZ.

Total entity-level emissions of carbon dioxide reported for 1998 were 1,481.2 million metric tons, which represents a 5-percent increase over the emissions reported for 1997 (Table 6). Seventy percent of the reported carbon dioxide emissions were from direct sources (i.e., stacks or exhaust pipes owned by the reporter), almost all (99.7 percent) of which were from stationary combustion. Thirty-five reporters also reported emissions of carbon dioxide from indirect sources, which are sources that are owned by other entities but over which the reporter exerts some influence. Most (33) of those reports were for emissions associated with purchased electricity; however, more than three-quarters of the total amount of indirect carbon dioxide emissions reported were emissions from motor vehicles manufactured by General Motors Corporation and reported by the company.

Entity-level emissions of gases other than carbon dioxide were reported by 18 reporters for 1998. The carbon dioxide equivalent of the emissions of these gases was 52.5 million metric tons, with methane and nitrous oxide accounting for 92 percent of the total (Table 7). Other gases reported included HFCs (HFC-23 and HFC-134a), PFCs (perfluoroethane and perfluoromethane), and SF_6. Emissions of gases that have indirect effects on global warming and for which accepted global warming potential indices (GWPs) are not available were also reported for 1998, including CFCs, HCFCs, halons, methylene chloride, chloroform, carbon tetrachloride, methyl chloroform, carbon monoxide, nitrogen oxides (NO_x), and volatile organic compounds (VOCs).

Reported reductions in carbon dioxide emissions and increases in carbon sequestration reported at the entity

Table 6. Total Entity-Level Carbon Dioxide Emissions Reported in Data Year 1998 by Type of Activity, 1990-1998
(Metric Tons Carbon Dioxide)

Type of Emission	1990	1991	1992	1993	1994	1995	1996	1997	1998
Direct Emissions									
Stationary Combustion	859.7	610.1	713.3	746.4	830.2	856.4	871.9	929.6	1,033.6
Transportation	2.7	0.2	0.2	0.2	0.6	0.6	0.7	0.6	1.0
Other Direct Sources	1.2	1.4	1.4	1.7	1.9	2.0	2.5	2.5	2.5
Total Direct	**863.6**	**611.7**	**714.9**	**748.3**	**832.7**	**859.0**	**875.1**	**932.7**	**1,037.1**
Indirect Emissions									
Purchased Power	71.4	63.1	61.8	69.7	70.4	74.4	90.2	118.3	96.4
Other Indirect Emissions	377.7	368.9	372.3	372.4	373.6	368.1	361.0	354.0	347.6
Total Indirect	**449.1**	**432.0**	**434.1**	**442.2**	**444.0**	**442.5**	**451.2**	**472.3**	**444.1**
Total[a]	**1,312.7**	**1,043.7**	**1,149.0**	**1,190.5**	**1,276.7**	**1,301.5**	**1,326.3**	**1,405.0**	**1,481.2**
Electricity Wholesaling	17.4	12.6	6.6	5.6	3.0	4.4	-6.5	-48.9	-31.8

[a]Total emissions represent the sum of total direct emissions, emissions from purchased power, and other indirect emissions. The totals may not equal the sum of the total emissions reported in Part IVa of Form EIA-1605, because the totals calculated by some utility reporters reflect net emissions from purchased power and electricity wholesaling.
Source: Energy Information Administration, Form EIA-1605.

Table 7. Total Entity-Level Emissions of Greenhouse Gases Other than Carbon Dioxide Reported in Data Year 1998 by Type of Gas, 1990-1998
(Metric Tons Carbon Dioxide Equivalent)

Gas	1990	1991	1992	1993	1994	1995	1996	1997	1998
Methane	51.2	13.6	14.1	10.8	27.4	27.8	24.8	26.2	28.8
Nitrous Oxide	18.2	19.0	19.9	20.7	21.4	21.3	20.8	20.2	19.5
Hydrofluorocarbons	*	*	*	0.2	0.8	1.3	1.8	2.3	2.9
Perfluorocarbons	1.7	0.8	0.8	0.7	1.0	0.8	0.7	0.7	0.5
Sulfur Hexafluoride	NR	0.1	0.1	0.1	1.1	1.4	1.4	1.0	0.8
Total Emissions	**71.0**	**33.5**	**34.9**	**32.6**	**51.6**	**52.6**	**49.4**	**50.4**	**52.5**

*Less than 0.05 million metric tons.
NR = no emissions reported.
Source: Energy Information Administration, Form EIA-1605.

level totaled about 150 million metric tons carbon dioxide equivalent in 1998 (Table 8). Seventy-one percent of the total was attributed to stationary combustion sources. The other principal sources of carbon dioxide emission reductions included purchased power (6.5 percent), other indirect sources (14.8 percent), and sinks and sequestration (7.4 percent).

Reported net reductions in entity-level emissions of gases other than carbon dioxide were 27 million metric tons carbon dioxide equivalent for 1998. Reductions in methane and nitrous oxide emissions accounted for 87 percent and 10 percent of the total, respectively. Reductions in perfluorocarbons and sulfur hexafluoride were also reported. A reported net increase in hydrofluorocarbon emissions was attributed to increased production and use of HFCs as substitutes for CFCs and HCFCs. Reductions were also reported for several gases that have indirect effects on global warming and for which accepted GWPs are not available, including CFCs, HCFCs, halons, carbon tetrachloride, methyl chloroform, carbon monoxide, NO_x, VOCs, and nonmethane volatile organic compounds (NMVOCs).

Commitments

Sixty-seven entities reported commitments to reduce future emissions, to take actions to reduce emissions in the future, or to provide financial support for activities related to greenhouse gas reductions. Most (75 percent) of the commitments were reported by electric utilities participating in the Climate Challenge Program. The 14 nonutilities reporting commitments were participants in one or more of the following voluntary programs: Climate Wise, WasteWi$e, the Voluntary Aluminum Industrial Program, and the Landfill Methane Outreach Program.

There are three forms of future commitment in the Voluntary Reporting Program: entity commitments, financial commitments, and project commitments. Entity and project commitments roughly parallel the entity and project aspects of emissions reporting: an entity commitment is a commitment to reduce the emissions of an entire organization; a project commitment is a commitment to take a particular action that will have the effect of reducing the reporter's future emissions. A financial commitment is a pledge to spend a particular sum of money on activities related to emission reductions, without a specific promise as to the consequences of the expenditure.

Twenty-nine firms made 43 specific promises to reduce, avoid, or sequester future emissions at the corporate level. As in the case of entity reporting, some commitments were to reduce emissions below a specific baseline, others to limit the growth of emissions per unit of output, and others to limit emissions by a specific amount by comparison with a baseline emissions growth trend. In their reports for 1998, companies

Table 8. Total Entity-Level Carbon Dioxide Emission Reductions Reported in Data Year 1998 by Type of Activity, 1991-1998
(Metric Tons Carbon Dioxide)

Type of Reduction	1991	1992	1993	1994	1995	1996	1997	1998
Direct Reductions								
Stationary Combustion	26.2	48.0	52.1	68.7	92.1	99.0	97.9	107.2
Transportation	*	*	*	0.1	0.1	0.1	*	*
Other Direct Sources	NR	*	0.1	0.3	0.6	0.8	0.9	1.0
Total Direct	**26.2**	**48.0**	**52.2**	**69.0**	**92.8**	**99.9**	**98.8**	**108.2**
Indirect Reductions								
Purchased Power	4.9	2.6	4.9	1.6	3.6	3.8	5.1	9.9
Other Indirect Sources								
Integrated Waste Services Association	NR	NR	NR	NR	15.8	16.5	16.0	16.1
All Other Reporters	0.5	0.8	1.4	3.9	5.1	6.4	4.5	6.5
Total Indirect	**5.4**	**3.4**	**6.3**	**5.5**	**24.5**	**26.7**	**25.5**	**32.4**
Carbon Sequestered	3.1	4.7	8.7	8.8	9.6	9.7	10.8	11.2
Total Reported Reductions[a]	**34.7**	**56.1**	**67.3**	**83.3**	**126.8**	**136.3**	**135.2**	**151.8**
Electricity Wholesaling	5.5	7.4	6.8	8.3	6.6	6.5	4.9	2.8

[a]Total reductions represent sum of reductions in total direct emissions, emissions from purchased power, and other indirect emissions. The totals may not equal the sum of the total reductions reported in Part IVa of Form EIA-1605, because the totals calculated by some utility reporters reflect net emissions from purchased power and electricity wholesaling.

*Less than 0.05 million metric tons.

NR = not reported.

Note: Totals may not equal sum of components due to independent rounding.

Source: Energy Information Administration, Form EIA-1605.

committed to reducing future emissions by a total of 96.5 million metric tons carbon dioxide equivalent.

Thirty-eight companies reported on commitments to undertake 266 individual emission reductions projects. Some of the commitments were linked to future results from projects already underway and forming part of the reporters' submissions. Others were for projects not yet begun. Reporters indicated that the projects were expected to reduce future emissions by 85 million metric tons carbon dioxide equivalent, most of which (76 million metric tons) would be reductions of carbon dioxide.

Twenty-nine firms made financial commitments. The total amount of funds promised was $42 million, of which $12 million was reported actually to have been expended in 1998.

Status of Policy Initiatives

In October 1997, the Administration proposed to reward organizations taking early, voluntary action to reduce greenhouse gas emissions.[5] Several groups have proposed alternative programs that would offer credits for early emission reductions. In October 1998, the President's Council on Sustainable Development published a description of "principles" for a credit for early action bill.[6] In this year's State of the Union Address, President Clinton reaffirmed his support for rewarding companies that take early, voluntary action to reduce greenhouse gases.[7]

Several bills dealing with credit for early action or voluntary reporting have been introduced in the current session of Congress. In March 1999, Senators Chafee (R-RI), Lieberman (D-CT), and Mack (R-FL) reintroduced the Credit for Voluntary Reductions Act with several additional cosponsors. The bill is a modified version of one that was introduced last year that would authorize the President to enter into agreements to provide regulatory credit for voluntary early action to mitigate greenhouse gas emissions.[8] The current bill proposes to provide credit, usable in a possible future domestic regulatory program that would limit greenhouse gas emissions, for voluntary actions taken before such a regulatory program comes into effect. The proposed legislation provides that an "early action agreement" between the U.S. Government and an organization "may provide that a participant shall be entitled to receive" credits for reductions reported to the Voluntary Reporting Program for the period 1991-1998 if the report was received before January 1, 1999, and the reporter provided "information sufficient to verify, to the satisfaction of the President . . . that actions reported . . .

(A) have been accurately reported;

(B) are not double-counted; and

(C) represent actual reductions in greenhouse gases or actual increases in net carbon sequestration."[9]

A modified version of the Chafee bill was introduced into the House of Representatives by Rep. Lazio (R-NY) and 12 others in July 1999.[10] The Lazio bill differs from the Chafee bill in the following ways:

- It requires that all submissions be certified by a qualified third-party auditor.
- It includes detailed requirements for calculating credits by manufacturers and adopters of end-use, consumer, and similar technologies using a reference case (baseline emissions) adjusted for changes in the manufacturer's production and overall performance of the economy.
- It includes provisions addressing the calculation of credits for increases in domestic carbon stocks through forestry initiatives.

The credit for early or voluntary action initiatives have been countered by proposed legislation that would continue to rely on voluntary initiatives to reduce emissions and sequester carbon. In April 1999, Senators Murkowski (R-AK), Hagel (R-NE), Byrd (D-WV), and seven others introduced the Energy and Climate Policy Act of 1999 (S. 882), which would amend EPACT to:

- Develop a program of public recognition for those entities that have achieved certified greenhouse gas reductions
- Conduct a review of potential changes to the guidelines for Voluntary Reporting Program, including establishing a random verification process, developing a range of reference cases, addressing double reporting issues, and finding ways to facilitate the

[5]Office of the Press Secretary, The White House, "Press Briefing by Chair of the National Economic Council Gene Sperling, Assistant to the President for International Economic Policy Dan Tarullo, Deputy National Security Advisor Jim Steinberg, Staff Secretary Todd Stern, Chair of Council on Environment Quality Katie McGinty, and Deputy Secretary of Treasury Larry Summers" (Washington, DC, October 22, 1997), http://www.pub.whitehouse.gov/uri-res/I2R?urn:pdi://oma.eop.gov.us/1997/10/30/9.text.1.

[6]President's Council on Sustainable Development, Climate Task Force, *Principles for Early Action* (Washington, DC, October 27, 1998), http://www2.whitehouse.gov/PCSD/tforce/cctf/cfprinc.html.

[7]President William Jefferson Clinton, State of the Union Address, January 19, 1999 (Background Materials), http://www.whitehouse.gov/WH/SOTU99/climate.html.

[8]"Credit for Voluntary Reductions Act," S. 547, 106th Congress (March 4, 1999), http://thomas.loc.gov.

[9]"Credit for Voluntary Reductions Act," S. 547, 106th Congress (March 4, 1999), Section 5(d)(2), http://thomas.loc.gov.

[10]"Credit for Voluntary Reduction Act," H.R. 2520, 106th Congress (July 14, 1999), http://thomas.loc.gov.

participation of farmers and small businesses (in consultation with the U.S. Department of Agriculture and the Small Business Administration)

- Revise the guidelines for the Voluntary Reporting Program to incorporate changes found to be beneficial and cost-effective in improving the accuracy and reliability of the reported greenhouse gas reductions and related information.

In November 1999, Rep. Barton (R-TX) introduced a version of the Murkowski bill in the House of Representatives as two separate bills.[11]

Consideration of the proposal by the 106th Congress may lead to other proposals or amendments, and there can be no current assurance of the final content or ultimate passage of any legislation. Nevertheless, the experience of the Voluntary Reporting Program can inform debate on legislative initiatives.

"Credit for Early Action" and Voluntary Reporting

The interest in credit for early action has generated evaluations of EIA's Voluntary Reporting Program as a possible vehicle for providing regulatory credit. By design, however, the program is primarily a registry for claims of reductions, rather than an emissions trading program or a credit for early reductions program. Constructing a set of reporting rules that would govern the preparation of comparable, verifiable, auditable reports of emissions and emission reductions would require finding answers to a number of complex questions (see box on pages 10-11), including the following:

- Who can report?
- What is a reduction?
- Who owns the reduction?
- Would the reduction have occurred without the reported action?
- How can reports be verified?

Because neither DOE nor EIA has attempted to resolve these questions, it is possible for the same company to report its emissions and reductions in several different ways, and for more than one reporter to claim the same reduction. Some commentators on the Voluntary Reporting Program have characterized this aspect of the program as a defect: a problem needing a solution. On the other hand, for the following reasons it can be viewed as a useful attribute of the program:

- The educational and public recognition aspects of the program do not require a complete and fully defined system of baselines, accounting rules, and property rights.
- The Voluntary Reporting Program can be viewed as a survey of emission accounting methods and theories actually in use and a set of illustrations of the potential accounting and baseline problems that must be confronted in designing future policy instruments. A more structured approach would have been less useful for identifying and analyzing accounting issues.
- The program's database illustrates the range and diversity of concrete actions that firms can undertake to limit greenhouse gas emissions, including many not imagined by the designers of the program. A more structured approach might have excluded some of the more original and innovative projects reported to the program.

These features make the Voluntary Reporting Program useful for evaluating the design and consequences of any proposed credit for early action program. By creating a database of real-world emission reduction actions and actors, the data reported to the Voluntary Reporting Program can be used to gain insight into the incentive effects and beneficiaries of various credit for early action proposals. The database also provides a mechanism for identifying some of the issues that would have to be resolved in developing an accounting system for an effective credit program.

[11] "Energy and Climate Policy Act of 1999," H.R. 3384, and "A bill to strengthen provisions in the Federal Nonnuclear Energy Research and Development Act of 1974 with respect to potential Climate Change," H.R. 3385, 106th Congress (November 16, 1999), http://thomas.loc.gov.

Accounting Issues Raised by Voluntary Reporting

The Voluntary Reporting Program has been a laboratory for identifying and evaluating some of the accounting issues that would have to be resolved in the implementation of a program to provide credits for early or voluntary actions to reduce greenhouse gas emissions.[a] The issues revolve around definition, ownership, and verification of claimed reductions and are reflected in the following questions:

Who Can Report?

EPACT Section 1605(b) mentions only "entities" and "persons" as prospective reporters. Several overlapping concepts of "who can report" surfaced at the public hearings on guidelines for the Voluntary Reporting Program, all of which were accommodated. Effectively, the following "reporters" are eligible under the program guidelines:

- A legal person (i.e., an individual, household, corporation, or trade association). Emissions and reductions are calculated and reported at the corporate level.
- A facility or group of facilities. Emissions and reductions are calculated as those of a particular facility, defined as a single plant in a specified location, or perhaps even a single stack within a plant. A corporation or legal person acquires responsibility for emissions and reductions through ownership of one or more specified facilities.
- A "project" or activity. Reductions are defined by comparing the emissions from some set of relevant sources with an estimate of what emissions would have been if a particular action or group of actions had not been undertaken.

What is a Reduction?

The most intuitive definition of a reduction is one measured against a historical baseline or "basic reference case." In this approach, the reduction is defined as the difference between the emissions of an entity or facility in a prior, baseline year (usually 1990) and the current year. This approach is best suited to reporters whose activities have not appreciably changed since the baseline year. It presents particular problems for firms that have participated in mergers, acquisitions, or divestitures or have made significant changes in the composition of their business. Startup companies or new facilities that have no history cannot use historical baselines. The historical baseline approach is also not well suited to measuring the reductions achieved by projects, which often are entirely new activities with no history.

Alternatively, many reporters define their reductions by comparison with what would have happened in the absence of a specified set of actions. Thus, corporate emissions may have risen, but they are less than they would have been in the absence of corporate action. This approach is called, in the Voluntary Reporting Program, a "modified reference case" or "hypothetical baseline."

The "unit of production" approach is a variant of the fixed historical baseline, where the reporter normalizes baseline emissions to reflect changes in production. If emissions per unit of output have declined, either by comparison with levels in a prior year or with what they would have been in the absence of some actions, then the reporter has a reduction. This approach works reasonably well for organizations that have a well-defined product that is homogenous across companies and over time: for example, kilowatthours generated or sold, tons of steel, or barrels of crude oil. As products increase in complexity, however, this approach gradually breaks down. Tons of semiconductors, for example, is a meaningless measure of output.

The alternative measures of reductions have their advantages and disadvantages. Basic reference cases are objective and relatively easily verifiable. On the other hand, absolute reductions are often the product of circumstance rather than action. Modified reference cases explicitly measure the results of actions, but they are more difficult to verify. Unit-of-production reference cases are useful only in a limited number of cases, and they can combine some of the disadvantages of both basic and modified reference cases.

Who Owns the Reduction?

Two theories of emissions ownership coexist in the Voluntary Reporting Program. The most intuitive, and commonplace, is "direct emissions" and "direct reductions." If a reporter owns or uses (e.g., leases) the emission source, he owns the emission as well as any reductions from the source. The advantage of limiting ownership to direct emissions is that it generally

(continued on page 11)

[a]This discussion is a synopsis of testimony given by Jay Hakes, EIA Administrator, before the National Economic Growth, Natural Resources, and Regulatory Affairs Subcommittee of the House Government Reform Committee about the Voluntary Reporting of Greenhouse Gases Program. The full text of the testimony is available at http://www.eia.doe.gov/neic/speeches/htest715/testmony.htm.

Accounting Issues Raised by Voluntary Reporting (Continued)

prevents multiple ownership of the same emission or reduction. This approach excludes many important emission reduction methods, however, including all activities that tend to reduce electricity consumption, activities of energy service companies, and provision of energy-efficient or emission-reducing capital goods.

The alternative theory of ownership is based on causation: if an organization causes an emission or reduction, it is responsible for that emission, even if it does not own the emission source. Emissions or reductions from sources not owned by the reporter are referred to as "indirect." The most important example of indirect emissions is those produced through the consumption of electricity. If entities reduce their consumption of electricity, they cause their electric utility to reduce its emissions. This approach permits reporting of any action that has an influence on national emissions. However, the concept of "causing an emission" is inherently more ambiguous than "owning the smoke stack," and in many cases more than one firm may credibly claim to have helped cause an emission or reduction. EIA requires that reporters explicitly identify all emissions and reductions as either direct or indirect so that potentially double-counted reductions can be identified.

Would the Reduction Have Occurred Without the Reported Action?

This issue is often discussed in other contexts under the term "additionality." It has been suggested that many emission reduction projects do not represent "real" reductions because they would have been undertaken "anyway" in the normal course of business. Creating an operational definition of additionality would be difficult, however, because the "normal course of business" is a hypothetical concept. For the purposes of voluntary reporting—which include publicizing the types of actions that limit national greenhouse gas emissions and providing recognition for the companies that undertake the actions voluntarily—determining the additionality of projects is unnecessary. For the purposes of a credit for early reduction program, additionality is an issue that needs to be considered.

How Can Reports Be Verified?

DOE decided not to require independent verification of emission reductions reported to the Voluntary Reporting Program after considering the issue during the development of the guidelines for the program; however, reporters must certify the accuracy of their 1605(b) reports.[b]

In general, reports submitted to EIA are factually accurate. Meaningful verification of the accuracy of 1605(b) reporting would require putting in place common baselines and accounting standards that would limit the scope for the application of judgment in preparing and reviewing claims of emission reductions. For example, if the accounting treatment for indirect emissions from electricity purchases is undefined, then a particular set of facts about a reporter could result in two different estimates of emissions: one including electricity purchases and one excluding electricity purchases. A third-party verifier could verify the facts about the reporter but would not be able to determine whether indirect emissions from electricity purchases ought to be included and, consequently, could not determine whether the total emissions reported were correct or not.

[b]Also, filing a false statement on a U.S. Government form is illegal.

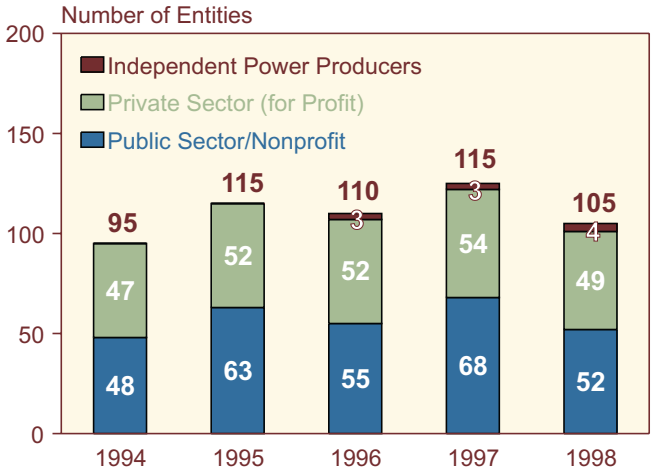
2. Electric Power Sector

Who Reported?

One hundred and five organizations from the electric power sector submitted reports for the 1998 data year—a decline of 10 entities from last year's reporting cycle. About half (52) of the reporters were public sector or nonprofit organizations, including electric cooperatives, municipal utilities, and other public-sector entities such as the Tennessee Valley Authority (TVA). Forty-nine of the remaining entities were private sector utilities—mostly investor-owned utilities (IOUs)—and four were independent power producers (IPPs) (Figure 2).

Private-sector utilities were responsible for 763 (67 percent) of the projects reported and 72 percent of the emission reductions and sequestration achievements reported by the electric power sector. Public-sector or nonprofit utilities reported 367 projects, and IPPs reported 17 projects. Seven new electric power sector entities submitted reports for 1998; three—US Gen New England, Inc., Hawaiian Electric Company, Inc., and PECO Energy Company—were new reporters, and four were products of mergers involving previous reporters.

Figure 2. Number of Electric Power Reporters by Entity Type, Data Years 1994-1998



Source: Energy Information Administration, Form EIA-1605.

What Was Reported?

Overview

A total of 101 electric power organizations reported at the project level, and 35 also provided information on entity-level emissions or reductions. Four reporters chose to report at the entity level only. The 1,147 projects reported by the electric power sector for 1998 included projects undertaken in all 10 reporting categories (Table 9). Combined, these projects lowered emissions by a reported 161 million metric tons carbon dioxide equivalent.

Electricity supply, which includes electricity generation, cogeneration, transmission, and distribution projects, was the most common type of project reported by the electric power sector, accounting for 36 percent of all electric power sector projects reported and 68 percent of total emission reductions and sequestration reported by the sector for 1998.

Energy end use and carbon sequestration projects represented the next largest project categories, with 254 and 237 projects, respectively; however, the average reduction for projects in these categories was significantly smaller than the average for electricity supply projects (Figure 3). The average emission reduction for energy end use projects was 84,282 metric tons carbon dioxide equivalent. The average carbon sequestration achieved was 43,649 metric tons of carbon dioxide. Waste treatment and cogeneration activities were less numerous but had higher average reductions. Also reported were 63 transportation projects, 19 halogenated substances projects, 12 oil and natural gas and coal mining projects, 4 agriculture projects, and 82 projects categorized as other emission reduction projects.

Electricity Supply Projects

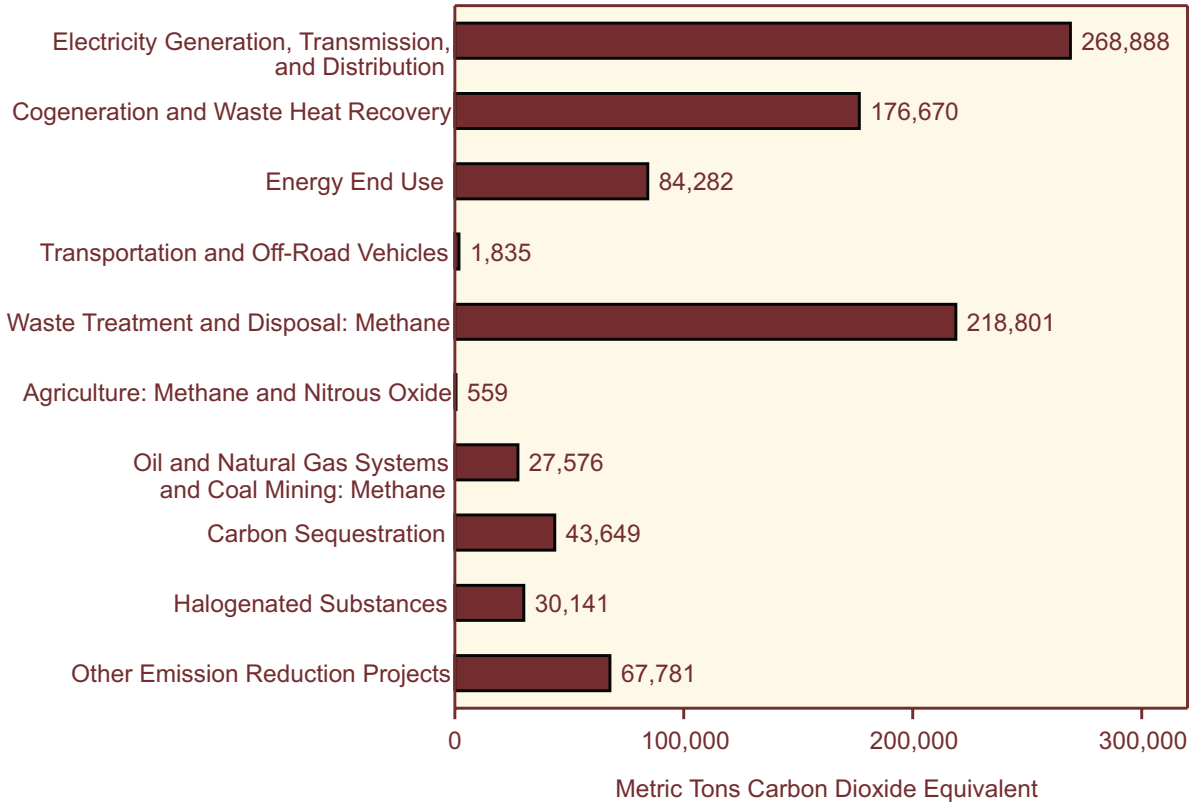
A total of 430 electricity supply projects were reported by 86 electric power entities for 1998, accounting for total emission reductions of 112 million metric tons carbon dioxide equivalent. Of these projects, 22 were reported to have begun in 1998. On average, electricity supply projects were the largest in terms of emission reductions reported per project. Ninety-eight of the 115 electric power sector projects with reported reductions exceeding 1 million metric tons carbon dioxide equivalent were electricity supply projects. Heat rate improvements were the most common type of electricity supply

Table 9. Number of Projects and Emission Reduction and Sequestration Reported by Electric Power Sector Reporters by Project Type, Data Year 1998

Project Type	Number of Projects Reported	Emission Reduction and Carbon Sequestration Reported for 1998 (Metric Tons of Carbon Dioxide Equivalent)				
		Carbon Dioxide	Methane	Nitrous Oxide	Halogenated Substances	Total
Electricity Generation, Transmission, and Distribution	413	109,043,982	88,645	38,307	—	**109,170,933**
Cogeneration and Waste Heat Recovery	17	3,003,398	—	—	—	**3,003,398**
Energy End Use	254	21,320,058	859	86,650	—	**21,407,566**
Transportation and Off-Road Vehicles	63	114,968	361	261	—	**115,590**
Waste Treatment and Disposal: Methane	46	188,547	9,869,851	6,468	—	**10,064,866**
Agriculture: Methane and Nitrous Oxide	4	0	2,235	—	—	**2,235**
Oil and Natural Gas Systems and Coal Mining: Methane	12	939	329,967	—	—	**330,906**
Carbon Sequestration	237	10,344,700	—	—	—	**10,344,700**
Halogenated Substances	19	—	—	—	572,683	**572,683**
Other Emission Reduction Projects	82	5,500,986	50,497	—	6,536	**5,558,020**
Total	**1,147**	**149,517,578**	**10,342,413**	**131,685**	**579,219**	**160,570,896**

Source: Energy Information Administration, Forms EIA-1605.

Figure 3. Average Reported Emission Reductions by Project Category, Data Year 1998



Source: Energy Information Administration, Forms EIA-1605.

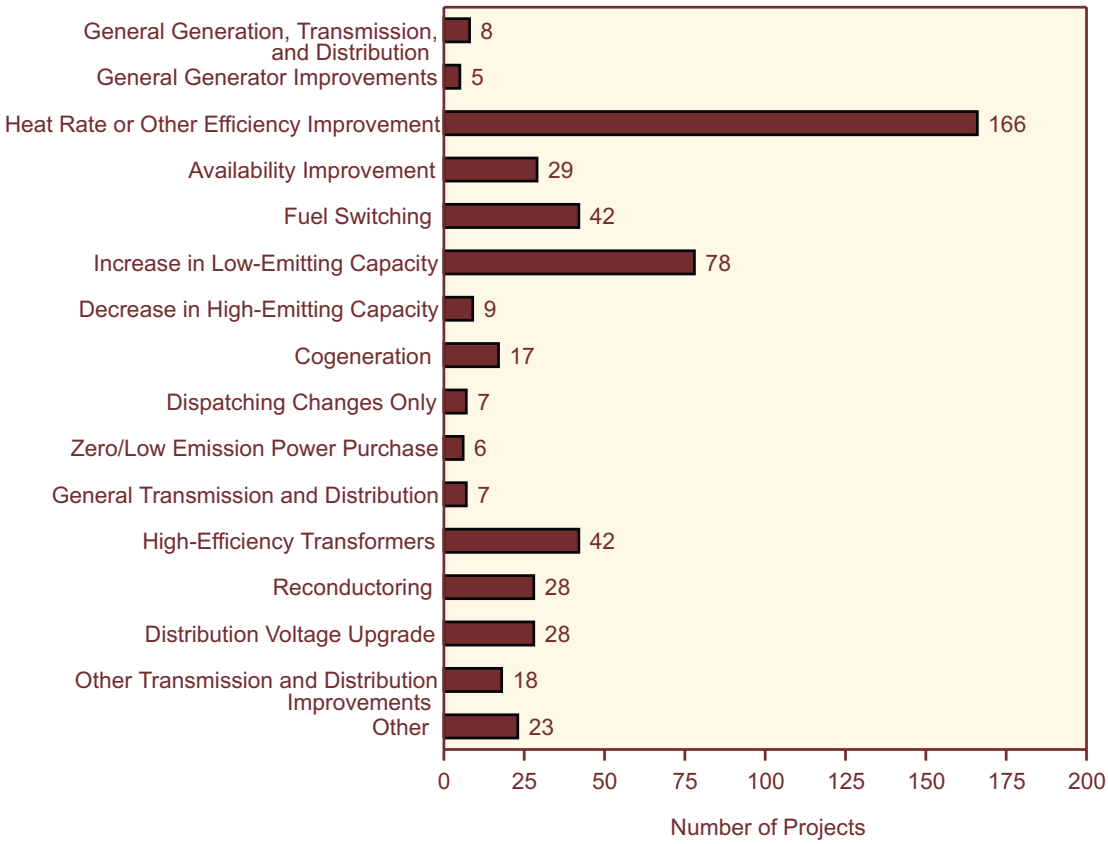
projects reported (Figure 4).[12] A total of 166 such projects were reported for 1998, and more than half of the electricity supply projects initiated in 1998 were of this type.

With an average emission reduction rate of 1.6 million metric tons of carbon dioxide equivalent, the emission reductions for availability improvement projects were among the highest reported. Nineteen of the 29 availability improvement projects took place at nuclear power plants. The 9 projects decreasing high-emitting capacity reported average emission reductions of 2.2 million metric tons carbon dioxide equivalent. This high average was mainly due to the inclusion of one nuclear generation capacity uprating and availability improvement project reported by TXU, which by itself resulted in a reported emission reduction of 18.1 million metric tons of carbon dioxide. Other commonly reported types of electricity supply projects included increases in low-emitting capacity, fuel switching, high-efficiency transformers, distribution voltage upgrades, and reconductoring.

A total of 17 cogeneration and waste heat recovery projects were reported by electric power sector entities for 1998, ending the trend of increasing cogeneration activities. The number of reported cogeneration projects remained constant from 1997 to 1998, and the estimated total emission reductions resulting from cogeneration projects increased by less than 1 percent. All but one of the cogeneration projects reported for 1998 were undertaken by private sector companies.

A new type of electricity supply project—the purchase of low- or zero-emitting electricity to replace carbon-intensive power—was introduced for 1998. Baltimore Gas & Electric Company (BG&E) reported a project to purchase surplus generation from a municipal waste-to-energy plant, displacing generation from BG&E's fossil-fuel plants. PP&L Resources reported on five projects involving the purchase of electricity generated from landfill gas or biogas. Together, these projects resulted in reported carbon dioxide emission reductions of 334,680 metric tons.

Figure 4. Reported Electricity Supply Projects by Type, Data Year 1998



Note: The sum of projects in each project category exceeds the total number of projects reported, because more than one project type may be assigned to a single project.

Source: Energy Information Administration, Form EIA-1605.

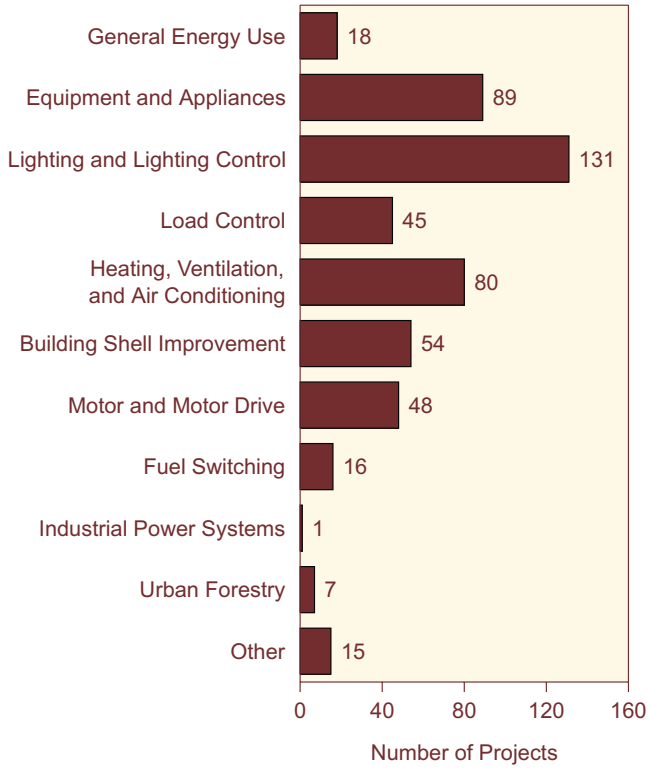
[12] Note that more than one project type may be assigned to a single project; therefore, the sum of projects in each project type category exceeds the total number of projects reported.

Energy End-Use Projects

The 254 energy end-use projects reported by the electric power sector fir 1998 accounted for emission reductions of 21.4 million metric tons carbon dioxide equivalent. The most frequently targeted types of energy end-use projects were lighting and lighting control; equipment and appliances; heating, ventilation, and air conditioning; and building shell improvements (Figure 5). Most of the reported energy end-use projects include more than one type of end-use activity.

Seven new energy end-use projects were reported for the 1998 data year. Six were projects initiated before 1998 but reported by a new reporter, Hawaiian Electric Company, Inc. They included three residential hot water efficiency programs and three commercial/industrial energy efficiency and construction projects, which together accounted for reported reductions of 44,920 metric tons of carbon dioxide. Only one energy end-use project, submitted by American Municipal Power—Ohio, was reported to have begun in 1998. This continued the downward trend in the number of new energy end-use projects reported to the program (Figure 6), probably a result of moves to deregulate the electric power industry, which have led many utilities to deemphasize or discontinue their demand-side management (DSM) programs.

Figure 5. Reported Energy End-use Projects by Type, Data Year 1998



Note: The sum of projects in each project category exceeds the total number of projects reported, because more than one project type may be assigned to a single project.

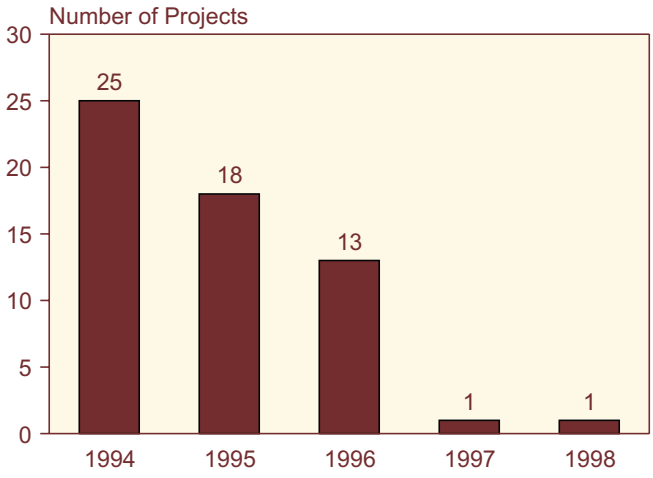
Source: Energy Information Administration, Form EIA-1605.

Entity-Level Reports

The electric power sector accounted for 39 of the 65 entity-level reporters for 1998 and claimed emission reductions equivalent to 132 million metric tons of carbon dioxide, or 74 percent of total emission reductions reported at the entity level. Ten entities estimated reductions from stationary combustion using basic reference cases, where the reduction is calculated as the difference between current emissions and actual historic baseline emissions (usually emissions in 1990 or an average of 1987 to 1990 emissions). The total reductions in carbon dioxide emissions from stationary combustion reported by these entities have declined in recent years, from 27 million metric tons in 1996 to 8.7 million metric tons in 1998 (Figure 7). All but two of the entities using basic reference cases reported that their stationary combustion reductions declined in 1998 compared with 1997, and three reported that their 1998 emissions had actually increased over their baseline emissions. The overall growth in demand for electricity is forcing utilities to increase generation, making it increasingly difficult to make absolute reductions in their emissions.

