

Voluntary Reporting of Greenhouse Gases 2004 Summary

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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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For reporting purposes, 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/Forms.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/databases.html.

Preface

Voluntary Reporting of Greenhouse Gases 2004 was prepared under the general direction of John Conti, Director, Office of Integrated Analysis and Forecasting, Energy Information Administration (202/586-2222; e-mail, john.conti@eia.doe.gov). General questions concerning the content of this report may be directed to the National Energy Information Center at 202/586-8800.

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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, chloro-fluorocarbon 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 2004, the eleventh 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 Use Database, available on CD-ROM or by download from the Internet. 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. The user can also connect to and query the database with Microsoft Access 97 (or later versions) or other software that supports 32-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 Internet at <http://www.eia.doe.gov/oiaf/1605/databases.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 infohgh@eia.doe.gov, toll-free at 1-800-803-5182, or locally at 202-586-0688.

Significant contributions to the Program, the current software, and the preparation of this report have been made by Matthew Aberant, Keith Forbes, Laura Gehlin, Sarah Goldstein, Michael Mondshine, Dick Richards, Rossen Roev, Charles L. Smith, and Peggy Wells.

EIA would like to express special thanks to the voluntary reporters, without whom this program would not be possible.

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Summary

Introduction

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 to reduce, avoid, or sequester greenhouse gas emissions. For the 2004 reporting year, 226 U.S. companies and other organizations reported to the Energy Information Administration (EIA) that they had undertaken 2,154 projects to reduce or sequester greenhouse gases in 2004. The reported greenhouse gas emission reductions for the projects reported included 277 million metric tons carbon dioxide equivalent (million MTCO₂e) of direct reductions, 92 million MTCO₂e of indirect reductions, 7 million MTCO₂e of reductions from carbon sequestration, and 14 million MTCO₂e of unspecified reductions (Table S1). Total U.S. greenhouse gas emissions in 2004 are estimated at 7,122 million MTCO₂e.¹

The number of entities (226) reporting to the Voluntary Reporting Program for 2004 is slightly lower than the number that reported for 2003; however, the number of reporters for 2003 has been revised upward to include seven additional entities that filed late reports after the closing of the 2003 database. EIA also expects a similar upward revision in the number of 2004 reporters in next year's report, to reflect late reporters for the 2004 reporting cycle. As of February 2006, EIA had received five additional 2004 reports and one additional 2003 report since the closing of the 2004 database in preparation for this annual report.² In addition, Tucson Electric Company submitted a 2004 report by the deadline, which EIA inadvertently failed to process in time for inclusion in this report's database.

Since the inception of the program in 1994, the number of entities reporting to the program has grown by 109 percent, when 108 entities reported. The number of reported projects has grown at a more rapid rate than the number of reporters, because the number of projects reported by repeat reporters has increased. The 2,154 projects reported for 2004 represent an increase of 234 percent over the 645 projects reported in 1994 but a 3-percent decline from the final total of 2,224 projects reported for 2003.

Of the 226 organizations reporting for 2004, 122 provided entity-level reports, including estimates of emissions and/or emission reductions for their entire organizations. In addition, 86 of the reporters for 2004 recorded commitments to take action to reduce emissions in the future.

Of the 122 organizations reporting at the entity level, 116 estimated their 2004 entity-level greenhouse gas emissions. These entities reported direct greenhouse gas emissions of 934 million MTCO₂e, equal to about 13 percent of total U.S. greenhouse gas emissions in 2004.³ They also reported 75 million MTCO₂e of indirect emissions, equal to about 1 percent of total U.S. greenhouse gas emissions in 2004. Of the 122 entity-level reporters, 115 also reported emission reductions, including 208 million MTCO₂e of direct emission reductions, 48 million MTCO₂e of indirect emission reductions, and 7 million MTCO₂e of emission reductions resulting from carbon sequestration projects.

¹Energy Information Administration, *Emissions of Greenhouse Gases in the United States 2004*, DOE/EIA-0573(2004) (Washington, DC, December 2005), web site www.eia.doe.gov/oiaf/1605/ggrpt.

²The deadline for submitting reports to EIA for inclusion in each annual edition of the Public Use Database is June 1. EIA typically grants reporters extensions to the deadline, usually until early July, before closing the database to new reports to allow analysis of the information for the annual report. EIA includes reports received after the database has been closed in the next annual edition of the Public Use Database and revises the data for that reporting year in the corresponding annual report, to reflect the addition of late reports.

³Based on total emissions from Energy Information Administration, *Emissions of Greenhouse Gases in the United States 2004*, DOE/EIA-0573(2004) (Washington, DC, December 2005), web site www.eia.doe.gov/oiaf/1605/ggrpt.

Who Reported?

Reports for the 2004 data year were submitted by 226 participants in 24 different industries or services (defined by the two-digit Standard Industrial Classification code), a decrease from the 28 different industries represented among 2003 reporters. In comparison, 108 participants in 9 different industries or services submitted reports for the 1994 data year, the first year of the program (Table S2).

In the early years of the program, reporting was dominated by the electric power sector. In the first reporting

year (data year 1994), the 95 submissions from electric power producers represented 88 percent of the 108 reports received (Figure S1). Since then, the program has seen an influx of new participants from outside the electric power sector, representing a diverse set of industries. In addition, several mergers and acquisitions involving reporters to the program have reduced the number of reports received from electricity producers. As a result, only 42 percent of the organizations reporting to the program for data year 2004 were from the electric power sector.