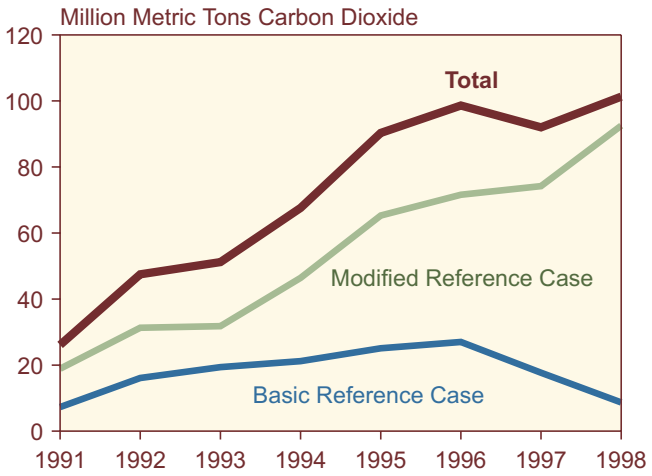
Twenty-one electric power sector organizations reported carbon dioxide reductions from stationary combustion using a modified or hypothetical reference case, where current emissions are compared with estimates of what emissions would have been had no actions to reduce emissions been undertaken. The reported reductions estimated in this manner totaled 93 million metric tons.

Figure 6. New Energy End-Use Projects Initiated by Data Year, 1994-1998



Source: Energy Information Administration, Form EIA-1605.

Figure 7. Entity-Level Reductions in Carbon Dioxide Emissions from Stationary Combustion Reported by Electric Utilities for 1998 by Reference Case Used, 1991-1998



Source: Energy Information Administration, Form EIA-1605.

Mergers and Acquisitions

With competition in the electric power sector increasing as a result of deregulation activities, the number of mergers, acquisitions, joint ventures, and strategic alliances among industry members has increased, leading to a decline in the overall number of electric power companies in the market. The increased activity may stem from a general industry assumption that a certain market size is necessary to gain economies of scale and compete effectively in a deregulated market. As part of this trend, companies are diversifying geographically to take advantage of seasonal and/or climate-related differences, and to benefit from particular variations in peak and baseload characteristics among electricity markets. The mergers may also be undertaken to gain fuel-specific market dominance. For example, the merger between UNICOM and PECO Energy Company has left one company in control of 20 percent of U.S. commercial nuclear power capacity.

Convergence is another trend that has been observed in the deregulated electric power sector. To create a market niche, larger companies in particular are entering into mergers that cut across traditionally separated industries, for example, by combining natural gas production with electricity generation. In 1998, the total value of mergers, alliances, and joint ventures in the electric power sector was estimated at $63 billion.[13]

Mergers and acquisitions in the electric power sector contributed to the decrease in the number of electric utilities reporting for the 1998 data year. Two reporting entities were lost through the mergers of Union Electric Company and Central Illinois Public Service Company to form Ameren Corporation and of Centerior Energy Corporation and Ohio Edison Company to form FirstEnergy Corporation. Three other mergers and acquisitions did not affect the total number of reporters, because each involved only one entity that reported for the 1997 data year: Wisconsin Power & Light (which merged with IES Utilities Inc. to form Alliant Energy); Long Island Lighting Company (which merged with Brooklyn Union Gas Company to form Keyspan Energy); and Houston Lighting & Power Company (now part of Reliant Energy). The divestiture of the generating facilities of the New England Electric System (NEES) Company to USGen New England, Inc. did not affect overall participation, because USGen submitted a report for 1998 on the projects it acquired, and NEES chose not to report on its remaining demand-side activities. Other reporters have merged, or are in the process of merging, but submitted reports for 1998 as subsidiaries of the new corporate entities. These included Atlantic Energy, Inc., and Delmarva Power (Conectiv) and Cooperative Power Association and United Power Association (Great River Energy).

[13]Personal communication with Bill Keene, Science Applications International Corporation, December 14, 1999.

Electric Power Sector Highlights

Carbon Sequestration Activities Dominated by Private Entities

Sixty-five electric power organizations reported on 237 carbon sequestration projects, reporting sequestration of 10.3 million metric tons of carbon dioxide in 1998. Private-sector utilities were responsible for a majority (185 projects) of the carbon sequestration activities reported. Public-sector or nonprofit entities reported on 44 projects, and IPPs were responsible for 8 projects. The most common types of projects were afforestation (92 projects), forest preservation (41 projects), forest management (41 projects), and urban forestry (36 projects).

- **UtiliTree Carbon Company.** The UtiliTree Carbon Company is a partnership of 40 IOUs that promotes investment in carbon sequestration activities. Each participating entity is entitled to report its share in the sequestration achieved by the activities of the partnership. To date, UtiliTree has sponsored four projects: the Rio Bravo Carbon Sequestration Pilot Project in Belize, the Reduced Impact Logging Project in Malaysia, the Western Oregon Carbon Sequestration Project, and the Mississippi Valley Bottomland Hardwood Restoration Project. The combined sequestration reported for the four projects by member utilities totaled 836,670 metric tons of carbon dioxide for 1998.

- **AES Shady Point and OXFAM America Amazon Project.** The largest single carbon sequestration project was reported by AES Shady Point, a subsidiary of AES Cooperation. In cooperation with OXFAM America, AES Shady Point is supporting indigenous groups from Peru, Ecuador, and Bolivia in gaining control over their lands in the Amazon and developing sustainable forest resource extraction plans. AES reports that over a 10-year period, beginning in 1993, its activities will preserve 1.2 million acres of pristine rain forest and prevent the release of 64 million metric tons of carbon dioxide to the atmosphere. In 1998, AES Shady Point reported that the project avoided the release of 4.2 million metric tons of carbon dioxide.

- **American Electric Power, Inc.** American Electric Power, Inc. (AEP) reported on 30 afforestation, forest preservation, and modified forest management projects, which were estimated to sequester 1.1 million metric tons carbon dioxide equivalent in 1998.

Emission Reduction Opportunities Provided by Sulfur Hexafluoride

Increasingly, electric power sector reporters are recognizing that sulfur hexafluoride offers opportunities for reducing emissions. Electric utilities use sulfur hexafluoride as an insulator for circuit breakers, switch gear, and other electrical equipment. Even small reductions in emissions of sulfur hexafluoride, which has a global warming potential (GWP) of 23,900, can lead to substantial carbon dioxide equivalent reductions. As compared with only two sulfur hexafluoride reduction projects reported for 1996, eight entities reported nine projects for 1998, which reduced sulfur hexafluoride emissions by 24 metric tons, equivalent to about 574,000 metric tons of carbon dioxide.

- **Allegheny Power Service Corporation.** Allegheny reported the largest single sulfur hexafluoride reduction project, which involved modifying its 500-kilovolt breaker replacement program to include recovery of sulfur hexafluoride gas that previously was vented to the atmosphere. The project resulted in sulfur hexafluoride emission reductions of 8.75 metric tons, equivalent to 209,229 metric tons of carbon dioxide.

- **Baltimore Gas & Electric Company and Entergy Services, Inc.** Two sulfur hexafluoride reduction projects were reported to have been initiated in 1998. Baltimore Gas & Electric Company introduced sulfur hexafluoride recovery and recycling measures during routine and forced maintenance of its electric distribution equipment. Entergy Services Inc. identified procedures to seal leaks from substation breakers that use sulfur hexafluoride as an insulating gas. Together, these activities resulted in emission reductions equivalent to 9,636 metric tons of carbon dioxide.

Two New Wind Energy Projects Reported in 1998

In 1998, two new wind energy projects were reported by Portland General Electric Company and Platte River Power Authority together with four owner cities, reducing carbon dioxide emissions by an estimated 15,492 metric tons.

- **Fort Collins Wind Power Pilot Project.** In a joint effort with Fort Collins Utilities, Platte River Power Authority offers customers in Fort Collins the option of purchasing wind-generated electricity for

(continued on page 19)

Electric Power Sector Highlights (Continued)

an additional cost of $0.02 per kilowatthour. By the end of 1998, 520 residential customers and 12 commercial customers had signed up to purchase all their electricity from the Medicine Bow Wind Project in Wyoming, which is owned by Platte River. The pilot effort was reported to avoid 1,894 metric tons of carbon dioxide emissions in 1998.

- **Vansycle Ridge Wind Generation.** Portland General Electric Company (PGE) reported on emission reductions achieved from 38 wind turbines built by FLP Energy at Vansycle Ridge. Through a 30-year arrangement with FLP Energy, the turbines generate electricity exclusively for PGE customers, and PGE may claim all emission credits associated with the project. In 1998, PGE reported that the project avoided the purchase of 19,872 megawatthours of electricity from fossil sources, reducing its carbon dioxide emissions by 13.6 thousand metric tons.

Methane Emissions from Waste Treatment and Disposal Reduced

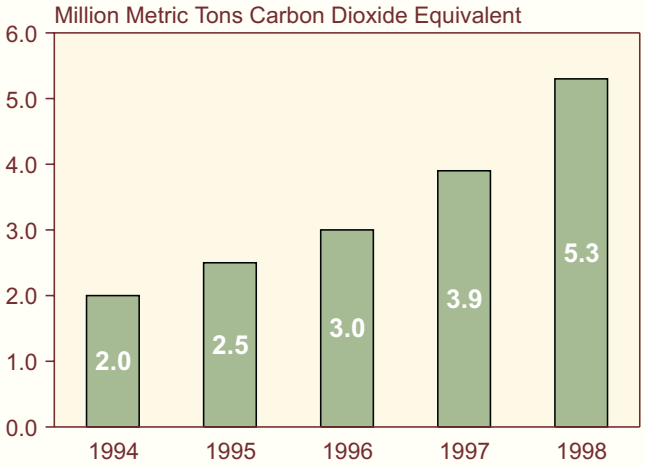
An average reduction of 218,801 metric tons carbon dioxide equivalent was reported for the electric power sector's 46 waste treatment and disposal projects for 1998. Most of the projects reduced methane emissions by capturing and recovering landfill gas for energy use.

- **Landfill Methane Recovery and Energy Purchases.** Two large projects significantly raised the overall average reduction for projects in this category. UNICOM reported the purchase of electric power generated from methane gas recovery activities at 14 landfill sites, and DTE Energy reported on 21 landfill gas recovery partnerships. Together, these activities lowered methane and carbon dioxide emissions by a reported 6.1 million metric tons carbon dioxide equivalent.
- **Montenay Waste-to-Energy Power Plant.** A new waste-to-energy project was reported by Florida Power & Light Company (FPLE) in 1998. FPLE has a 40-percent ownership share in the Montenay waste-to-energy plant, which generates electric power from municipal solid waste. A total of 370,729 metric tons of waste was processed at the plant in 1998. FPLE reported emission reductions of 1,345 metric tons carbon dioxide equivalent as a result of avoided landfill waste disposal.

Largest Reported Increase for Coal Ash Reuse Projects Since 1994

Coal ash, a byproduct of coal combustion, continues to be a marketable commodity for the electric power sector. Emission reduction projects, based on the reuse of coal ash, are increasingly being reported to the Voluntary Reporting Program. For 1998, 41 entities reported on 42 coal ash reuse projects, accounting for emission reductions equal to 5.3 million metric tons carbon dioxide equivalent. Estimated emission reductions from coal ash recycling increased by 1.4 million metric tons of carbon dioxide over those reported for 1997, representing the largest annual increase in reported reductions since 1994. The largest reductions were reported by TXU (549,725 metric tons carbon dioxide) and American Electric Power, Inc. (382,984 metric tons carbon dioxide).

Reported Reductions from Coal Ash Reuse Projects, Data Years 1994-1998



Source: Energy Information Administration, Form EIA-1605.

Increased Emission Reductions from Nuclear Energy Usage in 1998

Unlike plants using fossil fuels, nuclear power plants do not produce greenhouse gas emissions. Electric utilities therefore report emission reductions from projects that increase nuclear energy generation and displace the use of higher-emitting fossil fuels. Emission reductions from nuclear energy usage reported by

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Electric Power Sector Highlights (Continued)

the electric power sector increased by 43 percent, from an estimated 70 million metric tons carbon dioxide equivalent for 1997 to 100 million metric tons carbon dioxide equivalent for 1998.

Although two previous nuclear power project reporters did not report for 1998, four organizations—Baltimore Gas & Electric Company, Delmarva Power, PECO Energy Company, and Salt River Project—reported new nuclear energy projects. Reported emission reductions from the four new projects totaled 12.5 million metric tons of carbon dioxide for 1998.

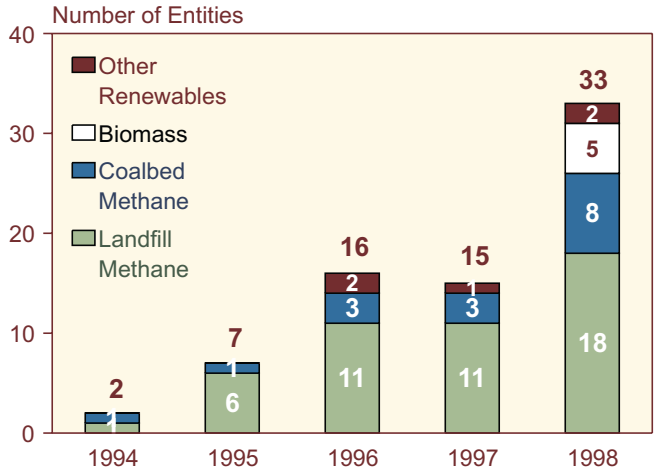
Existing projects accounted for most of the increase in emission reductions from nuclear power projects. For example, Duke Energy Corporation reported an increase of 4.7 million metric tons in carbon dioxide emission reductions for 1998 from an availability improvement project at the McGuire Nuclear Station. Increased nuclear generation from the plant replaced electricity production from Duke Power's coal-fired power plants, avoiding carbon dioxide emissions associated with coal combustion. The total emission reduction in 1998 reported for the project was 7 million metric tons of carbon dioxide, up from 2.3 million metric tons in 1997.

3. Alternative Energy Providers

Who Reported?

Thirty-three alternative energy providers submitted reports for the 1998 data year—more than twice the 15 companies that submitted reports for the 1997 data year (Figure 8). Of the 33 entities reporting, 18 were principally involved with recovering methane generated from waste decomposition at landfills for energy and 8 with recovering coalbed methane for energy; 5 burned biomass in boilers to displace fossil fuels; 1 used hydropower to displace fossil fuel generation; and 1 used wind power to displace fossil fuel. This was the first reporting cycle that included submissions by biomass energy companies.

Figure 8. Number of Alternative Energy Providers Submitting Reports, 1994-1998



Source: Energy Information Administration, Forms EIA-1605 and EIA-1605EZ.

What Was Reported?

The 33 alternative energy providers reported 102 projects for the 1998 data year, an increase of 82 percent from the 56 projects reported for 1997. Together, the 102 projects reportedly lowered emissions by 37.2 million metric tons carbon dioxide equivalent or an average of 364,000 metric tons carbon dioxide equivalent per project (Table 10). The average was raised substantially by one waste combustion project reported by the Integrated Waste Services Association (IWSA). Representing 65 of the Nation's 114 waste combustion facilities, IWSA reported carbon dioxide equivalent reductions of 11.7 million metric tons for 1998. The 11 coal-mine methane projects also showed reductions well above the average, claiming 818,000 metric tons of avoided methane emissions, or about 80 percent of the total estimated methane recovery from U.S. coal mines in 1998.[14]

Table 10. Number of Projects and Emission Reductions Reported by Alternative Energy Providers by Project Type, Data Year 1998
(Metric Tons)

Project Type	Number of Projects	Methane Emission Reductions	Total Carbon Dioxide Equivalent Reductions	Average Carbon Dioxide Equivalent Reductions
Landfill Gas Recovery for Flaring and Energy	5	51,345	1,065,795	213,159
Landfill Gas Recovery for Energy	54	252,100	5,294,099	98,039
Landfill Gas Recovery For Flaring	20	44,254	929,349	46,467
Source Reduction at Landfills	1	159,612	11,700,880	11,700,880
Total Landfills	**80**	**507,065**	**18,990,125**	**237,377**
Coal Mine Methane	11	817,859	17,175,016	1,561,365
Biomass	5	0	928,055	185,611
Other Renewables	6	0	66,097	11,016
Total	**102**	**1,324,924**	**37,159,293**	**364,307**

Source: Energy Information Administration, Forms EIA-1605 and EIA-1605EZ.

[14]U.S. Energy Information Administration, *Emissions of Greenhouse Gases in the United States 1998*, DOE/EIA-0573(98) (Washington, DC, October 1999), Table 14, p. 36.

Alternative Energy Provider Highlights

More Landfill Gas Recovery Projects Reported

In 1997, approximately 150 landfills had operational gas-to-energy projects in place. There were more than 200 operational projects in place in 1998, and, according to the U.S. Environmental Protection Agency's (EPA) Landfill Methane Outreach Program (LMOP), more than 270 projects are currently operational. The rapid growth is attributed principally to two factors. First, in order to maintain eligibility for a Federal tax credit under Section 29 of the Internal Revenue Code (created under the Windfall Profits Tax Act of 1980), methane recovery systems must have been operational by June 30, 1998. Second, the EPA recently implemented New Source Performance Standards and Emission Guidelines for landfills, giving operators an additional regulatory incentive to capture emissions.

The rapid growth in landfill gas-to-energy projects was reflected in the reports submitted to the Voluntary Reporting Program. For the 1998 data year, reductions were reported for 93 separate landfills, including 63 reported by utilities purchasing electricity generated from landfill gas. For the 1997 data year, only 79 landfills were included in the reports received. At several landfills, where recovery systems were placed in operation early in the year to meet the Section 29 deadline but power sales contracts were not concluded until later, both methane flaring and gas recovery for energy were reported for 1998.

Most Projects Associated with EPA Voluntary Programs

For the 1998 data year, 73 of the 80 projects (91 percent) that reduced methane emissions at landfills reported an association with EPA's Landfill Methane Outreach Program, up from 23 of 49 (47 percent) in the 1997 data reporting cycle. Seven of the 11 reported coal mine methane reduction projects indicated an association with EPA's Coalbed Methane Outreach Program, up from just one in the previous reporting year.

Multiple Reporting an Important Issue for Alternative Energy Provider Projects

The incidence of multiple reporting has increased as the number and diversity of program participants has risen.

Typically, multiple reporting takes one of three forms:

- Several entities share joint ownership of a project, and each reports its portion of the project.
- Two or more entities submit the same reductions for a project, one owning the emissions source and thus reporting the reduction as direct and the other purchasing the energy generated and thus reporting the reductions as indirect. This is most common in the case of electricity generated from methane collected at a landfill and sold to a utility.
- Reductions are reported as part of a project by one respondent and as part of an entity-wide reduction by another reporter. For example, a coal producer may report entity-wide reductions from its coal mining operations while a gas developer reports emission reduction projects at individual mines owned by the producer.

EIA was able to document 14 cases in which multiple owners of landfill gas-to-energy projects reported reductions and 9 cases in which gas flaring and energy recovery at a landfill were reported as separate projects. In the former case only the share of reductions associated with each reporter's ownership share was reported, preventing double counting. In the latter case, the reductions from flaring and energy recovery are separate events and thus not double counted.

There were 5 cases in which a generator of electricity from landfill gas reported direct emission reductions and the purchaser of the electricity reported indirect emission reductions. In those cases, the reductions were placed in different categories and were not double counted. Because the total appearing in Table 10 includes both direct and indirect emissions, however, it somewhat overstates the total reduction in emissions to the atmosphere. Because the table represents claimed reductions and not necessarily realized reductions and no property rights to emissions have yet been established, EIA reports total claims.

There were also three instances identified by EIA in which multiple owners of a single coalbed methane recovery operation reported projects. One project had four owners, another had three owners, and the third had two owners, and each of the owners reported independently. Again, only the share of reductions equal to ownership shares were reported. There was also one case in which a coal mine methane gas developer reported reductions that also appeared as reductions in the entity-wide emissions of a coal producer. The entity report is not included in the project total; however, adding project reductions and entity reductions would cause double counting in this case.

4. Agriculture and Forestry

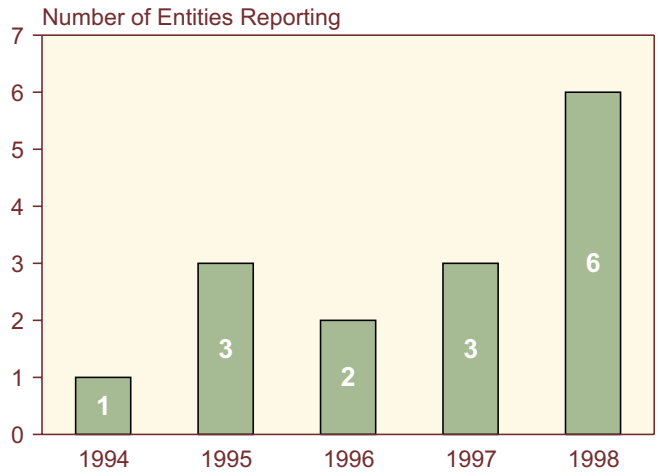
Who Reported?

Six agriculture and forestry sector organizations submitted reports for the 1998 data year (Figure 9). Four of these reporters—American Forests, the Urban Forestry Alliance, Whatcom Land Trust, and the World Parks Endowment—are nonprofit organizations that implement forestry projects in the United States and abroad. J.M. Gilmer and Company, Inc., is a real estate concern in Alabama, and Grayson Hill Farms conducts hydroponic and aquaculture farming operations in Illinois.

What Was Reported?

All the projects reported for the agriculture and forestry sector involved some kind of forestry activity, with one exception (Table 11). Grayson Hills Farms reported avoiding emissions of 1,575 metric tons of methane through the use of coal mine methane in a cogeneration system at its hydroponic and aquaculture farming operation. Although 97 of the agriculture and forestry projects (87 percent) were reforestation projects reported by American Forests, they accounted for only 2 percent of the total carbon dioxide equivalent emission reductions and carbon sequestration in 1998 reported for the sector. Three forest preservation projects reported by the Whatcom Land Trust and the World Parks Endowment accounted for 96 percent of the sector's emission reductions and sequestration. (A fourth forest preservation project, reported for the first time this year, sequestered carbon only in years prior to 1998.) Also reported were 8 afforestation projects (American Forests and J.M. Gilmer and Company), and single projects involving urban forestry (Urban Forestry Alliance) and short-rotation woody crops (J.M. Gilmer and Company).

Figure 9. Number of Agriculture and Forestry Sector Entities Submitting Reports, 1994-1998



Source: Energy Information Administration, Forms EIA-1605 and EIA-1605EZ.

Table 11. Number of Projects and Emission Reductions Reported by Agriculture and Forestry Sector Reporters by Project Type, Data Year 1998

Project Type	Number of Projects Reported	Emission Reduction or Carbon Sequestration Reported		
		Carbon Sequestration (Metric Tons Carbon Dioxide)	Methane (Metric Tons)	Total (Metric Tons Carbon Dioxide Equivalent)
Coal Mining: Gas Recovery Using Gob Wells	1	—	33,072	**33,072**
Afforestation	8	3,422	—	**3,422**
Reforestation	97	49,667	—	**49,667**
Urban Forestry (Sequestration Only)	1	*	—	**
Forest Preservation	4	1,993,811	—	**1,993,811**
Woody Biomass Production and Other Agroforestry	1	35	—	**35**
Total	**112**	**2,046,935**	**33,072**	**2,080,007**

*Less than 0.5 metric tons.
Source: Energy Information Administration, Forms EIA-1605 and EIA-1605EZ.

Agriculture and Forestry Sector Highlights

103 Global ReLeaf Projects Reported by American Forests

All the projects reported by American Forests are part of its Global ReLeaf campaign, which sponsors the restoration of forest ecosystems that have been damaged by natural or human events. To date, 103 Global ReLeaf projects in 38 States have been reported, all of which involve reforestation and afforestation. Although the primary objective of Global ReLeaf is forest and habitat restoration, the projects also sequestered a reported 49,667 metric tons of carbon dioxide in 1998. American Forests reported its sponsorship of 18 new projects in 1998, including the following:

- **Dawson Demo Forest (Dawson County, Georgia).** This regeneration effort involved the planting of shortleaf and improved loblolly pine seedlings on 93 acres that suffered a southern pine beetle infestation and tornado damage. The reported carbon dioxide sequestration in 1998 was 484 metric tons.
- **Kula Forest Preserve (Maui, Hawaii).** The Tri-Isle Resource Conservation and Development Council planted 4,000 native koa, sandalwood, and ohia trees on the State-owned Kula Reserve to replace trees damaged by feral goats and pigs. The reported carbon dioxide sequestration in 1998 was 773 metric tons.
- **Nooksack (Whatcom County, Washington).** The Nooksack Salmon Enhancement Association planted native tree and shrub species on 55 acres of degraded riparian corridors within several watersheds in Whatcom County to improve stream habitat and increase salmon populations in the lowland streams. The reported carbon dioxide sequestered in 1998 was 92 metric tons.

45,200 Hectares of Forest Land Preserved in Central and South America

The World Parks Endowment reported three forest preservation projects located in Belize, Guatemala, and Ecuador that together have prevented the emissions of an estimated 9.2 million metric tons of carbon dioxide from 1991 through 1998.

- **Bladen Sanctuary (Belize).** The World Parks Endowment provided $100,000 to the Belize Audubon Society for the management of the Bladen Sanctuary, which includes 97,000 acres (38,800 hectares) of tropical montane cloud forest. Without the sanctuary, World Parks Endowment estimates that 30 percent of the land—all the fairly level areas—would have been converted to pasture and citrus farms between 1993 and 1998. According to this estimate, the project avoided releasing about 6.2 million metric tons of carbon dioxide over the 6-year period.
- **Sierra de las Minas Biosphere Reserve (Guatemala).** The Sierra de las Minas Reserve was created when World Parks Endowment provided Defensores de la Naturaleza the funding necessary to purchase 11,000 acres (4,400 hectares) of virgin tropical montane cloud forest. According to its report, Work Park Endowment's intervention prevented the purchase of the land by an organization that would have cleared it for cropland in 1991 and 1992. Establishment of the reserve avoided release of a reported total of 2.3 million metric tons of carbon dioxide.
- **Bilsa Biological Reserve (Ecuador).** The World Parks Endowment also participated in the creation of the 2,000-hectare Bilsa Biological Reserve in the Montañas de Mache in northwest Ecuador. According to the World Parks Endowment, this project represents the last significant opportunity to preserve Pacific slope wet forest in a region where 99 percent of the lowland wet forest has been cleared. The establishment of the reserve required $140,000 for land purchase and $100,000 for an endowment to fund the management of the reserve. The project was approved by the U.S. Initiative on Joint Implementation in December 1996. The World Parks Endowment reports that the preserved area would have been harvested over a 3-year period (1997-1999), resulting in the release of a total of 1.2 million metric tons of carbon dioxide.

Old-Growth Forest Preserved in Western Washington

According to Whatcom Land Trust's report, the Canyon Lake Creek Community Forest Project permanently protects approximately 303 hectares of alpine forest containing one of the oldest forest stands in the Pacific Northwest. With documented tree ages exceeding 800 years, the forest consists primarily of Pacific silver fir, Alaska yellow cedar, and mountain hemlock. The planned clear-cut logging of the tract would have released an estimated 609,382 metric tons of carbon dioxide.

Hydroponic Farm Fueled by Coal Mine Methane

Grayson Hill Farms reported using coal mine methane in its hydroponic and aquaculture farming operations. The recovered gas, which is 90 percent methane, is used in a 0.8 million Btu per hour cogeneration system. Grayson Hill Farms claims to have avoided methane emissions equivalent to 33,072 metric tons of carbon dioxide in 1998.

5. Industrial Sector

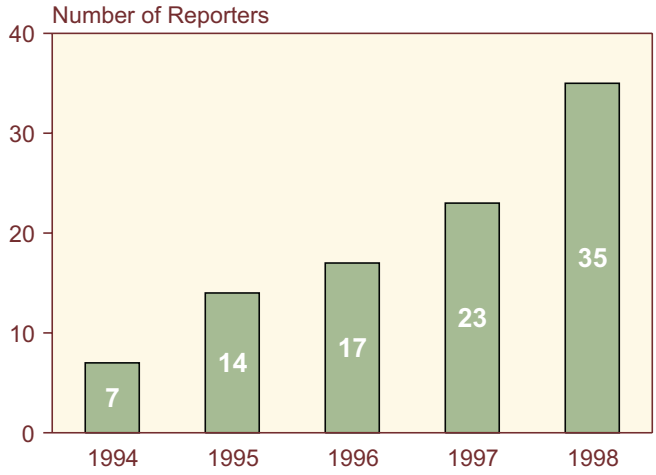
Who Reported?

Thirty-five companies in the industrial sector submitted reports for 1998 to the Voluntary Reporting Program, a 52-percent increase over the number of entities reporting in the previous reporting cycle (Figure 10). Twelve new reporters submitted reports for 1998, including several cement companies, a group of five Climate Wise participants from the Miami–Dade County region, and familiar consumer product manufacturers such as The Gillette Company and the Estee Lauder Companies. Submitting reports again were other well-known companies, such as General Motors Corporation, IBM, Johnson & Johnson, Lucent Technologies, Motorola–Austin, The Dow Chemical Company, Volvo Cars of North America, and the recently merged BP Amoco.

What Was Reported?

Fifteen industrial entities reported at the project level, 13 reported at both the project and entity levels, and 7 reported on entity-wide emissions and/or reductions only. Emission reductions reported at the entity level totaled 20.6 million metric tons carbon dioxide equivalent. Most of the reported savings, about 12.7 million tons carbon dioxide equivalent, came from CONSOL Coal Group's reduction of coalbed methane emissions through internal use and joint partnership gas sales.

Figure 10. Number of Industrial Sector Entities Submitting Reports, 1994-1998



Source: Energy Information Administration, Forms EIA-1605 and EIA-1605EZ.

Reported project-level emission reductions totaled 9.9 million metric tons carbon dioxide equivalent (Table 12). Seventy percent (79) of the emission reduction projects reported involved energy end use. The 3 million metric tons in end-use reductions, however, represented less than one-third of the total reported industrial-sector savings. Some of the largest reductions, totaling nearly 4 million metric tons carbon dioxide equivalent, came

Table 12. Number of Projects and Emission Reductions Reported by Industrial Sector Reporters by Project Type, Data Year 1998
(Metric Tons Carbon Dioxide Equivalent)

Project Type	Number of Projects Reported	Emission Reductions Reported			
		Carbon Dioxide	Methane	Halogenated Substances	Total
Cogeneration and Waste Heat Recovery	1	263,135	—	—	**263,135**
Energy End Use	79	3,066,968	—	—	**3,066,968**
Transportation	6	13,532	—	—	**13,532**
Oil and Natural Gas Systems and Coal Mining: Methane[a]	4	-12,428	1,427,135	—	**1,414,708**
Carbon Sequestration	1	102,980	—	—	**102,980**
Halogenated Substances[b]	11	*	—	3,770,560	**3,770,560**
Other Emission Reduction Projects	10	1,224,366	147	—	**1,224,513**
Total	**113**	**4,658,554**	**1,427,282**	**3,770,560**	**9,856,397**

*Less than 0.5 metric tons.
[a]Negative emission reduction reflects increased carbon dioxide emissions from methane flaring.
[b]Halogenated gases include perfluorocarbons and hydrofluorocarbons only. Chlorofluorocarbons and hydrochlorofluorocarbons are not included in the totals because of the uncertainty associated with estimates of their net global warming potential.
Note: Excludes confidential data.
Source: Energy Information Administration, Forms EIA-1605 and EIA-1605EZ.

from the 11 projects that reduced emissions of halogenated substances. Also reported were a variety of emission reduction actions at BP Amoco's petroleum refineries and Separation Technologies' use of fly ash as a substitute for cement in concrete production, with emission reductions totaling more than 1.2 million metric tons. Two coal mine methane recovery projects undertaken by U.S. Steel Mining Company and one by Peabody Holding Company avoided a reported 1.4 million metric tons in carbon dioxide equivalent emissions combined. A carbon sequestration project by BP Amoco reported sequestering over 100,000 metric tons of carbon dioxide.

Industrial Sector Highlights

Non-CO_2 Emission Reductions Among the Highest in the Industrial Sector

Noranda Aluminum, Inc., recorded the industrial sector's largest single emission reduction, avoiding emissions of 495 metric tons of perfluoromethane and 49 metric tons of perfluoroethane in an anode effect reduction project. With global warming potentials (GWPs) of 6,500 and 9,200 for perfluoromethane and perfluoroethane, respectively, the reductions are equivalent to about 3.7 million metric tons of carbon dioxide and represent more than one-third of all industrial-sector reductions. VANALCO, Inc., and Alcan Ingot (Sebree Aluminum Plant) also reported large perfluorocarbon reductions with similar projects that minimize the perfluorocarbon-producing anode effect caused by low levels of alumina in electrolyte baths during the aluminum smelting process.

Two coal mining companies reported large coalbed methane reductions through gas recovery, use, and sale. In two projects, the U.S. Steel Mining Company avoided over 1.3 million metric tons in carbon dioxide equivalent emissions. Peabody Holding Company, Inc., reported 86,700 metric tons of carbon dioxide equivalent savings by delivering gob well methane gas to a natural gas pipeline.

More Reports from Climate Wise Partners

The Voluntary Reporting Program received reports for 1998 from 10 new reporters in the industrial sector that are participants in the Climate Wise program. Almost half of all the industrial sector reporters (17 of 35) are Climate Wise participants. The following new Climate Wise reporters submitted information on a range of energy end-use and transportation activities: Dade Behring, Inc.—a clinical laboratory services company; Engelhard—a specialty chemical company; Imperial Plating—an electroplating, anodizing, and supply company; Industrial Equipment and Supplies—an industrial equipment manufacturer; Pintexs—a paint and coating manufacturer; Allergan, Inc.—a global pharmaceutical and eye care company; Essential Foods, Inc.—a food manufacturer and distributor; and California Portland Cement Company—a cement manufacturer, which submitted separate reports for its Colton and Mojave plants in California and its subsidiary in Arizona, the Arizona Portland Cement Company.

Growing Participation by the Cement Industry

In addition to the three reports received from California Portland Cement Company affiliates, cement industry reports for 1998 included one from another Climate Wise participant, the Dragon Products Company. Cement manufacturing is an energy-intensive undertaking because it includes the calcination of limestone to lime, one of the principal ingredients of cement. All but one of the projects reported by cement industry reporters for 1998 involved process improvements that reduced energy consumption. In the remaining project, larger, more efficient trucks for hauling limestone were introduced at the quarry. Together, the projects reduced carbon dioxide emissions by a reported 427,857 metric tons in 1998.

U.S. Industry Focus on Energy End Use Activities

Most of the projects reported for 1998 by industrial sector participants focused on energy end use activities. Sixty-eight of the 84 end-use projects involved one or more of the following four project types:[a]

- Equipment and appliances improvement or replacement (37 projects, 2.5 million metric tons carbon dioxide equivalent)
- Lighting and lighting control (17 projects, 1.6 million metric tons carbon dioxide equivalent)
- Heating, ventilation, and air conditioning (15 projects, 1.5 million metric tons carbon dioxide equivalent)
- Motor and motor drive (8 projects, 1.5 million metric tons carbon dioxide equivalent)

Reductions from U.S. Operations Reported by BP Amoco

BP Amoco's projects, most of which incorporated multiple initiatives at its U.S. crude oil production, chemical manufacturing, and refining installations, produced some of the industrial sector's largest reported reductions in 1998, including the following:

- Thermal process efficiency improvements, 236,000 metric tons carbon dioxide
- Petroleum refining modifications, 565,000 metric tons carbon dioxide
- Petroleum refining emission control project, 543,000 metric tons carbon dioxide
- Crude oil production emission reduction, 448,045 metric tons carbon dioxide.

[a]Because more than one project type may be assigned to a single project, the sum of the number of projects and the sum of reported emission reductions may exceed the totals for energy end use projects.

6. Other Sectors

Who Reported?

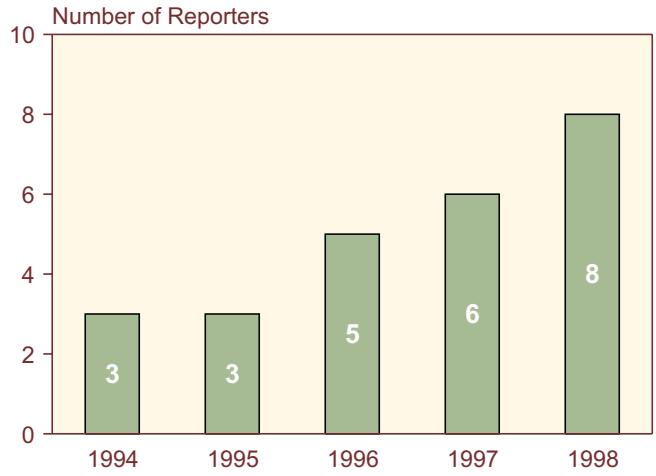
Eight entities from other sectors (including government, commercial, and residential entities) reported for 1998 (Figure 11). Government organizations included two units of local government (City of Fairfield Wastewater Division in Ohio and Burlington County Board of Chosen Freeholders in New Jersey) and the U.S. Department of Energy. Commercial-sector reporters included Abe Krasne Home Furnishings, Inc., of Fremont, Nebraska, a manufacturer and retailer of furniture and home furnishings; Air Exchange, Inc., an engineering services corporation in New Jersey that provides environmental consulting services in anticipation of possible future early action credit programs; the Minnesota Resource Recovery Association, a recycling membership organization; and Pan American Hospital, a health services provider from Miami, Florida. One household reported, providing the sole residential submission for 1998. Four of these entities (U.S. Department of Energy, Abe Krasne Home Furnishings, Inc., Air Exchange, Inc., and Pan American Hospital) reported for the first time in 1998.

What Was Reported?

More than 65 percent of the projects reported for 1998 by organizations in other sectors involved various end-use activities, consisting primarily of basic efficiency improvements, such as equipment upgrades, lighting replacement or better maintenance programs, and fuel switching (Table 13). Together, these projects avoided a reported 1 million metric tons of carbon dioxide emissions, or about 42 percent of total carbon dioxide equivalent of the reductions for reporters in other sectors.

The remaining (non-end-use) projects included some of the larger reductions for reporters in other sectors. Several recycling efforts and an incineration project resulted in emission reductions of about 1.1 million metric tons carbon dioxide equivalent. A landfill gas flaring project avoided emissions of 247,119 metric tons carbon dioxide equivalent (including carbon dioxide emissions from flared landfill gas). Other types of projects included mass transit commuting, methane recovery from wastewater treatment plant digesters, and photovoltaic power generation.

Figure 11. Number of Entities from Other Sectors Submitting Reports, 1994-1998



Source: Energy Information Administration, Forms EIA-1605 and EIA-1605EZ.

Table 13. Number of Projects and Emission Reductions Reported by Other Sector Reporters by Project Type, Data Year 1998
(Metric Tons Carbon Dioxide Equivalent)

Project Type	Number of Projects Reported	Emission Reductions Reported		
		Carbon Dioxide	Methane	Total
Increase in Low-Emitting Capacity	1	37	—	**37**
Equipment and Appliances Improvement or Replacement	4	42	—	**42**
Lighting and Lighting Control	2	38	—	**38**
Heating, Ventilation, and Air Conditioning	4	84	—	**84**
Motor and Motor Drive	4	30	—	**30**
Fuel Switching	1	993,000	—	**993,000**
Industrial Power Systems	1	13	—	**13**
Demand Modification: Mass Transit	1	4	—	**4**
Landfills: Flaring Landfill Gas[a]	1	-37,237	284,357	**247,119**
Wastewater Treatment: Biogas Recovery for Energy Use	1	631	—	**631**
Materials Recycling and Reuse	5	157,240	16,467	**173,707**
General Waste Treatment and Disposal: Methane Avoidance	1	—	955,731	**955,731**
Total	**26**	**1,113,861**	**1,256,555**	**2,370,435**

[a]Negative emission reduction reflects increases in carbon dioxide emissions produced by methane flaring.
Source: Energy Information Administration, Forms EIA-1605 and EIA-1605EZ.