Although the number of reporters from other individual industries remained relatively small, in many cases, key

Table S1. Reporting Indicators for the Voluntary Reporting of Greenhouse Gases Program, Data Years 1994-2004

Indicator	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003 ^(R)	2004
Number of Entities Reporting	108	142	150	162	207	207	236	232	234	234	226
Number of Projects Reported	634	960	1,040	1,288	1,549	1,722	2,089	1,897	2,055	2,222	2,154
Number of Entity-Level Reports Received . .	40	51	56	60	76	83	108	114	119	130	122
Project-Level Reductions Reported (Million Metric Tons Carbon Dioxide Equivalent)											
Direct ^a	63	88	90	95	148	155	211	247	265	270	277
Modified Reference Case ^b	59	76	75	88	127	126	176	209	257	262	277
Basic Reference Case ^c	4	13	15	7	21	29	35	38	8	7	*
Indirect ^d	5	52	53	38	43	57	62	72	80	81	92
Modified Reference Case ^b	5	52	51	36	38	51	57	61	78	75	85
Basic Reference Case ^c	0	1	3	2	5	6	5	11	2	6	6
Sequestration ^e	1	1	9	10	12	10	9	8	7	8	7
Unspecified ^f	4	6	6	9	19	13	12	15	17	16	14

^a"Direct" emission reductions are reductions in releases of greenhouse gases "on site." For the purpose of completing Form EIA-1605, "on site" is defined as any source owned (wholly or in part) or leased by the reporting entity.

^bIn a "modified reference case," actual emissions (or sequestration) are compared to an estimate of what emissions (or sequestration) would have been in the absence of the project.

^cIn a "basic reference case," actual emissions (or sequestration) are compared with an estimate of historical emissions (or sequestration) in a particular base year or an average of up to 4 years.

^d"Indirect" emission reductions are reductions in emissions from sources not owned or leased by the reporting entity but that occur, wholly or in part, as a result of the entity's activities (for example, an automobile manufacturer's investment in increased automotive fuel economy can result in decreased emissions from vehicles owned by individuals or managed fleets).

^e"Sequestration" is the fixation of atmospheric carbon dioxide in a carbon sink through biological or physical processes, such as photosynthesis.

^f"Unspecified" emission reductions represent quantities reported on the short form (Form EIA-1605EZ) for which the reporting entity did not specify whether the emission reduction or carbon sequestration was direct or indirect.

*Less than 0.5 million MTCO₂e. (R) = revised.

Notes: 2003 data have been revised to include reports that were submitted after the filing deadline. It is expected that the 2004 data will also be revised upward in next year's report with the inclusion of late 2004 reports. Totals for direct and indirect reductions may not equal sum of components due to independent rounding.

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

Table S2. Forms Filed by Standard Industrial Classification, Data Years 1994-2004 (Number of Reports)

SIC Code	Description	Data Year										
		1994	1995	1996	1997	1998	1999	2000	2001	2002	2003 ^(R)	2004
01	Agricultural Production: Crops	—	—	—	—	1	—	—	1	—	—	—
08	Forestry	1	2	1	1	3	3	1	—	1	2	3
12	Coal Mining	1	2	2	1	4	4	4	6	7	4	4
13	Oil and Gas Extraction	—	—	—	—	—	1	1	1	2	2	1
14	Nonmetallic Minerals, Except Fuels	—	—	—	—	1	1	—	—	—	—	—
20	Food and Kindred Products	—	—	—	—	1	2	6	4	4	4	2
22	Textile Mill Products	—	—	—	—	—	1	5	11	12	14	14
23	Apparel and Other Textile Products	—	—	—	—	—	—	1	1	2	2	2
24	Lumber and Wood Products	—	—	—	—	—	—	1	1	—	1	—
25	Furniture and Fixtures	—	—	—	—	—	—	1	1	1	—	—
26	Paper and Allied Products	—	—	—	—	—	1	1	—	—	—	—
27	Printing and Publishing	—	1	—	1	—	1	1	—	—	—	—
28	Chemical and Allied Products	1	3	2	3	8	5	11	9	11	11	12
29	Petroleum Refining and Other Related Industries	—	—	2	3	8	8	7	6	6	5	5
30	Rubber and Miscellaneous Plastic Products	—	—	—	—	—	—	2	2	2	2	2
32	Stone, Clay, Glass, and Concrete Products	—	—	2	4	12	13	7	5	5	5	5
33	Primary Metals Industries	2	2	4	4	5	5	5	11	11	13	13
34	Fabricated Metal Products, Except Machinery and Transportation Equipment	—	2	1	1	4	2	2	1	1	1	1
35	Industrial and Commercial Equipment and Components	—	—	—	—	—	—	1	1	1	2	2
36	Electronic and Other Electrical Equipment	1	1	2	4	4	4	9	9	8	6	5
37	Transportation Equipment	1	1	1	2	3	5	6	7	9	10	10
38	Instruments and Related Products	—	—	—	—	2	2	1	1	1	1	1
39	Miscellaneous Manufacturing Industries	—	1	1	—	2	2	1	1	1	1	—
40	Railroad Transportation	—	—	—	—	—	—	—	—	—	1	1
48	Communications	—	—	—	—	—	1	—	—	1	1	1
49	Electric, Gas, and Sanitary Services	98	123	125	129	138	135	151	145	138	145	136
57	Furniture and Home Furnishings Stores	—	—	—	—	2	1	1	—	1	1	1
63	Insurance Carriers	—	—	—	—	—	—	—	—	—	1	1
65	Real Estate	—	1	1	1	1	1	1	1	1	—	—
67	Holding and Other Investment Offices	—	—	1	1	1	1	1	1	2	2	1
72	Personal Services	—	—	—	—	—	—	1	1	1	1	1
80	Health Services	—	—	—	—	1	—	—	—	—	—	—
82	Educational Services	1	2	2	2	—	2	—	—	—	—	—
86	Membership Organizations	—	—	—	1	1	1	1	—	1	—	—
87	Engineering and Management Services	—	—	2	2	2	1	—	1	—	—	—
88	Private Households	2	1	1	1	1	1	1	1	1	1	2
89	Services Not Elsewhere Classified	—	—	—	1	1	3	2	1	1	1	—
91	Executive, Legislative, and General	—	—	—	—	1	2	2	2	1	1	—
97	National Security and International Affairs	—	—	—	—	—	—	1	—	—	—	—
99	Nonclassifiable Establishments	—	—	—	—	—	—	—	—	1	—	—
Total Number of Reporters		108	142	150	162	207	207	236	232	234	241^a	226
Number of 2-Digit SIC Codes Represented		9	13	16	18	24	27	31	27	29	28^a	24

^aIncludes 7 late reports for the 2003 data year. The 2004 total will also be revised upward in next year's report with the inclusion of additional 2004 reports. As of February 17, 2006, EIA had received 5 late reports for 2004. In addition, Tucson Electric Company submitted a 2004 report by the deadline, which EIA inadvertently failed to process in time for inclusion in this report's database.

(R) = Revised.

Note: The Voluntary Reporting of Greenhouse Gases database was designed in 1994-1995, when the Standard Industrial Classification (SIC) system was still in use. For the 2006 data year reporting cycle (to be conducted in calendar year 2007), EIA plans to modify the database to use the North American Industry Classification System (NAICS), which was introduced in 1997 by the United States, Canada, and Mexico to provide comparability in statistics about business activity across North America.

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

companies in those other industries submitted reports, including: General Motors, Ford Motor Company, DaimlerChrysler Corporation, Nissan North America, Inc., and Toyota Motor North America, Inc., in the automotive products industry; Noranda and an operating division of Alcan in the metals industry; BP America, Sunoco, Inc., and ChevronTexaco Corporation in the petroleum industry; Johnson & Johnson and The Dow Chemical Company in the chemicals industry; Rolls Royce in the aerospace industry; Bristol-Myers Squibb Company and Pfizer Pharmaceuticals, LLC, in the pharmaceuticals industry; and Advanced Micro Devices, Inc., and IBM in the electronic equipment industry. A complete listing of all 2004 reporters is provided in Table S3.

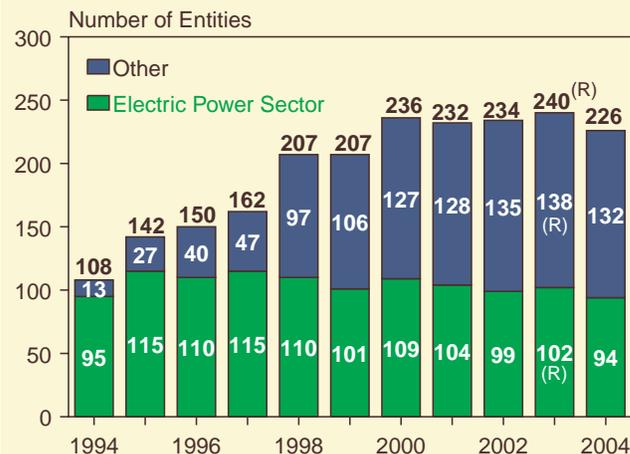
What Was Reported?

The Voluntary Reporting Program permits three distinct types of reporting:

- Project-level reporting, defined as the reporting of the emission reductions or carbon sequestration achieved as a result of a specific action or group of actions
- Entity-level reporting, defined as the reporting of emissions, emission reductions, and carbon sequestration for an entire organization, usually defined as a corporation
- Commitment reporting, defined as the reporting of pledges to take action to reduce emissions in the future.

Of the 226 reports received for 2004, 195 (86 percent) were submitted on Form EIA-1605 (the long form) (Figure S2). The long form allows reporters to create an in-depth, multi-year, public record of emission reduction efforts for an entire organization and/or at the project level, including information on activities conducted outside the United States and commitments to reduce future greenhouse gas emissions. The remaining reports were submitted on Form EIA-1605EZ (the short form), which allows reporters to provide only brief summaries of greenhouse gas projects for the current reporting year and does not allow the reporting of activities outside the United States or of future emission reduction commitments. The proportion of reporters using the short

Figure S1. Electric Power Sector and Other Entities Submitting Reports to the Voluntary Reporting of Greenhouse Gases Program, Data Years 1994-2004



(R) = revised.

Notes: Electric power sector includes electric utilities and independent power producers. 2003 data year includes 7 late reports that were not included in the totals presented in last year's annual report and database.

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

form has declined from 32 percent in the first year of the program (1994 data year) to 14 percent in the 2004 data reporting cycle. EIA believes that reporters are choosing the long form in order to document their emission reductions more thoroughly. Also, for the same reason, several voluntary programs (such as the Landfill Methane Outreach Program) encourage participants to use the long form.

For the 2004 reporting year, 176 program participants (78 percent of the total) reported project-level reductions, 122 reported entity-level emissions and/or reductions, 72 reported at both the entity and project levels, 104 submitted only project-level reports, and 50 reported only entity-level information. In addition, 86 reporters provided information on their commitments to reduce emissions or to increase sequestration in the future, including one program participant reporting only commitments without reporting on past activities.

Many reporters indicated that their projects were affiliated with one or more government-sponsored voluntary programs. Among the projects reported, the following programs were cited: EPA's Landfill Methane Outreach Program (349 projects); various DOE/EPA ENERGY STAR programs, including ENERGY STAR Buildings, ENERGY STAR Computers, and ENERGY STAR Transformers (113 projects); U.S. Initiative on Joint Implementation (34 projects); EPA's Natural Gas STAR Program (24 projects), EPA's Sulfur Hexafluoride Emissions Reduction Partnership (13 projects); EPA's WasteWise (9 projects); DOE's Compressed Air Challenge (8 projects); and EPA's Coalbed Methane Outreach Program (5 projects). Other voluntary programs cited by the reporters included EPA's Voluntary Aluminum Industrial Partnership and DOE's Motor Challenge and Rebuild America. Not all participants in the various voluntary programs provided information to the Voluntary Reporting Program.

Sources of greenhouse gas emissions and emission reductions reported to the Voluntary Reporting Program are characterized as direct, indirect, sequestered, or unspecified. The unspecified category includes all reductions and sequestration reported on the short form, because the short form does not allow a reporting entity to specify whether an emission reduction is direct or indirect. Because of concern about possible double counting of emissions and reductions, particularly between direct and indirect emissions, EIA does not aggregate reported emissions or emission reductions across these four categories.