Highlights from Other Sectors

Substantial Carbon Dioxide Savings Through End-Use Effort by Air Exchange, Inc.

Air Exchange, Inc., a new reporter, reported one of the largest 1998 emission reductions for entities from other sectors with a reduction of 993,000 metric tons of carbon dioxide from a nonutility boiler shutdown/upgrade project. Older, inefficient boilers firing residual fuel were shut down through plant closings or replaced by more efficient natural-gas-fired boilers, resulting in carbon dioxide savings of more than 4 million metric tons since 1995. The project was implemented to achieve compliance with NO_x Reasonably Achievable Control Technologies standards.

Wide Range of Efficiency Measures Implemented To Reduce Emissions

The wide variety of reporting entities and types of end-use efficiency projects reported to the Voluntary Reporting Program for 1998 was reflected in the following reports:

- **Abe Krasne Home Furnishings, Inc.** Abe Krasne reported avoiding emissions of about 38 metric tons of carbon dioxide through a fluorescent bulb fixture replacement project.
- **City of Fairfield Wastewater Division.** The City of Fairfield, Ohio, reported on four motor replacement projects for its sewage aeration blowers and pumps that reduced carbon dioxide emissions by more than 30 metric tons.
- **Pan American Hospital.** Pan American Hospital in Miami, Florida, implemented five end-use projects, including industrial boiler and heating, ventilation, and air conditioning system maintenance programs and steam system/chiller efficiency upgrades. The efforts avoided more than 138 metric tons of carbon dioxide emissions.

Methane Reductions Reported by Government Entities

Two government entities reported methane emission reductions through flaring and recovery:

- The Burlington County Board of Chosen Freeholders reported on a 3-year-old landfill gas flaring project, claiming reductions of 247,120 metric tons carbon dioxide equivalent for 1998. Most of the gas (98.6 percent) came from an operating landfill at the Burlington County Resource Recovery Complex.
- The City of Fairfield, Ohio, used methane produced from anaerobic digesters at its wastewater treatment plant in place of distillate fuel, resulting in reported reductions of almost 631 metric tons of carbon dioxide emissions.

Photovoltaic Systems Project Reported by U.S. Department of Energy

The U.S. Department of Energy reported the installation of photovoltaic cell systems at its day care centers in the Washington, DC, metropolitan area. The solar cells generate 38,000 kilowatthours, eliminating about 37 metric tons of carbon dioxide emissions, each year.

Emissions of Landfill Gas Prevented by Recycling and Incineration Efforts

The Burlington County Regional Recycling Program provides curbside pickup of paper, cardboard, glass, plastic containers, and metal cans from residences throughout the county. The program reduces the amount of waste that goes into the county landfill, reducing emissions of landfill gas (which is about 50 percent methane) that presumably would have escaped into the atmosphere had the effort not been undertaken. The project's reported reductions of methane and carbon dioxide totaled more than 48,254 metric tons carbon dioxide equivalent for 1998. The recycling effort also results in a corresponding savings in tipping fees to municipalities. Burlington County saved over $2 million in 1998 alone.

Minnesota Resource Recovery Association (MRRA) reported four projects involving paper recycling and book reuse, which they claim have avoided emissions of nearly 125,454 metric tons carbon dioxide equivalent. MRRA's fifth project involved a mixed solid waste incineration effort that burned nearly 403,000 metric tons of waste, resulting in an estimated landfill methane reduction of 955,731 metric tons carbon dioxide equivalent—the largest single emission reduction for other sector reporters.

Appendix

Summary of Reports Received

Table A1. Reporting Entities, Data Year 1998

Reporter Name	Sector	Type of Form	Number of Projects Reported (Schedule II)	Entity-Wide Report (Schedule III)	Commitments (Schedule IV)
A&N Electric Cooperative	Electric Power	1605	2	No	Yes
Abe Krasne Home Furnishings, Inc.	Other	1605	2	No	No
Advanced Micro Devices, Inc.	Industry	1605EZ	9	No	No
AES Hawaii, Inc.	Electric Power	1605	1	Yes	No
AES Shady Point	Electric Power	1605	1	Yes	No
AES Thames	Electric Power	1605	1	Yes	No
Air Exchange, Inc.	Other	1605	1	Yes	No
Alabama Biomass Partners, Ltd.	Alternative Energy	1605EZ	1	No	No
Alcan Ingot, Sebree Aluminum Plant	Industry	1605	1	Yes	Yes
Allegheny Power Service Corporation	Electric Power	1605	38	Yes	Yes
Allergan, Inc.	Industry	1605	10	Yes	Yes
Alliant Energy	Electric Power	1605	26	Yes	Yes
Ameren Corporation	Electric Power	1605	23	No	Yes
American Electric Power, Inc.	Electric Power	1605	44	No	No
American Forests	Agriculture & Forestry	1605	103	No	No
American Municipal Power - Ohio	Electric Power	1605	23	No	Yes
Anoka Municipal Utility	Electric Power	1605EZ	3	No	No
Arizona Electric Power Cooperative, Inc.	Electric Power	1605EZ	3	No	No
Arizona Portland Cement Co.	Industry	1605	9	Yes	Yes
Arizona Public Service Company	Electric Power	1605	0	Yes	Yes
Arthur Rypinski & Jacquelyn Porth	Other	1605	5	Yes	No
Ashville Landfill Gas, LLC	Alternative Energy	1605	1	No	No
Atlantic Energy, Inc (AEI)	Electric Power	1605	7	No	Yes
Austin Energy	Electric Power	1605EZ	7	No	No
Baltimore Gas & Electric Co.	Electric Power	1605	20	Yes	Yes
BARC Electric Cooperative	Electric Power	1605	2	No	No
Bethlehem Steel Corporation	Industry	1605	0	Yes	No
Biomass Partners, LP	Alternative Energy	1605EZ	1	No	No
Black Warrior Methane Corp.	Alternative Energy	1605	3	Yes	No
Bountiful City Light & Power	Electric Power	1605	7	Yes	Yes
BP Amoco	Industry	1605	7	Yes	Yes
Burlington County Board of Chosen Freeholders	Other	1605	2	No	No
California Portland Cement Co. - Colton Plant	Industry	1605	8	Yes	Yes
California Portland Cement Co. - Mohave Plant	Industry	1605	5	Yes	Yes
Carolina Power & Light Company	Electric Power	1605	1	No	No
Catawba Landfill Gas, LLC.	Alternative Energy	1605	1	No	No
CDX Gas, LLC	Alternative Energy	1605	1	No	No
Cedar Falls Utilities	Electric Power	1605	14	No	No
Central and South West Corporation	Electric Power	1605	11	Yes	Yes
Central Hudson Gas & Electric Corporation.	Electric Power	1605	8	Yes	Yes
Cereza Energy, Inc.	Alternative Energy	1605	1	No	No
Choptank Electric Cooperative	Electric Power	1605	1	No	No

Table A1. Reporting Entities, Data Year 1998

Reporter Name	Sector	Type of Form	Number of Projects Reported (Schedule II)	Entity-Wide Report (Schedule III)	Commitments (Schedule IV)
Cinergy Corp.	Electric Power	1605	32	Yes	No
City of Edmond, Oklahoma, Electric Department	Electric Power	1605EZ	3	No	No
City of Fairfield, Wastewater Division	Other	1605EZ	5	No	No
City of Palo Alto	Electric Power	1605EZ	9	No	No
CLE Resources	Industry	1605	8	No	Yes
Cleco Corporation	Electric Power	1605	4	No	Yes
CMV Joint Venture	Alternative Energy	1605	2	No	No
Columbia Falls Aluminum Company, LLC	Industry	1605	1	Yes	No
COM/Electric	Electric Power	1605EZ	8	No	No
Commonwealth Bethlehem Energy, LLC	Alternative Energy	1605	1	Yes	Yes
Community Electric Cooperative	Electric Power	1605	1	No	No
Consol Coal Group	Industry	1605	0	Yes	No
Cooperative Power Association	Electric Power	1605	29	No	Yes
Dade Behring, Inc.	Industry	1605	5	No	No
DeBourgh Manufacturing Company	Industry	1605EZ	8	No	No
Delaware Electric Cooperative	Electric Power	1605	1	No	No
Delmarva Power	Electric Power	1605	14	No	No
Delta Electric Power Association	Electric Power	1605EZ	5	No	No
Dominion Energy, L.P.	Alternative Energy	1605	1	No	No
The Dow Chemical Company	Industry	1605	4	Yes	Yes
Dragon Products Company, Inc.	Industry	1605	5	Yes	No
DTE Energy / Detroit Edison	Electric Power	1605	26	Yes	No
Duke Energy Corporation	Electric Power	1605	9	Yes	Yes
Duquesne Light Company	Electric Power	1605	13	No	Yes
Ecogas Corporation	Alternative Energy	1605	14	No	No
Engelhard	Industry	1605	3	No	No
Entergy Services, Inc.	Electric Power	1605	21	Yes	Yes
Essential Foods, Inc.	Industry	1605	1	No	No
Estee Lauder Companies	Industry	1605	1	No	No
FirstEnergy Corporation	Electric Power	1605	26	Yes	Yes
Florida Power & Light	Electric Power	1605	0	Yes	Yes
Florida Power Corporation	Electric Power	1605	0	Yes	No
Fred Weber, Inc.	Alternative Energy	1605EZ	2	No	No
General Motors Corporation	Industry	1605	3	Yes	No
GeoMet, Inc.	Alternative Energy	1605	2	No	No
The Gillette Company	Industry	1605	0	Yes	Yes
Golden Valley Electric Association, Inc.	Electric Power	1605EZ	5	No	No
GPU, Inc	Electric Power	1605	45	No	No
Granger Electric Company	Alternative Energy	1605	7	No	No
Grayson Hill Farms	Agriculture & Forestry	1605EZ	1	No	No
GSF Energy, LLC	Alternative Energy	1605	10	No	No
Hawaiian Electric Company, Inc	Electric Power	1605	10	Yes	Yes
IBM	Industry	1605	0	Yes	Yes
Illinois Power Company	Electric Power	1605	27	Yes	Yes
Imperial Plating	Industry	1605	3	No	No

Table A1. Reporting Entities, Data Year 1998

Reporter Name	Sector	Type of Form	Number of Projects Reported (Schedule II)	Entity-Wide Report (Schedule III)	Commitments (Schedule IV)
Industrial Equipment and Supplies	Industry	1605	5	No	No
Integrated Waste Services Association	Alternative Energy	1605	2	Yes	No
Iredell Landfill Gas, LLC	Alternative Energy	1605	1	No	No
J.M. Gilmer and Company, Inc.	Agriculture & Forestry	1605	3	No	No
JEA	Electric Power	1605EZ	11	No	No
Johnson & Johnson	Industry	1605	10	Yes	No
Kansas City Power & Light Company	Electric Power	1605	13	Yes	Yes
Long Island Power Authority & KeySpan Energy	Electric Power	1605	6	Yes	No
LFG Energy, Inc.	Alternative Energy	1605	1	No	No
Los Angeles Department of Water and Power	Electric Power	1605	4	Yes	Yes
Lower Colorado River Authority	Electric Power	1605	5	Yes	Yes
Lucent Technologies	Industry	1605	0	Yes	Yes
MCNIC Oil & Gas Co.	Alternative Energy	1605	1	No	No
Mecklenberg Electric Cooperative	Electric Power	1605	1	No	No
Minnesota Power	Electric Power	1605	8	No	Yes
Minnesota Resource Recovery Association	Other	1605EZ	5	No	No
Missouri River Energy Services	Electric Power	1605EZ	5	No	No
Montana Power Company	Electric Power	1605	6	No	Yes
Monteco Gas, LLC	Alternative Energy	1605	4	No	No
Moorhead Public Service	Electric Power	1605EZ	5	No	No
Motorola Austin	Industry	1605	0	Yes	Yes
Nashville Electric Service	Electric Power	1605EZ	6	No	No
Navistar International Transportation Corporation	Industry	1605	0	Yes	No
NC Muni Landfill Gas Partners, LP	Alternative Energy	1605	1	No	No
Nebraska Public Power District	Electric Power	1605EZ	8	No	No
Nevada Power Company	Electric Power	1605EZ	9	No	No
Newton Landfill Gas, LLC	Alternative Energy	1605	1	No	No
Nexstar Pharmaceuticals, Inc.	Industry	1605EZ	2	No	No
Niagara Mohawk Power Corporation	Electric Power	1605	13	Yes	Yes
NiSource	Electric Power	1605	25	Yes	Yes
Noranda Aluminum Inc.	Industry	1605	1	No	Yes
North American Carbon, Inc.	Alternative Energy	1605	4	No	Yes
North Carolina Biomass Partners	Alternative Energy	1605EZ	1	No	No
North Carolina Electric Membership Corporation	Electric Power	1605EZ	1	No	No
Northeast Utilities	Electric Power	1605	0	Yes	Yes
Northern Neck Electric Cooperative	Electric Power	1605	2	No	Yes
Northern States Power Company	Electric Power	1605	19	No	Yes
Northern Virginia Electric Cooperative	Electric Power	1605	2	No	No
Northwest Fuel Development, Inc.	Alternative Energy	1605	1	No	No
Old Dominion Electric Cooperative	Electric Power	1605	2	No	No
Omaha Public Power District	Electric Power	1605EZ	9	No	No
Pacific Gas and Electric Company	Electric Power	1605EZ	6	No	No

Table A1. Reporting Entities, Data Year 1998

Reporter Name	Sector	Type of Form	Number of Projects Reported (Schedule II)	Entity-Wide Report (Schedule III)	Commitments (Schedule IV)
PacifiCorp	Electric Power	1605	36	Yes	Yes
Pan American Hospital	Other	1605	5	No	Yes
Peabody Holding Company, Inc.	Industry	1605	1	Yes	No
PECO Energy Company	Electric Power	1605EZ	6	No	No
Pintexs	Industry	1605	3	No	No
Pitt Landfill Gas, LLC	Alternative Energy	1605	1	No	No
Platte River Power Authority & 4 owner cities	Electric Power	1605	16	No	No
Portland General Electric Co.	Electric Power	1605	23	Yes	No
Power Management Partners, LP	Alternative Energy	1605EZ	1	No	No
PP&L Resources, Inc.	Electric Power	1605	19	Yes	Yes
Prince George Electric Cooperative	Electric Power	1605	1	No	Yes
Public Service Company of New Mexico	Electric Power	1605	4	No	Yes
Public Service Electric and Gas Company	Electric Power	1605	4	Yes	Yes
Public Utility District No. 1 of Snohomish County	Electric Power	1605	9	No	No
Rappahannock Electric Cooperative	Electric Power	1605	2	No	No
Reliant Energy - HL&P	Electric Power	1605	5	Yes	Yes
Sacramento Municipal Utility District	Electric Power	1605	6	Yes	No
Salt River Project	Electric Power	1605EZ	17	No	No
Santee Cooper	Electric Power	1605	9	Yes	Yes
Seattle City Light	Electric Power	1605	18	No	No
SeaWest Windpower, Inc.	Alternative Energy	1605	2	No	No
Seminole Electric Cooperative, Inc.	Electric Power	1605EZ	5	No	No
Seneca Energy, Inc.	Alternative Energy	1605	2	No	No
Separation Technologies, Inc.	Industry	1605EZ	3	No	No
Shenandoah Valley Electric Cooperative	Electric Power	1605	3	No	Yes
Shrewsbury Electric Light Plant	Electric Power	1605EZ	2	No	No
SONAT Exploration Company	Alternative Energy	1605	1	No	No
South Carolina Electric & Gas Company	Electric Power	1605	11	No	Yes
Southeastern Biomass Partners, LP	Alternative Energy	1605EZ	1	No	No
Southern California Edison Co.	Electric Power	1605	9	No	No
Southern Company	Electric Power	1605	20	Yes	Yes
Southside Electric Cooperative	Electric Power	1605	1	No	No
Steuben Rural Electric Co-op	Electric Power	1605EZ	10	No	No
Tacoma Public Utilities	Electric Power	1605EZ	9	No	No
Tampa Electric Company	Electric Power	1605	5	Yes	Yes
Taunton Municipal Lighting Plant	Electric Power	1605EZ	4	No	No
Tennessee Valley Authority	Electric Power	1605	18	Yes	Yes
TXU	Electric Power	1605	20	No	Yes
U.S. Steel Mining Company, LLC	Industry	1605	2	No	No
U.S. Department of Energy	Other	1605	1	Yes	No
UNICOM (Commonwealth Edison Company)	Electric Power	1605	13	No	Yes
United Power Association	Electric Power	1605	18	No	Yes
Urban Forestry Alliance	Agriculture & Forestry	1605EZ	1	No	No

Table A1. Reporting Entities, Data Year 1998

Reporter Name	Sector	Type of Form	Number of Projects Reported (Schedule II)	Entity-Wide Report (Schedule III)	Commitments (Schedule IV)
USGen New England, Inc.	Electric Power	1605	14	Yes	No
USX Corporation - Southern Lands and Minerals	Alternative Energy	1605	1	No	No
Utah Municipal Power Agency	Electric Power	1605EZ	6	No	No
VANALCO, INC. - (Primary Aluminum Reduction Plant)	Industry	1605	1	Yes	Yes
Vermont Public Power Supply Authority	Electric Power	1605	12	No	No
Volvo Cars of North America, Inc.	Industry	1605EZ	1	No	No
Waverly Light & Power Company	Electric Power	1605	9	Yes	Yes
Western Resources, Inc.	Electric Power	1605	51	No	Yes
Whatcom Land Trust	Agriculture & Forestry	1605	1	No	No
Wisconsin Electric Power Co.	Electric Power	1605	14	No	Yes
Wisconsin Public Power, Inc.	Electric Power	1605EZ	14	No	No
Wisconsin Public Service Corporation	Electric Power	1605	3	Yes	Yes
World Parks Endowment	Agriculture & Forestry	1605	3	No	No
Zahren Alternative Power Corporation	Alternative Energy	1605EZ	29	No	No
Zeeland Board of Public Works	Electric Power	1605EZ	3	No	No
Total Number of Projects Reported for 1998			**1,507**		
Total Number of Entities Reporting on Schedule III				**65**	
Total Number of Entities Reporting on Schedule IV					**67**

Source: Energy Information Administration, Forms EIA-1605 and EIA-1605EZ.

Table A2. Project-Level Emission Reductions and Sequestration Reported, Data Year 1998

(Metric Tons Carbon Dioxide Equivalent)

Reporter	1991	1992	1993	1994	1995	1996	1997	1998
A&N Electric Cooperative								
Indirect		1	85	169	169	2,583	2,571	3,589
Total Reductions		1	85	169	169	2,583	2,571	3,589
Total for Entity		1	85	169	169	2,583	2,571	3,589
Abe Krasne Home Furnishings, Inc.								
Direct							0	0
Indirect							39	38
Total Reductions							39	38
Total for Entity							39	38
Advanced Micro Devices, Inc.								
Total (EZ)								1,923
AES Hawaii, Inc.								
Sequestration		1,530,000	1,530,000	1,530,000	1,530,000	1,530,000	1,530,000	1,530,000
Total for Entity		1,530,000	1,530,000	1,530,000	1,530,000	1,530,000	1,530,000	1,530,000
AES Shady Point								
Sequestration			4,160,000	4,160,000	4,160,000	4,160,000	4,160,000	4,160,000
Total for Entity			4,160,000	4,160,000	4,160,000	4,160,000	4,160,000	4,160,000
AES Thames								
Sequestration	1,880,000	1,880,000	1,880,000	1,880,000	1,880,000	1,940,000	1,940,000	1,940,000
Total for Entity	1,880,000	1,880,000	1,880,000	1,880,000	1,880,000	1,940,000	1,940,000	1,940,000
Air Exchange, Inc.								
Indirect					1,025,000	1,037,000	1,018,000	993,000
Total Reductions					1,025,000	1,037,000	1,018,000	993,000
Total for Entity					1,025,000	1,037,000	1,018,000	993,000
Alabama Biomass Partners, Ltd.								
Total (EZ)								37,430
Alcan Ingot, Sebree Aluminum Plant								
Direct								15,060
Total Reductions								15,060
Total for Entity								15,060
Allegheny Power Service Corporation								
Direct	158,688	240,497	330,730	526,288	812,086	963,417	1,050,943	1,331,042
Indirect	11,209	29,542	37,098	39,192	70,262	68,287	98,337	162,672
Total Reductions	169,898	270,039	367,828	565,480	882,348	1,031,703	1,149,281	1,493,715
Sequestration		66	66	66	4,357	4,276	5,096	5,137
Total for Entity	169,898	270,105	367,894	565,546	886,705	1,035,980	1,154,376	1,498,852
Allergan, Inc.								
Direct	0	0	0	0	0	0	0	552
Indirect	0	0	0	0	116	116	501	3,554
Total Reductions	0	0	0	0	116	116	501	4,106
Total for Entity	0	0	0	0	116	116	501	4,106
Alliant Energy								
Direct	60,096	96,708	252,654	407,818	653,130	782,099	948,079	1,095,118
Indirect	17,835	27,971	41,300	59,367	73,045	137,260	172,508	201,212
Total Reductions	77,931	124,679	293,954	467,185	726,175	919,359	1,120,587	1,296,330
Sequestration	17	28,203	28,257	28,327	28,414	28,512	29,011	29,116
Total for Entity	77,948	152,882	322,211	495,512	754,589	947,871	1,149,598	1,325,446
Ameren Corporation (formerly UE and CIPS)								
Direct	1,932,744	117,298	433,327	2,042,924	363,408	1,029,094	1,111,638	530,338
Indirect	921	1,166	2,643	5,651	15,949	34,833	67,604	85,680
Total Reductions	1,933,664	118,464	435,969	2,048,575	379,357	1,063,927	1,179,242	616,018
Sequestration								818
Total for Entity		118,464	435,969	2,048,575	379,357	1,063,927	1,179,242	616,836

Table A2. Project-Level Emission Reductions and Sequestration Reported, Data Year 1998

(Metric Tons Carbon Dioxide Equivalent)

Reporter	1991	1992	1993	1994	1995	1996	1997	1998
American Electric Power, Inc.								
Direct	4,158,476	-3,225,069	5,590,423	-260,298	4,425,037	6,924,547	1,944,817	-7,546,165
Indirect	282,222	373,865	438,189	482,112	393,537	416,622	433,385	382,984
Total Reductions	4,440,698	-2,851,203	6,028,612	221,815	4,818,574	7,341,168	2,378,202	-7,163,180
Sequestration	2,285	3,522	4,768	6,730	21,060	41,329	1,092,334	1,116,422
Total for Entity		-2,847,681	6,033,380	228,544	4,839,633	7,382,498	3,470,536	-6,046,759
American Forests								
Sequestration	2,925	4,479	8,872	18,753	24,860	33,619	38,640	52,125
Total for Entity	2,925	4,479	8,872	18,753	24,860	33,619	38,640	52,125
American Municipal Power - Ohio								
Direct	31,716	68,091	141,710	183,110	162,948	177,855	214,321	251,533
Indirect	84,729	157,550	219,725	128,630	151,375	61,535	213,292	88,678
Total Reductions	116,445	225,641	361,436	311,740	314,323	239,390	427,613	340,211
Sequestration	2	5	8	32	76	122	149	178
Total for Entity		225,645	361,444	311,773	314,399	239,512	427,762	340,389
Anoka Municipal Utility								
Total (EZ)								30
Arizona Electric Power Cooperative, Inc.								
Total (EZ)								73,479
Arizona Portland Cement Co.								
Direct		98,487	127,702	127,165	148,729	137,429	164,814	166,807
Indirect		2,483	3,681	4,507	5,901	8,014	8,403	8,071
Total Reductions		100,970	131,383	131,672	154,630	145,443	173,217	174,878
Total for Entity		100,970	131,383	131,672	154,630	145,443	173,217	174,878
Arthur Rypinski & Jacquelyn Porth								
Direct	2	2	3	4	4	4	4	4
Indirect			0	1	1	1	1	1
Total Reductions	2	2	3	5	5	5	5	5
Total for Entity		2	3	5	5	5	5	5
Asheville Landfill Gas, LLC								
Direct							26,043	79,928
Total Reductions							26,043	79,928
Total for Entity							26,043	79,928
Atlantic Energy, Inc. (AEI)								
Direct		156,070	217,970	208,840	249,890	80,410	77,010	57,021
Indirect				23,920	21,440	22,230	23,680	11,224
Total Reductions		156,070	217,970	232,760	271,330	102,640	100,690	68,245
Sequestration								0
Total Entity		156,070	217,970	232,760	271,330	102,640	100,690	68,245
Austin Energy								
Total (EZ)								1,184,302
Baltimore Gas & Electric Co.								
Direct	1,495	1,494,152	3,021,244	2,320,973	3,961,768	3,296,797	4,315,134	4,558,571
Indirect			268,966	333,710	337,105	285,082	292,864	317,966
Total Reductions	1,495	1,494,152	3,290,210	2,654,683	4,298,872	3,581,880	4,607,998	4,876,537
Sequestration					1,226	1,202	1,129	954
Total for Entity		1,494,152	3,290,210	2,654,683	4,300,098	3,583,082	4,609,127	4,877,491
BARC Electric Cooperative								
Indirect	393	670	1,539	900	1,395	1,180	2,436	3,394
Total Reductions	393	670	1,539	900	1,395	1,180	2,436	3,394
Total for Entity		670	1,539	900	1,395	1,180	2,436	3,394
Biomass Partners, LP								
Total (EZ)								91,502

Table A2. Project-Level Emission Reductions and Sequestration Reported, Data Year 1998

(Metric Tons Carbon Dioxide Equivalent)

Reporter	1991	1992	1993	1994	1995	1996	1997	1998
Black Warrior Methane Corp.								
Direct	4,648,015	4,359,642	4,857,346	3,886,856	4,214,188	3,953,858	4,040,539	4,586,785
Total Reductions	4,648,015	4,359,642	4,857,346	3,886,856	4,214,188	3,953,858	4,040,539	4,586,785
Total for Entity		4,359,642	4,857,346	3,886,856	4,214,188	3,953,858	4,040,539	4,586,785
Bountiful City Light & Power								
Direct	28	1,339	10,320	6,426	11,851	14,629	16,796	19,191
Total Reductions	28	1,339	10,320	6,426	11,851	14,629	16,796	19,191
Sequestration					0	0	1	1
Total for Entity		1,339	10,320	6,426	11,851	14,629	16,797	19,192
BP Amoco								
Direct	241	367,124	586,195	819,106	1,096,200	1,387,264	1,819,989	1,887,467
Total Reductions	241	367,124	586,195	819,106	1,096,200	1,387,264	1,819,989	1,887,467
Sequestration							102,980	102,980
Total for Entity	241	367,124	586,195	819,106	1,096,200	1,387,264	1,922,969	1,990,447
Burlington County Board of Chosen Freeholders								
Direct	620	1,199	1,764	2,336	2,882	8,985	69,017	252,153
Indirect	16,797	21,787	24,599	27,437	29,448	32,856	37,608	43,220
Total Reductions	17,416	22,986	26,363	29,774	32,331	41,841	106,625	295,373
Total for Entity		22,986	26,363	29,774	32,331	41,841	106,625	295,373
California Portland Cement Co. - Colton Plant								
Direct	26,183	6,801	63,738	-11,818	-4,053	53,589	51,784	61,815
Indirect	938	1,296	3,571	2,773	3,457	4,959	5,405	3,823
Total Reductions	27,121	8,097	67,309	-9,045	-596	58,548	57,189	65,638
Total for Entity		8,097	67,309	-9,045	-596	58,548	57,189	65,638
California Portland Cement Co. - Mojave Plant								
Direct	11,929	79,005	44,691	97,384	54,634	32,403	47,533	66,489
Indirect	1,341	7,422	7,333	10,620	8,724	8,559	7,209	8,429
Total Reductions	13,270	86,427	52,024	108,004	63,358	40,962	54,742	74,918
Total for Entity		86,427	52,024	108,004	63,358	40,962	54,742	74,918
Carolina Power & Light Company								
Direct				3,493,951	4,906,992	5,182,056	5,595,117	6,974,302
Total Reductions				3,493,951	4,906,992	5,182,056	5,595,117	6,974,302
Total for Entity				3,493,951	4,906,992	5,182,056	5,595,117	6,974,302
Catawba Landfill Gas, LLC								
Direct								31,655
Total Reductions								31,655
Total for Entity								31,655
CDX Gas, LLC								
Direct								419,727
Total Reductions								419,727
Total for Entity								419,727
Cedar Falls Utilities								
Direct	5,105	5,226	4,130	4,883	8,297	6,052	7,162	9,083
Indirect	319	580	842	1,080	1,170	1,421	1,703	1,832
Total Reductions	5,424	5,806	4,971	5,963	9,466	7,472	8,864	10,915
Sequestration	1	1	2	2	4	7	10	12
Total for Entity	5,425	5,808	4,973	5,965	9,470	7,479	8,874	10,927
Central and South West Corporation								
Direct				550,930	614,302	611,626	556,141	378,596
Total Reductions				550,930	614,302	611,626	556,141	378,596
Sequestration				860	3,097	3,051	4,996	5,952
Total for Entity				551,789	617,399	614,677	561,136	384,548

Table A2. Project-Level Emission Reductions and Sequestration Reported, Data Year 1998

(Metric Tons Carbon Dioxide Equivalent)

Reporter	1991	1992	1993	1994	1995	1996	1997	1998
Central Hudson Gas & Electric Corporation								
Direct		415,949	170,789	386,081	468,842	177,216	346,346	261,320
Indirect	718	775	4,743	13,039	27,019	14,967	29,458	34,570
Total Reductions	718	416,724	175,532	399,120	495,861	192,183	375,805	295,890
Total for Entity	718	416,724	175,532	399,120	495,861	192,183	375,805	295,890
Cereza Energy, Inc.								
Direct					126,041	164,752	190,166	220,990
Total Reductions					126,041	164,752	190,166	220,990
Total for Entity					126,041	164,752	190,166	220,990
Choptank Electric Cooperative								
Indirect	9,771	14,850	2,238	29,120	25,471	17,382	21,107	36,171
Total Reductions	9,771	14,850	2,238	29,120	25,471	17,382	21,107	36,171
Total for Entity	9,771	14,850	2,238	29,120	25,471	17,382	21,107	36,171
Cinergy Corp.								
Direct	120	95,407	194,297	420,238	1,258,013	1,637,818	1,470,888	1,717,175
Indirect	63,888	479,808	432,406	718,395	621,809	799,213	649,773	669,873
Total Reductions	64,008	575,215	626,703	1,138,633	1,879,822	2,437,030	2,120,661	2,387,049
Sequestration	2	25	161	271	169,060	169,126	169,959	170,211
Total for Entity	64,010	575,240	626,864	1,138,904	2,048,882	2,606,156	2,290,620	2,557,260
City of Edmond, Oklahoma, Electric Department								
Total (EZ)								1,650
City of Fairfield, Wastewater Division								
Total (EZ)								661
City of Palo Alto								
Total (EZ)								2,141
CLE Resources								
Indirect					303	652	6,176	13,817
Total Reductions					303	652	6,176	13,817
Total for Entity					303	652	6,176	13,817
Cleco Corporation								
Sequestration					1,839	1,805	2,217	2,280
Total for Entity					1,839	1,805	2,217	2,280
CMV Joint Venture								
Direct				59,799	227,681	374,397	437,717	434,130
Total Reductions				59,799	227,681	374,397	437,717	434,130
Total for Entity				59,799	227,681	374,397	437,717	434,130
Columbia Falls Aluminum Company, LLC								
Indirect						81	81	81
Total Reductions						81	81	81
Total for Entity						81	81	81
COM/Electric								
Total (EZ)								239,978
Commonwealth Bethlehem Energy, LLC								
Direct								34,553
Indirect								1
Total Reductions								34,554
Total for Entity								34,554
Community Electric Cooperative								
Indirect	332	731	1,294	1,453	2,501	2,984	2,654	3,100
Total Reductions	332	731	1,294	1,453	2,501	2,984	2,654	3,100
Total for Entity	332	731	1,294	1,453	2,501	2,984	2,654	3,100

Table A2. Project-Level Emission Reductions and Sequestration Reported, Data Year 1998

(Metric Tons Carbon Dioxide Equivalent)

Reporter	1991	1992	1993	1994	1995	1996	1997	1998
Cooperative Power Association								
Direct			34,458	108,257	109,478	119,654	109,197	157,047
Indirect	19,280	30,807	33,484	41,467	40,464	49,373	53,614	61,007
Total Reductions	19,280	30,807	67,942	149,724	149,942	169,027	162,811	218,054
Sequestration		3	6	9	13	18	23	27
Total for Entity	19,280	30,810	67,948	149,733	149,955	169,044	162,834	218,081
Dade Behring, Inc.								
Direct								
Indirect			683	683	1,242	1,243	1,244	1,244
Total Reductions			683	683	1,242	1,243	1,244	1,244
Total for Entity			683	683	1,242	1,243	1,244	1,244
Delaware Electric Cooperative								
Indirect	455	513	892	438	848	901	642	838
Total Reductions	455	513	892	438	848	901	642	838
Total for Entity	455	513	892	438	848	901	642	838
Delmarva Power								
Direct	87,053	141,925	447,572	888,551	1,433,239	1,379,834	802,410	590,302
Indirect	1,068	16,832	3,901	6,504	10,132	18,884	26,287	27,392
Total Reductions	88,121	158,756	451,473	895,055	1,443,371	1,398,718	828,697	617,695
Sequestration	14	30	50	73	1,323	1,331	1,288	1,163
Total for Entity	88,135	158,786	451,523	895,128	1,444,694	1,400,049	829,985	618,858
Delta Electric Power Association								
Total (EZ)								20,329
Dominion Energy, L.P.								
Direct					221,028	293,612	553,123	649,597
Total Reductions					221,028	293,612	553,123	649,597
Total for Entity					221,028	293,612	553,123	649,597
The Dow Chemical Company								
Direct					8,795	17,775	0	0
Total Reductions					8,795	17,775	0	0
Total for Entity					8,795	17,775	0	0
Dragon Products Company, Inc.								
Direct					-2,528	17,747	21,281	78,033
Indirect					2,529	2,865	4,919	34,390
Total Reductions					1	20,612	26,200	112,423
Total for Entity					1	20,612	26,200	112,423
DTE Energy/ Detroit Edison								
Direct	-635,562	523,279	1,477,311	-6,353,835	-1,537,269	-1,800,221	-645,698	1,068,698
Indirect	-25,394	37,715	1,183	55,463	263,720	352,305	407,337	2,437,514
Total Reductions	-660,956	560,994	1,478,493	-6,298,373	-1,273,549	-1,447,915	-238,361	3,506,212
Sequestration					167,872	186,498	202,314	223,363
Total for Entity		560,994	1,478,493	-6,298,373	-1,105,677	-1,261,417	-36,047	3,729,576
Duke Energy Corporation								
Direct	7,898,659	6,883,847	6,858,749	9,350,458	12,640,570	5,524,723	3,976,186	12,011,575
Indirect	-33,173	-15,919	29,057	72,973	166,484	126,998	219,540	285,585
Total Reductions	7,865,486	6,867,928	6,887,806	9,423,431	12,807,054	5,651,721	4,195,726	12,297,160
Sequestration					1,226	1,203	2,176	2,653
Total for Entity	7,865,486	6,867,928	6,887,806	9,423,431	12,808,280	5,652,924	4,197,902	12,299,813

Table A2. Project-Level Emission Reductions and Sequestration Reported, Data Year 1998

(Metric Tons Carbon Dioxide Equivalent)

Reporter	1991	1992	1993	1994	1995	1996	1997	1998
Duquesne Light Company								
Direct	1,242	2,484	85,969	123,491	142,300	104,745	152,931	125,603
Indirect	495	17,528	34,961	35,254	35,663	36,194	36,516	37,291
Total Reductions	1,737	20,012	120,931	158,744	177,963	140,939	189,448	162,894
Sequestration					1,226	1,203	1,652	1,804
Total for Entity	1,737	20,012	120,931	158,744	179,189	142,142	191,100	164,698
Ecogas Corporation								
Direct	79,462	92,417	108,039	101,371	111,848	107,471	138,067	153,358
Total Reductions	79,462	92,417	108,039	101,371	111,848	107,471	138,067	153,358
Total for Entity	79,462	92,417	108,039	101,371	111,848	107,471	138,067	153,358
Engelhard								
Indirect						51	51	51
Total Reductions						51	51	51
Total for Entity						51	51	51
Entergy Services, Inc.								
Direct	447,549	427,454	805,532	745,899	2,581,469	3,210,180	5,455,980	6,257,283
Indirect	70,418	83,249	94,393	120,298	227,757	230,687	267,217	298,035
Total Reductions	517,967	510,702	899,925	866,197	2,809,226	3,440,867	5,723,197	6,555,317
Sequestration					2,452	22,364	46,376	67,004
Total for Entity	517,967	510,702	899,925	866,197	2,811,678	3,463,231	5,769,573	6,622,322
Essential Foods, Inc.								
Direct					18	25	25	58
Indirect					4	6	6	14
Total Reductions					23	31	31	72
Total for Entity					23	31	31	72
Estee Lauder Companies								
Indirect								44
Total Reductions								44
Total for Entity								44
FirstEnergy Corporation								
Direct	3,407,342	4,283,321	1,173,271	2,051,070	5,379,445	3,806,134	4,956,931	10,499,321
Indirect	58,283	60,471	65,570	53,721	50,704	60,544	65,096	116,923
Total Reductions	3,465,625	4,343,792	1,238,841	2,104,791	5,430,150	3,866,677	5,022,027	10,616,244
Sequestration		12	28	44	12,320	12,108	21,847	18,495
Total for Entity	3,465,625	4,343,804	1,238,869	2,104,835	5,442,470	3,878,785	5,043,874	10,634,739
Florida Power & Light Company								
Indirect								1,679
Total Reductions								1,679
Total for Entity								1,679
Fred Weber, Inc.								
Total (EZ)								302,052
General Motors Corporation								
Direct	46,879	168,964	244,416	291,268	212,163	484,597	634,276	899,176
Indirect	66,609	249,737	352,577	422,780	283,565	422,979	538,000	863,710
Total Reductions	113,488	418,701	596,993	714,048	495,728	907,576	1,172,276	1,762,886
Total for Entity		418,701	596,993	714,048	495,728	907,576	1,172,276	1,762,886
GeoMet, Inc.								
Direct				39,866	151,788	249,599	291,812	289,421
Total Reductions				39,866	151,788	249,599	291,812	289,421
Total for Entity				39,866	151,788	249,599	291,812	289,421
Golden Valley Electric Association, Inc.								
Total (EZ)								15,149

Table A2. Project-Level Emission Reductions and Sequestration Reported, Data Year 1998

(Metric Tons Carbon Dioxide Equivalent)