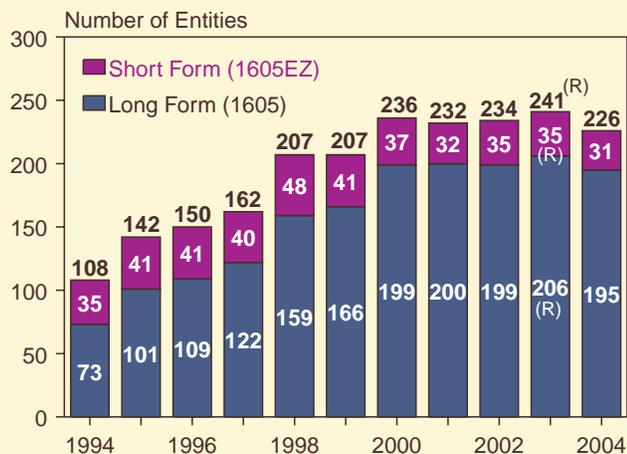
Projects Reported on the Long Form

Overview

Reporters provided information on a total of 2,154 projects for 2004 (Table S4). Most (1,942 or 90 percent) were reported on the long form. The total number of projects reported declined by 68, or 3 percent, compared with the previous reporting cycle.⁴ Most of the 2,154 projects reported for 2004 were also among the 2,222 projects reported for 2003, because they continued to yield emission reductions in 2004. Projects often yield emission reductions over an extended period; for example, an availability improvement project at a nuclear power plant typically involves the adoption of new maintenance and refueling programs that, once in place, are followed over a multi-year period. Likewise, the reforestation of an area in one year can result in the sequestration of carbon in many subsequent years, even if no additional trees are planted. Reporters continue to report the emission reductions and carbon sequestration achieved by such long-lived projects on a yearly basis.

The principal objective of the majority of projects (1,056 or 49 percent) reported for 2004 was to reduce carbon dioxide emissions (Table S4). Most reduced carbon dioxide either by reducing fossil fuel consumption or by switching to lower emitting sources of energy. Many also achieved small reductions in emissions of other gases. Other cited project objectives included increasing

Figure S2. Number of Reports Received by Form Type, Data Years 1994-2004



(R) = revised.

Notes: Electric power sector includes electric utilities and independent power producers. 2003 data year includes 7 late reports that were not included in the totals presented in last year's annual report and database.

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

⁴The total number of projects reported for 2003 has increased from 2,188 to 2,222 with the receipt of 7 additional reports after the database used to prepare the annual report and Public Use Database for 2003 was finalized. See note to Table S3.

Voluntary Reporting of Greenhouse Gases 2004

A&N Electric Cooperative	COMMSCOPE NEWTON PLANT	Lehigh Cement Co. (fmrlry Lehigh Portland Cement Co	Pepco Holdings Inc
Abe Krasne Home Furnishings, Inc.	COMMSCOPE SCOTTSBORO PLANT	Lehigh Cement Co. (formerly Calaveras Cement Co.)	Pfizer Pharmaceuticals LLC - Arecibo
Advanced Micro Devices, Inc.	CommScope Solutions (1111 Digital Dr)	Los Angeles Department of Water and Power	PG&E Corporation
AES Hawaii, Inc.	CommScope Solutions (1300 E. Lookout Dr)	Lower Colorado River Authority	Pitt Landfill Gas, LLC
AES Shady Point, LLC	COMMSCOPE SPARKS PLANT	Lucent Technologies Inc.	Polar Refrigerant Technology, LLC
AES Thames, LLC	COMMSCOPE STATESVILLE PLANT	Lynchburg Gas Producers, LLC	Portland General Electric Co.
AES Warrior Run, LLC	Community Electric Cooperative	M. J. SOFFE COMPANY - Maxton	Prince George Electric Cooperative
Ajinomoto Aminoscience LLC	CONNECTIVITY SOLUTIONS MANUFACTURING Inc.	M. J. SOFFE COMPANY - Bladenboro	Public Service Company of New Mexico
Alabama Biomass Partners, Ltd	Consol Coal Group	M. J. SOFFE COMPANY Fayetteville	Public Service Enterprise Group
Alcan Primary Products Corporation, Sebree Works	Consolidated Edison Company of New York, Inc.	M. J. SOFFE COMPANY Rowland	Public Utility District No. 1 of Snohomish County
Algonquin Power - Cambrian Pacific Genco LLC	Constellation Energy	Mallinckrodt, Inc.	Rangely Weber Sand Unit
Allegheny Energy, Inc.	County Sanitation Districts of Los Angeles County	Maple Springs Laundry	Rappahannock Electric Cooperative
Allergan, Inc.	DADS Landfill / Dept. Of Env. Health	McNeil Generating Station	Reliant Energy, Inc.
Alliant Energy	DaimlerChrysler Corporation	Mecklenburg Electric Cooperative	Republic Metals Corporation
Ameren Corporation (formerly UE, CIPS, and CILCO)	Dakota Gasification Company	Michael Paul Taylor	Rolls-Royce Corporation
American Electric Power, Inc.	Danaher Controls	Michigan CAT	Sacramento Municipal Utility District
American Municipal Power - Ohio	DeBourgh Manufacturing Company	Middlesex Generating Company, LLC	Salt River Project
Anoka Municipal Utility	Delaware Electric Cooperative	Minnesota Power	Santee Cooper
Arizona Portland Cement Co.	Dominion Generation	Mirant Kendall, L.L.C.	Seattle City Light
Arizona Public Service Company	DTE Energy/ Detroit Edison	Mitsubishi Motors North America, Inc.	SeaWest WindPower, Inc.
Asheville Landfill Gas, LLC	Duke Energy Corporation	Model City Energy, LLC	Seminole Electric Cooperative, Inc.
AT&T	Dynergy, Inc.	Montauk Energy Capital	Seneca Energy II, LLC
Azdel, Inc	ENCAP	Municipal Electric Auth of Georgia (MEAG Power)	Seneca Energy II, LLC_Ontario LFGE
BARC Electric Cooperative	Energy Developments, Inc.	Mystic Development, LLC	Shenandoah Valley Electric Cooperative
Baxter Healthcare Inc.	Energy Management Partners, LP	Nashville Electric Service	Sikorsky Aircraft Corporation
Berkshire Power LLC	Energy Services, Inc.	National Grid	Smithfield Foods, Inc.
Biomass Partners, LP	Environmental Synergy, Inc.	National Spinning Co. Alamance Yarn Plant	South Carolina Electric & Gas Company
Blue Source, LLC	Exelon Corporation	National Spinning Co. Alamance Dye Plant	Southeastern Biomass Partners, LP
BMW US Holding Corp.	FirstEnergy Corporation	National Spinning Co., Inc. Washington	Southern California Edison Co.
BNSF Railway Company	Fisher Scientific Company L.L.C	National Spinning Inc. Beulaville	Southern Company
Bountiful City Light & Power	Florida Power Corporation	National Spinning Inc. Warsaw	Southside Electric Cooperative
BP America	Ford Motor Company	National Spinning Inc. Whiteville	Springs Industries, Inc.
Branson Ultrasonics Corporation	FPL Group	Natural Power, Inc.	State Farm Mutual Automobile Insurance Co.
Bristol-Myers Squibb Company	Gas Recovery Systems	NC Muni Landfill Gas Partners, LLC	Sunoco, Inc.
Burlington County Board of Chosen Freeholders	General Electric Company	Nebraska Public Power District	Sustainable Development Technology Corporation
California Portland Cement Co. - Colton Plant	General Motors Corporation	New Jersey Meadowlands Commission	Tacoma Power
California Portland Cement Co. - Mojave Plant	Golden Valley Electric Association, Inc	New York Power Authority	Tampa Electric Company
Cambrian Energy Development LLC	Granger Electric Company	Newton Landfill Gas, LLC	Tennessee Valley Authority
Cargill, Inc. - Oil Seeds Division	Granger Energy, LLC	NiSource/NIPSCO	The Dow Chemical Company
Carolina Power & Light Company	Greater New Bedford Regional Refuse Mgt District	Nissan North America, Inc.	The Empire District Electric Co.
Catawba Landfill Gas, LLC	Green Mountain Energy Company	Noranda Aluminum Inc.	The Estee Lauder Companies
CDX Gas, LLC	Greene Energy, LLC	North Carolina Biomass Partners	Toyota Motor North America, Inc.
Chevron Corporation	Hanes Dye and Finishing, Butner Plant	North Carolina Electric Membership Corporation	TS Designs, Inc.
Choptank Electric Cooperative	Highland Industries, Inc.Kernersville Finishing Pt	Northern Neck Electric Cooperative	TXU
Cinergy Corp.	Hollomon Family	Northern Virginia Electric Cooperative	Utah Municipal Power Agency
City of Austin Electric Utility (Austin Energy)	IBM	Ocean County Landfill Corporation	Valdese Manufacturing Company
City of Springfield	Integrated Waste Services Association	Oglethorpe Power Corporation	Vermont Public Power Supply Authority
City Public Service	International Truck and Engine Corporation	Oklahoma Gas & Electric Co.	Waste Management, Inc.
Cleco Corporation	Iredell Landfill Gas, LLC	Old Dominion Electric Cooperative	Waverly Gas Producers, LLC
CMS Energy	JEA	Omaha Public Power District	Waverly Light & Power Company
CMV Joint Venture	Jim Walter Resources, Inc.	Orlando Utilities Commission (OUC)	We Energies
Common Purpose Institute	Johnson & Johnson	Pak-Lite, Inc. - Mebane Plant	Wisconsin Public Power Inc.
CommonWealth Bethlehem Energy, LLC	Kansas City Power & Light Company	Palmer Capital Corporation	Wyeth Vaccines
COMMSCOPE CATAWBA PLANT	Kern County Waste Management Department	Peabody Energy	Xcel Energy
COMMSCOPE CLAREMONT PLANT	KeySpan Energy Corporation	PEI Power Corp	Xenon Specialty Gas
COMMSCOPE CONOVER REEL RECYCLING	Klickitat County Public Utility District No. 1	Penn Compression Moulding, Inc.	Zeeland Board of Public Works
COMMSCOPE Headquarters- Hickory	Landfill Energy Systems		

carbon sequestration (493 or 23 percent), reducing methane and nitrous oxide emissions (463 or 21 percent), and reducing emissions of halogenated substances (41 or 2 percent). Projects that also primarily reduced carbon dioxide emissions included the 101 “other” emission reduction projects, most of which involved either the reuse of fly ash as a cement substitute in concrete or the recycling of waste materials.

Most projects involve actions within the United States; however, some are conducted in foreign countries, designed to test various concepts of joint implementation with other nations (Table S5). Of the 90 foreign projects reported for 2004, 52 represented shares in two forestry programs in Belize and Malaysia sponsored by the electric power industry.

Total project-level emission reductions reported included 277.0 million metric tons carbon dioxide equivalent (million MTCO₂e) in direct reductions, 91.7 million MTCO₂e in indirect reductions, 7.2 million MTCO₂e in carbon sequestration, and 13.8 million MTCO₂e in unspecified reductions (Table S6). EIA uses global

warming potentials (GWPs) from the Third Assessment Report of the Intergovernmental Panel on Climate Change (IPCC) to calculate carbon dioxide equivalents (see box on page 10).

Projects whose reduction objective was to reduce carbon dioxide emissions reported direct reductions of 214.7 million MTCO₂e, indirect reductions of 45.6 million MTCO₂e, and unspecified reductions of 13.1 million MTCO₂e. The vast majority of the reported emission reductions were carbon dioxide reductions.