Reporter	1991	1992	1993	1994	1995	1996	1997	1998
GPU, Inc.								
Direct	358,288	4,196,623	1,491,064	1,308,040	2,113,006	1,999,680	2,007,119	2,356,487
Indirect	639,039	200,441	183,415	192,546	157,260	160,465	401,465	597,562
Total Reductions	997,327	4,397,065	1,674,479	1,500,587	2,270,266	2,160,145	2,408,584	2,954,049
Sequestration		2	3	5	6,137	6,025	7,783	7,364
Total for Entity	997,327	4,397,067	1,674,483	1,500,592	2,276,403	2,166,170	2,416,367	2,961,413
Granger Electric Company								
Direct	-6,623	-8,051	-14,880	-35,940	-50,901	-60,821	-68,561	-72,399
Indirect	102,150	113,574	158,785	341,888	474,005	542,053	599,339	634,242
Total Reductions	95,527	105,523	143,905	305,948	423,104	481,232	530,777	561,843
Total for Entity	95,527	105,523	143,905	305,948	423,104	481,232	530,777	561,843
Grayson Hill Farms								
Total (EZ)								33,072
GSF Energy, LLC								
Direct	6,164,270	2,140,265	2,443,852	2,318,835	2,496,738	2,485,672	2,986,184	2,923,283
Total Reductions	6,164,270	2,140,265	2,443,852	2,318,835	2,496,738	2,485,672	2,986,184	2,923,283
Total for Entity	6,164,270	2,140,265	2,443,852	2,318,835	2,496,738	2,485,672	2,986,184	2,923,283
Hawaiian Electric Company, Inc.								
Direct						16,731	51,718	44,920
Total Reductions						16,731	51,718	44,920
Sequestration					1,226	1,203	1,130	953
Total for Entity					1,226	17,934	52,847	45,874
Illinois Power Company								
Direct	1,934	510,100	1,315,341	2,685,575	1,712,666	945,989	278,580	-1,473,241
Indirect		7,649	4,879	3,919	4,522	7,727	-1,771,114	-1,022,079
Total Reductions	1,934	517,749	1,320,220	2,689,495	1,717,189	953,716	-1,492,533	-2,495,320
Sequestration					4,904	11,079	23,175	34,727
Total for Entity	1,934	517,749	1,320,220	2,689,495	1,722,093	964,794	-1,469,358	-2,460,593
Imperial Plating								
Indirect							3	3
Total Reductions							3	3
Total for Entity							3	3
Industrial Equipment and Supplies								
Indirect				0	3	3	38	38
Total Reductions				0	3	3	38	38
Total for Entity				0	3	3	38	38
Integrated Waste Services Association								
Direct					-7,806,171	-7,897,096	-7,806,234	-7,806,264
Indirect	0	0	0	0	18,304,457	19,347,277	19,107,549	19,507,145
Total Reductions	0	0	0	0	10,498,287	11,450,181	11,301,315	11,700,880
Total for Entity		0	0	0	10,498,287	11,450,181	11,301,315	11,700,880
Iredell Landfill Gas, LLC								
Direct							23,643	53,840
Total Reductions							23,643	53,840
Total for Entity							23,643	53,840
J.M. Gilmer and Company, Inc.								
Sequestration					298	584	609	998
Total for Entity					298	584	609	998
JEA								
Total (EZ)								214,300

Table A2. Project-Level Emission Reductions and Sequestration Reported, Data Year 1998

(Metric Tons Carbon Dioxide Equivalent)

Reporter	1991	1992	1993	1994	1995	1996	1997	1998
Johnson & Johnson								
Direct	0	16,452	24,867	28,111	33,267	36,323	43,087	49,107
Indirect	4,767	18,621	52,346	82,799	106,724	148,958	171,503	187,310
Total Reductions	4,767	35,073	77,213	110,910	139,991	185,281	214,591	236,417
Total for Entity	4,767	35,073	77,213	110,910	139,991	185,281	214,591	236,417
Kansas City Power & Light Company								
Direct	306,499	163,897	220,095	487,720	452,250	462,395	561,187	643,824
Indirect	69,712	79,435	99,539	133,644	121,722	155,099	137,869	150,898
Total Reductions	376,210	243,332	319,634	621,364	573,971	617,493	699,056	794,722
Sequestration					2,452	2,406	3,305	3,607
Total for Entity		243,332	319,634	621,364	576,423	619,899	702,361	798,329
LFG Energy, Inc.								
Direct							170,734	150,140
Indirect							14,701	12,387
Total Reductions							185,435	162,527
Total for Entity							185,435	162,527
Los Angeles Department of Water and Power								
Direct						1,165	1,168	1,166
Indirect	8,508	8,508	8,508	8,508	8,475	8,475	8,475	8,475
Total Reductions	8,508	8,508	8,508	8,508	8,475	9,640	9,643	9,641
Sequestration		1,669	2,003	2,003	2,003	2,003	2,003	2,003
Total Sequestration		1,669	2,003	2,003	2,003	2,003	2,003	2,003
Total for Entity		10,177	10,511	10,511	10,478	11,643	11,646	11,644
Lower Colorado River Authority								
Direct	15,422	26,490	41,458	59,239	98,430	226,343	266,259	285,672
Indirect	47,536	50,802	68,130	91,172	112,037	121,018	126,643	116,936
Total Reductions	62,959	77,292	109,588	150,411	210,467	347,361	392,902	402,609
Total for Entity	62,959	77,292	109,588	150,411	210,467	347,361	392,902	402,609
MCNIC Oil & Gas Co.								
Direct		652,683	2,741,403	4,242,784	4,770,950	5,367,567	4,792,611	7,763,291
Total Reductions		652,683	2,741,403	4,242,784	4,770,950	5,367,567	4,792,611	7,763,291
Total for Entity		652,683	2,741,403	4,242,784	4,770,950	5,367,567	4,792,611	7,763,291
Mecklenburg Electric Cooperative								
Indirect	1,758	3,065	5,916	2,639	11,685	11,420	10,045	11,672
Total Reductions	1,758	3,065	5,916	2,639	11,685	11,420	10,045	11,672
Total for Entity	1,758	3,065	5,916	2,639	11,685	11,420	10,045	11,672
Minnesota Power								
Direct	28,455	89,462	152,582	229,044	322,683	353,523	502,047	481,655
Indirect			7,852	51,788	76,561	76,561	76,561	76,561
Total Reductions	28,455	89,462	160,434	280,833	399,244	430,084	578,607	558,216
Sequestration					4,010	18,567	22,228	22,228
Total for Entity	28,455	89,462	160,434	280,833	403,254	448,651	600,835	580,443
Minnesota Resource Recovery Association								
Total (EZ)								1,081,185
Missouri River Energy Services								
Total (EZ)								79
Montana Power Company								
Direct	-1,461,503	-1,896,863	1,530,472	-1,074,071	448,512	3,001,491	141,712	-2,109,091
Indirect	141,116	-332,320	208,286	-187,519	167,320	580,880	621,400	355,924
Total Reductions	-1,320,387	-2,229,183	1,738,758	-1,261,590	615,832	3,582,371	763,112	-1,753,168
Total for Entity	-1,320,387	-2,229,183	1,738,758	-1,261,590	615,832	3,582,371	763,112	-1,753,168

Table A2. Project-Level Emission Reductions and Sequestration Reported, Data Year 1998

(Metric Tons Carbon Dioxide Equivalent)

Reporter	1991	1992	1993	1994	1995	1996	1997	1998
Monteco Gas, LLC								
Direct							205,940	537,235
Total Reductions							205,940	537,235
Total for Entity							205,940	537,235
Moorhead Public Service								
Total (EZ)								8,462
Nashville Electric Service								
Total (EZ)								2,196
NC Muni Landfill Gas Partners, LP								
Direct					19,184	30,043	57,629	73,956
Total Reductions					19,184	30,043	57,629	73,956
Total for Entity					19,184	30,043	57,629	73,956
Nebraska Public Power District								
Total (EZ)								45,341
Nevada Power Company								
Total (EZ)								71,550
Newton Landfill Gas, LLC								
Direct						30,264	31,958	47,551
Indirect							-1,697	-6,226
Total Reductions						30,264	30,261	41,325
Total for Entity						30,264	30,261	41,325
Nexstar Pharmaceuticals, Inc.								
Total (EZ)								40
Niagara Mohawk Power Corporation								
Direct	2,490,717	1,646,691	3,090,790	4,218,175	3,599,407	4,307,055	2,959,410	3,884,924
Indirect	5,915	8,958	27,928	15,154	43,336	30,908	61,811	94,346
Total Reductions	2,496,632	1,655,650	3,118,719	4,233,330	3,642,743	4,337,963	3,021,221	3,979,270
Total for Entity	2,496,632	1,655,650	3,118,719	4,233,330	3,642,743	4,337,963	3,021,221	3,979,270
NiSource/NIPSCO								
Direct	6,649	9,766	12,888	17,635	54,767	337,507	1,029,974	1,482,181
Indirect	19,414	0	20,953	26,268	95,752	112,282	117,131	109,077
Total Reductions	26,063	9,766	33,842	43,903	150,519	449,789	1,147,105	1,591,258
Sequestration			12	56	1,280	1,308	1,032	930
Total for Entity	26,063	9,766	33,853	43,958	151,799	451,097	1,148,137	1,592,188
Noranda Aluminum Inc.								
Direct	2,793,600	3,000,500	3,074,700	3,168,400	3,148,900	3,526,400	3,506,900	3,668,300
Total Reductions	2,793,600	3,000,500	3,074,700	3,168,400	3,148,900	3,526,400	3,506,900	3,668,300
Total for Entity	2,793,600	3,000,500	3,074,700	3,168,400	3,148,900	3,526,400	3,506,900	3,668,300
North American Carbon, Inc.								
Indirect					24,383	115,464	391,687	56,447
Total Reductions					24,383	115,464	391,687	56,447
Total for Entity					24,383	115,464	391,687	56,447
North Carolina Biomass Partners								
Total (EZ)								74,433
North Carolina Electric Membership Corporation								
Total (EZ)								615,809
Northern Neck Electric Cooperative								
Indirect	933	893	2,126	1,435	2,431	2,832	2,060	3,338
Total Reductions	933	893	2,126	1,435	2,431	2,832	2,060	3,338
Total for Entity	933	893	2,126	1,435	2,431	2,832	2,060	3,338

Table A2. Project-Level Emission Reductions and Sequestration Reported, Data Year 1998

(Metric Tons Carbon Dioxide Equivalent)

Reporter	1991	1992	1993	1994	1995	1996	1997	1998
Northern States Power Company								
Direct	169,722	382,257	754,511	1,223,837	1,871,538	2,291,720	2,629,931	3,361,025
Indirect	47,358	44,688	46,978	66,741	68,084	81,029	81,364	84,656
Total Reductions	217,079	426,945	801,489	1,290,578	1,939,622	2,372,749	2,711,295	3,445,681
Total for Entity	217,079	426,945	801,489	1,290,578	1,939,622	2,372,749	2,711,295	3,445,681
Northern Virginia Electric Cooperative								
Indirect	37	15,309	28,042	9,980	32,355	32,509	30,961	33,214
Total Reductions	37	15,309	28,042	9,980	32,355	32,509	30,961	33,214
Total for Entity		15,309	28,042	9,980	32,355	32,509	30,961	33,214
Northwest Fuel Development, Inc.								
Direct		499	18,625	238,635	10,396	10,560	4,494	13,945
Indirect		45	281	1,270	1,579	1,606	452	1,087
Total Reductions		544	18,906	239,905	11,975	12,165	4,946	15,032
Total for Entity		544	18,906	239,905	11,975	12,165	4,946	15,032
Old Dominion Electric Cooperative								
Indirect					60	62	62	62
Total Reductions					60	62	62	62
Sequestration					0	1	1	2
Total for Entity					61	63	63	63
Omaha Public Power District								
Total (EZ)								1,017,820
Pacific Gas and Electric Company								
Total (EZ)								2,133,434
PacifiCorp								
Direct			120,999	302,690	563,257	738,422	871,510	958,291
Indirect	3,663	108,214	107,523	120,175	121,393	233,521	191,102	314,099
Total Reductions	3,663	108,214	228,523	422,866	684,650	971,943	1,062,612	1,272,391
Sequestration			361	2,116	169,553	169,443	409,638	528,920
Total for Entity	3,663	108,214	228,883	424,981	854,203	1,141,386	1,472,250	1,801,311
Pan American Hospital								
Direct								46
Indirect								93
Total Reductions								138
Total for Entity								138
Peabody Holding Company, Inc.								
Direct	14,079	33,472	55,476	49,056	76,013	99,122	77,194	86,701
Total Reductions	14,079	33,472	55,476	49,056	76,013	99,122	77,194	86,701
Total for Entity		33,472	55,476	49,056	76,013	99,122	77,194	86,701
PECO Energy Company								
Total (EZ)								7,772,837
Pintexs								
Indirect							16	16
Total Reductions							16	16
Total for Entity							16	16
Pitt Landfill Gas, LLC								
Direct								61,325
Indirect								755
Total Reductions								62,080
Total for Entity								62,080

Table A2. Project-Level Emission Reductions and Sequestration Reported, Data Year 1998

(Metric Tons Carbon Dioxide Equivalent)

Reporter	1991	1992	1993	1994	1995	1996	1997	1998
Platte River Power Authority & 4 owner cities								
Direct	2,904	2,417	7,068	8,189	8,526	10,500	11,403	12,063
Indirect	26,802	26,009	36,724	32,031	25,661	37,838	56,018	38,944
Total Reductions	29,706	28,426	43,792	40,220	34,187	48,337	67,422	51,007
Total for Entity		28,426	43,792	40,220	34,187	48,337	67,422	51,007
Portland General Electric Co.								
Direct			3	8	8	12	23	39
Indirect	102,339	174,298	282,932	474,233	659,229	737,074	774,957	821,442
Total Reductions	102,339	174,298	282,935	474,241	659,237	737,085	774,980	821,482
Sequestration						1	135	473
Total for Entity		174,298	282,935	474,241	659,237	737,086	775,115	821,955
Power Management Partners, LP								
Total (EZ)								633,574
PP&L RESOURCES, INC.								
Direct	-11,742	77,406	125,673	-399,273	-301,387	-141,496	-71,522	522,986
Indirect	101,861	124,073	151,633	336,217	732,499	1,296,262	1,223,605	2,738,926
Total Reductions	90,120	201,479	277,306	-63,056	431,112	1,154,766	1,152,082	3,261,912
Sequestration		0	6	51	1,998	2,133	7,239	7,225
Total for Entity	90,120	201,479	277,312	-63,004	433,110	1,156,899	1,159,321	3,269,136
Prince George Electric Cooperative								
Indirect	15	30	45	60	60	1,386	2,264	5,147
Total Reductions	15	30	45	60	60	1,386	2,264	5,147
Total for Entity	15	30	45	60	60	1,386	2,264	5,147
Public Service Company of New Mexico								
Direct	501,446	567,896	181,988	318,976	758,940	1,328,879	1,541,554	1,490,957
Total Reductions	501,446	567,896	181,988	318,976	758,940	1,328,879	1,541,554	1,490,957
Total for Entity		567,896	181,988	318,976	758,940	1,328,879	1,541,554	1,490,957
Public Service Electric and Gas Company								
Sequestration					1,226	1,203	2,175	2,654
Total for Entity					1,226	1,203	2,175	2,654
Public Utility District No. 1 of Snohomish County								
Direct	27	45	62	78	113	154	156	134
Indirect	1,298	22,914	44,435	65,114	87,999	111,619	118,028	118,680
Total Reductions	1,325	22,959	44,497	65,192	88,111	111,772	118,184	118,814
Total for Entity		22,959	44,497	65,192	88,111	111,772	118,184	118,814
Rappahannock Electric Cooperative								
Indirect	2,021	1,595	12,786	5,379	-10,619	32,886	27,469	35,127
Total Reductions	2,021	1,595	12,786	5,379	-10,619	32,886	27,469	35,127
Sequestration	0	0	1	1	1	2	3	3
Total for Entity	2,021	1,596	12,786	5,380	-10,617	32,888	27,472	35,130
Reliant Energy - HL&P								
Direct	15,422	25,401	60,781	290,208	533,425	823,724	769,293	752,963
Indirect	139,706	160,572	194,138	225,889	563,362	663,152	641,380	708,511
Total Reductions	155,129	185,973	254,919	516,097	1,096,786	1,486,876	1,410,672	1,461,475
Total for Entity	155,129	185,973	254,919	516,097	1,096,786	1,486,876	1,410,672	1,461,475
Sacramento Municipal Utility District								
Direct				12	24	8	19	15
Indirect				517	923	460,052	489,296	497,239
Total Reductions				529	947	460,060	489,315	497,253
Sequestration	69	184	367	619	890	1,158	1,440	1,764
Total for Entity		184	367	1,148	1,837	461,218	490,754	499,017

Table A2. Project-Level Emission Reductions and Sequestration Reported, Data Year 1998

(Metric Tons Carbon Dioxide Equivalent)

Reporter	1991	1992	1993	1994	1995	1996	1997	1998
Salt River Project								
Total (EZ)								1,560,017
Santee Cooper								
Direct	12,789	17,696	185,506	169,824	217,230	453,130	426,433	880,179
Indirect	12,591	17,110	13,935	10,437	48,795	66,278	92,697	107,771
Total Reductions	25,380	34,806	199,441	180,261	266,025	519,408	519,130	987,950
Sequestration	155	397	875	921	940	980	1,004	3,048
Total for Entity	25,535	35,203	200,316	181,183	266,965	520,387	520,134	990,998
Seattle City Light								
Indirect	7,228	33,239	55,803	83,397	124,144	170,104	187,277	204,418
Total Reductions	7,228	33,239	55,803	83,397	124,144	170,104	187,277	204,418
Sequestration					2	9	15	21
Total for Entity	7,228	33,239	55,803	83,397	124,146	170,113	187,292	204,439
SeaWest Windpower, Inc.								
Indirect			4,598	4,604	4,823	8,860	6,933	9,650
Total Reductions			4,598	4,604	4,823	8,860	6,933	9,650
Total for Entity			4,598	4,604	4,823	8,860	6,933	9,650
Seminole Electric Cooperative, Inc.								
Total (EZ)								253,692
Seneca Energy, Inc.								
Direct							171,725	260,045
Indirect							16,672	25,245
Total Reductions							188,397	285,290
Total for Entity							188,397	285,290
Separation Technologies, Inc								
Total (EZ)								232,299
Shenandoah Valley Electric Cooperative								
Indirect		229	899	922	1,107	15,244	10,106	15,556
Total Reductions		229	899	922	1,107	15,244	10,106	15,556
Sequestration			0	0	0	0	1	1
Total for Entity		229	899	922	1,107	15,244	10,107	15,557
Shrewsbury Electric Light Plant								
Total (EZ)								2,272
SONAT Exploration Company								
Direct					44,356	935,640	2,132,304	3,079,649
Total Reductions					44,356	935,640	2,132,304	3,079,649
Total for Entity					44,356	935,640	2,132,304	3,079,649
South Carolina Electric & Gas Company								
Direct				96,370	323,860	316,117	1,753,309	1,761,100
Indirect	44,522	53,097	70,861	81,333	90,622	104,581	109,590	57,968
Total Reductions	44,522	53,097	70,861	177,703	414,483	420,698	1,862,899	1,819,068
Sequestration			627	1,146	3,590	4,152	4,632	5,161
Total Entity		53,097	71,488	178,849	418,072	424,850	1,867,531	1,824,229
Southeastern Biomass Partners, LP								
Total (EZ)								91,116
Southern California Edison Co.								
Direct	460,850	1,090,436	1,783,525	2,392,609	2,586,656	2,907,300	3,242,499	3,525,254
Indirect	57,969	57,969	59,783	64,773	72,393	82,191	85,910	108,046
Total Reductions	518,819	1,148,405	1,843,309	2,457,382	2,659,049	2,989,491	3,328,409	3,633,300
Total for Entity		1,148,405	1,843,309	2,457,382	2,659,049	2,989,491	3,328,409	3,633,300

Table A2. Project-Level Emission Reductions and Sequestration Reported, Data Year 1998

(Metric Tons Carbon Dioxide Equivalent)

Reporter	1991	1992	1993	1994	1995	1996	1997	1998
Southern Company								
Direct	19,953	2,247,832	2,424,687	2,856,437	3,297,955	3,552,599	3,865,740	2,710,203
Indirect		28,770	62,517	258,902	366,502	434,043	780,475	953,568
Total Reductions	19,953	2,276,602	2,487,204	3,115,339	3,664,457	3,986,642	4,646,215	3,663,771
Sequestration		3,397	1,080	1,154	14,081	54,748	83,289	91,199
Total for Entity	19,953	2,279,999	2,488,284	3,116,493	3,678,538	4,041,390	4,729,504	3,754,970
Southside Electric Cooperative								
Indirect	-1,003	21,794	18,012	3,038	15,582	8,494	9,428	13,080
Total Reductions	-1,003	21,794	18,012	3,038	15,582	8,494	9,428	13,080
Total for Entity	-1,003	21,794	18,012	3,038	15,582	8,494	9,428	13,080
Steuben Rural Electric Co-op								
Total (EZ)								2,085
Tacoma Public Utilities								
Total (EZ)								42,325
Tampa Electric Company								
Indirect	240,404	237,682	234,054	240,585	265,406	267,583	266,857	271,909
Total Reductions	240,404	237,682	234,054	240,585	265,406	267,583	266,857	271,909
Sequestration					1,226	1,203	1,130	953
Total for Entity	240,404	237,682	234,054	240,585	266,632	268,786	267,987	272,862
Taunton Municipal Lighting Plant								
Total (EZ)								113,680
Tennessee Valley Authority								
Direct	2,860,009	8,560,064	6,971,715	7,764,654	10,284,879	22,313,696	23,904,871	25,646,483
Indirect	1,091	70,105	72,873	84,517	118,371	196,196	271,869	440,991
Total Reductions	2,861,100	8,630,170	7,044,589	7,849,171	10,403,251	22,509,892	24,176,739	26,087,474
Sequestration	1,064	1,710	2,701	3,087	31,031	31,574	31,663	28,595
Total for Entity		8,631,880	7,047,289	7,852,258	10,434,282	22,541,466	24,208,403	26,116,069
TXU								
Direct	6,498,981	8,103,298	11,718,671	15,541,974	17,822,808	15,997,506	18,633,395	19,521,417
Indirect	93,356	115,668	84,615	104,555	108,518	349,121	376,330	680,270
Total Reductions	6,592,338	8,218,965	11,803,285	15,646,529	17,931,326	16,346,627	19,009,725	20,201,687
Sequestration	543	1,087	1,630	2,174	5,664	7,580	13,115	16,769
Total for Entity	6,592,881	8,220,052	11,804,916	15,648,703	17,936,989	16,354,207	19,022,840	20,218,457
U. S. Steel Mining Company, LLC								
Direct	1,201,596	1,283,618	1,106,430	1,052,509	1,330,674	1,408,140	1,213,400	1,334,251
Indirect	-11,010	-9,592	-8,061	-8,247	-11,445	-10,126	-8,059	-6,468
Total Reductions	1,190,587	1,274,027	1,098,369	1,044,261	1,319,229	1,398,014	1,205,342	1,327,783
Total for Entity		1,274,027	1,098,369	1,044,261	1,319,229	1,398,014	1,205,342	1,327,783
U.S. Department of Energy								
Direct			37	37	37	37	37	37
Total Reductions			37	37	37	37	37	37
Total for Entity			37	37	37	37	37	37
UNICOM (Commonwealth Edison Company)								
Direct	33,558	32,301	215,202	732,886	883,929	618,634	1,118,254	1,206,285
Indirect	907,231	867,322	1,229,587	1,455,313	1,564,450	2,307,576	2,161,804	3,332,482
Total Reductions	940,788	899,624	1,444,789	2,188,199	2,448,379	2,926,211	3,280,057	4,538,768
Sequestration					349	483	537	562
Total for Entity		899,624	1,444,789	2,188,199	2,448,728	2,926,694	3,280,594	4,539,330
United Power Association								
Direct	4,618	5,541	19,612	74,764	79,667	101,403	112,006	149,146
Indirect	11,088	45,995	86,743	123,355	153,971	189,730	224,431	246,459
Total Reductions	15,705	51,536	106,355	198,119	233,638	291,133	336,437	395,604
Total for Entity	15,705	51,536	106,355	198,119	233,638	291,133	336,437	395,604

Table A2. Project-Level Emission Reductions and Sequestration Reported, Data Year 1998

(Metric Tons Carbon Dioxide Equivalent)

Reporter	1991	1992	1993	1994	1995	1996	1997	1998
Urban Forestry Alliance								
Total (EZ)								*
USGen New England, Inc.								
Direct	220,966	960,896	1,065,225	1,575,574	2,035,360	2,883,939	2,998,874	3,065,302
Indirect	162,517	-160,378	-39,633	-237,860	-331,464	-108,194	84,426	-195,040
Total Reductions	383,482	800,517	1,025,591	1,337,714	1,703,895	2,775,744	3,083,300	2,870,262
Sequestration			8,682	24,930	58,016	44,246	42,310	40,706
Total for Entity	383,482	800,517	1,034,273	1,362,644	1,761,912	2,819,990	3,125,609	2,910,968
USX Corporation - Southern Lands and Minerals								
Direct					7,393	156,377	368,699	586,981
Total Reductions					7,393	156,377	368,699	586,981
Total for Entity					7,393	156,377	368,699	586,981
Utah Municipal Power Agency								
Total (EZ)								38,362
VANALCO, INC. - (Primary Aluminum Reduction Plant)								
Direct		28,700	39,000	67,700	216,100	54,700	67,700	87,200
Total Reductions		28,700	39,000	67,700	216,100	54,700	67,700	87,200
Total for Entity		28,700	39,000	67,700	216,100	54,700	67,700	87,200
Vermont Public Power Supply Authority								
Indirect		29	62	851	1,280	1,899	2,051	2,303
Total Reductions		29	62	851	1,280	1,899	2,051	2,303
Total for Entity		29	62	851	1,280	1,899	2,051	2,303
Volvo Cars of North America, Inc.								
Total (EZ)								10
Waverly Light & Power Company								
Direct		1	1	1	1	1	1	1
Indirect	4,135	9,014	13,215	18,162	18,222	18,578	18,809	18,531
Total Reductions	4,135	9,015	13,217	18,163	18,223	18,579	18,810	18,532
Sequestration	18	37	55	73	85	96	107	118
Total for Entity	4,153	9,052	13,272	18,236	18,308	18,675	18,917	18,650
Western Resources, Inc.								
Direct	57,595	61,981	96,261	268,953	357,060	537,000	717,450	720,312
Indirect	23,958	29,766	73,305	123,848	207,312	226,696	264,202	393,898
Total Reductions	81,553	91,747	169,566	392,801	564,372	763,696	981,652	1,114,210
Sequestration					6,130	8,422	7,907	6,669
Total for Entity	81,553	91,747	169,566	392,801	570,502	772,119	989,559	1,120,880
Whatcom Land Trust								
Sequestration								609,382
Total for Entity								609,382
Wisconsin Electric Power Co.								
Direct	467,111	955,994	1,641,207	2,234,046	2,436,286	2,824,984	3,109,292	2,927,288
Indirect	657,770	753,250	797,222	857,230	902,355	918,886	900,709	991,032
Total Reductions	1,124,881	1,709,244	2,438,429	3,091,277	3,338,641	3,743,871	4,010,001	3,918,320
Sequestration					162,658	162,658	162,495	162,420
Total for Entity		1,709,244	2,438,429	3,091,277	3,501,299	3,906,529	4,172,496	4,080,740
Wisconsin Public Power, Inc.								
Total (EZ)								18,518
Wisconsin Public Service Corporation								
Direct	202,991	333,917	461,074	527,727	687,390	776,743	833,403	812,597
Total Reductions	202,991	333,917	461,074	527,727	687,390	776,743	833,403	812,597
Sequestration	67,612	67,612	67,612	67,612	68,560	69,518	70,492	95,291
Total for Entity		401,530	528,686	595,339	755,951	846,261	903,895	907,888

Table A2. Project-Level Emission Reductions and Sequestration Reported, Data Year 1998
(Metric Tons Carbon Dioxide Equivalent)

Reporter	1991	1992	1993	1994	1995	1996	1997	1998
World Parks Endowment								
Sequestration	1,168,714	1,168,714	1,030,595	1,030,595	1,030,595	1,030,595	1,384,429	1,384,429
Total for Entity	1,168,714	1,168,714	1,030,595	1,030,595	1,030,595	1,030,595	1,384,429	1,384,429
Zahren Alternative Power Corporation								
Total (EZ)								1,115,734
Zeeland Board of Public Works								
Total (EZ)								396
Grand Totals	**53,249,336**	**61,522,337**	**87,882,669**	**94,486,354**	**141,963,237**	**161,072,104**	**169,122,474**	**212,037,029**

Notes: "Direct" refers to direct reductions. "Indirect" refers to indirect reductions. Excludes confidential data. This table excludes those gases, such as CFCs and HCFCs, with ambiguous global warming potentials (GWPs), as determined by the Intergovernmental Panel on Climate Change. For further discussion of GWPs, see the "Greenhouse Gases In Perspective" section of the EIA publication, *Emissions of Greenhouse Gases in the United States 1998*.

*Less than 0.5 metric tons carbon dioxide equivalent.

Source: Energy Information Administration, Forms EIA-1605 and EIA-1605EZ.

Table A3. Entity-Level Total Reductions by Reporter and Gas, Data Year 1998

(Metric Tons Carbon Dioxide Equivalent)

Reporter and Gas	1991	1992	1993	1994	1995	1996	1997	1998
AES Hawaii, Inc.								
CO_2		1,530,000	1,530,000	1,530,000	1,530,000	1,530,000	1,530,000	1,530,000
Entity Total		1,530,000	1,530,000	1,530,000	1,530,000	1,530,000	1,530,000	1,530,000
AES Shady Point								
CO_2			4,160,000	4,160,000	4,160,000	4,160,000	4,160,000	4,160,000
Entity Total			4,160,000	4,160,000	4,160,000	4,160,000	4,160,000	4,160,000
AES Thames								
CO_2	1,880,000	1,880,000	1,880,000	1,880,000	1,880,000	1,940,000	1,940,000	1,940,000
Entity Total	1,880,000	1,880,000	1,880,000	1,880,000	1,880,000	1,940,000	1,940,000	1,940,000
Alcan Ingot, Sebree Aluminum Plant								
CF_4				245,518	32,474	20,293	-47,392	106,399
C_2F_6				34,748	4,600	2,870	-6,707	15,060
Entity Total				280,266	37,074	23,163	-54,098	121,459
Allegheny Power Service Corporation								
SF_6							144,834	209,229
Methane						231	288	354
CO_2	169,898	270,105	367,894	565,546	886,705	1,035,749	1,009,258	1,289,268
Entity Total	169,898	270,105	367,894	565,546	886,705	1,035,980	1,154,379	1,498,851
Allergan, Inc.								
CO_2					116	116	501	4,106
Entity Total					116	116	501	4,106
Alliant Energy								
CO_2	77,948	152,882	322,211	495,512	754,589	947,871	1,149,598	1,325,446
Entity Total	77,948	152,882	322,211	495,512	754,589	947,871	1,149,598	1,325,446
Arizona Portland Cement Co.								
CO_2		100,969	131,383	131,673	154,630	145,443	173,217	174,948
Entity Total		100,969	131,383	131,673	154,630	145,443	173,217	174,948
Arizona Public Service Company								
CO_2	1,703,681	1,303,436	1,078,664	1,304,753	2,678,136	2,892,054	2,231,309	1,659,314
Entity Total	1,703,681	1,303,436	1,078,664	1,304,753	2,678,136	2,892,054	2,231,309	1,659,314
Arthur Rypinski & Jacquelyn Porth								
CO_2	2	2	3	5	5	5	5	5
Entity Total	2	2	3	5	5	5	5	5
Baltimore Gas & Electric Co.								
CF_4			18	2,126	2,571	2,250	2,547	1,946
C_2F_6			4	300	363	317	359	275
SF_6							87	5,030
Methane			841	2,071	3,138	3,283	3,742	3,614
CO_2	1,495	1,494,152	3,289,347	2,650,185	4,294,026	3,577,232	4,602,392	4,866,626
Entity Total	1,495	1,494,152	3,290,210	2,654,683	4,300,098	3,583,082	4,609,127	4,877,491
Bethlehem Steel Corporation								
CO_2							2,486,594	3,920,853
Entity Total							2,486,594	3,920,853
Black Warrior Methane Corp.								
Methane	4,648,015	4,359,642	4,857,346	3,886,856	4,214,188	3,953,858	4,040,539	4,590,595
Entity Total	4,648,015	4,359,642	4,857,346	3,886,856	4,214,188	3,953,858	4,040,539	4,590,595
Bountiful City Light & Power								
CO_2	28	1,339	10,320	6,426	11,851	14,629	16,797	19,191
Entity Total	28	1,339	10,320	6,426	11,851	14,629	16,797	19,191
BP Amoco								
CO_2	241	367,124	586,195	819,106	1,096,200	1,387,264	1,922,969	1,990,447
Entity Total	241	367,124	586,195	819,106	1,096,200	1,387,264	1,922,969	1,990,447

Table A3. Entity-Level Total Reductions by Reporter and Gas, Data Year 1998

(Metric Tons Carbon Dioxide Equivalent)

Reporter and Gas	1991	1992	1993	1994	1995	1996	1997	1998
California Portland Cement Co.- Colton Plant								
CO_2	25,680	6,147	67,792	-7,702	876	61,478	54,721	65,517
Entity Total	25,680	6,147	67,792	-7,702	876	61,478	54,721	65,517
California Portland Cement Co.- Mojave Plant								
CO_2	16,897	88,865	51,372	108,076	59,253	40,852	43,647	75,913
Entity Total	16,897	88,865	51,372	108,076	59,253	40,852	43,647	75,913
Central Hudson Gas & Electric Corporation								
Methane					5,258	9,068	13,393	13,774
CO_2	480,347	972,919	2,568,732	3,155,543	2,909,522	3,495,725	2,640,386	1,036,873
Entity Total	480,347	972,919	2,568,732	3,155,543	2,914,780	3,504,793	2,653,779	1,050,647
Cinergy Corp.								
Methane		414,814	369,720	393,763	431,950	578,899	600,903	619,249
CO_2	64,010	160,427	257,143	745,141	1,616,932	2,027,257	1,689,718	1,938,011
Entity Total	64,010	575,240	626,864	1,138,904	2,048,882	2,606,156	2,290,620	2,557,260
Commonwealth Bethlehem Energy LLC								
Methane								39,759
CO_2								-5,206
Entity Total								34,553
CONSOL Coal Group								
Methane		1,885,523	6,343,848	12,193,459	11,056,598	13,138,421	12,556,226	12,707,585
Entity Total		1,885,523	6,343,848	12,193,459	11,056,598	13,138,421	12,556,226	12,707,585
The Dow Chemical Company								
HFC-23							-10,049	10,049
HFC-134a					-8,742	-6,746	5,865	-27,104
HFC-152a			25	0	8,794	17,775	-1	-4
SF_6					-334,115	11,491	381,967	185,162
Methane					4,001	3,239	47,437	-26,100
CO_2					386,461	-1,239,214	1,620,232	194,138
Entity Total			25	0	56,398	-1,213,456	2,045,450	336,141
Dragon Products Company, Inc.								
CO_2				3,385	-437	26,451	67,279	54,977
Entity Total				3,385	-437	26,451	67,279	54,977
DTE Energy/ Detroit Edison								
CO_2	4,334,075	7,806,960	4,694,953	-2,857,904	-1,122,097	-1,248,558	-2,184,320	-4,631,723
Entity Total	4,334,075	7,806,960	4,694,953	-2,857,904	-1,122,097	-1,248,558	-2,184,320	-4,631,723
Duke Energy Corporation								
Methane	0	0	0	0	0	0	141,624	190,743
CO_2	7,865,486	6,867,928	6,887,806	9,423,431	12,808,281	5,652,924	4,056,278	12,109,070
Entity Total	7,865,486	6,867,928	6,887,806	9,423,431	12,808,281	5,652,924	4,197,902	12,299,813
Entergy Services, Inc.								
SF_6								4,692
CO_2	1,282,893	-116,610	1,975,614	40,356	2,811,678	3,463,231	5,769,573	6,617,630
Entity Total	1,282,893	-116,610	1,975,614	40,356	2,811,678	3,463,231	5,769,573	6,622,322
FirstEnergy Corporation								
CO_2	3,465,625	4,343,804	1,238,869	2,104,835	5,442,470	3,878,785	5,043,874	10,634,739
Entity Total	3,465,625	4,343,804	1,238,869	2,104,835	5,442,470	3,878,785	5,043,874	10,634,739
Florida Power & Light Company								
SF_6		121,275	121,275	121,275	2,024	18,701	0	25,043
CO_2		6,080,651	13,224,142	19,432,760	22,175,107	23,423,185	23,148,943	26,189,436
Entity Total		6,201,926	13,345,417	19,554,035	22,177,131	23,441,886	23,148,943	26,214,479
Florida Power Corporation								
CO_2				4,437,347	5,607,021	3,985,430	2,934,597	3,114,658
Entity Total				4,437,347	5,607,021	3,985,430	2,934,597	3,114,658

Table A3. Entity-Level Total Reductions by Reporter and Gas, Data Year 1998

(Metric Tons Carbon Dioxide Equivalent)

Reporter and Gas	1991	1992	1993	1994	1995	1996	1997	1998
General Motors Corporation								
CO_2	0	65	160	267	874	1,369	2,159	2,664
Entity Total	0	65	160	267	874	1,369	2,159	2,664
Hawaiian Electric Company, Inc.								
CO_2		-326,587	-275,784	-352,895	-587,856	-745,706	-689,460	-1,137,610
Entity Total		-326,587	-275,784	-352,895	-587,856	-745,706	-689,460	-1,137,610
IBM								
CO_2	125,192	120,202	114,124	100,607	102,693	57,606	80,921	108,179
Entity Total	125,192	120,202	114,124	100,607	102,693	57,606	80,921	108,179
Illinois Power Company								
CO_2		517,749	1,320,215	2,689,508	1,722,093	964,795	-1,491,129	-2,460,593
Entity Total		517,749	1,320,215	2,689,508	1,722,093	964,795	-1,491,129	-2,460,593
Integrated Waste Services Association								
Methane					2,423,825	2,736,697	3,044,636	3,352,688
CO_2					15,785,016	16,510,763	15,966,452	16,057,171
N_2O					95,617	99,836	96,461	97,305
Entity Total					18,304,457	19,347,296	19,107,549	19,507,164
Johnson & Johnson								
CO_2	4,767	35,073	77,212	110,908	139,989	185,278	214,587	236,413
Entity Total	4,767	35,073	77,212	110,908	139,989	185,278	214,587	236,413
Kansas City Power & Light Company								
CO_2	376,210	243,332	319,634	621,364	576,423	619,899	702,361	798,330
Entity Total	376,210	243,332	319,634	621,364	576,423	619,899	702,361	798,330
Long Island Power Authority & KeySpan Energy								
SF_6	0	0	0	0	0	2,168	3,252	3,252
Methane	637,271	672,003	803,690	812,495	729,513	615,837	428,447	319,967
CO_2	653,990	1,519,353	1,437,162	1,904,634	2,586,747	2,297,536	2,657,326	1,691,900
N_2O	478,086	1,659,241	1,827,977	2,896,641	3,205,991	3,374,727	3,234,114	2,671,659
Entity Total	1,769,347	3,850,597	4,068,830	5,613,771	6,522,251	6,290,269	6,323,139	4,686,778
Los Angeles Department of Water and Power								
CO_2	1,261,529	-684,993	-160,242	-1,172,083	1,638,229	3,787,468	2,299,849	-1,839,567
Entity Total	1,261,529	-684,993	-160,242	-1,172,083	1,638,229	3,787,468	2,299,849	-1,839,567
Lower Colorado River Authority								
CO_2	62,959	77,292	109,588	150,411	210,467	347,361	392,902	402,609
Entity Total	62,959	77,292	109,588	150,411	210,467	347,361	392,902	402,609
Lucent Technologies								
CO_2	0	0	14,000	30,000	60,000	90,000	110,000	141,000
Entity Total	0	0	14,000	30,000	60,000	90,000	110,000	141,000
Motorola Austin								
CO_2						56,065	60,005	137,322
Entity Total						56,065	60,005	137,322
Navistar International Transportation Corp.								
CO_2						-36,745	4,548	64,446
Entity Total						-36,745	4,548	64,446
Niagara Mohawk Power Corporation								
CO_2	1,350,072	1,638,104	2,444,682	3,709,116	3,863,609	4,191,194	3,753,840	5,281,811
Entity Total	1,350,072	1,638,104	2,444,682	3,709,116	3,863,609	4,191,194	3,753,840	5,281,811
NiSource/NIPSCO								
SF_6			0	0	0	26,452	26,452	26,452
Methane	4,046	5,372	6,744	6,744	13,088	46,560	65,706	71,669
CO_2	22,016	4,371	27,093	37,181	138,714	378,075	1,055,950	1,494,073
Entity Total	26,063	9,743	33,837	43,925	151,802	451,087	1,148,109	1,592,194

Table A3. Entity-Level Total Reductions by Reporter and Gas, Data Year 1998

(Metric Tons Carbon Dioxide Equivalent)

Reporter and Gas	1991	1992	1993	1994	1995	1996	1997	1998
Northeast Utilities								
CO_2	1,206,556	3,184,219	4,200,266	3,483,590	3,166,075	2,648,980	-508,023	-263,084
Entity Total	1,206,556	3,184,219	4,200,266	3,483,590	3,166,075	2,648,980	-508,023	-263,084
PacifiCorp								
Methane							10,478	10,478
CO_2	3,663	108,214	228,884	441,311	854,203	1,141,386	1,461,780	1,790,840
Entity Total	3,663	108,214	228,884	441,311	854,203	1,141,386	1,472,258	1,801,318
Peabody Holding Company, Inc.								
Methane	14,079	33,472	55,476	49,037	76,013	99,122	77,194	86,701
CO_2				293,638	355,299	398,732	327,865	259,995
Entity Total	14,079	33,472	55,476	342,675	431,312	497,854	405,059	346,695
Portland General Electric Co.								
CO_2	102,339	174,298	282,935	474,241	659,237	737,086	775,115	821,955
Entity Total	102,339	174,298	282,935	474,241	659,237	737,086	775,115	821,955
PP&L RESOURCES, INC.								
Methane	59,858	61,058	59,820	96,035	206,473	282,601	287,440	285,249
CO_2	30,262	140,421	217,493	-159,040	226,637	874,298	871,882	2,983,888
Entity Total	90,120	201,479	277,312	-63,004	433,110	1,156,898	1,159,321	3,269,136
Public Service Electric and Gas Company								
CO_2				4,588,152	4,361,005	4,747,345	2,895,457	3,547,306
Entity Total				4,588,152	4,361,005	4,747,345	2,895,457	3,547,306
Reliant Energy - HL&P								
CO_2	2,580,034	2,923,857	590,577	1,626,582	3,120,716	3,856,443	2,950,165	4,318,200
Entity Total	2,580,034	2,923,857	590,577	1,626,582	3,120,716	3,856,443	2,950,165	4,318,200
Sacramento Municipal Utility District								
CO_2						631,236	551,646	1,148,933
Entity Total						631,236	551,646	1,148,933
Santee Cooper								
CO_2	25,535	35,203	200,316	181,183	266,965	520,387	520,134	990,998
Entity Total	25,535	35,203	200,316	181,183	266,965	520,387	520,134	990,998
Seattle City Light								
CO_2	7,228	33,239	55,803	83,397	124,146	170,113	187,292	204,439
Entity Total	7,228	33,239	55,803	83,397	124,146	170,113	187,292	204,439
Southern Company								
Methane		28,770	62,517	119,532	89,481	81,858	91,224	84,399
CO_2	19,953	2,251,229	2,425,767	2,996,961	3,589,057	3,959,532	4,638,280	3,670,571
Entity Total	19,953	2,279,999	2,488,284	3,116,493	3,678,538	4,041,390	4,729,504	3,754,970
Tampa Electric Company								
CO_2	240,404	237,682	234,054	240,585	266,632	268,786	267,987	272,862
Entity Total	240,404	237,682	234,054	240,585	266,632	268,786	267,987	272,862
Tennessee Valley Authority								
HFC-23				-29	-43	-42	-42	
Methane	402	78,034	78,360	87,295	118,375	138,328	139,632	125,193
CO_2	2,861,763	8,553,845	6,968,929	7,764,992	10,315,950	22,403,180	24,068,814	25,990,876
Entity Total	2,862,165	8,631,880	7,047,289	7,852,258	10,434,282	22,541,466	24,208,403	26,116,069
USGen New England, Inc.								
Methane	310,015	393,782	526,471	534,072	509,020	664,095	838,010	723,895
CO_2	73,467	406,735	507,802	828,572	1,252,891	2,155,896	2,310,947	2,187,073
Entity Total	383,482	800,517	1,034,273	1,362,644	1,761,912	2,819,990	3,148,957	2,910,968
VANALCO, INC. - (Primary Aluminum Reduction Plant)								
HFC-23	227,500	19,500	39,000	58,500	188,500	45,500	58,500	78,000
C_2F_6	27,600	9,200	0	9,200	27,600	9,200	9,200	9,200
Entity Total	255,100	28,700	39,000	67,700	216,100	54,700	67,700	87,200

Table A3. Entity-Level Total Reductions by Reporter and Gas, Data Year 1998

(Metric Tons Carbon Dioxide Equivalent)

Reporter and Gas	1991	1992	1993	1994	1995	1996	1997	1998
Waverly Light & Power Company								
CO_2	4,154	9,053	13,273	16,098	16,054	16,348	16,559	16,103
Entity Total	4,154	9,053	13,273	16,098	16,054	16,348	16,559	16,103
Wisconsin Public Service Corporation								
CO_2	288,878	420,165	546,207	629,615	791,987	878,113	956,366	968,792
Entity Total	288,878	420,165	546,207	629,615	791,987	878,113	956,366	968,792
World Parks Endowment								
CO_2	1,168,714	1,168,714	1,030,594	1,030,594	1,030,594	1,030,594	1,384,428	1,384,428
Entity Total	1,168,714	1,168,714	1,030,594	1,030,594	1,030,594	1,030,594	1,384,428	1,384,428
Grand Total	**40244863**	**65,843,624**	**82,406,314**	**104,027,603**	**149,882,323**	**162,318,210**	**161,190,932**	**178,168,018**

CO_2 = carbon dioxide; CF_4 = perfluoromethane; C_2F_6 = perfluoroethane; SF_6 = sulfur hexafluoride; N_2O = nitrous oxide.

Notes: Data are shown as reported on Part IVb of Schedule III and may not equal the summed totals presented elsewhere in this report. This table excludes those gases, such as CFCs and HCFCs, with ambiguous global warming potentials (GWPs), as determined by the Intergovernmental Panel on Climate Change. For further discussion of GWPs, see the "Greenhouse Gases In Perspective" section of the EIA publication, *Emissions of Greenhouse Gases in the United States 1998*.

Source: Energy Information Administration, Forms EIA-1605 and EIA-1605EZ.

Table A4. Emission Reductions Reported at Project and Entity Level, Data Year 1998
(Metric Tons Carbon Dioxide Equivalent)

Reporter	Sector	Total Reported Reductions	
		Project Level	Entity Level
A&N Electric Cooperative	Electric Power	3,589	—
Abe Krasne Home Furnishings, Inc.	Other	38	—
Advanced Micro Devices, Inc.	Industry	1,923	—
AES Hawaii, Inc.	Electric Power	1,530,000	1,530,000
AES Shady Point	Electric Power	4,160,000	4,160,000
AES Thames	Electric Power	1,940,000	1,940,000
Air Exchange, Inc.	Other	993,000	—
Alabama Biomass Partners, Ltd	Alternative Energy	37,430	—
Alcan Ingot, Sebree Aluminum Plant	Industry	15,060	121,459
Allegheny Power Service Corporation	Electric Power	1,498,852	1,498,851
Allergan, Inc.	Industry	4,106	4,106
Alliant Energy	Electric Power	1,325,446	1,325,446
Ameren Corporation (formerly UE and CIPS)	Electric Power	616,836	—
American Electric Power, Inc.	Electric Power	-6,046,759	—
American Forests	Agriculture & Forestry	52,125	—
American Municipal Power - Ohio	Electric Power	340,389	—
Anoka Municipal Utility	Electric Power	30	—
Arizona Electric Power Cooperative, Inc.	Electric Power	73,479	—
Arizona Portland Cement Co.	Industry	174,878	174,948
Arizona Public Service Company	Electric Power	—	1,659,314
Arthur Rypinski & Jacquelyn Porth	Other	5	5
Asheville Landfill Gas, LLC	Alternative Energy	79,928	—
Atlantic Energy, Inc. (AEI)	Electric Power	68,245	—
Austin Energy	Electric Power	1,184,302	—
Baltimore Gas & Electric Co.	Electric Power	4,877,491	4,877,491
BARC Electric Cooperative	Electric Power	3,394	—
Bethlehem Steel Corporation	Industry	—	3,920,853
Biomass Partners, LP	Alternative Energy	91,502	—
Black Warrior Methane Corp.	Alternative Energy	4,586,785	4,590,595
Bountiful City Light & Power	Electric Power	19,192	19,191
BP Amoco	Industry	1,990,447	1,990,447
Burlington County Board of Chosen Freeholders	Other	295,373	—
California Portland Cement Co. - Colton Plant	Industry	65,638	65,517
California Portland Cement Co. - Mojave Plant	Industry	74,918	75,913
Carolina Power & Light Company	Electric Power	6,974,302	—
Catawba Landfill Gas, LLC	Alternative Energy	31,655	—
CDX Gas, LLC	Alternative Energy	419,727	—
Cedar Falls Utilities	Electric Power	10,927	—
Central and South West Corporation	Electric Power	384,548	—
Central Hudson Gas & Electric Corporation	Electric Power	295,890	1,050,647
Cereza Energy, Inc.	Alternative Energy	220,990	—
Choptank Electric Cooperative	Electric Power	36,171	—
Cinergy Corp.	Electric Power	2,557,260	2,557,260
City of Edmond, Oklahoma, Electric Department	Electric Power	1,650	—
City of Fairfield Wastewater Division	Other	661	—
City of Palo Alto	Electric Power	2,141	—

Table A4. Emission Reductions Reported at Project and Entity Level, Data Year 1998
(Metric Tons Carbon Dioxide Equivalent)

Reporter	Sector	Total Reported Reductions	
		Project Level	Entity Level
CLE Resources	Industry	13,817	—
Cleco Corporation	Electric Power	2,280	—
CMV Joint Venture	Alternative Energy	434,130	—
Columbia Falls Aluminum Company LLC	Industry	81	—
COM/Electric	Electric Power	239,978	—
Commonwealth Bethlehem Energy LLC	Alternative Energy	34,554	34,553
CONSOL Coal Group	Industry	—	12,707,585
Community Electric Cooperative	Electric Power	3,100	—
Cooperative Power Association	Electric Power	218,081	—
Dade Behring, Inc.	Industry	1,244	—
Delaware Electric Cooperative	Electric Power	838	—
Delmarva Power	Electric Power	618,858	—
Delta Electric Power Association	Electric Power	20,329	—
Dominion Energy, L.P.	Alternative Energy	649,597	—
The Dow Chemical Company	Industry	0	336,141
Dragon Products Company, Inc.	Industry	112,423	54,977
DTE Energy/ Detroit Edison	Electric Power	3,729,576	-4,631,723
Duke Energy Corporation	Electric Power	12,299,813	12,299,813
Duquesne Light Company	Electric Power	164,698	—
Ecogas Corporation	Alternative Energy	153,358	—
Engelhard	Industry	51	—
Entergy Services, Inc.	Electric Power	6,622,322	6,622,322
Essential Foods, Inc.	Industry	72	—
Estee Lauder Companies	Industry	44	—
FirstEnergy Corporation	Electric Power	10,634,739	10,634,739
Florida Power & Light Company	Electric Power	1,679	26,214,479
Florida Power Corporation	Electric Power	—	3,114,658
Fred Weber, Inc.	Alternative Energy	302,052	—
General Motors Corporation	Industry	1,762,886	2,664
GeoMet Inc.	Alternative Energy	289,421	—
Golden Valley Electric Association, Inc	Electric Power	15,149	—
GPU, Inc.	Electric Power	2,961,413	—
Granger Electric Company	Alternative Energy	561,843	—
Grayson Hill Farms	Agriculture & Forestry	33,072	—
GSF Energy, LLC	Alternative Energy	2,923,283	—
Hawaiian Electric Company, Inc.	Electric Power	45,874	-1,137,610
IBM	Industry	—	108,179
Illinois Power Company	Electric Power	-2,460,593	-2,460,593
Imperial Plating	Industry	3	—
Industrial Equipment and Supplies	Industry	38	—
Integrated Waste Services Association	Alternative Energy	11,700,880	19,507,164
Iredell Landfill Gas, LLC	Alternative Energy	53,840	—
J.M. Gilmer and Company, Inc.	Agriculture & Forestry	998	—
JEA	Electric Power	214,300	—
Johnson & Johnson	Industry	236,417	236,413
Kansas City Power & Light Company	Electric Power	798,329	798,330

Table A4. Emission Reductions Reported at Project and Entity Level, Data Year 1998
(Metric Tons Carbon Dioxide Equivalent)

Reporter	Sector	Total Reported Reductions	
		Project Level	Entity Level
LFG Energy, Inc.	Alternative Energy	162,527	—
Long Island Power Authority & KeySpan Energy	Electric Power	—	4,686,778
Los Angeles Department of Water and Power	Electric Power	11,644	-1,839,567
Lower Colorado River Authority	Electric Power	402,609	402,609
Lucent Technologies	Industry		141,000
MCNIC Oil & Gas Co.	Alternative Energy	7,763,291	—
Mecklenburg Electric Cooperative	Electric Power	11,672	—
Minnesota Power	Electric Power	580,443	—
Minnesota Resource Recovery Association	Other	1,081,185	—
Missouri River Energy Services	Electric Power	79	—
Montana Power Company	Electric Power	-1,753,168	—
Monteco Gas, LLC	Alternative Energy	537,235	—
Moorhead Public Service	Electric Power	8,462	—
Motorola Austin	Industry		137,322
Nashville Electric Service	Electric Power	2,196	—
Navistar International Transportation Corp.	Industry	—	64,446
NC Muni Landfill Gas Partners, LP	Alternative Energy	73,956	—
Nebraska Public Power District	Electric Power	45,341	—
Nevada Power Company	Electric Power	71,550	—
Newton Landfill Gas, LLC	Alternative Energy	41,325	—
Nexstar Pharmaceuticals, Inc.	Industry	40	—
Niagara Mohawk Power Corporation	Electric Power	3,979,270	5,281,811
NiSource/NIPSCO	Electric Power	1,592,188	1,592,194
Noranda Aluminum Inc.	Industry	3,668,300	—
North American Carbon, Inc.	Alternative Energy	56,447	—
North Carolina Biomass Partners	Alternative Energy	74,433	—
North Carolina Electric Membership Corporation	Electric Power	615,809	—
Northeast Utilities	Electric Power	—	-263,084
Northern Neck Electric Cooperative	Electric Power	3,338	—
Northern States Power Company	Electric Power	3,445,681	—
Northern Virginia Electric Cooperative	Electric Power	33,214	—
Northwest Fuel Development, Inc.	Alternative Energy	15,032	—
Old Dominion Electric Cooperative	Electric Power	63	—
Omaha Public Power District	Electric Power	1,017,820	—
Pacific Gas and Electric Company	Electric Power	2,133,434	—
PacifiCorp	Electric Power	1,801,311	1,801,318
Pan American Hospital	Other	138	—
Peabody Holding Company, Inc.	Industry	86,701	346,695
PECO Energy Company	Electric Power	7,772,837	—
Pintexs	Industry	16	—
Pitt Landfill Gas, LLC	Alternative Energy	62,080	—
Platte River Power Authority & 4 owner cities	Electric Power	51,007	—
Portland General Electric Co.	Electric Power	821,955	821,955
Power Management Partners, LP	Alternative Energy	633,574	—
PP&L RESOURCES, INC.	Electric Power	3,269,136	3,269,136
Prince George Electric Cooperative	Electric Power	5,147	—

Table A4. Emission Reductions Reported at Project and Entity Level, Data Year 1998
(Metric Tons Carbon Dioxide Equivalent)

Reporter	Sector	Total Reported Reductions	
		Project Level	Entity Level
Public Service Company of New Mexico	Electric Power	1,490,957	—
Public Service Electric and Gas Company	Electric Power	2,654	3,547,306
Public Utility District No. 1 of Snohomish County	Electric Power	118,814	—
Rappahannock Electric Cooperative	Electric Power	35,130	—
Reliant Energy - HL&P	Electric Power	1,461,475	4,318,200
Sacramento Municipal Utility District	Electric Power	499,017	1,148,933
Salt River Project	Electric Power	1,560,017	—
Santee Cooper	Electric Power	990,998	990,998
Seattle City Light	Electric Power	204,439	204,439
SeaWest Windpower, Inc.	Alternative Energy	9,650	—
Seminole Electric Cooperative, Inc.	Electric Power	253,692	—
Seneca Energy, Inc.	Alternative Energy	285,290	—
Separation Technologies, Inc	Industry	232,299	—
Shenandoah Valley Electric Cooperative	Electric Power	15,557	—
Shrewsbury Electric Light Plant	Electric Power	2,272	—
SONAT Exploration Company	Alternative Energy	3,079,649	—
South Carolina Electric & Gas Company	Electric Power	1,824,229	—
Southeastern Biomass Partners, LP	Alternative Energy	91,116	—
Southern California Edison Co.	Electric Power	3,633,300	—
Southern Company	Electric Power	3,754,970	3,754,970
Southside Electric Cooperative	Electric Power	13,080	—
Steuben Rural Electric Co-op	Electric Power	2,085	—
Tacoma Public Utilities	Electric Power	42,325	—
Tampa Electric Company	Electric Power	272,862	272,862
Taunton Municipal Lighting Plant	Electric Power	113,680	—
Tennessee Valley Authority	Electric Power	26,116,069	26,116,069
TXU	Electric Power	20,218,457	—
U. S. Steel Mining Company, LLC	Industry	1,327,783	—
U.S. Department of Energy	Other	37	—
UNICOM (Commonwealth Edison Company)	Electric Power	4,539,330	—
United Power Association	Electric Power	2,275,224	—
Urban Forestry Alliance	Agriculture & Forestry	*	—
USGen New England, Inc.	Electric Power	2,910,968	2,910,968
USX Corporation	Alternative Energy	586,981	—
Utah Municipal Power Agency	Electric Power	38,362	—
VANALCO, INC. - (Primary Aluminum Reduction Plant)	Industry	87,200	87,200
Vermont Public Power Supply Authority	Electric Power	2,303	—
Volvo Cars of North America, Inc.	Industry	10	—
Waverly Light & Power Company	Electric Power	18,650	16,103
Western Resources, Inc.	Electric Power	1,120,880	—
Whatcom Land Trust	Agriculture & Forestry	609,382	—
Wisconsin Electric Power Co.	Electric Power	4,080,740	—
Wisconsin Public Power Inc.	Electric Power	18,518	—
Wisconsin Public Service Corporation	Electric Power	907,888	968,792
World Parks Endowment	Agriculture & Forestry	1,384,429	1,384,428

Table A4. Emission Reductions Reported at Project and Entity Level, Data Year 1998
(Metric Tons Carbon Dioxide Equivalent)

Reporter	Sector	Total Reported Reductions	
		Project Level	Entity Level
Zahren Alternative Power Corporation	Alternative Energy	1,115,734	—
Zeeland Board of Public Works	Electric Power	396	—
Totals		**212,037,029**	**178,168,018**

*Less than 0.5 metric tons carbon dioxide equivalent.
Source: Energy Information Administration, Forms EIA-1605 and EIA-1605EZ.

Table A5. Emission Reduction Projects Reported, Data Year 1998

Reporter	Form Type	Project	Location	Project Type
A&N Electric Cooperative	EIA-1605	Demand-side Management Load Control Program	U.S.	Energy End Use
		Transmission and Distribution Efficiency Improvements	U.S.	Electric Power G & T
Abe Krasne Home Furnishings, Inc.	EIA-1605	Fluorescent Bulb Changeout	U.S.	Energy End Use
		Natural Gas Use	U.S.	Energy End Use
Advanced Micro Devices, Inc.	EIA-1605EZ	Carbon Dioxide Reductions by Solid Waste Recycling	U.S.	Other
		Chiller Load Rebalance and Motor Replacement	U.S.	Energy End Use
		Exhaust Reductions	U.S.	Other
		Gas Cabinet Exhaust Optimization	U.S.	Other
		HEPA Filter Air Flow Modifications	U.S.	Energy End Use
		Methane Reductions by Solid Waste Recycling	U.S.	Other
		Office Lighting Control Project	U.S.	Energy End Use
		Reverse Osmosis Water Recycling Project	U.S.	Energy End Use
		Water Treatment Degasifier Pump Replacement	U.S.	Energy End Use
AES Hawaii, Inc.	EIA-1605	Mbaracayu Conservation	Foreign	Carbon Sequestration
AES Shady Point	EIA-1605	OXFAM America Amazon	Foreign	Carbon Sequestration
AES Thames	EIA-1605	CARE Agroforestry	Foreign	Carbon Sequestration
Air Exchange, Inc.	EIA-1605	Non-Utility Boiler Shutdown/Upgrade	U.S.	Energy End Use
Alabama Biomass Partners, Ltd	EIA-1605EZ	Biomass Waste to Energy	U.S.	Electric Power G & T
AlcanIngot, Sebree Aluminum Plant	EIA-1605	PFC Emissions Reductions	U.S.	Halogenates
Allegheny Power Service Corporation	EIA-1605	Adjustable Speed Drives for Primary Air Fans- Hatfield P.S.	U.S.	Electric Power G & T
		Adjustable Speed Drives-Plastic Injection Molding Machines	U.S.	Energy End Use
		Application of Capacitors	U.S.	Electric Power G & T
		Armstrong Boiler No. 1 Renovation Project	U.S.	Electric Power G & T
		Armstrong Boiler No. 2 Renovation Project	U.S.	Electric Power G & T
		Armstrong Unit 1 - Boiler Controls Replacement	U.S.	Electric Power G & T
		Armstrong Unit 2 - Boiler Controls Replacement	U.S.	Electric Power G & T
		Auxiliary Fuel Switching	U.S.	Electric Power G & T
		Black Oak Property Tree Planting	U.S.	Carbon Sequestration
		Carryall Vehicle Program	U.S.	Transportation
		Conversion to Higher Voltage Distribution	U.S.	Electric Power G & T
		Demand-Side Management Programs	U.S.	Energy End Use
		Economic Conductor Selection	U.S.	Electric Power G & T
		Efficient Distribution Transformers	U.S.	Electric Power G & T
		Energy Star Transformer Program	U.S.	Electric Power G & T
		EnviroTech Fund - Domestic Activities	U.S.	Other
		EnviroTech Fund - Foreign Activities	Foreign	Other
		Fly Ash use as replacement for cement	U.S.	Other
		Green Lights Utility Ally Program	U.S.	Energy End Use
		Hatfield Unit 1 - HP/IP Turbine Upgrade	U.S.	Electric Power G & T
		Hatfield Unit 1 - LP Turbine Upgrade	U.S.	Electric Power G & T
		Hatfield Unit 2 - HP/IP Turbine Upgrade	U.S.	Electric Power G & T
		Hatfield Unit 3 - LP Turbine Upgrade	U.S.	Electric Power G & T
		Lake Lynn Hydro Electric Station Relicensing	U.S.	Electric Power G & T
		Mississippi River Valley Bottomland Hardwood Restoration	U.S.	Carbon Sequestration
		Performance Monitoring Systems	U.S.	Electric Power G & T
		Potomac Edison 138/500 kV System Split	U.S.	Electric Power G & T
		R. P. Smith Unit 4 - Boiler Controls Replacement	U.S.	Electric Power G & T
		Reduced Impact Logging of Natural Forest in Malaysia	Foreign	Carbon Sequestration
		Replace Small Primary Conductors	U.S.	Electric Power G & T
		Rio Bravo Carbon Sequestration Pilot Project	Foreign	Carbon Sequestration
		Rivesville Unit 6 - High Pressure Turbine Upgrade	U.S.	Electric Power G & T
		Rivesville Unit No. 6 - Boiler Controls Replacement	U.S.	Electric Power G & T
		SF6 Breaker Replacement	U.S.	Halogenates

Table A5. Emission Reduction Projects Reported, Data Year 1998

Reporter	Form Type	Project	Location	Project Type
		Small Hydroelectric Station Relicensing	U.S.	Electric Power G & T
		Western Oregon Carbon Sequestration Project	U.S.	Carbon Sequestration
		Willow Island - Low Pressure Turbine Upgrade	U.S.	Electric Power G & T
		Wire Replacement on Transmission Lines	U.S.	Electric Power G & T
Allergan, Inc.	EIA-1605	Allergan Facility Consolidation	Foreign	Energy End Use
		Allergan Facility Divestiture	U.S.	Energy End Use
		Curtail Weekend Energy Usage	Foreign	Energy End Use
		Direct Expansion Cooler Unit Redesign	U.S.	Energy End Use
		Elimination of catalytic thermal oxidizer	U.S.	Energy End Use
		Elimination of CFCs at Allergan Hydron (U.K.)	Foreign	Halogenates
		Elimination of CFCs at U.S. Plants	U.S.	Halogenates
		Insulate Process Lines	Foreign	Energy End Use
		Lighting Retrofits and Upgrades	U.S.	Energy End Use
		Replace Mercury Vapor Lamps with Fluorescent Lamps	Foreign	Energy End Use
Alliant Energy	EIA-1605	Afforestation	U.S.	Carbon Sequestration
		Cedar Rapids Landfill Methane IES	U.S.	Waste Methane
		Columbia 1 turbine blade Efficiency improvements	U.S.	Electric Power G & T
		Columbia 1&2 Excess Air Efficiency improvements	U.S.	Electric Power G & T
		Columbia 2 economizer Efficiency improvements	U.S.	Electric Power G & T
		Columbia 2 turbine blade Heat rate improvement	U.S.	Electric Power G & T
		Conservation tillage	U.S.	Carbon Sequestration
		Edge 5 Excess Air Efficiency improvements	U.S.	Electric Power G & T
		Energy End Use - Electric IES	U.S.	Energy End Use
		Energy End Use - Electric IPC	U.S.	Energy End Use
		Energy End Use - Gas IES	U.S.	Energy End Use
		Energy End Use - Gas IPC	U.S.	Energy End Use
		Energy end use projects-Electric	U.S.	Energy End Use
		Energy end use-Gas	U.S.	Energy End Use
		Forest preservation	U.S.	Carbon Sequestration
		Fuel Switching	U.S.	Electric Power G & T
		Habitat Restoration	U.S.	Carbon Sequestration
		Mallard Ridge Landfill Methane	U.S.	Waste Methane
		Tire Derived Fuel Generation	U.S.	Electric Power G & T
		Transmission line improvements	U.S.	Electric Power G & T
		Urban Forestry IES	U.S.	Energy End Use
		Urban Forestry IES	U.S.	Carbon Sequestration
		Urban Forestry IPC	U.S.	Carbon Sequestration
		Urban Forestry IPC	U.S.	Energy End Use
		Verona Landfill Methane	U.S.	Waste Methane
		WP&L Green Lights Projects	U.S.	Energy End Use
Ameren Corporation (formerly UE and CIPS)	EIA-1605	Carpooling	U.S.	Transportation
		Conversion to a dry flyash handling system.	U.S.	Electric Power G & T
		Demand Side Management Projects	U.S.	Energy End Use
		EnviroTech Fund - Foreign	Foreign	Energy End Use
		EnviroTech Fund - US	U.S.	Energy End Use
		Flyash substitution for cement.	U.S.	Other
		Green Leaf Project	U.S.	Carbon Sequestration
		Increased Nuclear generation	U.S.	Electric Power G & T
		Install adjustible speed fan drives replacing fixed speed	U.S.	Electric Power G & T
		Meramec Power Plant Control Upgrade	U.S.	Electric Power G & T
		Meramec Power Plant Lighting Upgrade	U.S.	Energy End Use
		Milam Landfill Methane Recovery	U.S.	Waste Methane
		Mississippi River Valley Bottomland Hardwood Restoration	U.S.	Carbon Sequestration
		Purchase of Light Weight Rail Cars	U.S.	Transportation

Table A5. Emission Reduction Projects Reported, Data Year 1998

Reporter	Form Type	Project	Location	Project Type
		Reduced Impact Logging of Natural Forest in Malaysia	Foreign	Carbon Sequestration
		Replaced motor-generator exciters with static exciter system	U.S.	Electric Power G & T
		Rio Bravo Carbon Sequestration Pilot Program	Foreign	Carbon Sequestration
		Sioux Plant Control Upgrade	U.S.	Electric Power G & T
		Street Light Conversion	U.S.	Energy End Use
		Subtransmission Reconductoring	U.S.	Electric Power G & T
		Transformer Replacement	U.S.	Electric Power G & T
		Waste Oil Heat Recovery	U.S.	Electric Power G & T
		Western Oregon Carbon Sequestration	U.S.	Carbon Sequestration
American Electric Power, Inc.	EIA-1605	AEP Hydroelectric Facility Improvements	U.S.	Electric Power G & T
		AEP-AGSPOIL-1992	U.S.	Carbon Sequestration
		AEP-AGSPOIL-1993	U.S.	Carbon Sequestration
		AEP-AGSPOIL-1994	U.S.	Carbon Sequestration
		AEP-AGSPOIL-1995	U.S.	Carbon Sequestration
		AEP-AGSPOIL-1996	U.S.	Carbon Sequestration
		AEP-AGSPOIL-1997	U.S.	Carbon Sequestration
		AEP-AGSPOIL-1998	U.S.	Carbon Sequestration
		AEP-FM-1991	U.S.	Carbon Sequestration
		AEP-FM-1992	U.S.	Carbon Sequestration
		AEP-FM-1993	U.S.	Carbon Sequestration
		AEP-FM-1994	U.S.	Carbon Sequestration
		AEP-FM-1995	U.S.	Carbon Sequestration
		AEP-FM-1996	U.S.	Carbon Sequestration
		AEP-FM-1997	U.S.	Carbon Sequestration
		AEP-FM-1998	U.S.	Carbon Sequestration
		AEP-MARAG- 1992	U.S.	Carbon Sequestration
		AEP-MARAG-1991	U.S.	Carbon Sequestration
		AEP-MARAG-1993	U.S.	Carbon Sequestration
		AEP-MARAG-1993-2	U.S.	Carbon Sequestration
		AEP-MARAG-1994	U.S.	Carbon Sequestration
		AEP-MARAG-1994-2	U.S.	Carbon Sequestration
		AEP-MARAG-1995	U.S.	Carbon Sequestration
		AEP-MARAG-1996	U.S.	Carbon Sequestration
		AEP-MARAG-1997	U.S.	Carbon Sequestration
		AEP-MARAG-1998	U.S.	Carbon Sequestration
		Commercial/Industrial Demand Side Management Programs	U.S.	Energy End Use
		Distribution System Equipment Improvements	U.S.	Electric Power G & T
		Enviro Tech Investment Fund I Limited Partnership - US	U.S.	Other
		Enviro Tech Investment Funds - Foreign	Foreign	Other
		Fly Ash Utilization Program (Cement Replacement)	U.S.	Other
		Fuel Switch Coal to Natural Gas (Conesville Unit 1-3)	U.S.	Electric Power G & T
		Green Lights	U.S.	Energy End Use
		Heat Rate Improvement (Due to improved load optimization)	U.S.	Electric Power G & T
		Heat Rate Improvement Projects (Oper. and Equip. Changes)	U.S.	Electric Power G & T
		Mississippi River Valley Bottomland Hardwood Restoration	U.S.	Carbon Sequestration
		Noel Kempff Mercado Climate Action Project	Foreign	Carbon Sequestration
		Nuclear Plant Improved Utilization	U.S.	Electric Power G & T
		Open-Loop Transmission Groundwire Resistive Loss Reduction	U.S.	Electric Power G & T
		Reduced Impact Logging of Natural Forest in Malaysia	Foreign	Carbon Sequestration
		Residential Demand Side Management Programs	U.S.	Energy End Use
		Rio Bravo Carbon Sequestration Pilot Project	Foreign	Carbon Sequestration

Table A5. Emission Reduction Projects Reported, Data Year 1998

Reporter	Form Type	Project	Location	Project Type
		Transmission System Reinforcements	U.S.	Electric Power G & T
		Western Oregon Carbon Sequestration Project	U.S.	Carbon Sequestration
American Forests	EIA-1605	Global ReLeaf Forests — Allegheny, Pennsylvania	U.S.	Carbon Sequestration
		Global ReLeaf Forests — Apalacicola, Florida	U.S.	Carbon Sequestration
		Global ReLeaf Forests — Applegate River, Oregon	U.S.	Carbon Sequestration
		Global ReLeaf Forests — Appomattox, Virginia	U.S.	Carbon Sequestration
		Global ReLeaf Forests — Aqua Fria, Arizona	U.S.	Carbon Sequestration
		Global ReLeaf Forests — ASCM Preserve, Maryland	U.S.	Carbon Sequestration
		Global ReLeaf Forests — AuSable, Michigan	U.S.	Carbon Sequestration
		Global ReLeaf Forests — Bass River, New Jersey	U.S.	Carbon Sequestration
		Global ReLeaf Forests — Beaver Creek, Ohio	U.S.	Carbon Sequestration
		Global ReLeaf Forests — Bell Farm, Kentucky	U.S.	Carbon Sequestration
		Global ReLeaf Forests — Belleplain, New Jersey	U.S.	Carbon Sequestration
		Global ReLeaf Forests — Beltrami, Minnesota	U.S.	Carbon Sequestration
		Global ReLeaf Forests — Betsie River, Michigan	U.S.	Carbon Sequestration
		Global ReLeaf Forests — Big Walnut Nature Preserve, Indiana	U.S.	Carbon Sequestration
		Global ReLeaf Forests — Big Woods, Minnesota	U.S.	Carbon Sequestration
		Global ReLeaf Forests — Black Ridge, Colorado	U.S.	Carbon Sequestration
		Global ReLeaf Forests — Black River, Wisconsin	U.S.	Carbon Sequestration
		Global ReLeaf Forests — Blackfoot-Clearwater, Montana	U.S.	Carbon Sequestration
		Global ReLeaf Forests — Blackwater, Florida	U.S.	Carbon Sequestration
		Global ReLeaf Forests — Boise, Idaho	U.S.	Carbon Sequestration
		Global ReLeaf Forests — Brokenback Diversity, Wyoming	U.S.	Carbon Sequestration
		Global ReLeaf Forests — Cache River Bioreserve, Illinois	U.S.	Carbon Sequestration
		Global ReLeaf Forests — Cache River, Arkansas	U.S.	Carbon Sequestration
		Global ReLeaf Forests — Caddo Parish, Louisiana	U.S.	Carbon Sequestration
		Global ReLeaf Forests — Carson, New Mexico	U.S.	Carbon Sequestration
		Global ReLeaf Forests — Casper, Wyoming	U.S.	Carbon Sequestration
		Global ReLeaf Forests — Chittenden, Michigan	U.S.	Carbon Sequestration
		Global ReLeaf Forests — Choccolocco, Alabama	U.S.	Carbon Sequestration
		Global ReLeaf Forests — Conecuh, Alabama	U.S.	Carbon Sequestration
		Global ReLeaf Forests — Coshocton, Ohio	U.S.	Carbon Sequestration
		Global ReLeaf Forests — Cossatot, Arkansas	U.S.	Carbon Sequestration
		Global ReLeaf Forests — Croatan, North Carolina	U.S.	Carbon Sequestration
		Global ReLeaf Forests — Cuba, New Mexico	U.S.	Carbon Sequestration
		Global ReLeaf Forests — Darton College, Georgia	U.S.	Carbon Sequestration
		Global ReLeaf Forests — Dawson Demo Forest, Georgia	U.S.	Carbon Sequestration
		Global ReLeaf Forests — DeSoto, Mississippi	U.S.	Carbon Sequestration
		Global ReLeaf Forests — Double Trouble, New Jersey	U.S.	Carbon Sequestration
		Global ReLeaf Forests — Duck Creek, Ohio	U.S.	Carbon Sequestration
		Global ReLeaf Forests — Econfina, Florida	U.S.	Carbon Sequestration
		Global ReLeaf Forests — Ellis, Texas	U.S.	Carbon Sequestration
		Global ReLeaf Forests — Fairfax, Virginia	U.S.	Carbon Sequestration
		Global ReLeaf Forests — Farragut, Idaho	U.S.	Carbon Sequestration
		Global ReLeaf Forests — Francis Marion, South Carolina	U.S.	Carbon Sequestration
		Global ReLeaf Forests — Glades Preserve, Maryland	U.S.	Carbon Sequestration
		Global ReLeaf Forests — Grailville, Ohio	U.S.	Carbon Sequestration
		Global ReLeaf Forests — Great Plains RC & D, Oklahoma	U.S.	Carbon Sequestration
		Global ReLeaf Forests — Greater Grand Forks, North Dakota	U.S.	Carbon Sequestration
		Global ReLeaf Forests — Greenwood WMA, New Jersey	U.S.	Carbon Sequestration
		Global ReLeaf Forests — Hakalau, Hawaii	U.S.	Carbon Sequestration
		Global ReLeaf Forests — Harrison, Ohio	U.S.	Carbon Sequestration
		Global ReLeaf Forests — Holly Springs, Mississippi	U.S.	Carbon Sequestration