Reporters submitted information on a variety of efforts to reduce emissions of gases with high GWPs, including 463 projects with the objective of reducing methane and nitrous oxide emissions. The projects focused on waste management systems, animal husbandry operations, oil and gas systems, or coal mines. Reported net direct emission reductions from the 463 projects totaled 55.3 million MTCO₂e, representing 20 percent of the total direct reductions reported for 2004. The estimate of net reductions includes 62.3 million MTCO₂e in direct reductions of methane emissions, offset by

Table S4. Distribution of Projects by Reduction Objective, Project Type, and Form Type, Data Year 2004

Reduction Objective and Project Type	Number of Projects			Number of Reporters		
	Long Form	Short Form	Total	Long Form	Short Form	Total
Reducing Carbon Dioxide Emissions	897	159	1,056	86	26	112
Electricity Generation, Transmission, and Distribution	469	49	518	65	19	84
Cogeneration and Waste Heat Recovery	18	0	18	11	0	11
Energy End Use	345	101	446	64	17	81
Transportation and Offroad Vehicles.	65	9	74	31	5	36
Reducing Methane and Nitrous Oxide Emissions	443	20	463	66	5	71
Waste Treatment and Disposal (Methane)	403	19	422	52	4	56
Agriculture (Methane and Nitrous Oxide)	2	0	2	2	0	2
Oil and Natural Gas Systems and Coal Mining (Methane)	38	1	39	19	1	20
Carbon Sequestration	478	15	493	54	13	67
Halogenated Substances	40	1	41	28	1	29
Other Emission Reduction Projects	84	17	101	47	7	54
Entity-Level Reporting Only (No Projects)	NA	NA	NA	51	NA	51
Commitment Reporting Only (No Projects or Entity-Level Data)	NA	NA	NA	0	NA	0
Total	1,942	212	2,154	195	31	226

NA = not applicable.

Notes: The total number of reporters is smaller than the sum of the number of reporters for each project type, because most reporters provided information on more than one project. Total number of reporters includes confidential reports, which are excluded from the sum of reporters for each project type. Table excludes projects submitted in confidential reports.

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

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increases of 7.1 million MTCO₂e in carbon dioxide and nitrous oxide emissions. Indirect reductions reported for projects that reduced methane and nitrous oxide emissions totaled 45.8 million MTCO₂e. Unspecified reductions of methane and nitrous oxide reported on the short form totaled 0.6 million MTCO₂e.

Almost all of the 493 carbon sequestration projects reported on either the long form or the short form increased the amount of carbon stored in sinks through various forestry measures, including afforestation, reforestation, urban forestry, forest preservation, and modified forest management techniques. These activities accounted for 23 percent of the projects reported for 2004; however, 316 of the reported carbon sequestration projects represented shares in 13 projects conducted by the UtiliTree Carbon Company and the PowerTree Carbon Company, which were reported by 34 participating electric utilities.⁵ Carbon sequestration projects reported on the long form for 2004 accounted for 7.2 million MTCO₂e in carbon sequestration.

Projects with the objective of reducing emissions of halogenated substances—including perfluorocarbons (PFCs), sulfur hexafluoride (SF₆), and hydrofluorocarbons (HFCs)—reported direct reductions of 7.0 million MTCO₂e for 2004, which included 4.1 million MTCO₂e of PFC emissions and 2.9 million MTCO₂e of SF₆ emissions, as well as indirect reductions of 0.3 MTCO₂e, the vast majority of which was SF₆.

Project-Level Reference Cases

Beginning with the 2000 annual report, EIA began dividing project-level data according to the reference case employed in calculating reported project-specific emission reductions. A “reference case” is an emissions or sequestration level against which actual emissions are compared to estimate emission reductions. In a “basic reference case,” actual historical emissions (or sequestration) in a specific year, or an average of a range of years, are used as the reference case. In a “modified reference case,” an estimate is made of what emissions or

Table S5. Geographic Scope of Reports Received and Location of Emission Reduction Projects, Data Years 1994-2004

Year	Reports Received					Projects Reported ^b			
	U.S. Only		Foreign Only	Both U.S. and Foreign	Total ^a	U.S. Only		Foreign Only	Total ^a
	Long Form	Short Form				Long Form	Short Form		
1994	65	34	2	4	108	500	125	9	634
1995	82	40	2	16	142	760	164	36	960
1996	83	41	1	24	150	828	179	33	1,040
1997	90	40	1	31	162	1,017	201	70	1,288
1998	118	47	1	40	207	1,212	252	85	1,549
1999	125	39	4	37	207	1,397	237	87	1,721
2000	153	36	1	45	236	1,761	229	99	2,089
2001	155	32	1	43	232	1,596	210	91	1,897
2002	156	35	3	39	234	1,708	253	94	2,055
2003 ^(R)	163	35	2	40	241	1,900	226	96	2,222
2004	157	31	3	34	226	1,852	212	90	2,154

^aTotals are greater than the sum of the components because the latter exclude information from confidential reports.

^bExcludes projects submitted in confidential reports.

(R) = revised.

Notes: The number of reports received for 2003 was revised to reflect the receipt of 7 reports after the finalization of the Public Use Database for last year's annual report. The number of projects reported for 2003 has also been revised to reflect the projects included in those reports.

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

⁵Twenty-four electric utilities submitted reports on 10 ongoing UtiliTree Carbon Company projects. Twenty-four electric utilities, including 14 UtiliTree participants, submitted reports on 3 new PowerTree Carbon Company projects.

sequestration would have been in the absence of the project, and that estimate serves as the reference case.

Of the projects reported for 2004 on Form EIA-1605, 94 percent used modified reference cases (Table S7). A modified reference case is generally preferred for project-level analysis, because this approach attempts to isolate the effect of the action taken by the reporter from other factors that may have affected the reporter's emissions since the action was taken. The use of basic reference cases for 2004 was greatest for projects that reported reducing emissions of halogenated substances (50 percent of those projects), because the techniques for evaluating reductions for the projects are particularly suited to the use of a basic reference case. Emissions are determined using inventory management data, with emissions of a particular substance being equal to the amount purchased during the year to replace quantities emitted. Annual reductions can be calculated by subtracting the emissions in the years after emission abatement measures have been instituted from the emissions in the year before the measures were instituted.