Table A5. Emission Reduction Projects Reported, Data Year 1998

Reporter	Form Type	Project	Location	Project Type
		Global ReLeaf Forests — Indian Creek, California	U.S.	Carbon Sequestration
		Global ReLeaf Forests — Indian Lake, Ohio	U.S.	Carbon Sequestration
		Global ReLeaf Forests — Indian Mounds, Texas	U.S.	Carbon Sequestration
		Global ReLeaf Forests — Janes Island State Park, Maryland	U.S.	Carbon Sequestration
		Global ReLeaf Forests — Jordon River, Utah	U.S.	Carbon Sequestration
		Global ReLeaf Forests — Kenosha Pass, Colorado	U.S.	Carbon Sequestration
		Global ReLeaf Forests — Kettle Moraine, Wisconsin	U.S.	Carbon Sequestration
		Global ReLeaf Forests — King Range, California	U.S.	Carbon Sequestration
		Global ReLeaf Forests — Kisatchie, Louisiana	U.S.	Carbon Sequestration
		Global ReLeaf Forests — Kula Forest Preserve, Hawaii	U.S.	Carbon Sequestration
		Global ReLeaf Forests — Lake George, Florida	U.S.	Carbon Sequestration
		Global ReLeaf Forests — Ledge View Co. Park, Wisconsin	U.S.	Carbon Sequestration
		Global ReLeaf Forests — Lindsay, Oklahoma	U.S.	Carbon Sequestration
		Global ReLeaf Forests — Little River, Arkansas	U.S.	Carbon Sequestration
		Global ReLeaf Forests — Long Island, Illinois	U.S.	Carbon Sequestration
		Global ReLeaf Forests — Lower MI Riparian Corridors,MI	U.S.	Carbon Sequestration
		Global ReLeaf Forests — Marys River, Nevada	U.S.	Carbon Sequestration
		Global ReLeaf Forests — Mattole River, California	U.S.	Carbon Sequestration
		Global ReLeaf Forests — Mescalero Apache, New Mexico	U.S.	Carbon Sequestration
		Global ReLeaf Forests — Michaux, Pennsylvania	U.S.	Carbon Sequestration
		Global ReLeaf Forests — Monocacy NRMA, Maryland	U.S.	Carbon Sequestration
		Global ReLeaf Forests — Moxley Farm, Maryland	U.S.	Carbon Sequestration
		Global ReLeaf Forests — Nanticoke WMA, Maryland	U.S.	Carbon Sequestration
		Global ReLeaf Forests — Nooksack, Washington	U.S.	Carbon Sequestration
		Global ReLeaf Forests — Oklawaha, Florida	U.S.	Carbon Sequestration
		Global ReLeaf Forests — Oneida County, New York	U.S.	Carbon Sequestration
		Global ReLeaf Forests — Oneida Nation, Wisconsin	U.S.	Carbon Sequestration
		Global ReLeaf Forests — Patapsco Valley State Park, Maryland	U.S.	Carbon Sequestration
		Global ReLeaf Forests — Perry State Forest, Ohio	U.S.	Carbon Sequestration
		Global ReLeaf Forests — Pike, Colorado	U.S.	Carbon Sequestration
		Global ReLeaf Forests — Pillsbury, Minnesota	U.S.	Carbon Sequestration
		Global ReLeaf Forests — Pine Barrens, New York	U.S.	Carbon Sequestration
		Global ReLeaf Forests — Pine Creek, Idaho	U.S.	Carbon Sequestration
		Global ReLeaf Forests — Rio Grande NWR, Texas	U.S.	Carbon Sequestration
		Global ReLeaf Forests — Rio Salada, New Mexico	U.S.	Carbon Sequestration
		Global ReLeaf Forests — Rockland Forest, Florida	U.S.	Carbon Sequestration
		Global ReLeaf Forests — Sam Houston, Texas	U.S.	Carbon Sequestration
		Global ReLeaf Forests — San Pedro, Arizona	U.S.	Carbon Sequestration
		Global ReLeaf Forests — Sanborn, South Dakota	U.S.	Carbon Sequestration
		Global ReLeaf Forests — Sands Ponds, Missouri	U.S.	Carbon Sequestration
		Global ReLeaf Forests — Savage River, Maryland	U.S.	Carbon Sequestration
		Global ReLeaf Forests — Spokane, Washington	U.S.	Carbon Sequestration
		Global ReLeaf Forests — St. Catherine, Mississippi	U.S.	Carbon Sequestration
		Global ReLeaf Forests — Starr Hill, New York	U.S.	Carbon Sequestration
		Global ReLeaf Forests — Stephens Forest, Iowa	U.S.	Carbon Sequestration
		Global ReLeaf Forests — SW OK Riparian Forest, Oklahoma	U.S.	Carbon Sequestration
		Global ReLeaf Forests — Tangipahoa, Louisiana	U.S.	Carbon Sequestration
		Global ReLeaf Forests — Telfair, Georgia	U.S.	Carbon Sequestration
		Global ReLeaf Forests — Temple, Michigan	U.S.	Carbon Sequestration
		Global ReLeaf Forests — Three Mile Lake, Iowa	U.S.	Carbon Sequestration
		Global ReLeaf Forests — Two Rocks, Pennsylvania	U.S.	Carbon Sequestration
		Global ReLeaf Forests — Voyagers, Minnesota	U.S.	Carbon Sequestration

Table A5. Emission Reduction Projects Reported, Data Year 1998

Reporter	Form Type	Project	Location	Project Type
American Municipal Power - Ohio	EIA-1605	AMP-OHIO: NYPA Hydro Purchases	U.S.	Electric Power G & T
		City of Bowling Green Lighting Improvement	U.S.	Energy End Use
		City of Columbus: O'Shaughnessy Hydro	U.S.	Electric Power G & T
		City of Hamilton Hydro Electric Plant	U.S.	Electric Power G & T
		City of Hamilton: Greenup Hydro	U.S.	Electric Power G & T
		City of Niles: Lighting Improvement	U.S.	Energy End Use
		City of Painesville: Heat Rate Improvement	U.S.	Electric Power G & T
		City of Piqua: Plant Derating	U.S.	Electric Power G & T
		City of Shelby: Lighting Improvement	U.S.	Energy End Use
		City of St. Clairsville: Lighting Improvement	U.S.	Energy End Use
		City of Wadsworth: Lighting Improvement	U.S.	Energy End Use
		Line Loss Reduction	U.S.	Electric Power G & T
		Main Office Recycling Program	U.S.	Other
		Newton Falls Reconductoring Project	U.S.	Electric Power G & T
		Ohio City: Lighting Improvement	U.S.	Energy End Use
		Urban Forestry - Tree City USA	U.S.	Carbon Sequestration
		Village of Arcadia Lighting Upgrade	U.S.	Energy End Use
		Village of Custar: Lighting Improvement	U.S.	Energy End Use
		Village of Eldorado: Lighting Improvement	U.S.	Energy End Use
		Village of Lucas: Lighting Improvement	U.S.	Energy End Use
		Village of New Knoxville: Lighting Improvement	U.S.	Energy End Use
		Wadsworth Distribution Upgrade	U.S.	Electric Power G & T
		Water Furnace	U.S.	Energy End Use
Anoka Municipal Utility	EIA-1605EZ	Central A/C Replacement	U.S.	Energy End Use
		Urban Forestry	U.S.	Carbon Sequestration
		Wind Generation	U.S.	Electric Power G & T
Arizona Electric Power Cooperative, Inc.	EIA-1605EZ	Flyash Sales	U.S.	Other
		Lighting and Exit Sign Replacemnt	U.S.	Energy End Use
		Utility Photovoltaic Group Membership Fees	U.S.	Other
Arizona Portland Cement Co.	EIA-1605	100 Ton Haul Trucks	U.S.	Transportation
		Bulk Load Bin Filling	U.S.	Energy End Use
		CM7 High Efficiency Separator	U.S.	Energy End Use
		Finish Grind System Improvements	U.S.	Energy End Use
		Lighting Program	U.S.	Energy End Use
		Optimize AC Raw Mill Systems	U.S.	Energy End Use
		Optimize Compressed Air System	U.S.	Energy End Use
		PGNA Analyzer	U.S.	Energy End Use
		Rimod 3000	U.S.	Energy End Use
Arthur Rypinski & Jacquelyn Porth	EIA-1605	Compact Flourescent Lightbulbs	U.S.	Energy End Use
		High Efficiency Central Air Conditioning System	U.S.	Energy End Use
		High Efficiency Water Heater	U.S.	Energy End Use
		Mass Transit Commuting	U.S.	Transportation
		Super Efficient Refrigerator	U.S.	Energy End Use
Asheville Landfill Gas, LLC	EIA-1605	Buncombe County, NC Landfill	U.S.	Waste Methane
Atlantic Energy, Inc. (AEI)	EIA-1605	AGI - Pedricktown Cogeneration Limited Partnership	U.S.	Cogeneration
		AGI - Vineland Cogeneration Facility	U.S.	Cogeneration
		Deepwater Natural Gas Usage	U.S.	Electric Power G & T
		Employee Telecommuting	U.S.	Transportation
		Employee Van Pooling	U.S.	Transportation
		Peach Bottom Nuclear Units #2 & 3 Uprate Program	U.S.	Electric Power G & T
		Urban Tree Planting	U.S.	Carbon Sequestration
Austin Energy	EIA-1605EZ	Coal Combustion Byproduct Reutilization	U.S.	Other
		Demand Side Management Programs	U.S.	Energy End Use
		General Transmission/Distribution Efficiency Improvements	U.S.	Electric Power G & T

Table A5. Emission Reduction Projects Reported, Data Year 1998

Reporter	Form Type	Project	Location	Project Type
		Landfill Gas Generation (Power Purchase)	U.S.	Waste Methane
		Photovoltaic Generation	U.S.	Electric Power G & T
		South Texas Project	U.S.	Electric Power G & T
		West Texas Wind Turbine Power Purchase	U.S.	Electric Power G & T
Baltimore Gas & Electric Co.	EIA-1605	Alternatively fueled vehicles - natural gas and electric	U.S.	Transportation
		Baltimore RESCO Waste-to-Energy MWh Purchases	U.S.	Electric Power G & T
		Brandon Auxiliary Load Reductions	U.S.	Energy End Use
		Brandon Shores Generating Station Heat Rate Improvement	U.S.	Electric Power G & T
		C.P. Crane Generating Station Heat Rate Improvements	U.S.	Electric Power G & T
		Calvert Cliffs Nuclear Power Plant Generation Increases	U.S.	Electric Power G & T
		Coal Ash Substitution for Portland Cement	U.S.	Other
		Demand Side Management Programs	U.S.	Energy End Use
		Energy Star Buildings/Green Lights Program Participation	U.S.	Energy End Use
		Gas Systems O & M (Natural Gas Star Partnership)	U.S.	Oil & Gas Methane
		H.A. Wagner FPP Heat Rate Improvements	U.S.	Electric Power G & T
		Hydroelectric Generation Improvements	U.S.	Electric Power G & T
		Miss. River Valley Bottomland Hardwood Restoration	U.S.	Carbon Sequestration
		Reduced Impact Logging of Natural Forest in Malaysia	Foreign	Carbon Sequestration
		Refrigerant/Solvent Recycling and Reduction	U.S.	Halogenates
		Rio Bravo Carbon Sequestation Pilot Project	Foreign	Carbon Sequestration
		SF6 Handling Procedures in Electric Distribution	U.S.	Halogenates
		Solid Waste Recycling and Source Reduction	U.S.	Other
		Transmission / Distribution Improvements	U.S.	Electric Power G & T
		Western Oregon Carbon Sequestration Project	U.S.	Carbon Sequestration
BARC Electric Cooperative	EIA-1605	Demand-Side Management Load Control Programs	U.S.	Energy End Use
		System Line Conversions and Reconductoring	U.S.	Electric Power G & T
Biomass Partners, LP	EIA-1605EZ	Biomass Waste to Energy	U.S.	Electric Power G & T
Black Warrior Methane Corp.	EIA-1605	Gobwell Degasification Program	U.S.	Oil & Gas Methane
		Horizontal Degasification Program	U.S.	Oil & Gas Methane
		Standard Degasification Well Program	U.S.	Oil & Gas Methane
Bountiful City Light & Power	EIA-1605	Air fuel ratio controller installed in dual fuel engine	U.S.	Electric Power G & T
		Capacitor bank installation - increasing system efficiency	U.S.	Electric Power G & T
		District heating	U.S.	Cogeneration
		Hydroelectric plant operations	U.S.	Electric Power G & T
		Residential compact fluorescent lighting program	U.S.	Energy End Use
		Street lighting replacement	U.S.	Energy End Use
		Tree planting	U.S.	Carbon Sequestration
BP Amoco	EIA-1605	Crude production and exploration process improvements	U.S.	Energy End Use
		Crude Production Emission Reduction	U.S.	Other
		Noel Kempff Mercado Climate Action Project	Foreign	Carbon Sequestration
		Petroleum Refining and Chemicals process modifications	U.S.	Energy End Use
		Petroleum refining emission control project	U.S.	Other
		Petroleum refining VOC control projects	U.S.	Other
		Thermal Process Efficiency Improvements	U.S.	Cogeneration
Burlington County Board of Chosen Freeholders	EIA-1605	Burlington County Regional Recycling Program	U.S.	Other
		Landfill Gas Flaring	U.S.	Waste Methane
California Portland Cement Co. - Colton Plant	EIA-1605	Energy Conservation in Office, Lab, Garage and Shop Areas	U.S.	Energy End Use
		Finish Mill System Optimization	U.S.	Energy End Use
		Install New Gravity Blend Homogenizing Silo	U.S.	Energy End Use
		Install New Raw Material Transport System	U.S.	Energy End Use
		Kiln Systems Optimization	U.S.	Energy End Use
		Optimize High Pressure Air System	U.S.	Energy End Use

Table A5. Emission Reduction Projects Reported, Data Year 1998

Reporter	Form Type	Project	Location	Project Type
		Raw Grinding System Improvements	U.S.	Energy End Use
		Reduce Plant Water Consumption	U.S.	Energy End Use
California Portland Cement Co. - Mojave Plant	EIA-1605	New D3-1/FM6 Finish Mill System	U.S.	Energy End Use
		Optimize the D3-1 Finish Mill System	U.S.	Energy End Use
		Plant High Pressure Air System Improvements	U.S.	Energy End Use
		Pyro System Optimization	U.S.	Energy End Use
		Raw Mill Energy Efficiency Improvements	U.S.	Energy End Use
Carolina Power & Light Company	EIA-1605	Nuclear Capacity Improvement	U.S.	Electric Power G & T
Catawba Landfill Gas, LLC	EIA-1605	Catawba Landfill Gas, LLC	U.S.	Waste Methane
CDX Gas, LLC	EIA-1605	Pinnacle Mine Coalbed Methane Recovery	U.S.	Oil & Gas Methane
Cedar Falls Utilities	EIA-1605	Cedar Falls Trees	U.S.	Carbon Sequestration
		Cooling Effect of Trees	U.S.	Energy End Use
		Council Bluffs #3 ESP Hot-Side Conversion	U.S.	Electric Power G & T
		Good Cents Improved Home	U.S.	Energy End Use
		Good Cents New Home	U.S.	Energy End Use
		High-Effciency Distribution Transformers	U.S.	Electric Power G & T
		Home Energy Survey	U.S.	Energy End Use
		Small Commercial High-Efficiency Lighting	U.S.	Energy End Use
		Streeter Air-Cooled Condenser (ACC)	U.S.	Electric Power G & T
		Streeter Unit 6 Controls Upgrade	U.S.	Electric Power G & T
		Streeter Unit 6 Fuel-Switching Project	U.S.	Electric Power G & T
		Streetlight Conversion	U.S.	Energy End Use
		Water Heater Retrofits	U.S.	Energy End Use
Central and South West Corporation	EIA-1605	Central and South West Land Management	U.S.	Carbon Sequestration
		ClearChoice(sm) CSW Green Pricing Initiative	U.S.	Electric Power G & T
		Coal Combustion By-Product Use	U.S.	Other
		Demand Side Management (DSM) Activities	U.S.	Energy End Use
		Mississippi River Valley Bottomland Hardwood Restoration	U.S.	Carbon Sequestration
		Reduced Impact Logging of Natural Forest in Malaysia	Foreign	Carbon Sequestration
		Renewable Generation - Solar	U.S.	Electric Power G & T
		Renewable Generation - Wind	U.S.	Electric Power G & T
		Rio Bravo Carbon Sequestration Project	Foreign	Carbon Sequestration
		Transmission Efficiency Improvements	U.S.	Electric Power G & T
		Western Oregan Carbon Sequestration Project	U.S.	Carbon Sequestration
Central Hudson Gas & Electric Corporation	EIA-1605	Coal Ash Utilization	U.S.	Other
		Danskammer Heat Pipe Air Heater	U.S.	Electric Power G & T
		Danskammer Unit 4 Main Step-Up Transformer Replacement	U.S.	Electric Power G & T
		Demand-Side Management	U.S.	Energy End Use
		EPA Natural Gas Star Program	U.S.	Oil & Gas Methane
		Natural Gas Vehicles	U.S.	Transportation
		Roseton Gas Co-Firing	U.S.	Electric Power G & T
		Roseton Unit 2 Main Step-Up Transformer Replacement	U.S.	Electric Power G & T
Cereza Energy, Inc.	EIA-1605	Cereza Landfill Gas Gathering Project	U.S.	Waste Methane
Choptank Electric Cooperative	EIA-1605	System Line Conversions and Reconductoring	U.S.	Electric Power G & T
Cinergy Corp.	EIA-1605	AFC Electric Generation	U.S.	Oil & Gas Methane
		Benificial Use of Coal Fly Ash	U.S.	Other
		Cayuga Heat Rate Improvements	U.S.	Electric Power G & T
		Commercial Audit/Incentive Program	U.S.	Energy End Use
		Commercial Direct Lighting	U.S.	Energy End Use
		Commercial/Industrial Adjustable Speed Drive Plan	U.S.	Energy End Use
		Commercial/Industrial High Efficiency Motors Plan	U.S.	Energy End Use
		Commercial/Industrial Lighting Rebate Program	U.S.	Energy End Use
		Commercial/Industrial Peak Reduction Program	U.S.	Energy End Use
		Danville, IN Electric Generation	U.S.	Waste Methane

Table A5. Emission Reduction Projects Reported, Data Year 1998

Reporter	Form Type	Project	Location	Project Type
		Facility Tree Planting Program	U.S.	Carbon Sequestration
		Fleet Alternative Fuels	U.S.	Transportation
		Gibson Performance Maximization Program	U.S.	Electric Power G & T
		Green Lights Program	U.S.	Energy End Use
		Industrial Efficiency Improvement & Energy Awareness Program	U.S.	Energy End Use
		Merger Dispatch Savings	U.S.	Electric Power G & T
		Planergy	U.S.	Energy End Use
		Recycled Paper and Aluminum	U.S.	Other
		Residential Energy Efficient Lighting Program	U.S.	Energy End Use
		Residential Seal-Up & Low-Income Efficiency Program	U.S.	Energy End Use
		Residential Smart $aver & Heat Pump Savings Programs	U.S.	Energy End Use
		Residential Wrap-Up Program	U.S.	Energy End Use
		Rio Bravo Carbon Sequestration Pilot Project	Foreign	Carbon Sequestration
		Rumpke Landfill Gas Recovery	U.S.	Waste Methane
		Thermal Energy (Cool) Storage Program	U.S.	Energy End Use
		UtiliTree - Mississippi River Valley Bottomland Hardwood	U.S.	Carbon Sequestration
		UtiliTree - Reduced Impact Logging, Malaysia	Foreign	Carbon Sequestration
		UtiliTree - Rio Bravo Carbon Sequestration	Foreign	Carbon Sequestration
		UtiliTree - W. Oregon Carbon Sequestration Proj.	U.S.	Carbon Sequestration
		Wabash River Heat Rate Improvement	U.S.	Electric Power G & T
		Wabash River Unit 1 Repowering Project	U.S.	Electric Power G & T
		WRP Tree Planting Program	U.S.	Carbon Sequestration
City of Edmond, Oklahoma, Electric Department	EIA-1605EZ	High Efficiency Heat Pumps	U.S.	Energy End Use
		High Efficiency Transformers	U.S.	Electric Power G & T
		Tree/Shrub Planting	U.S.	Carbon Sequestration
City of Fairfield Wastewater Division	EIA-1605EZ	Motor Replacement Aeration Blower #3	U.S.	Energy End Use
		Motor Replacement Aeration Blower #4	U.S.	Energy End Use
		Motor Replacement Digester Pump #6	U.S.	Energy End Use
		Motor Replacement Raw Sewage #2	U.S.	Energy End Use
		Use of Methane from Anaerobic Digesters	U.S.	Waste Methane
City of Palo Alto	EIA-1605EZ	City employee carpooling	U.S.	Transportation
		City employee mass transit	U.S.	Transportation
		City fleet conversion to CNG	U.S.	Transportation
		City fleet conversion to EV	U.S.	Transportation
		DSM-Commercial AC, motor	U.S.	Energy End Use
		DSM-Commercial Lighting	U.S.	Energy End Use
		DSM-Refrigerator Replacement	U.S.	Energy End Use
		DSM-Residential CFL	U.S.	Energy End Use
		Utility Street Light conversion	U.S.	Energy End Use
CLE Resources	EIA-1605	Active Power	U.S.	Energy End Use
		Cycloid	U.S.	Transportation
		Electronic Lighting (OK Industries)	U.S.	Energy End Use
		Industrial Devices Corporation (IDC)	U.S.	Energy End Use
		Lightware	U.S.	Energy End Use
		Revolve Technologies - Dry Gas Seals	U.S.	Oil & Gas Methane
		Revolve Technologies - Magnetic Bearings	U.S.	Energy End Use
		Valdor	U.S.	Halogenates
Cleco Corporation	EIA-1605	Mississippi River Valley Bottomland Hardwood Restoration	U.S.	Carbon Sequestration
		Reduced Impact Logging of Natural Forest in Malaysia	Foreign	Carbon Sequestration
		Rio Bravo Carbon Sequestration Pilot Project	Foreign	Carbon Sequestration
		Western Oregon Carbon Sequestration Project	U.S.	Carbon Sequestration
CMV Joint Venture	EIA-1605	Oak Grove Coalbed Methane Recovery Project	U.S.	Oil & Gas Methane
		White Oak Creek Coalbed Methane Recovery	U.S.	Oil & Gas Methane

Table A5. Emission Reduction Projects Reported, Data Year 1998

Reporter	Form Type	Project	Location	Project Type
Columbia Falls Aluminum Company LLC	EIA-1605	Lighting Replacement	U.S.	Energy End Use
COM/Electric	EIA-1605EZ	Canal Unit #2 Gas Conversion	U.S.	Electric Power G & T
		Energy Conservation Programs (DSM)	U.S.	Energy End Use
		Energy Star Transformers	U.S.	Electric Power G & T
		Green Tree Spree (Tree Planting Program)	U.S.	Carbon Sequestration
		Kendall Station Co-generation	U.S.	Cogeneration
		Office Paper Recycling	U.S.	Other
		Office Paper Recycling	U.S.	Other
		Reduction in overall emissions rate below target	U.S.	Electric Power G & T
		Transmission Line Upgrades	U.S.	Electric Power G & T
Commonwealth Bethlehem Energy LLC	EIA-1605	North Country Landfill Gas-to-Energy Facility	U.S.	Waste Methane
Community Electric Cooperative	EIA-1605	System Line Conversion and Reconductoring	U.S.	Electric Power G & T
Cooperative Power Association	EIA-1605	Capacitor Installation and Control	U.S.	Electric Power G & T
		Coal Ash Programs	U.S.	Other
		Coal Creek Station Vanpool	U.S.	Transportation
		Compressed Air Improvements	U.S.	Electric Power G & T
		Continuous Blowdown	U.S.	Electric Power G & T
		Controls Upgrade	U.S.	Electric Power G & T
		Cooling Tower Improvements	U.S.	Electric Power G & T
		Dakota Electric Tree planting programs	U.S.	Carbon Sequestration
		Efficient Lighting	U.S.	Energy End Use
		Energy Intelligent Business & Farm Grants	U.S.	Energy End Use
		Excess Water Heating Setting Reductions	U.S.	Energy End Use
		FD Fans	U.S.	Electric Power G & T
		L-0 Buckets	U.S.	Electric Power G & T
		Loss Reduction Measures	U.S.	Electric Power G & T
		Low-Flow Showerheads	U.S.	Energy End Use
		OPM Upgrade	U.S.	Electric Power G & T
		Other DSM	U.S.	Energy End Use
		Recycling Projects & Activities	U.S.	Other
		Residential and Commercial Audits	U.S.	Energy End Use
		Retractable Packing HP-IP	U.S.	Electric Power G & T
		Setback Thermostats	U.S.	Energy End Use
		Transformer Sizing and Changeout	U.S.	Electric Power G & T
		Tree-planting programs	U.S.	Carbon Sequestration
		Turbine HP/IP Improvements	U.S.	Electric Power G & T
		Ultrasonic & Helium Leak Detection Improvements	U.S.	Electric Power G & T
		Ventilation Improvements	U.S.	Electric Power G & T
		Videoconferencing	U.S.	Transportation
		Water Heater Blankets	U.S.	Energy End Use
		Water Pipe Insulation	U.S.	Energy End Use
Dade Behring, Inc.	EIA-1605	Compressed Work Schedule	U.S.	Transportation
		Freon recycling	U.S.	Halogenates
		Install efficient chillers	U.S.	Energy End Use
		Participation in Green Lights	U.S.	Energy End Use
		Tree Shade to HVAC Unit	U.S.	Energy End Use
DeBourgh Manufacturing Company	EIA-1605EZ	Conversion from Liquid Paint to Powder Coating	U.S.	Other
		Insulate Bake Oven	U.S.	Energy End Use
		Insulate Heat Generating Tanks	U.S.	Cogeneration
		Landscaping	U.S.	Carbon Sequestration
		Lighting Replacement	U.S.	Energy End Use
		Monitoring Air Leaks from Compressor	U.S.	Energy End Use

Table A5. Emission Reduction Projects Reported, Data Year 1998

Reporter	Form Type	Project	Location	Project Type
		Radiant Heating	U.S.	Energy End Use
		Ventilation Fan Installation	U.S.	Energy End Use
Delaware Electric Cooperative	EIA-1605	System Line Conversions & Reconductoring	U.S.	Electric Power G & T
Delmarva Power	EIA-1605	Ash Reuse	U.S.	Other
		CNG Vehicles	U.S.	Transportation
		Demand Side Management	U.S.	Energy End Use
		DP&L Facility Energy Saving	U.S.	Energy End Use
		Edge Moor Fuel Substitution	U.S.	Electric Power G & T
		Edge Moor Landfill Gas Use	U.S.	Waste Methane
		Hay Road Combined Cycle	U.S.	Electric Power G & T
		Mississippi River Valley Bottomland Hardwood Restoration	U.S.	Carbon Sequestration
		Peach Bottom Nuclear Units #2 & #3 Uprate Program	U.S.	Electric Power G & T
		Reduced Impact Logging of Nat. Forest in Malaysia	Foreign	Carbon Sequestration
		Rio Bravo Carbon Sequestration Pilot Project	Foreign	Carbon Sequestration
		T&D Loss Reduction	U.S.	Electric Power G & T
		Urban Tree Planting	U.S.	Carbon Sequestration
		Western Oregon Carbon Sequestration Project	U.S.	Carbon Sequestration
Delta Electric Power Association	EIA-1605EZ	High Efficiency Transformers	U.S.	Electric Power G & T
		Load Control Interruptible Rate	U.S.	Electric Power G & T
		MV Conversion to HPS Lamps	U.S.	Energy End Use
		Off Peak Pumping and Aeration	U.S.	Energy End Use
		Reconductoring	U.S.	Electric Power G & T
Dominion Energy, L.P.	EIA-1605	Dominion Landfill Gathering System	U.S.	Waste Methane
The Dow Chemical Company	EIA-1605	CFC Refrigeration Systems Conversion	U.S.	Halogenates
		Replace CFC's as blowing agents to manufacture foams.	U.S.	Halogenates
		Replacing HCFCs & HFCs as blowing agents - Foreign Operation	Foreign	Halogenates
		Replacing HCFCs & HFCs as Blowing Agents - U.S. Operations	U.S.	Halogenates
Dragon Products Company, Inc.	EIA-1605	Project 1. Process Upgrades	U.S.	Energy End Use
		Project 2. Fan Upgrades	U.S.	Energy End Use
		Project 3. Variable Frequency Drive for I.D. Fan	U.S.	Energy End Use
		Project 4. Dust Scoops	U.S.	Energy End Use
		Project 5. Repair Air Leaks in Kiln System	U.S.	Energy End Use
DTE Energy/ Detroit Edison	EIA-1605	Coal Ash Reuse - Canada	Foreign	Other
		Coal Ash Reuse - U.S.	U.S.	Other
		Distribution Improvements	U.S.	Electric Power G & T
		Electric Vehicle Demonstration Project	U.S.	Transportation
		Energy Partnerships	U.S.	Energy End Use
		Forest Land Management	U.S.	Carbon Sequestration
		Geothermal Projects	U.S.	Energy End Use
		Greenwood Energy Center Fuel Switching	U.S.	Electric Power G & T
		Increased Nuclear Utilization	U.S.	Electric Power G & T
		Landfill Gas Recovery Projects and Energy Purchases	U.S.	Waste Methane
		Miscellaneous Tree Plantings - 1995	U.S.	Carbon Sequestration
		Miscellaneous Tree Plantings - 1996	U.S.	Carbon Sequestration
		Miscellaneous Tree Plantings - 1997	U.S.	Carbon Sequestration
		Miscellaneous Tree Plantings - 1998	U.S.	Carbon Sequestration
		Mississippi River Valley Bottomland Hardwood Restoration	U.S.	Carbon Sequestration
		Plant Efficiency Improvements	U.S.	Electric Power G & T
		Reduced Impact Logging of Natural Forest in Malaysia	Foreign	Carbon Sequestration
		Rio Bravo Carbon Sequestration Pilot Program	Foreign	Carbon Sequestration
		Solar Power	U.S.	Electric Power G & T
		Southeast Michigan Afforestation - 1996	U.S.	Carbon Sequestration
		Southeast Michigan Afforestation - 1997	U.S.	Carbon Sequestration

Table A5. Emission Reduction Projects Reported, Data Year 1998

Reporter	Form Type	Project	Location	Project Type
		Southeastern Michigan Afforestation - 1995	U.S.	Carbon Sequestration
		State Forest Land Afforestation - 1996	U.S.	Carbon Sequestration
		State Forest Land Afforestation - 1997	U.S.	Carbon Sequestration
		State Forest Land Afforestation - 1998	U.S.	Carbon Sequestration
		Western Oregon Carbon Sequestration Project	U.S.	Carbon Sequestration
Duke Energy Corporation	EIA-1605	Increased Nuclear Generation at Catawba Nuclear Station	U.S.	Electric Power G & T
		Increased Nuclear Generation at McGuire Nuclear Station	U.S.	Electric Power G & T
		Increased Nuclear Generation at Oconee Nuclear Station	U.S.	Electric Power G & T
		Mississippi River Valley Bottomland Hardwood Restoration	U.S.	Carbon Sequestration
		Recycling Flyash	U.S.	Other
		Reduced Impact Logging of Natural Forest in Malaysia	Foreign	Carbon Sequestration
		Rio Bravo Carbon Sequestration Project	Foreign	Carbon Sequestration
		Western Oregon Carbon Sequestration Project	U.S.	Carbon Sequestration
		White Street Landfill Gas Recovery Project	U.S.	Waste Methane
Duquesne Light Company	EIA-1605	Air to air heat pumps	U.S.	Energy End Use
		Allegheny Development Corporation Energy Facility	U.S.	Cogeneration
		Fleet Vehicle Reduction Program	U.S.	Transportation
		Fuel Cell - Pittsburgh International Airport	U.S.	Electric Power G & T
		Hybrid Electric Bus	U.S.	Transportation
		Low income weatherization/usage reduction program	U.S.	Energy End Use
		Mississippi River Valley Bottomland Hardwood Restoration	U.S.	Carbon Sequestration
		Photovoltaics Research Project - Ambridge, PA	U.S.	Electric Power G & T
		Reduced Impact Logging of Natural Forest in Malaysia	Foreign	Carbon Sequestration
		Rio Bravo Carbon Sequestration Pilot Project	Foreign	Carbon Sequestration
		SF6 Reductions	U.S.	Halogenates
		Thermal Storage	U.S.	Energy End Use
		Western Oregon Carbon Sequestration Project	U.S.	Carbon Sequestration
Ecogas Corporation	EIA-1605	Acme Landfill Gas Recovery Plant	U.S.	Waste Methane
		Bowerman Landfill Gas Recovery Plant	U.S.	Waste Methane
		Dade Landfill Gas Recovery Plant	U.S.	Waste Methane
		Dallas Landfill Gas Recovery Plant	U.S.	Waste Methane
		Davis Street Landfill Gas Recovery Plant	U.S.	Waste Methane
		Fresh Kills Landfill Gas Recovery Plant	U.S.	Waste Methane
		Kearny Landfill Gas Recovery Plant	U.S.	Waste Methane
		McCarty Road Landfill Gas Recovery Plant	U.S.	Waste Methane
		Monmouth Landfill Gas Recovery Plant	U.S.	Waste Methane
		Mountaingate Landfill Gas Recovery Plant	U.S.	Waste Methane
		Olinda Landfill Gas Recovery Plant	U.S.	Waste Methane
		Rosenberg Landfill Gas Recovery Plant	U.S.	Waste Methane
		Rumpke Landfield Gas Recovery Plant	U.S.	Waste Methane
		San Antonio Landfill Gas Recovery Plant	U.S.	Waste Methane
Engelhard	EIA-1605	Install timers on HVAC	U.S.	Energy End Use
		Reduce single occupancy vehicle commuting	U.S.	Transportation
		Tree Shade to HVAC Unit	U.S.	Energy End Use
Entergy Services, Inc.	EIA-1605	Entergy Forestry Projects	U.S.	Carbon Sequestration
		Entergy Integrated Solutions, Inc. (Entergy SASI Lighting)	U.S.	Energy End Use
		Fly Ash use as replacement for cement	U.S.	Other
		Grand Gulf Nuclear Station Turbine Upgrade	U.S.	Electric Power G & T
		Independence Unit 1 Feedwater Heater Replacement	U.S.	Electric Power G & T
		Lewis Creek Combustion Control	U.S.	Electric Power G & T
		Michoud Unit 3 Efficiency Improvement Project	U.S.	Electric Power G & T
		Mississippi River Valley Bottomland Hardwood Restoration	U.S.	Carbon Sequestration
		Ninemile Turbine Retrofit	U.S.	Electric Power G & T
		Raise Nuclear Unit Targets on Annual Capacity Factor	U.S.	Electric Power G & T

Table A5. Emission Reduction Projects Reported, Data Year 1998

Reporter	Form Type	Project	Location	Project Type
		Reduced Impact Logging of Natural Forest in Malaysia	Foreign	Carbon Sequestration
		Rio Bravo Carbon Sequestation Pilot Project	Foreign	Carbon Sequestration
		Sabine Unit Feedwater Heater Replacement	U.S.	Electric Power G & T
		SF6 Reductions	U.S.	Halogenates
		Texas Eastern Gas Compressor Replacement	U.S.	Energy End Use
		Transmission and Distribution Efficiency	U.S.	Electric Power G & T
		Vidalia Hydroelectric Station	U.S.	Electric Power G & T
		Western Oregon Carbon Sequestration Project	U.S.	Carbon Sequestration
		Wetlands and Carbon Sequestration - Southeast LA & TX	U.S.	Carbon Sequestration
		White Bluff Unit 1 Feedwater Heater Replacement	U.S.	Electric Power G & T
		White Bluff Unit 2 Feedwater Heaters Replacement	U.S.	Electric Power G & T
Essential Foods, Inc.	EIA-1605	Delivery Fleet	U.S.	Transportation
Estee Lauder Companies	EIA-1605	Octron Lighting	U.S.	Energy End Use
FirstEnergy Corporation	EIA-1605	Audit/Infiltration Single and Multi-Family	U.S.	Energy End Use
		Efficient Lighting (Industrial and Commercial)	U.S.	Energy End Use
		Efficient Lighting (Residential)	U.S.	Energy End Use
		Efficient Motors	U.S.	Energy End Use
		Energy Efficient Geothermal System	U.S.	Energy End Use
		Food Service Conservation	U.S.	Energy End Use
		Fuel Switching	U.S.	Electric Power G & T
		Good Cents New Home Program	U.S.	Energy End Use
		Heat Pump Maintenance Check	U.S.	Energy End Use
		Heat Rate Improvement	U.S.	Electric Power G & T
		High Efficiency Heat Pump Rebates	U.S.	Energy End Use
		Hot Water Conservation	U.S.	Energy End Use
		Increased Generation at Davis-Besse Nuclear Power Station	U.S.	Electric Power G & T
		Increased Generation at Perry Nuclear Power Plant	U.S.	Electric Power G & T
		Mississippi River Valley Bottomland Hardwood Restoration	U.S.	Carbon Sequestration
		Reduced Impact Logging of Natural Forest in Malaysia	Foreign	Carbon Sequestration
		Refrigerator Recycling	U.S.	Halogenates
		Refrigerator Recycling Program	U.S.	Energy End Use
		Rio Bravo Carbon Sequestration Pilot Project	Foreign	Carbon Sequestration
		Substitution of Fly Ash for Portland Cement in Concrete	U.S.	Other
		Thermal Energy Storage - Cooling	U.S.	Energy End Use
		Tree Source	U.S.	Carbon Sequestration
		Various CFC Replacements	U.S.	Halogenates
		Water Heater Efficiency Improvements	U.S.	Energy End Use
		Water Heating - Conservation	U.S.	Energy End Use
		Western Oregon Carbon Sequestration Project	U.S.	Carbon Sequestration
Florida Power & Light Company	EIA-1605	Montenay Power Plant	U.S.	Waste Methane
		Multitrade Power Plant	U.S.	Waste Methane
Fred Weber, Inc.	EIA-1605EZ	**Landfill gas recovery & utilization	U.S.	Waste Methane
		*Landfill Gas Flaring	U.S.	Waste Methane
General Motors Corporation	EIA-1605	1991-1998 GM Annual Energy Competition & Projects	U.S.	Energy End Use
		1991-1998 Powerhouse Conversions	U.S.	Energy End Use
		1993 - 1997 Mich. Demand Side Mgt and Energy Partner Program	U.S.	Energy End Use
GeoMet Inc.	EIA-1605	Oak Grove Coalbed Methane Recovery Project	U.S.	Oil & Gas Methane
		White Oak Creek Coalbed Methane Recovery	U.S.	Oil & Gas Methane
Golden Valley Electric Association, Inc	EIA-1605EZ	Energy Sense DSM Program	U.S.	Energy End Use
		Recycled coal ash	U.S.	Other
		Startup of Wind Turbine	U.S.	Electric Power G & T

Table A5. Emission Reduction Projects Reported, Data Year 1998

Reporter	Form Type	Project	Location	Project Type
		Tree give-away	U.S.	Carbon Sequestration
		Use of Hydropower	U.S.	Electric Power G & T
GPU, Inc.	EIA-1605	Biomass Co-firing R & D Program	U.S.	Electric Power G & T
		Building Energy Consumption Reduction Program	U.S.	Energy End Use
		Corry	U.S.	Waste Methane
		Electric Vehicles and Employee Trip Reduction Program	U.S.	Transportation
		FR & S Landfill NUG	U.S.	Waste Methane
		Front Street Generating Station Retirement	U.S.	Electric Power G & T
		Genco Lighting & Building Energy Consumption Reduction Program	U.S.	Energy End Use
		Gilbert #3 Retirement	U.S.	Electric Power G & T
		GPU Service Lighting & Building Energy Efficiency Project	U.S.	Energy End Use
		Hamm's Landfill NUG	U.S.	Waste Methane
		Homer City Greenhouse Project	U.S.	Cogeneration
		Information Services - Green Computers	U.S.	Energy End Use
		JCP & L Green Lights Program	U.S.	Energy End Use
		JCP&L Appliance Turn-In Service Program	U.S.	Halogenates
		JCP&L DSM, Efficiency & Electrotechnology Program	U.S.	Energy End Use
		JCP&L Fuel Cell-Crawford Hill	U.S.	Cogeneration
		L & D Landfill NUG	U.S.	Waste Methane
		Lake View Landfill	U.S.	Waste Methane
		Lebanon Methane NUG	U.S.	Waste Methane
		Manchester Renewable	U.S.	Waste Methane
		Mason Dixon Farms, Inc.	U.S.	Agriculture Methane
		Met-Ed Lighting & Building Energy Consumption Reduction Program	U.S.	Energy End Use
		Met-Ed/Penelec DSM, Efficiency & Electrotechnology Program	U.S.	Energy End Use
		Modern Landfill NUG	U.S.	Waste Methane
		Monmouth County Reclamation Center NUG	U.S.	Waste Methane
		Municipal Tree Replacement	U.S.	Carbon Sequestration
		Oyster Creek Capacity/Availability Improvement Program	U.S.	Electric Power G & T
		Photovoltaics Project-User Scale Applications-(USAPV)	U.S.	Electric Power G & T
		Recycling Program	U.S.	Other
		Sayreville Generating Station Retirements	U.S.	Electric Power G & T
		Seneca Pumped Storage Upgrade	U.S.	Electric Power G & T
		Shunt Capacitor Program	U.S.	Electric Power G & T
		T & D System Improvements	U.S.	Electric Power G & T
		TMI Capacity/Availability Improvement Program	U.S.	Electric Power G & T
		Transformer Loss Evaluation Program	U.S.	Electric Power G & T
		Transmission & Distribution Facility Maintenance - JCP&L	U.S.	Halogenates
		Utilitree Malaysia	Foreign	Carbon Sequestration
		Utilitree Mississippi River Valley	U.S.	Carbon Sequestration
		Utilitree Western Oregon	U.S.	Carbon Sequestration
		Utiltree Rio Bravo	Foreign	Carbon Sequestration
		Valley Pork	U.S.	Agriculture Methane
		Video - Conferencing	U.S.	Transportation
		Werner #4 Retirement	U.S.	Electric Power G & T
		Williamsburg Generating Station Retirement	U.S.	Electric Power G & T
		Yards Creek Pumped Storage Upgrade	U.S.	Electric Power G & T
Granger Electric Company	EIA-1605	Brent Run Landfill Generating Station	U.S.	Waste Methane
		Grand Blanc Landfill Generating Station	U.S.	Waste Methane
		Granger #1 Generating Station - Wood Road Landfill	U.S.	Waste Methane
		Granger #2 Generating Station - Grand River Avenue Landfill	U.S.	Waste Methane