In terms of emission reductions and sequestration reported for 2004, reporters indicated that they used modified reference cases for 269 million MTCO₂e (97 percent of total direct reductions), 85 million MTCO₂e in indirect reductions (93 percent of total indirect reductions), and 7 million MTCO₂e in sequestration (93 percent of total sequestration) (Table S6). The halogenated substance category was the only project category for which entities reported using basic reference cases for a significant proportion (91 percent or 6.4 million MTCO₂e) of the direct reductions.

Electric Power

For 2004, 487 electric power and cogeneration projects were reported on Form EIA-1605. Total emission reductions from electric power and cogeneration projects reported on Form EIA-1605 (the long form) included 174 million MTCO₂e from direct sources and 19 million MTCO₂e from indirect sources. There were 257 projects reported that reduced the carbon content of fuels used to generate electricity, with emission reductions totaling

Table S6. Reported Emission Reductions and Sequestration for Projects Reported on Form EIA-1605 by Reduction Objective, Project Type, Source, and Reference Case Employed, Data Year 2004
(Million Metric Tons Carbon Dioxide Equivalent)

Reduction Objective and Project Type	Direct Reductions		Indirect Reductions		Sequestration	
	Modified	Basic	Modified	Basic	Modified	Basic
Reducing Carbon Dioxide Emissions	197.6	1.1	32.9	0.1	NA	NA
Electricity Generation, Transmission, and Distribution	171.5	0.5	18.1	*	NA	NA
Cogeneration and Waste Heat Recovery	1.7	*	0.8	—	NA	NA
Energy End Use	21.7	0.6	13.7	0.1	NA	NA
Transportation and Offroad Vehicles	2.7	*	0.2	*	NA	NA
Reducing Methane and Nitrous Oxide Emissions . .	54.8	0.4	44.7	1.1	NA	NA
Waste Treatment and Disposal (Methane)	42.3	0.4	44.7	1.1	NA	NA
Agriculture (Methane and Nitrous Oxide)	*	—	*	—	NA	NA
Oil and Natural Gas Systems and Coal Mining (Methane)	12.5	*	—	—	NA	NA
Carbon Sequestration	*	—	*	—	6.8	0.5
Halogenated Substances	0.7	6.4	0.2	*	NA	NA
Other Emission Reduction Projects	16.1	—	7.4	5.2	NA	NA
Total	269.2	7.9	85.3	6.5	6.8	0.5

*Less than 0.05 million MTCO₂e. — = Not reported. NA = not applicable.

Note: Excludes reductions and sequestration for projects reported on the short form (Form EIA-1605EZ), which does not collect information on the reference case employed. Excludes projects submitted in confidential reports.

Source: Energy Information Administration, Form EIA-1605.

160 million MTCO₂e from direct sources and 17 million MTCO₂e from indirect sources. Reported emission reductions for the 258 projects that increased energy efficiency in generation, transmission, and distribution included 18 million MTCO₂e from direct sources and 2 million MTCO₂e from indirect sources. Reporters using Form EIA-1605EZ (the short form) submitted information on another 49 electric power and cogeneration

projects for 2004, with reported emission reductions from unspecified sources totaling 12 million MTCO₂e.⁶

Energy End Use and Transportation

For 2004, 410 energy end use and transportation projects were reported on Form EIA-1605, with total reported emission reductions of 25 million MTCO₂e from direct

Global Warming Potentials Used to Calculate Carbon Dioxide Equivalent Emissions

Global warming potentials (GWPs) are used to compare the abilities of different greenhouse gases to trap heat in the atmosphere. GWPs are based on the radiative efficiency (heat-absorbing ability) of each gas relative to that of carbon dioxide (CO₂), as well as the decay rate of each gas (the amount removed from the atmosphere over a given number of years) relative to that of CO₂. The GWP provides a construct for converting emissions of various gases into a common measure, which allows climate analysts to aggregate the radiative impacts of various greenhouse gases into a uniform measure denominated in carbon or carbon dioxide equivalents. The table at the right presents the GWPs published in the Third Assessment Report of the Intergovernmental Panel on Climate Change (IPCC).

In analyzing greenhouse gas emissions and emission reductions reported to the Voluntary Reporting of Greenhouse Gases Program, EIA attempts to employ the most current data sources. For that reason, and because the IPCC is generally considered the authoritative source for GWPs, EIA uses the IPCC's most recent GWP values, from the Third Assessment Report, to convert reported greenhouse gas emissions to the carbon dioxide equivalent units used in this report. It is important to point out, however, that countries reporting to the United Nations Framework Convention on Climate Change (UNFCCC), including the United States, have been compiling estimates based on the GWPs from the IPCC's Second Assessment Report.

The UNFCCC Guidelines on Reporting and Review, adopted before the publication of the Third Assessment Report, require emission estimates to be based on the GWPs in the IPCC Second Assessment Report. This will probably continue in the short term, until the UNFCCC reporting rules are changed.

100-Year GWP Estimates from the IPCC's Third (2001) Assessment Reports

Gas	2001 IPCC GWP ^a
Methane	23
Nitrous Oxide	296
HFC-23	12,000
HFC-32	550
HFC-125	3,400
HFC-134a	1,300
HFC-143a	4,300
HFC-152a	120
HFC-227ea	3,500
HFC-236fa	9,400
Perfluoromethane (CF ₄)	5,700
Perfluoroethane (C ₂ F ₆)	11,900
Perfluoropropane (C ₃ F ₈)	8,600
Sulfur Hexafluoride (SF ₆)	22,200

^aIntergovernmental Panel on Climate Change, *Climate Change 2001: The Scientific Basis. Summary for Policymakers* (Cambridge, UK: Cambridge University Press, 2001).