Table A5. Emission Reduction Projects Reported, Data Year 1998

Reporter	Form Type	Project	Location	Project Type
		Granger MotorWheel Facility	U.S.	Waste Methane
		Ottawa County Farms Landfill Generating Station	U.S.	Waste Methane
		Seymour Road Landfill Generating Station	U.S.	Waste Methane
Grayson Hill Farms	EIA-1605EZ	Coal Mine Methane Use in Hydroponic and Aquaculture Ops.	U.S.	Oil & Gas Methane
GSF Energy, LLC	EIA-1605	Acme Landfill Gas Recovery Plant	U.S.	Waste Methane
		Bowerman Landfill Gas Recovery Plant	U.S.	Waste Methane
		Davis Street Landfill Gas Recovery Plant	U.S.	Waste Methane
		Fresh Kills Landfill Gas Recovery Plant	U.S.	Waste Methane
		Kearny Landfill Gas Recovery Plant	U.S.	Waste Methane
		McCarty Road Landfill Gas Recovery Plant	U.S.	Waste Methane
		Monmouth Landfill Gas Recovery Plant	U.S.	Waste Methane
		Mountaingate Landfill Gas Recovery Plant	U.S.	Waste Methane
		Olinda Landfill Gas Recovery Plant	U.S.	Waste Methane
		Rumpke Landfill Gas Recovery Plant	U.S.	Waste Methane
Hawaiian Electric Company, Inc.	EIA-1605	Commercial & Industrial Custom Rebate Program	U.S.	Energy End Use
		Commercial & Industrial Energy Efficiency Program	U.S.	Energy End Use
		Commercial & Industrial New Construction Program	U.S.	Energy End Use
		Mississippi River Valley Bottomland Hardwood Restoration	U.S.	Carbon Sequestration
		Reduced Impact Logging of Natural Forest in Malaysia	Foreign	Carbon Sequestration
		Residential Eff. Water Heating Program (Existing Customers)	U.S.	Energy End Use
		Residential Efficient Water Heating (New Construction)	U.S.	Energy End Use
		Rio Bravo Carbon Sequestration Pilot Project	Foreign	Carbon Sequestration
		Showerhead Distribution	U.S.	Energy End Use
		Western Oregon Carbon Sequestration Project	U.S.	Carbon Sequestration
Illinois Power Company	EIA-1605	3 Flyash Sales (Balwin, Havana, Hennepin, Vermilion, Wd Rvr)	U.S.	Other
		Add Turbine Shell Heaters on Wood River 4	U.S.	Electric Power G & T
		Baldwin 2 Turbine H.E.L.P. Blades Installation	U.S.	Electric Power G & T
		Baldwin 3 Heat Rate Improvement	U.S.	Electric Power G & T
		Burn Waste Oil at Baldwin 3	U.S.	Electric Power G & T
		CNG Vehicle Conversions	U.S.	Transportation
		Cofire Plastic at Baldwin	U.S.	Electric Power G & T
		Combustion of used lubricating oil	U.S.	Electric Power G & T
		Convert Vermilion Units 1 And 2 To Natural Gas	U.S.	Electric Power G & T
		Fuel Switch To Natural Gas at Hennepin	U.S.	Electric Power G & T
		Fuel Switch To Natural Gas at Wood River	U.S.	Electric Power G & T
		Havana 6 Cooling Tower Upgrade	U.S.	Electric Power G & T
		Hennepin Gas Reburn Project	U.S.	Electric Power G & T
		Hennepin I Turbine Steam Path Upgrade	U.S.	Electric Power G & T
		Hennepin Orimulsion Reburn	U.S.	Electric Power G & T
		IDNR Tree Planting Partnership	U.S.	Carbon Sequestration
		Improve Clinton Power Station Availability	U.S.	Electric Power G & T
		Install Natural Gas Fired Aux. Boiler at Havana	U.S.	Electric Power G & T
		MISSISSIPPI RIVER VALLEY BOTTOMLAND HARDWOOD RESTORATION	U.S.	Carbon Sequestration
		New Boiler Controls at Hennepin	U.S.	Electric Power G & T
		REDUCED IMPACT LOGGING OF NATURAL FOREST IN MALAYSIA	Foreign	Carbon Sequestration
		Rio Bravo Carbon Sequestration Pilot Project - Component A	Foreign	Carbon Sequestration
		Tire-Derived Fuel Cofiring at Baldwin	U.S.	Electric Power G & T
		Vermilion 1 Heat Rate Improvements	U.S.	Electric Power G & T
		Vermilion 2 Heat Rate Improvements	U.S.	Electric Power G & T

Table A5. Emission Reduction Projects Reported, Data Year 1998

Reporter	Form Type	Project	Location	Project Type
		WESTERN OREGON CARBON SEQUESTRATION PROJECT	U.S.	Carbon Sequestration
		Wood River 4 Turbine Rotor Replacement	U.S.	Electric Power G & T
Imperial Plating	EIA-1605	Boiler efficiency	U.S.	Energy End Use
		Improve efficiency of air compressors	U.S.	Energy End Use
		Install efficient HVAC unit	U.S.	Energy End Use
Industrial Equipment and Supplies	EIA-1605	Implement low energy programs for office equipment	U.S.	Energy End Use
		Install occupancy sensors and timers on lighting	U.S.	Energy End Use
		Installation of HVAC timers	U.S.	Energy End Use
		Intallation of higher SEER HVAC	U.S.	Energy End Use
		Placed Exhaust Fans on roof to lower HVAC load	U.S.	Energy End Use
Integrated Waste Services Association	EIA-1605	Waste-to-Energy - Waste Diversion	U.S.	Waste Methane
Iredell Landfill Gas, LLC	EIA-1605	Iredell County Landfill, LLC	U.S.	Waste Methane
J.M. Gilmer and Company, Inc.	EIA-1605	Flatwoods Tract Afforestation Project	U.S.	Carbon Sequestration
		Smith Place Short Rotation Woody Crop Project	U.S.	Carbon Sequestration
		Smith Place Tract Afforestation Project	U.S.	Carbon Sequestration
JEA	EIA-1605EZ	Commercial Construction Workshops/Contractor Education	U.S.	Other
		Energy Conservation Advertisements	U.S.	Other
		Fuel Switching - Landfill Gas	U.S.	Waste Methane
		Fuel Switching - Natural Gas	U.S.	Electric Power G & T
		Heat Rate Improvement	U.S.	Electric Power G & T
		Low Income Residential Energy Audits	U.S.	Other
		New Home Construction Workshops/Contractor Education	U.S.	Other
		Non-residential energy audits	U.S.	Other
		Power Factor Improvement	U.S.	Electric Power G & T
		Residential Energy Audits	U.S.	Other
		Urban Forestry	U.S.	Carbon Sequestration
Johnson & Johnson	EIA-1605	Building Shell	U.S.	Energy End Use
		Equipment and Appliances	U.S.	Energy End Use
		Fuel Switching	U.S.	Energy End Use
		HVAC	U.S.	Energy End Use
		Installation of Energy Efficient Systems	U.S.	Energy End Use
		Installation of Timer Controls and Shutdowns	U.S.	Energy End Use
		Lighting & Lighting Control	U.S.	Energy End Use
		Load Control	U.S.	Energy End Use
		Motor & Motor Drives	U.S.	Energy End Use
		Process Improvements	U.S.	Energy End Use
Kansas City Power & Light Company	EIA-1605	Aluminum Coal Cars	U.S.	Transportation
		Coal Fly Ash Recycling	U.S.	Other
		DSM - AC upgrade	U.S.	Energy End Use
		ENVIROTECH Fund	U.S.	Other
		EPA's Green Lights	U.S.	Energy End Use
		Improve heat rate	U.S.	Electric Power G & T
		Mississippi River Bottom Hardwood Restoration	U.S.	Carbon Sequestration
		New Transmission Line & Reconductoring	U.S.	Electric Power G & T
		Nuclear Unit Uprate	U.S.	Electric Power G & T
		Reduced Impact Logging of Natural Forest in Malaysia	Foreign	Carbon Sequestration
		Street Light Upgrade	U.S.	Energy End Use
		Utilitree - Rio Bravo Carbon Sequestration Pilot Project	Foreign	Carbon Sequestration
		Western Oregon Carbon Sequestration Project	U.S.	Carbon Sequestration
LFG Energy, Inc.	EIA-1605	LFG Energy - Phases I & II	U.S.	Waste Methane

Table A5. Emission Reduction Projects Reported, Data Year 1998

Reporter	Form Type	Project	Location	Project Type
Los Angeles Department of Water and Power	EIA-1605	Electric Vehicles	U.S.	Transportation
		Energy Efficient Transformers	U.S.	Electric Power G & T
		General Forestation and Tree Planting	U.S.	Carbon Sequestration
		Rideshare Program	U.S.	Transportation
Lower Colorado River Authority	EIA-1605	Coal Combustion By-Product Recycling	U.S.	Other
		Hydroelectric Dam Modernization	U.S.	Electric Power G & T
		Residential & Commercial DSM Program	U.S.	Energy End Use
		Supply-Side Efficiency Improvements	U.S.	Electric Power G & T
		Wind Power Project	U.S.	Electric Power G & T
MCNIC Oil & Gas Co.	EIA-1605	Buchanan Production Company	U.S.	Oil & Gas Methane
Mecklenburg Electric Cooperative	EIA-1605	System Line Conversion and Reconductoring	U.S.	Electric Power G & T
Minnesota Power	EIA-1605	Demand Side Mgmt., Conservation and Efficiency Improvements	U.S.	Energy End Use
		Electricity Substation, SF6 Breaker Replacement	U.S.	Halogenates
		Expanded Generation from Existing Hydro Electric Resources	U.S.	Electric Power G & T
		Expanded Use of Renewable Biomass (wood waste)	U.S.	Energy End Use
		Heat Rate Improvements, Boswell Energy Center	U.S.	Electric Power G & T
		Mud Lake Substation - Reduced Transmission Losses	U.S.	Electric Power G & T
		Short Rotation Woody Crop Establishment	U.S.	Carbon Sequestration
		Waste Paper Recycling Development	U.S.	Other
Minnesota Resource Recovery Association	EIA-1605EZ	Book ReUse Center Carbon Dioxide Reductions	U.S.	Other
		Book ReUse Center Methane Reduction	U.S.	Other
		MSW Incineration	U.S.	Waste Methane
		Paper recycling	U.S.	Other
		Paper Recycling	U.S.	Other
Missouri River Energy Services	EIA-1605EZ	1994 Tree Planting	U.S.	Carbon Sequestration
		1995 Tree Planting	U.S.	Carbon Sequestration
		1996 Tree Planting	U.S.	Carbon Sequestration
		1997 Tree Planting	U.S.	Carbon Sequestration
		1998 Tree Planting	U.S.	Carbon Sequestration
Montana Power Company	EIA-1605	Demand Side Management Programs	U.S.	Energy End Use
		Gas Plant Catalytic Converters	U.S.	Oil & Gas Methane
		Hydro-Electric Plant Upgrades	U.S.	Electric Power G & T
		Natural Gas Vehicles - Fleet Conversion	U.S.	Transportation
		Sale of Fly Ash	U.S.	Other
		Upgrades to Colstrip Coal-Fired Units	U.S.	Electric Power G & T
Monteco Gas, LLC	EIA-1605	Dade Landfill Gas Recovery Plant	U.S.	Waste Methane
		Dallas Landfill Gas Recovery Plant	U.S.	Waste Methane
		Rosenberg Landfill Gas Recovery Plant	U.S.	Waste Methane
		San Antonio Landfill Gas Recovery Plant	U.S.	Waste Methane
Moorhead Public Service	EIA-1605EZ	Custom Rebate for Moorhead High School	U.S.	Energy End Use
		Custom Rebate for Roffe Container	U.S.	Energy End Use
		Insulation Improvement	U.S.	Energy End Use
		Lighting Retrofit Program	U.S.	Energy End Use
		Urban Forestry (sequestration only)	U.S.	Carbon Sequestration
Nashville Electric Service	EIA-1605EZ	Distribution Voltage Upgrade	U.S.	Electric Power G & T
		High-efficiency transformers	U.S.	Electric Power G & T
		Urban Forestry/1995 Planting	U.S.	Carbon Sequestration
		Urban Forestry/1996 Planting	U.S.	Carbon Sequestration
		Urban Forestry/1997 Planting	U.S.	Carbon Sequestration
		Urban Forestry/1998 Planting	U.S.	Carbon Sequestration
NC Muni Landfill Gas Partners, LP	EIA-1605	Henderson County NC Landfill	U.S.	Waste Methane

Table A5. Emission Reduction Projects Reported, Data Year 1998

Reporter	Form Type	Project	Location	Project Type
Nebraska Public Power District	EIA-1605EZ	1994-1996 Distribution Improvements	U.S.	Electric Power G & T
		1994-1997 Transformer Changeouts	U.S.	Electric Power G & T
		Coal Ash Reuse	U.S.	Other
		Electric Heat Pump Program	U.S.	Energy End Use
		Materials Recycling	U.S.	Other
		Plant Efficiency Improvements	U.S.	Electric Power G & T
		Tree planting	U.S.	Carbon Sequestration
		Wind Turbines	U.S.	Electric Power G & T
Nevada Power Company	EIA-1605EZ	Mississippi River Hardwoods 13A	U.S.	Carbon Sequestration
		Mohave Heat Rate Improvements	U.S.	Electric Power G & T
		Office Lighting Replacement Dec. 1996	U.S.	Energy End Use
		Office Lighting Replacement June-Dec 1998	U.S.	Energy End Use
		Office Lighting Replacement Sep/Oct 1997	U.S.	Energy End Use
		Reduced Impact to Logging - Malaysia	U.S.	Carbon Sequestration
		Rio Bravo Forest Preservation	U.S.	Carbon Sequestration
		Solar Elec. Gen. 1998	U.S.	Electric Power G & T
		Western Oregon	U.S.	Carbon Sequestration
Newton Landfill Gas, LLC	EIA-1605	Newton Landfill, Catawba County, NC	U.S.	Waste Methane
Nexstar Pharmaceuticals, Inc.	EIA-1605EZ	Exit Light Replacement	U.S.	Energy End Use
		Lighting Replacement	U.S.	Energy End Use
Niagara Mohawk Power Corporation	EIA-1605	Alternative Fuel Vehicles	U.S.	Transportation
		Amorphous Metal Core Transformers	U.S.	Electric Power G & T
		Coal Ash Utilization	U.S.	Other
		Cowley Ridge Windplant	Foreign	Electric Power G & T
		Energy Efficiency and Conservation Programs (DSM)	U.S.	Energy End Use
		Identify & Rehabilitate Leaky Gas Distribution Pipe	U.S.	Oil & Gas Methane
		Installation and Operation of Photovoltaic Energy Systems	U.S.	Electric Power G & T
		Installation and Operation of Wind Turbines	U.S.	Electric Power G & T
		Investment Recovery Program (Recycling)	U.S.	Other
		Nuclear Generation Capacity Improvements	U.S.	Electric Power G & T
		Nuclear Generation Performance Improvements	U.S.	Electric Power G & T
		Partial Conversion of Oil-Fired Plant to Natural Gas	U.S.	Electric Power G & T
		Refrigerator Roundup	U.S.	Halogenates
NiSource/NIPSCO	EIA-1605	Biomass Initiative	U.S.	Electric Power G & T
		Capacitor Additions	U.S.	Electric Power G & T
		Coal Combustion Byproduct Utilization	U.S.	Other
		Electric Vehicles	U.S.	Transportation
		Employee Commute Options	U.S.	Transportation
		Employee Training	U.S.	Other
		Fuel Switching at Bynov Plant in Decin, Czech Republic	Foreign	Cogeneration
		Inland Steel -Northlake Energy	U.S.	Cogeneration
		Ispat/Inland - Cokenergy	U.S.	Cogeneration
		Landfill Methane Recovery - Deercroft	U.S.	Waste Methane
		Landfill Methane Recovery - Wheeler	U.S.	Waste Methane
		Landfill Methane Recovery-Prairie View	U.S.	Waste Methane
		Low Loss Transformers	U.S.	Electric Power G & T
		National Steel- Portside Energy	U.S.	Cogeneration
		Natural Gas STAR	U.S.	Oil & Gas Methane
		Natural Gas Vehicles	U.S.	Transportation
		NG Star Baystate	U.S.	Oil & Gas Methane
		North Trenton Pipeline Replacement	U.S.	Oil & Gas Methane
		Ozone Depleting Chemicals	U.S.	Halogenates
		Recycling program	U.S.	Other
		Rural Tree Planting	U.S.	Carbon Sequestration

Table A5. Emission Reduction Projects Reported, Data Year 1998

Reporter	Form Type	Project	Location	Project Type
		SF6 Reductions	U.S.	Halogenates
		Urban Tree Planting	U.S.	Carbon Sequestration
		US Steel - Lakeside Energy	U.S.	Cogeneration
		UtiliTree- Rio Bravo Pilot	Foreign	Carbon Sequestration
Noranda Aluminum Inc.	EIA-1605	PFC Emission Reduction via Reductions in Anode Effects	U.S.	Halogenates
North American Carbon, Inc.	EIA-1605	Glendale Hydroelectric Project	U.S.	Electric Power G & T
		Lower Saranac Hydroelectric Project	U.S.	Electric Power G & T
		Northland Iroquois 1 & 2	Foreign	Cogeneration
		Star Lake Hydroelectric Project	Foreign	Electric Power G & T
North Carolina Biomass Partners	EIA-1605EZ	Biomass Waste to Energy	U.S.	Electric Power G & T
North Carolina Electric Membership Corporation	EIA-1605EZ	Switch Away from Fossil Fuel Generated Power Purchases	U.S.	Electric Power G & T
Northern Neck Electric Cooperative	EIA-1605	Demand-Side Management Programs	U.S.	Energy End Use
		System Line Conversion and Reconductoring	U.S.	Electric Power G & T
Northern States Power Company	EIA-1605	Appliance Recycling	U.S.	Halogenates
		Chippewa Falls Hydro expansion	U.S.	Electric Power G & T
		Coal ash utilization	U.S.	Other
		Demand side management (electric)	U.S.	Energy End Use
		Green Lights	U.S.	Energy End Use
		Landfill gas purchase	U.S.	Waste Methane
		Low Income Refrigerator Replacement	U.S.	Halogenates
		Nuclear capacity increase	U.S.	Electric Power G & T
		Nuclear Capacity Increase - Rerated	U.S.	Electric Power G & T
		Nuclear capacity increase-2	U.S.	Electric Power G & T
		Nuclear Capacity Increase-3	U.S.	Electric Power G & T
		Nuclear capacity restoration	U.S.	Electric Power G & T
		Recycling program	U.S.	Other
		Refuse-derived fuel	U.S.	Electric Power G & T
		Transmission upgrade	U.S.	Electric Power G & T
		Transmission upgrade-2	U.S.	Electric Power G & T
		Upgrade for hydro capacity	U.S.	Electric Power G & T
		Wheaton Plant conversion	U.S.	Electric Power G & T
		Wind power	U.S.	Electric Power G & T
Northern Virginia Electric Cooperative	EIA-1605	Demand-side Management Load Control Programs	U.S.	Energy End Use
		System Line Conversions and Reconductoring	U.S.	Electric Power G & T
Northwest Fuel Development, Inc.	EIA-1605	Utilization of Coal Mine Gas	U.S.	Oil & Gas Methane
Old Dominion Electric Cooperative	EIA-1605	Clover Power Station - Visual Screening	U.S.	Carbon Sequestration
		Green Lights	U.S.	Energy End Use
Omaha Public Power District	EIA-1605EZ	Coal Heat Rate Improvement	U.S.	Electric Power G & T
		Commercial & Industrial Audits	U.S.	Energy End Use
		Heat Pump Program (RECP)	U.S.	Energy End Use
		Nuclear Capacity Factor Improvement	U.S.	Electric Power G & T
		Recycling Fly Ash	U.S.	Other
		Right Lights	U.S.	Energy End Use
		Street Lighting Replacement	U.S.	Energy End Use
		T&D Capacitor Installations	U.S.	Electric Power G & T
		Tree Planting	U.S.	Carbon Sequestration
Pacific Gas and Electric Company	EIA-1605EZ	CNG fueled vehicles	U.S.	Transportation
		Electric vehicles	U.S.	Transportation
		New Electric Energy conservation projects	U.S.	Energy End Use
		New natural gas energy efficiency projects	U.S.	Energy End Use
		Ongoing electric energy conservation projects	U.S.	Energy End Use
		Ongoing Natural gas energy efficiency projects	U.S.	Energy End Use
PacifiCorp	EIA-1605	Coal Ash Recycling	U.S.	Other
		Commercial Competitive Bid - EUA/Onsite	U.S.	Energy End Use

Table A5. Emission Reduction Projects Reported, Data Year 1998

Reporter	Form Type	Project	Location	Project Type
		Competitive Bid - CES/Way	U.S.	Energy End Use
		Energy FinAnswer	U.S.	Energy End Use
		Energy FinAnswer Prescriptive	U.S.	Energy End Use
		Energy FinAnswer Retrofit	U.S.	Energy End Use
		Ethanol Production Carbon Offset Project	U.S.	Other
		H_PRO: High Efficiency Heat Pumps	U.S.	Energy End Use
		Hassle-Free Program	U.S.	Energy End Use
		Home Comfort	U.S.	Energy End Use
		Industrial Energy FinAnswer	U.S.	Energy End Use
		Irrigation FinAnswer Program	U.S.	Energy End Use
		Low Income Weatherization and Conservation Programs	U.S.	Energy End Use
		Major Accounts Program	U.S.	Energy End Use
		Manufactured Housing Acquisition Program (MAP)	U.S.	Energy End Use
		Mississippi River Valley Bottomland Hardwood Restoration	U.S.	Carbon Sequestration
		Noel Kempff Mercado Climate Action Project	Foreign	Carbon Sequestration
		Northwest Energy Efficiency Alliance (NEEA)	U.S.	Energy End Use
		Northwest Fuels Methane Recovery From Coal Mines	U.S.	Oil & Gas Methane
		PacifiCorp Facility DSM	U.S.	Energy End Use
		Reduced Impact Logging of Natural Forest in Malaysia	Foreign	Carbon Sequestration
		Reforestation in Eastern Washington	U.S.	Carbon Sequestration
		Reforestation of Private Lands in Oregon - Site Class II	U.S.	Carbon Sequestration
		Reforestation of Private Lands in Oregon - Site Class III	U.S.	Carbon Sequestration
		Residential Competitive Bid - ECONS	U.S.	Energy End Use
		Residential Weatherization Programs	U.S.	Energy End Use
		Rio Bravo Carbon Sequestration Pilot Project	Foreign	Carbon Sequestration
		Salt Lake City Urban Forestry Project	U.S.	Energy End Use
		Salt Lake City Urban Forestry Project	U.S.	Carbon Sequestration
		Showerhead Program	U.S.	Energy End Use
		Small Commercial Retrofit	U.S.	Energy End Use
		Super Efficiency Refrigerator Program (SERP)	U.S.	Energy End Use
		Super Good Cents	U.S.	Energy End Use
		Utah Water Smart Kits (Schedule 5)	U.S.	Energy End Use
		Water Heater / Solar	U.S.	Energy End Use
		Western Oregon Carbon Sequestration Project	U.S.	Carbon Sequestration
Pan American Hospital	EIA-1605	Air Compressor improvements	U.S.	Energy End Use
		Boiler Maintenance Program	U.S.	Energy End Use
		Improve maintenence program for HVAC unit	U.S.	Energy End Use
		Improve steam systems	U.S.	Energy End Use
		Upgraded chillers to efficient units	U.S.	Energy End Use
Peabody Holding Company, Inc.	EIA-1605	Coal Bed Methane Utilization	U.S.	Oil & Gas Methane
PECO Energy Company	EIA-1605EZ	Increased Hydro-Electric Generation	U.S.	Electric Power G & T
		Increased Nuclear Generation	U.S.	Electric Power G & T
		Increased Use of Natural Gas Vehicles	U.S.	Transportation
		Operation of Fairless Hills on Landfill Gas	U.S.	Waste Methane
		Operation of Fairless Hills on Landfill Gas	U.S.	Waste Methane
		Operation of Grays Ferry Cogeneration Unit	U.S.	Cogeneration
Pintexs	EIA-1605	Lighting Reduction	U.S.	Energy End Use
		Replace air compressor with efficient unit	U.S.	Energy End Use
		Upgrade HVAC Efficiency	U.S.	Energy End Use
Pitt Landfill Gas, LLC	EIA-1605	Pitt Landfill Gas, LLC	U.S.	Waste Methane
Platte River Power Authority & 4 owner cities	EIA-1605	Estes Park Low-Loss Transformers	U.S.	Electric Power G & T
		Estes Park Recycling Program	U.S.	Other
		Estes Park Streetlight Conversions	U.S.	Energy End Use
		Fort Collins Distribution System Improvements	U.S.	Electric Power G & T

Table A5. Emission Reduction Projects Reported, Data Year 1998

Reporter	Form Type	Project	Location	Project Type
		Fort Collins Wind Power Pilot Project	U.S.	Electric Power G & T
		Longmont Distribution System Improvements	U.S.	Electric Power G & T
		Longmont Efficient Lighting Projects	U.S.	Energy End Use
		Longmont Hydro Project Upgrades	U.S.	Electric Power G & T
		Longmont Wastewater Plant Waste Gas Flare	U.S.	Waste Methane
		Loveland Area Lighting Project	U.S.	Energy End Use
		Loveland Digester Gas Production and Use	U.S.	Waste Methane
		Loveland Hydroelectric Plant	U.S.	Electric Power G & T
		Loveland Recycling Program	U.S.	Other
		Loveland Street Lighting Project	U.S.	Energy End Use
		Loveland Thrifty Light Project	U.S.	Energy End Use
		PRPA Heat Rate Improvements at Craig Powerplant	U.S.	Electric Power G & T
Portland General Electric Co.	EIA-1605	1995 Colstrip Units 3&4 Ruggedizing	U.S.	Electric Power G & T
		Beaver Efficiency Improvements	U.S.	Electric Power G & T
		Boardman Efficiency Improvements	U.S.	Electric Power G & T
		Building Rooftop Photovoltaic Systems	U.S.	Electric Power G & T
		Bull Run Turbine Runner Replacements	U.S.	Electric Power G & T
		Coyote Springs Efficiency Improvements	U.S.	Electric Power G & T
		Demand-Side Management Projects	U.S.	Energy End Use
		Electric Fleet Vehicles	U.S.	Transportation
		Energy Management Systems	U.S.	Energy End Use
		Faraday Units 4&5 1994	U.S.	Electric Power G & T
		Friends of Trees	U.S.	Carbon Sequestration
		Gas Lawnmower Turn In Rebate	U.S.	Energy End Use
		Green Lights Programs	U.S.	Energy End Use
		Heat Pump Rebate	U.S.	Energy End Use
		Natural Gas Fleet Vehicles	U.S.	Transportation
		Oak Grove Turbine Runner Replacements - 1991 - Units 1&2	U.S.	Electric Power G & T
		PGE Corporate Recycling Program	U.S.	Other
		Photoelectric Streetlight Controls	U.S.	Energy End Use
		River Mill Efficiency Improvements	U.S.	Electric Power G & T
		Sullivan turbine rebuilds	U.S.	Electric Power G & T
		T&D: Power Factor Correction Capacitors	U.S.	Electric Power G & T
		Transformer Efficiency Improvements	U.S.	Electric Power G & T
		Vansycle Ridge Wind Generation	U.S.	Electric Power G & T
Power Management Partners, LP	EIA-1605EZ	Biomass Waste to Energy	U.S.	Electric Power G & T
PP&L RESOURCES, INC.	EIA-1605	Ash Use in Cement Making	U.S.	Other
		Demand Side Management Project	U.S.	Energy End Use
		Electric Vehicles	U.S.	Transportation
		Fossil Plant Efficiency	U.S.	Electric Power G & T
		Harrisburg (AWWTP) - Electricity Purchases	U.S.	Electric Power G & T
		Harrisburg (AWWTP) - Methane Reductions	U.S.	Waste Methane
		Keystone Landfill - Electricity Purchases	U.S.	Electric Power G & T
		Keystone Landfill - Methane Reductions	U.S.	Waste Methane
		Lycoming Landfill - Electricity Purchases	U.S.	Electric Power G & T
		Lycoming Landfill - Methane Reductions	U.S.	Waste Methane
		Martins Creek Gas	U.S.	Electric Power G & T
		Pheasant Habitat Restoration Program (PHRP)	U.S.	Carbon Sequestration
		Rocky Knoll/Keener Farm - Electricity Purchases	U.S.	Electric Power G & T
		Rocky Knoll/Keener Farm - Methane Reductions	U.S.	Agriculture Methane
		Susquehanna SES Strategy 2000	U.S.	Electric Power G & T
		Susquehanna Steam Electric Station Re-Rate	U.S.	Electric Power G & T
		Taylor/Amity Landfill - Electricity Purchases	U.S.	Electric Power G & T
		Taylor/Amity Landfill - Methane Reductions	U.S.	Waste Methane

Table A5. Emission Reduction Projects Reported, Data Year 1998

Reporter	Form Type	Project	Location	Project Type
		Transformer Savings	U.S.	Electric Power G & T
		Trees for the Future	U.S.	Carbon Sequestration
		Utilitree Co. - Malaysia Project	Foreign	Carbon Sequestration
		Utilitree Co. - Mississippi R. V. Project	U.S.	Carbon Sequestration
		Utilitree Co. - Rio Bravo Project	Foreign	Carbon Sequestration
		Utilitree Co. - W. Oregon Project	U.S.	Carbon Sequestration
Prince George Electric Cooperative	EIA-1605	Transmission and Dist. Efficiency Improvements	U.S.	Electric Power G & T
Public Service Company of New Mexico	EIA-1605	CNG Vehicles	U.S.	Transportation
		Heat Rate Improvements at San Juan Generating Station	U.S.	Electric Power G & T
		Natural Gas Leak Surveying and Replacement	U.S.	Oil & Gas Methane
		Palo Verde Generation Increase	U.S.	Electric Power G & T
Public Service Electric and Gas Company	EIA-1605	UtiliTree-Miss R. Valley Bottomland Hardwood Restoration	U.S.	Carbon Sequestration
		UtiliTree-Reduce Impact of Logging of Nat. Forest, Malaysia	Foreign	Carbon Sequestration
		UtiliTree-Rio Bravo Carbon Seq. Pilot Project	Foreign	Carbon Sequestration
		UtiliTree-Western Oregon Carbon Sequestration Project	U.S.	Carbon Sequestration
Public Utility District No. 1 of Snohomish County	EIA-1605	Battery and Solar Powered Boat Races	U.S.	Transportation
		Bicycles for Meter Readers	U.S.	Transportation
		Commute Reduction Program	U.S.	Transportation
		Conservation Voltage Reduction	U.S.	Electric Power G & T
		Demand Side Management	U.S.	Energy End Use
		Electric Car Race	U.S.	Transportation
		Scrap Metals Recycling	U.S.	Other
		Transmission Networking and Reconductoring	U.S.	Electric Power G & T
		We-cycle Office Wastepaper (WOW) Program	U.S.	Other
Rappahannock Electric Cooperative	EIA-1605	System Line Conversions and Reconductoring	U.S.	Electric Power G & T
		Tree Planting	U.S.	Carbon Sequestration
Reliant Energy - HL&P	EIA-1605	San Jacinto Steam Electric Generating Station	U.S.	Cogeneration
		Coal Fly Ash Sales	U.S.	Other
		Demand Side Management	U.S.	Energy End Use
		GT PRIME	U.S.	Electric Power G & T
		Rice Field Methane Reductions Study	U.S.	Agriculture Methane
Sacramento Municipal Utility District	EIA-1605	Employee Commute Program	U.S.	Transportation
		Energy Efficiency Programs	U.S.	Energy End Use
		Meter Reading - Bicycles	U.S.	Transportation
		PV Pioneer	U.S.	Electric Power G & T
		Ride Electric	U.S.	Transportation
		Shade Tree Program	U.S.	Carbon Sequestration
Salt River Project	EIA-1605EZ	AC Photovoltaic Residential System	U.S.	Energy End Use
		Alternate Work Week Schedule	U.S.	Transportation
		Bike/Bus/Walk	U.S.	Transportation
		Carpooling/Vapooling	U.S.	Transportation
		Cooperative Photovoltaic Power Plant	U.S.	Electric Power G & T
		Electric Vehicles Demonstration and Business Use	U.S.	Transportation
		Fly Ash Sales	U.S.	Other
		Heat Rate Improvements	U.S.	Electric Power G & T
		Home with PV System for Demonstration (Chandler House)	U.S.	Energy End Use
		Landfill Gas Flaring (CH4 Avoided)	U.S.	Waste Methane
		Landfill Gas Flaring (CO2 Increase)	U.S.	Waste Methane
		Palo Verde Nuclear Generating Station Capacity Increases	U.S.	Electric Power G & T
		Recycling (CH4 Reductions)	U.S.	Other
		Recycling (CO2 Emissions)	U.S.	Other
		Replace Gasoline Lawnmowers with Electric Lawnmowers	U.S.	Energy End Use

Table A5. Emission Reduction Projects Reported, Data Year 1998

Reporter	Form Type	Project	Location	Project Type
		South Mountain CC Solar	U.S.	Energy End Use
		Telecommuting	U.S.	Transportation
Santee Cooper	EIA-1605	Cross Unit 1 Turbine Retrofit	U.S.	Electric Power G & T
		Cross Unit 2 Upgrade	U.S.	Electric Power G & T
		Demand Side Management Programs	U.S.	Energy End Use
		Fly Ash Used in Concrete Manufacture	U.S.	Other
		Forestation/Reforestation	U.S.	Carbon Sequestration
		Summer Nuclear Upgrade	U.S.	Electric Power G & T
		Winyah Unit 1 Turbine Upgrade	U.S.	Electric Power G & T
		Winyah Unit 2 Turbine Retrofit	U.S.	Electric Power G & T
		Winyah Unit 3 Turbine Retrofit	U.S.	Electric Power G & T
Seattle City Light	EIA-1605	4kV to 26kV Distribution System Conversion	U.S.	Electric Power G & T
		Built Smart/Long-Term Super Good Cents Program (LTSGC)	U.S.	Energy End Use
		Cedar Falls turbine runner replacement	U.S.	Electric Power G & T
		Diablo Dam turbine runner replacement	U.S.	Electric Power G & T
		Energy $avings Plan (E$P)	U.S.	Energy End Use
		Energy Efficient Water Heater Rebate Program (EEWHRP)	U.S.	Energy End Use
		Energy Smart Design	U.S.	Energy End Use
		Gorge Dam turbine runner replacement	U.S.	Electric Power G & T
		Home Water Savers Program	U.S.	Energy End Use
		Low-Income Electric Program	U.S.	Energy End Use
		Multifamily Common Area Lighting Program (MF-CAL)	U.S.	Energy End Use
		Multifamily Conservation Program: Low-Income	U.S.	Energy End Use
		Multifamily Conservation Program: Standard-Income	U.S.	Energy End Use
		Neighborhood Power Weatherization/Warm Home Program (WMHM)	U.S.	Energy End Use
		Ross Dam turbine runner replacement	U.S.	Electric Power G & T
		Smart Business Rebates	U.S.	Energy End Use
		South Fork Tolt River hydroelectric project	U.S.	Electric Power G & T
		Urban Tree Replacement Program	U.S.	Carbon Sequestration
SeaWest Windpower, Inc.	EIA-1605	Altech III Wind Project Retrofits and Enhancements	U.S.	Electric Power G & T
		Foote Creek I Wind Power Project	U.S.	Electric Power G & T
Seminole Electric Cooperative, Inc.	EIA-1605EZ	Fly Ash & Bottom Ash Reuse	U.S.	Other
		Fuel Switching (Petcoke)	U.S.	Energy End Use
		Heat Rate Improvement	U.S.	Electric Power G & T
		Lighting Replacement	U.S.	Energy End Use
		Transmission Conductor Optimization	U.S.	Electric Power G & T
Seneca Energy, Inc.	EIA-1605	Seneca Energy - Stage I	U.S.	Waste Methane
		Seneca Energy - Stage II	U.S.	Waste Methane
Separation Technologies, Inc	EIA-1605EZ	STI fly ash process at Carolina Power and Light Roxboro Sta.	U.S.	Other
		STI fly ash process at U.S. Generating Brayton Point Station	U.S.	Other
		STI fly ash process at U.S. Generating Salem Harbor Station	U.S.	Other
Shenandoah Valley Electric Cooperative	EIA-1605	Demand-Side Management Load Control Programs	U.S.	Energy End Use
		System Line Conversions and Reconductoring	U.S.	Electric Power G & T
		Visual Screening-Tree Planting	U.S.	Carbon Sequestration
Shrewsbury Electric Light Plant	EIA-1605EZ	High Efficiency Transformer	U.S.	Electric Power G & T
		Lighting Replacement	U.S.	Energy End Use
SONAT Exploration Company	EIA-1605	White Oak Creek Coalbed Methane Recovery	U.S.	Oil & Gas Methane
South Carolina Electric & Gas Company	EIA-1605	Coal Ash Utilization Program	U.S.	Other
		Demand Side Management Technologies	U.S.	Energy End Use
		Forest Management Plan	U.S.	Carbon Sequestration

Table A5. Emission Reduction Projects Reported, Data Year 1998

Reporter	Form Type	Project	Location	Project Type
		Misc. Plant efficiency improvements	U.S.	Electric Power G & T
		Mississippi River Valley Bottomland Hardwood Restoration	U.S.	Carbon Sequestration
		Reduced Impact Logging of Natural Forest in Malaysia	Foreign	Carbon Sequestration
		Rio Bravo Carbon Sequestration Pilot Project	Foreign	Carbon Sequestration
		Summer Nuclear Upgrade	U.S.	Electric Power G & T
		Wateree Station heat rate improvement	U.S.	Electric Power G & T
		Western Oregon Carbon Sequestration Project	U.S.	Carbon Sequestration
		Williams Station improvements	U.S.	Electric Power G & T
Southeastern Biomass Partners, LP	EIA-1605EZ	Biomass Waste to Energy	U.S.	Electric Power G & T
Southern California Edison Co.	EIA-1605	Demand Side Management	U.S.	Energy End Use
		Electric Vehicle Program	U.S.	Transportation
		ENVEST SCE	U.S.	Energy End Use
		Fly Ash Sales for Concrete Production	U.S.	Other
		Internal Combustion Engine Replacement Program	U.S.	Energy End Use
		Mohave Power Project Heat Rate Improvement Program	U.S.	Electric Power G & T
		Renewable Energy Purchases - Biomass	U.S.	Electric Power G & T
		Renewable Energy Purchases - Geothermal	U.S.	Electric Power G & T
		Renewable Energy Purchases - Wind	U.S.	Electric Power G & T
Southern Company	EIA-1605	Biomass	U.S.	Electric Power G & T
		Bulk Power Transmission Improvements	U.S.	Electric Power G & T
		Carbon Sequestration on Company Lands	U.S.	Carbon Sequestration
		Carbon Sequestration on Noncompany Lands	U.S.	Carbon Sequestration
		Chevron Cogenerating Plant - Unit 5	U.S.	Cogeneration
		Demand-Side Management	U.S.	Energy End Use
		Farley Nuclear Plant Availability Improvements	U.S.	Electric Power G & T
		Farley Nuclear Plant Uprate	U.S.	Electric Power G & T
		Gas Capability at Watson 4 and 5	U.S.	Electric Power G & T
		Hatch Nuclear Plant Availability Improvements	U.S.	Electric Power G & T
		Hatch Nuclear Plant Capacity Uprate	U.S.	Electric Power G & T
		Heat Rate Improvement on Coal-Fired Capacity	U.S.	Electric Power G & T
		Mississippi River Valley Bottomland Hardwood Restoration	U.S.	Carbon Sequestration
		New Combustion Turbines	U.S.	Electric Power G & T
		Reduced Impact Logging of Natural Forest in Malaysia	Foreign	Carbon Sequestration
		Rio Bravo Carbon Sequestration Pilot Project	Foreign	Carbon Sequestration
		Transportation Research	U.S.	Transportation
		Vogtle Electric Generating Plant (Nuclear) Capacity Uprate	U.S.	Electric Power G & T
		Vogtle Electric Generating Plant Availability Improvements	U.S.	Electric Power G & T
		Western Oregon Carbon Sequestration Project	U.S.	Carbon Sequestration
Southside Electric Cooperative	EIA-1605	System Line Conversion and Reconductoring	U.S.	Electric Power G & T
Steuben Rural Electric Co-op	EIA-1605EZ	1994 Distribution Line Replacement	U.S.	Electric Power G & T
		1994 Water Heater Control Program	U.S.	Energy End Use
		1995 Water Heater Control Program	U.S.	Energy End Use
		1995 Distribution Line Replacement	U.S.	Electric Power G & T
		1996 Conductor Replacement	U.S.	Electric Power G & T
		1996 Farm Energy Efficiency	U.S.	Energy End Use
		1996 Water Heater Control Program	U.S.	Energy End Use
		1997 Conductor Replacement	U.S.	Electric Power G & T
		1997 Farm Energy Efficiency	U.S.	Energy End Use
		1997 Water Heater Control Program	U.S.	Energy End Use
Tacoma Public Utilities	EIA-1605EZ	Afforestation (Cowlitz and Nisqually)	U.S.	Carbon Sequestration
		Alternative Transportation	U.S.	Transportation
		Energy Conservation	U.S.	Energy End Use
		Forest Preservation (Nisqually and Cowlitz)	U.S.	Carbon Sequestration
		Fuel Switching	U.S.	Electric Power G & T

Table A5. Emission Reduction Projects Reported, Data Year 1998

Reporter	Form Type	Project	Location	Project Type
		Generator Improvement (Cushman/Nisqually)	U.S.	Electric Power G & T
		Generator Improvement (Wynoochee)	U.S.	Electric Power G & T
		Material Recycled	U.S.	Other
		Reforestation (Peterman)	U.S.	Carbon Sequestration
Tampa Electric Company	EIA-1605	Fly Ash Reuse	U.S.	Other
		Malaysia Carbon Sequestation Project	Foreign	Carbon Sequestration
		Mississippi River Valley	U.S.	Carbon Sequestration
		Rio Bravo Carbon Sequestration Pilot Project	Foreign	Carbon Sequestration
		Western Oregon Carbon Sequestration Project	U.S.	Carbon Sequestration
Taunton Municipal Lighting Plant	EIA-1605EZ	Home Energy Audit	U.S.	Energy End Use
		Landfill Gas to Energy	U.S.	Waste Methane
		Lightwaves and Smartlights	U.S.	Energy End Use
		T&D Reconductoring	U.S.	Electric Power G & T
Tennessee Valley Authority	EIA-1605	Afforestation On TVA Lands	U.S.	Carbon Sequestration
		Alternate Fuel Vehicles	U.S.	Transportation
		CFC Management	U.S.	Halogenates
		Comfort Plus Homes	U.S.	Energy End Use
		Flyash Sales To Concrete Industry	U.S.	Other
		Heat Rate Improvements At TVA Coal Fired Generating Units	U.S.	Electric Power G & T
		Hydro Unit Modernization	U.S.	Electric Power G & T
		Landfill Methane Recovery and Power Generation	U.S.	Waste Methane
		Outdoor Lighting Replacements By Memphis Light, Gas And Wate	U.S.	Energy End Use
		Paper Recycling	U.S.	Other
		Reduced Impact Logging Of Natural Forest In Malaysia	Foreign	Carbon Sequestration
		Residential Marketing Program	U.S.	Energy End Use
		Return Browns Ferry Nuclear Units 2 and 3 to Service	U.S.	Electric Power G & T
		Rio Bravo Carbon Sequestration Project	Foreign	Carbon Sequestration
		Start Watts Bar Nuclear Unit 1	U.S.	Electric Power G & T
		Transmission System Efficiency Improvements	U.S.	Electric Power G & T
		Transportation Fleet Fuel Efficiency Improvement	U.S.	Transportation
		Wood Waste Cofiring At Coal Fired Generating Plants	U.S.	Electric Power G & T
TXU	EIA-1605	Alternative Fuel Vehicle Program	U.S.	Transportation
		Coal Ash Byproduct Use	U.S.	Other
		Demand-Side Management Program	U.S.	Energy End Use
		Employee Bus Pass Program	U.S.	Transportation
		Employee Carpool Program	U.S.	Transportation
		Increased Reforestation in Land Reclamation Program	U.S.	Carbon Sequestration
		Landfill Methane	U.S.	Waste Methane
		Lignite and Western Coal Blending	U.S.	Electric Power G & T
		Mississippi River Valley Bottomland Hardwood Restoration	U.S.	Carbon Sequestration
		Operation of Nuclear Generation Units	U.S.	Electric Power G & T
		Paper and Aluminum Recycling	U.S.	Other
		Power Plant Heat Rate Improvement Projects	U.S.	Electric Power G & T
		Ranger Exhaust Gas Project	U.S.	Other
		Reduced Impact Logging of Natural Forest in Malaysia	Foreign	Carbon Sequestration
		Renewable Energy Development Projects	U.S.	Electric Power G & T
		SF6 Reductions	U.S.	Halogenates
		Texas Reforestation Foundation	U.S.	Carbon Sequestration
		UtiliTree Carbon Company Rio Bravo Pilot Project	Foreign	Carbon Sequestration
		Vehicle Use Reductions	U.S.	Transportation
		Western Oregon Carbon Sequestion Project	U.S.	Carbon Sequestration
U. S. Steel Mining Company, LLC	EIA-1605	No. 50 Mine: Gas Recovery For Sale	U.S.	Oil & Gas Methane
		Oak Grove Mine: Gas Recovery For Sale	U.S.	Oil & Gas Methane

Table A5. Emission Reduction Projects Reported, Data Year 1998

Reporter	Form Type	Project	Location	Project Type
U.S. Department of Energy	EIA-1605	Photovoltaics on DOE facilities in the DC metropolitan area	U.S.	Electric Power G & T
UNICOM (Commonwealth Edison Company)	EIA-1605	Aluminum Railroad Cars	U.S.	Transportation
		Coal Combustion By-product utilization	U.S.	Other
		Collins Station 12345-Fuel Switch	U.S.	Electric Power G & T
		Energy Cooperative & Demand Side Management Activities	U.S.	Energy End Use
		Fuel Swiching at Bynov Plant in Decin, Czech Republic	Foreign	Cogeneration
		High Efficiency Transformers	U.S.	Electric Power G & T
		Illinois Prairie Grass Plantings	U.S.	Carbon Sequestration
		Investment Recovery/Life Cycle Management/Recycling	U.S.	Other
		Methane Gas Landfill Recovery	U.S.	Waste Methane
		Unicom Thermal Cooling Plant	U.S.	Halogenates
		UNICOM Thermal Cooling Plant	U.S.	Energy End Use
		Utility Pole Reuse	U.S.	Carbon Sequestration
		Windmill	U.S.	Electric Power G & T
United Power Association	EIA-1605	Coal Ash Programs	U.S.	Other
		Compressed Air Improvements	U.S.	Electric Power G & T
		Conservation.	U.S.	Energy End Use
		Continuous Blowdown	U.S.	Electric Power G & T
		Controls Upgrade	U.S.	Electric Power G & T
		Cooling Tower Improvements	U.S.	Electric Power G & T
		FD Fans	U.S.	Electric Power G & T
		Ground-Source Heat Pumps	U.S.	Energy End Use
		L-0 Bucket Improvements	U.S.	Electric Power G & T
		Load Management	U.S.	Energy End Use
		OPM Upgrade	U.S.	Electric Power G & T
		Refuse Derived Fuel (RDF) Project	U.S.	Waste Methane
		Retractable Packing HP-IP	U.S.	Electric Power G & T
		Turbine HP/IP Improvements	U.S.	Electric Power G & T
		Ultra-sonic and Helium Leak Detection Improvements	U.S.	Electric Power G & T
		Ventilation Improvements	U.S.	Electric Power G & T
		Videoconferencing	U.S.	Transportation
		VSD Pit Pump	U.S.	Electric Power G & T
Urban Forestry Alliance	EIA-1605EZ	Urban tree planting	U.S.	Carbon Sequestration
USGen New England, Inc.	EIA-1605	Barre Landfill Gas to Electricity Project	U.S.	Waste Methane
		Brayton Point Station Unit No. 4 Gas Conversion	U.S.	Electric Power G & T
		Brayton Point Station Units No. 1, 2, 3 Natural Gas Usage	U.S.	Electric Power G & T
		Coal Ash Recycling as Cement Replacement	U.S.	Other
		Johnston Landfill Gas to Electricity Project	U.S.	Waste Methane
		Manchester Street Repowering	U.S.	Electric Power G & T
		Mississippi River Valley Bottomland Hardwood Restoration	U.S.	Carbon Sequestration
		Nashua Landfill Gas To Electricity Project	U.S.	Waste Methane
		Power Purchases from Natural Gas Generation	U.S.	Electric Power G & T
		Reduced Impact Logging of Natural Forest in Malaysia	Foreign	Carbon Sequestration
		Reduced Impact Logging Project (NEP Pilot Project)	Foreign	Carbon Sequestration
		Rio Bravo Carbon Sequestration Pilot Project	Foreign	Carbon Sequestration
		Turnkey Landfill Gas to Electricity Project	U.S.	Waste Methane
		Western Oregon Carbon Sequestration Project	U.S.	Carbon Sequestration
USX Corporation	EIA-1605	White Oak Creek Methane Recovery	U.S.	Oil & Gas Methane
Utah Municipal Power Agency	EIA-1605EZ	Geothermal Power	U.S.	Electric Power G & T
		In-House Conservation	U.S.	Energy End Use
		Light Replacement	U.S.	Energy End Use
		Low Loss Transformers	U.S.	Electric Power G & T

Table A5. Emission Reduction Projects Reported, Data Year 1998

Reporter	Form Type	Project	Location	Project Type
		Residential Audits	U.S.	Energy End Use
		Tree Planting Program	U.S.	Carbon Sequestration
VANALCO, INC. - (Primary Aluminum Reduction Plant)	EIA-1605	PFC Emission Reductions via Reductions in Anode Effects	U.S.	Halogenates
Vermont Public Power Supply Authority	EIA-1605	Act 250 New Construction Program	U.S.	Energy End Use
		Equipment Replacement and Remodeling Program	U.S.	Energy End Use
		Farm Efficiency Program	U.S.	Energy End Use
		Large Commercial and Industrial Audit Program	U.S.	Energy End Use
		Residential Appliance Disposal Program	U.S.	Energy End Use
		Residential Low Income Weatherization Piggyback Program	U.S.	Energy End Use
		Residential Mail Order Lighting Program	U.S.	Energy End Use
		Residential Water Heating and Lighting Efficiency Program	U.S.	Energy End Use
		Small Commercial Retrofit Program	U.S.	Energy End Use
		Street and Area Lighting Efficiency Program	U.S.	Energy End Use
		Swanton Village Hydro Expansion	U.S.	Electric Power G & T
		Transmission and Distribution System Efficiency Improvements	U.S.	Electric Power G & T
Volvo Cars of North America, Inc.	EIA-1605EZ	CNG Bi-fuel Test Fleet	U.S.	Transportation
Waverly Light & Power Company	EIA-1605	Distribution System Upgrade (Project 3)	U.S.	Electric Power G & T
		Electric Vehicle (Project 4.1)	U.S.	Transportation
		Energy End-Use Programs (Project 3.1)	U.S.	Energy End Use
		Energy Savings Due to Trees Forever (Project 3.3)	U.S.	Energy End Use
		High-Pressure Sodium Lights (Project 3.2)	U.S.	Energy End Use
		Hydro (Project 2)	U.S.	Electric Power G & T
		Low-Loss Transformers (Project 4)	U.S.	Electric Power G & T
		Trees Forever (Project 8.1)	U.S.	Carbon Sequestration
		Wind Turbine (Project 1)	U.S.	Electric Power G & T
Western Resources, Inc.	EIA-1605	Coal Fly Ash Recycling	U.S.	Other
		Conversion of Company Fleet Vehicles to Alternative Fuels	U.S.	Transportation
		Distribution Capacitor Additions	U.S.	Electric Power G & T
		Electrotechnologies Marketing	U.S.	Energy End Use
		GEV1 Feedwater Heater Upgrade	U.S.	Electric Power G & T
		GEV2 Feedwater Controls Upgrade	U.S.	Electric Power G & T
		GEV2 Feedwater Heater Upgrade	U.S.	Electric Power G & T
		HEC4 Cooling Tower Upgrade	U.S.	Electric Power G & T
		JEC1 Boiler Controls Upgrade	U.S.	Electric Power G & T
		JEC1 On-Line Performance Monitoring	U.S.	Electric Power G & T
		JEC1 Precipitator Intermittent Energization	U.S.	Electric Power G & T
		JEC1 Seal Steam Recovery	U.S.	Electric Power G & T
		JEC1 Superheater Replacement	U.S.	Electric Power G & T
		JEC1 Turbine Upgrade	U.S.	Electric Power G & T
		JEC2 Boiler Controls Upgrade	U.S.	Electric Power G & T
		JEC2 On-Line Performance Monitoring	U.S.	Electric Power G & T
		JEC2 Precipitator Intermittent Energization	U.S.	Electric Power G & T
		JEC2 Seal Steam Recovery	U.S.	Electric Power G & T
		JEC2 Superheater Replacement	U.S.	Electric Power G & T
		JEC2 Turbine Upgrade	U.S.	Electric Power G & T
		JEC3 Boiler Controls Upgrade	U.S.	Electric Power G & T
		JEC3 Boiler/Turbine Controls Upgrade	U.S.	Electric Power G & T
		JEC3 On-Line Performance Monitoring	U.S.	Electric Power G & T
		JEC3 Precipitator Intermittent Energization	U.S.	Electric Power G & T
		JEC3 Seal Steam Recovery	U.S.	Electric Power G & T
		JEC3 Superheater Replacement	U.S.	Electric Power G & T

Table A5. Emission Reduction Projects Reported, Data Year 1998

Reporter	Form Type	Project	Location	Project Type
		JEC3 Turbine Upgrade	U.S.	Electric Power G & T
		LAC2 Turbine Upgrade	U.S.	Electric Power G & T
		LEC4 Controls Upgrade	U.S.	Electric Power G & T
		LEC5 Circ Water Crosstie	U.S.	Electric Power G & T
		LEC5 Controls Upgrade	U.S.	Electric Power G & T
		LEC5 Replace Flyash Evaporator	U.S.	Electric Power G & T
		LEC5 Sliding Pressure Operation	U.S.	Electric Power G & T
		LEC5 Turbine Seals	U.S.	Electric Power G & T
		LEC5 Upgrades	U.S.	Electric Power G & T
		Mississippi River Valley Bottomland Hardwood Restoration	U.S.	Carbon Sequestration
		Natural Gas Distribution System Replacement Program	U.S.	Oil & Gas Methane
		Natural Gas Transmission System Blowdown Reductions	U.S.	Oil & Gas Methane
		Photovoltaic Installations	U.S.	Electric Power G & T
		Purchase of Aluminum Rail Cars	U.S.	Transportation
		Reduced Impact Logging of Natural Forest in Malaysia	U.S.	Carbon Sequestration
		Residential Conservation Use Rate DSM Program	U.S.	Energy End Use
		Rio Bravo Carbon Sequestration Pilot Project	Foreign	Carbon Sequestration
		TEC7 On-Line Performance Monitoring	U.S.	Electric Power G & T
		TEC7 Precipitator Intermittent Energization	U.S.	Electric Power G & T
		TEC8 Condenser Upgrade	U.S.	Electric Power G & T
		TEC8 Precipitator Intermittent Energization	U.S.	Electric Power G & T
		Transformer Replacements	U.S.	Electric Power G & T
		Western Oregon Carbon Sequestration Project	U.S.	Carbon Sequestration
		Wolf Creek Increased Capacity Rating	U.S.	Electric Power G & T
		Wolf Creek Turbine Modifications	U.S.	Electric Power G & T
Whatcom Land Trust	EIA-1605	Canyon Lake Creek Community Forest	U.S.	Carbon Sequestration
Wisconsin Electric Power Co.	EIA-1605	CFC-12 Recovery from Appliance Turn-In Program	U.S.	Halogenates
		Beneficial use of landfill methane	U.S.	Waste Methane
		Demand-side management energy efficiency programs	U.S.	Energy End Use
		Energy for Tomorrow(TM) Renewable Energy Program	U.S.	Electric Power G & T
		Fly ash substitution program	U.S.	Other
		Fossil plant heat rate improvements	U.S.	Electric Power G & T
		Fuel switching at Bynov Plant in Decin, Czech Republic	Foreign	Cogeneration
		Hydro plant improvements and additions	U.S.	Electric Power G & T
		Mississippi River Valley Bottomland Hardwood Restoration	U.S.	Carbon Sequestration
		Reduced Impact Logging of Natural Forest in Malaysia	Foreign	Carbon Sequestration
		Rio Bravo Carbon Sequestration Pilot Project	Foreign	Carbon Sequestration
		Transmission & distribution system loss reductions	U.S.	Electric Power G & T
		Vehicle conversion to dual fuel capability	U.S.	Transportation
		Western Oregon Carbon Sequestration Project	U.S.	Carbon Sequestration
Wisconsin Public Power Inc.	EIA-1605EZ	Boswell Heat Rate Reduction	U.S.	Electric Power G & T
		Commercial Industrial Farm Program	U.S.	Other
		Dispatch Change - Menasha	U.S.	Electric Power G & T
		Energy Education	U.S.	Other
		Kaukauna CT I&C Upgrade	U.S.	Electric Power G & T
		Residential Appliances	U.S.	Energy End Use
		Street Lighting	U.S.	Energy End Use
		Tree Power 1991 Plantings (8 Year Olds)	U.S.	Carbon Sequestration
		Tree Power 1992 Plantings (7 year olds)	U.S.	Carbon Sequestration
		Tree Power 1993 Planting (6Year olds)	U.S.	Carbon Sequestration
		Tree Power 1994 Planting (5 Year olds)	U.S.	Carbon Sequestration
		Tree Power 1995 Planting (4 Year Olds)	U.S.	Carbon Sequestration
		Tree Power 1996 Planting (3 Year Olds0	U.S.	Carbon Sequestration
		Tree Power 1997 Planting (2 year olds)	U.S.	Carbon Sequestration

Table A5. Emission Reduction Projects Reported, Data Year 1998

Reporter	Form Type	Project	Location	Project Type
Wisconsin Public Service Corporation	EIA-1605	Afforestation and Reforestation Efforts	U.S.	Carbon Sequestration
		Demand Side Management Programs	U.S.	Energy End Use
		Transmission Line Construction	U.S.	Electric Power G & T
World Parks Endowment	EIA-1605	Bilsa Biological Reserve	Foreign	Carbon Sequestration
		Bladen Sanctuary	Foreign	Carbon Sequestration
		Sierra de las Minas Reserve	Foreign	Carbon Sequestration
Zahren Alternative Power Corporation	EIA-1605EZ	Landfill Gas Recovery for Energy - Smithtown	U.S.	Waste Methane
		Landfill Recovery for Energy- Flaring, Smithtown Cell 6, NY	U.S.	Waste Methane
		Landfill Gas Recovery for Energy- Dolton, IL	U.S.	Waste Methane
		Landfill Gas Recovery for Energy - Burlington	U.S.	Waste Methane
		Landfill Gas Recovery for Energy - Garland	U.S.	Waste Methane
		Landfill Gas Recovery for Energy - Oceanside	U.S.	Waste Methane
		Landfill Gas Recovery for Energy - Roxanna	U.S.	Waste Methane
		Landfill Gas Recovery for Energy - Tucson	U.S.	Waste Methane
		Landfill Gas Recovery for Energy Oyster Bay	U.S.	Waste Methane
		Landfill Gas Recovery for Energy- 122nd St., Chicago, IL	U.S.	Waste Methane
		Landfill Gas Recovery for Energy- 122nd St., Chicago, IL	U.S.	Waste Methane
		Landfill Gas Recovery for Energy- Amity	U.S.	Waste Methane
		Landfill Gas Recovery for Energy- Barre, MA	U.S.	Waste Methane
		Landfill Gas Recovery for Energy- Burlington	U.S.	Waste Methane
		Landfill Gas Recovery for Energy- Cape May	U.S.	Waste Methane
		Landfill Gas Recovery for Energy- Dunbarton - Manchester	U.S.	Waste Methane
		Landfill Gas Recovery for Energy- Flaring, Romeoville, IL	U.S.	Waste Methane
		Landfill Gas Recovery for Energy- Flaring, Springfield, MA	U.S.	Waste Methane
		Landfill Gas Recovery for Energy- Flaring, SPSA, VA	U.S.	Waste Methane
		Landfill Gas Recovery for Energy- Flaring, Streator, IL	U.S.	Waste Methane
		Landfill Gas Recovery for Energy- Flaring, Upper Rock, IL	U.S.	Waste Methane
		Landfill Gas Recovery for Energy- Hamm's	U.S.	Waste Methane
		Landfill Gas Recovery for Energy- Onondaga	U.S.	Waste Methane
		Landfill Gas Recovery for Energy- Romeoville, IL	U.S.	Waste Methane
		Landfill Gas Recovery for Energy- SPSA, VA	U.S.	Waste Methane
		Landfill Gas Recovery for Energy-Flaring, Barre, MA	U.S.	Waste Methane
		Landfill Gas Recovery for Energy-Flaring, Brickyard, IL	U.S.	Waste Methane
		Landfill Gas Recovery for Energy-Flaring, Dixon/Lee, IL	U.S.	Waste Methane
		Landfill Gas Recovery for Energy-Flaring, Dolton, IL	U.S.	Waste Methane
Zeeland Board of Public Works	EIA-1605EZ	General Tranmission & Distribution	U.S.	Electric Power G & T
		Other Transmission and Distribution Improvements	U.S.	Electric Power G & T
		Urban Forestry	U.S.	Carbon Sequestration

Source, Energy Information Administration, Forms EIA-1605 and EIA-1605EZ.

Table A6. Reporting Entities by Type of Form and Organization, Data Years 1994-1998

(Number of Forms Received)

Reporting Entity	Reports Received					Percent of Total				
	1994	1995	1996(R)	1997(R)	1998	1994	1995	1996(R)	1997(R)	1998
Form EIA-1605										
Individual or Family	1	1	1	1	1	1.4	1.0	0.9	0.9	0.7
Partnership	0	1	1	2	3	0.0	1.0	0.9	1.1	2.1
Corporation	56	67	74	83	106	76.7	66.3	67.9	66.7	73.6
Publically Traded	*41*	*48*	*44*	*49*	*56*	*56.2*	*47.5*	*40.4*	*40.2*	*38.9*
Privately Held	*4*	*9*	*11*	*14*	*28*	*5.5*	*8.9*	*10.1*	*9.4*	*19.4*
Nonprofit	*5*	*4*	*5*	*6*	*4*	*6.8*	*4.0*	*4.6*	*5.1*	*2.8*
Subsidiary	*6*	*6*	*14*	*14*	*14*	*8.2*	*5.9*	*12.8*	*12.0*	*9.7*
Limited Liability Company	*0*	*0*	*0*	*0*	*5*					*3.5*
Government	12	13	11	12	10	16.4	12.9	10.1	10.3	6.9
Federal	*1*	*1*	*1*	*1*	*2*	*1.4*	*1.0*	*0.9*	*0.9*	*1.4*
State	*3*	*3*	*2*	*3*	*1*	*4.1*	*3.0*	*1.8*	*2.6*	*0.7*
Regional	*1*	*1*	*0*	*1*	*1*	*1.4*	*1.0*	*0.0*	*0.9*	*0.7*
Local	*7*	*8*	*8*	*7*	*6*	*9.6*	*7.9*	*7.3*	*6.0*	*4.2*
Joint Venture	—	—	—	1	1	—	—	—	0.9	0.7
Trade Association	0	1	1	1	1	0.0	1.0	0.9	0.9	0.7
Other	4	18	21	22	22	5.5	17.8	19.3	18.8	15.3
Total	**73**	**101**	**109**	**117**	**144**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**
Form EIA-1605EZ										
Individual or Family	1	0	0	0	0	2.9	0.0	0.0	0.0	0.0
Company	7	14	17	14	21	20.0	34.1	42.5	35.9	48.8
Government	20	18	17	19	16	57.1	43.9	40.0	48.7	37.2
Nonprofit Organization	4	6	5	4	4	11.4	14.6	12.5	10.3	9.3
Other	3	3	2	2	2	8.6	7.3	5.0	5.1	4.7
Total	**35**	**41**	**41**	**39**	**43**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**

Note: The total number of corporations for 1998 is less than the sum of the corporation subtypes, because one entity is listed both as publicly traded and as a subsidiary.

Source: Energy Information Administration, Forms EIA-1605 and EIA-1605EZ.

Table A7. Summary of Reports Received by Schedule, Data Years 1994-1998

Type of Information	Form EIA-1605					Form EIA-1605EZ					Total				
	1994(R)	1995(R)	1996(R)	1997(R)	1998	1994	1995	1996(R)	1997(R)	1998	1994	1995	1996(R)	1997(R)	1998
Emission Reduction Projects (Schedule II)	64	88	99	110	133	35	41	41	40	43	99	129	140	150	176
Entity-Wide Emissions or Reductions (Schedule III)	40	51	56	60	65	—	—	—	—	—	40	51	56	60	65
Commitments to Reduce Future Emissions (Schedule IV)	45	62	64	72	67	—	—	—	—	—	45	62	64	72	67
Total Reports Received	**73**	**101**	**109**	**122**	**144**	**35**	**41**	**41**	**40**	**43**	**108**	**142**	**150**	**162**	**187**

Source: Energy Information Administration, Forms EIA-1605 and EIA-1605EZ.

Table A8. Distribution of Projects Reported by Project Type Category, Data Years 1994-1998

Project Type	Number of Reporters					Number of Projects				
	1994	1995	1996(R)	1997(R)	1998	1994	1995	1996(R)	1997(R)	1998
Electricity Generation, Transmission, and Distribution	71	86	88	92	94	223	292	325	369	424
Cogeneration	5	8	10	14	14	7	11	13	20	20
Energy End Use	77	91	85	92	97	208	276	267	309	354
Transportation	26	34	37	39	43	33	50	58	64	70
Waste Treatment and Disposal (Methane)	12	20	29	31	44	27	39	65	81	128
Agriculture (Methane and Nitrous Oxide)	2	2	2	2	3	3	3	3	3	4
Oil and Natural Gas Systems and Coal Mining (Methane)	8	10	14	15	21	13	16	22	19	29
Carbon Sequestration	40	62	67	75	72	78	199	198	309	350
Halogenated Substances	13	18	18	21	21	15	22	23	30	30
Other Emissions Reductions	33	45	47	54	57	38	59	66	84	98
All Categories	99	129	140	150	176	645	967	1,040	1,288	1,507
Did Not Report Projects	9	13	10	12	11	—	—	—	—	—
Total, All Reporters	**108**	**142**	**150**	**162**	**187**	**645**	**967**	**1,040**	**1,288**	**1,507**

Note: The total numbers of reporters are smaller than the sums of the numbers of reporters for each project type, because most reporters provided information on more than one project.

Source: Energy Information Administration, Forms EIA-1605 and EIA-1605EZ.

Table A9. Distribution of Projects Reported by Project Type Category and Reporting Form, Data Year 1998

Project Type	Form EIA-1605		Form EIA-1605EZ		Total	
	Number of Reporters	Number of Projects	Number of Reporters	Number of Projects	Number of Reporters	Number of Projects
Electricity Generation, Transmission, and Distribution	67	366	27	58	94	424
Cogeneration	11	17	3	3	14	20
Energy End Use	72	288	25	66	97	354
Transportation	37	56	6	14	43	70
Waste Treatment and Disposal (Methane)	35	88	9	40	44	128
Agriculture (Methane and Nitrous Oxide)	3	4	0	0	3	4
Oil and Natural Gas Systems and Coal Mining (Methane)	20	28	1	1	21	29
Carbon Sequestration	55	315	17	35	72	350
Halogenated Substances	21	30	0	0	21	30
Other Emissions Reductions	42	64	15	34	57	98
Total (All Project Types)	**133**	**1,256**	**43**	**251**	**176**	**1,507**

Note: The total numbers of reporters is smaller than the sums of the numbers of reporters for each project type, because most reporters provided information on more than one project.

Source: Energy Information Administration, Forms EIA-1605 and EIA-1605EZ.

Table A10. Affiliation of Reported Reduction and Carbon Sequestration Projects with Voluntary Programs by Project Type Category, Data Year 1998

Voluntary Program	Number of Reporters	Project Type					Total Number of Projects
		Electricity	End Use	Carbon Sequestration	Methane	Halogens and Other Project Types	
Climate Challenge	95	359	257	216	35	85	**952**
Climate Wise Recognition	20	3	79	1	0	11	**94**
Coalbed Methane Outreach	7	—	—	—	9	—	**9**
Energy Star Building	3	—	12	—	—	—	**12**
Energy Star Computers	1	—	1	—	—	—	**1**
Energy Star Transformers	7	7	—	—	—	—	**7**
Green Lights	19	—	24	—	—	—	**24**
Landfill Methane Outreach	22	5	—	—	89	—	**94**
Motor Challenge	3	—	6	—	1	—	**7**
Natural Gas STAR	4	—	—	—	5	—	**5**
Other Programs or Not Applicable	12	7	5	1	1	5	**19**
United States Initiative on Joint Implementation	28	3	—	331	—	—	**34**
Voluntary Aluminum Industrial Partnership	2	—	—	—	—	2	**2**
Waste Wi$e	2	—	—	—	—	2	**2**

Source: Energy Information Administration, Forms EIA-1605 and EIA-1605EZ.

Glossary

Afforestation: Planting of new forests on lands that have not been recently forested.

Anaerobic lagoon: A liquid-based manure management system, characterized by waste residing in water to a depth of at least 6 feet for a period ranging between 30 and 200 days.

Associated gas: Natural gas found mixed with crude oil in underground reservoirs, released as a byproduct of oil production.

Baseline period: The years 1987 through 1990 for which entity-level emissions may be reported.

Biofuels: Organic materials, such as wood, waste, and alcohol, burned to produce energy.

Biogas: A mixture of carbon dioxide and methane produced through bacterial action.

Biomass: Materials that are biological in origin, including organic material (both living and dead) from above and below ground, e.g., trees, crops, grasses, tree litter, roots, and animals and animal waste.

British thermal unit (Btu): A common unit used in measuring energy, equal to the amount of heat needed to raise the temperature of 1 pound of water by 1ºF.

Carbon sink: A reservoir that absorbs or takes up released carbon. Vegetation and soils are common carbon sinks.

Chlorofluorocarbons (CFCs): A family of inert, nontoxic, and easily liquefied chemicals used in refrigeration, air conditioning, packaging, and insulation, or as solvents or aerosol propellants. Because they are nonreactive, they drift into the upper atmosphere, where they are disassociated by solar radiation and where their components destroy ozone.

Cogeneration: The sequential use of energy to generate electricity and another form of useful thermal energy, such as heat or steam.

Commercial scale: Application of a demonstrated technology at a cost-effective scale.

Commitment: An expressed intention to undertake an action or actions that will reduce greenhouse gas emissions, increase carbon sequestration, or achieve a stated emissions goal.

Conversion factor: A unique value used to convert one unit (e.g., acres) to another appropriate unit (e.g., hectares).

Deforestation: The removal of forest stands.

Emission coefficient/factor: A unique value for scaling emissions to activity data in terms of a standard rate of emissions per unit of activity (e.g., pounds of carbon dioxide emissions per unit of fossil fuel consumed).

Emissions: Anthropogenic (human-caused) releases of greenhouse gases to the atmosphere (e.g., the release of carbon dioxide during fuel combustion).

Emissions, direct: Emissions from sources owned (wholly or in part) or leased by an entity.

Emissions, fugitive: Emissions that are released inadvertently or accidentally from a controlled or closed system, such as natural gas pipelines.

Emissions, indirect: Emissions from sources not owned or leased by an entity that occur, wholly or in part, as a result of its activities.

Emission reduction: A decrease in annual greenhouse gas emissions.

Energy conservation: Activities that reduce end-use demand for energy by reducing the service demanded.

Entity: For the purposes of the Voluntary Reporting Program, an individual or organization that is a legal U.S. person (e.g., a U.S. citizen, resident alien, company, organization, or group incorporated under or recognized by U.S. law; or a Federal, State, or local government agency).

Entity boundary: Conceptually, a line drawn to encompass the emissions sources and sinks to be evaluated in an entity-level report. An entity boundary should include all the emissions sources and sinks owned (wholly or in part) or leased by the entity and, to the extent possible, other emissions sources and sinks affected by the entity's activities.

Entity-level reporting: The reporting of greenhouse gas emissions, emission reductions, and carbon sequestration for an entire entity.

Estimation method: The techniques, including key assumptions and data sources, used by the reporter to derive the reported emissions, emission reductions, or sequestration.

Foreign activities: All actions outside the United States, its territories, and trusts.

Fossil fuel: A hydrocarbon fuel, such as petroleum, derived from living matter of a previous geologic time.

Fuel cycle: The entire set of sequential processes or stages involved in the use of fuel, including extraction, transformation, transportation, and combustion. Emissions generally occur at each stage of the fuel cycle.

Fuel switching: The substitution of one type of fuel for another. The fuel substitution may be either temporary (as in the case of a power plant that temporarily switches from coal to natural gas) or permanent (as in the case of a fleet operator who replaces gasoline-powered automobiles with electric cars).

Fugitive emissions: See Emissions, fugitive.

Global warming potential (GWP): A term that describes the concept of determining the impacts of various gases on global warming compared to that of carbon dioxide. For example, methane has a GWP 21 times that of the equivalent amount of carbon dioxide over a 100-year period.

Gob: A zone of rubble created when the roof of a coal mine collapses behind the mining operations.

Greenhouse effect: A term used to describe the roles of water vapor, carbon dioxide, and other trace gases in keeping the Earth's surface warmer than it would otherwise be. These radiatively active gases are relatively transparent to incoming shortwave radiation but are relatively opaque to outgoing long-wave radiation. The latter radiation, which would otherwise escape to space, is trapped by the gases within the lower levels of the atmosphere. The subsequent reradiation of some of the energy back to the Earth maintains surface temperatures higher than they would be if the gases were absent. There is concern that increasing concentrations of greenhouse gases, including carbon dioxide, methane, and certain man-made gases, may enhance the greenhouse effect and cause global climate change.

Greenhouse gases: Those gases, such as water vapor, carbon dioxide, tropospheric ozone, nitrous oxide, and methane, that are transparent to solar radiation but opaque to long-wave radiation, thus preventing long-wave radiation energy from leaving the atmosphere. The greenhouse gases covered by the Voluntary Reporting Program are (1) carbon dioxide (CO_2), (2) methane (CH_4), (3) nitrous oxide (N_2O), and (4) halogenated substances. Increasing levels of greenhouse gases in the atmosphere may contribute to an increase in average global temperatures, resulting in adverse climate changes.

Halogenated substance: A volatile compound containing halogens, such as chlorine, fluorine, or bromine.

Horizon year: The year in which a commitment to reduce greenhouse gas emissions or increase sequestration (reported on Schedule IV) is expected to be met.

Intergovernmental Panel on Climate Change (IPCC): A panel established jointly in 1988 by the World Meteorological Organization and the United Nations Environment Program to assess scientific information related to climate change and to formulate realistic response strategies.

Life cycle: The progression of a product through its service life. For most products, emissions and energy-consuming characteristics will be altered as they age.

Longwall mining: A technique of underground mining in which a cutting machine is pulled back and forth along a panel of coal 300 to 1,000 feet wide and as much as 2 miles long. As the panel is cut, the broken coal is removed by a conveyor, and movable roof supports advance, allowing the roof in mined-out areas to collapse.

Manure management: The method used to dispose of the solid waste produced by livestock and poultry.

Municipal solid waste: Residential solid waste and some nonhazardous commercial, institutional, and industrial wastes.

Ozone: A molecule made up of three atoms of oxygen. In the stratosphere, ozone occurs naturally and provides a protective layer shielding the Earth from harmful ultraviolet radiation. In the troposphere, it is a chemical oxidant and major component of photochemical smog.

Photosynthesis: The manufacture of carbohydrates by plants from carbon dioxide and water in the presence of chlorophyll, with sunlight as the energy source. In this process, carbon is sequestered and oxygen is released.

Pilot project: A small-scale trial designed to test or demonstrate the efficiency or efficacy of a project.

Project: An action undertaken to reduce greenhouse gas emissions or sequester carbon.

Project boundary: Conceptually, a line drawn to encompass the emissions sources and sinks affected by a project. A project boundary should include all the significant and quantifiable effects of the project.

Project ID code: A unique code assigned by the Energy Information Administration to a reported project for tracking purposes.

Project-level reporting: Reporting on emission reductions or carbon sequestration achieved as a result of a specific action or group of actions.

Reconductoring: Replacement of existing conductors with large-diameter conductors to reduce line losses. Conductors (including feeders and transmission lines) are a major source of transmission and distribution system losses. In general, the smaller the diameter of the conductor, the greater its resistance to the flow of electric current, and the greater the consequent line losses.

Reference case: The emissions level to which current actual emissions levels are compared when emission reductions are calculated.

Reference case, basic: A reference case using actual historical emissions or sequestration values.

Reference case, modified: A reference case using projected emissions or sequestration values, representing the emissions level that would have occurred in the absence of reduction or sequestration efforts.

Reforestation: Replanting of forests on lands that have recently been harvested.

Reporter: An entity (see definition above) completing either Form EIA-1605 or Form EIA-1605EZ and submitting it to the Energy Information Administration.

Room and pillar mining: The most common method of underground coal mining, in which the mine roof is supported by coal pillars left at regular intervals.

Sequestered carbon: Carbon that is removed from the atmosphere and retained in a carbon sink (such as a growing tree) or in soil.

Sequestration: The fixation of atmospheric carbon dioxide in a carbon sink through biological or physical processes, such as photosynthesis.

Sink: See carbon sink.

Third-party reporter: An authorized party that submits a report on behalf of two or more entities which have engaged in emissions-reducing or sequestration-increasing activities. Possible third-party reporters include trade associations reporting on behalf of members that have undertaken reduction projects.

Vhar metering: Phase shifters on watthour meters that measure reactive volt ampere hours or varhours.

Watt (W): A common metric unit used in measuring power (the rate at which work is done), defined as 1 Joule per second and equivalent to 3.412 Btu per hour.