⁶The emission reductions reported on Form EIA-1605EZ are unspecified, because the form does not ask the reporter to distinguish between direct and indirect reductions.

sources and 14 million MTCO₂e from indirect sources. Nearly all (93 percent) of the reported energy end-use reductions involved stationary-source applications, such as building shell improvements, lighting and lighting control, appliance improvement or replacement, and heating, ventilation and air conditioning (HVAC) improvements. Participants using the long form reported much smaller reductions for 65 transportation projects, including 2.7 million MTCO₂e from direct sources and 0.2 million MTCO₂e from indirect sources. Participants using Form EIA-1605EZ reported another 110 energy end-use and transportation projects for 2004, with total emission reductions of 0.5 million MTCO₂e.

Carbon Sequestration

Reporters submitted 478 carbon sequestration⁷ projects on Form EIA-1605 for 2004, with total reported sequestration of 7 million MTCO₂e. Most of the reported

reductions resulted from afforestation, reforestation, urban forestry, forest management, and forest preservation efforts. Another 15 carbon sequestration projects were reported on Form EIA-1605EZ, for which about 85,000 MTCO₂e of sequestered carbon was reported.

Methane and Nitrous Oxide Emissions

Emission reductions for the 443 methane and nitrous oxide abatement projects reported for 2004 on the 2004 EIA-1605 included 55 million MTCO₂e from direct sources and 46 million MTCO₂e from indirect sources. The three most frequently reported sources of methane reductions were municipal waste landfills (392 projects), natural gas systems (27 projects), and coal mines (11 projects). In addition to reducing methane emissions, projects that involved the recovery and use of methane for energy also reduced carbon dioxide emissions by displacing fossil fuels, such as oil and coal, which have

Table S7. Number of Projects Reported on Form EIA-1605 by Reduction Objective, Project Type, and Reference Case Employed, Data Year 2004
(Number of Projects)

Reduction Objective and Project Type	Type of Reference Case				Total Number of Projects
	Modified		Basic		
	Number of Projects	Percent	Number of Projects	Percent	
Reducing Carbon Dioxide Emissions	837	93	60	7	897
Electricity Generation, Transmission, and Distribution	461	98	8	2	469
Cogeneration and Waste Heat Recovery	17	94	1	6	18
Energy End Use	299	87	46	13	345
Transportation and Offroad Vehicles	60	92	5	8	65
Reducing Methane and Nitrous Oxide Emissions	436	98	7	2	443
Waste Treatment and Disposal (Methane)	399	99	4	1	403
Agriculture (Methane and Nitrous Oxide)	2	100	0	0	2
Oil and Natural Gas Systems and Coal Mining (Methane)	35	92	3	8	38
Carbon Sequestration	464	97	14	3	478
Halogenated Substances	20	50	20	50	40
Other Emission Reduction Projects	74	88	9	11	84
Total	1,831	94	110	6	1,942

Notes: Excludes projects reported on the short form (Form EIA-1605EZ), which does not collect information on the reference case employed. Excludes three projects reported on the long form (Form EIA-1605) for which no reference case was specified because reductions were not estimated. Table excludes projects submitted in confidential reports.

Source: Energy Information Administration, Form EIA-1605.

⁷Carbon sequestration is the fixation of atmospheric carbon dioxide in a carbon sink through biological or physical processes.

higher carbon contents and thus produce more carbon dioxide when burned. Reporters using the short form submitted another 20 methane or nitrous oxide reduction projects for 2004, with reported reductions of methane or nitrous oxide emissions totaling 0.6 million MTCO₂e.

Hydrofluorocarbons, Perfluorocarbons, and Sulfur Hexafluoride

A total of 41 projects were submitted on Form EIA-1605 for 2004 reporting reductions in emissions of HFCs, PFCs, and SF₆. Reductions reported for the projects included 7 million MTCO₂e from direct sources and 0.2 million MTCO₂e from indirect sources. The largest reported reductions were direct reductions of perfluoromethane, a type of PFC (3.4 million MTCO₂e); SF₆ (2.9 million MTCO₂e); and perfluoroethane, another type of PFC (0.7 million MTCO₂e). No reductions of HFCs, PFCs, or SF₆ were reported on Form EIA-1605EZ for 2004.

Entity-Level Reporting

Most of the 122 reporters providing entity-level information included data on emissions as well as emission reductions or sequestration. In addition, 7 reporters provided entity-level data on emissions only, and 6 reporters provided entity-level data on emission reductions or sequestration only.

Total entity-level direct emissions reported for 2004 were 934 million MTCO₂e, representing a 4-percent increase from the direct emissions reported for 2003 (Table S8). Total entity-level indirect emissions reported for 2004 were 29 percent lower than those reported for 2003, at 75 million MTCO₂e. Total direct emission reductions reported at the entity level for 2004 (208 million MTCO₂e) were 3 percent lower than those reported for 2003 (215 million MTCO₂e). For 2004, 181 million MTCO₂e (87 percent) of the reported direct reductions were estimated using modified reference cases, and 27 million MTCO₂e (13 percent) were estimated with basic reference cases.

⁸Formal commitments in one or more of the entity-level, project-level, or financial categories accommodated by Form EIA-1605 were reported by 76 companies. Descriptions of future activities were provided by 10 companies in the Additional Information section of Schedule IV.

Reported entity-level indirect emission reductions for 2004 totaled 48 million MTCO₂e, 12 percent higher than the total reported for 2003. Reported indirect reductions of 49 million MTCO₂e calculated with modified reference cases were offset by -1 million MTCO₂e of indirect reductions (i.e., a net increase in emissions) calculated with basic reference cases. Entity-level sequestration reported for 2004 totaled 7 million MTCO₂e, unchanged from that reported for 2003.

Commitments

For 2004, 86 entities reported formal commitments to reduce emissions, take specific action to reduce emissions, or provide financial support for activities related to greenhouse gas reductions,⁸ nearly one-third (30 percent) of which were electricity generators that participated in DOE's Climate Challenge Program (Figure S3). Reporters continued to include in their 2004 reports commitments related to Climate Challenge and other programs, such as EPA's Climate Wise and Green Lights, which are no longer active and have been subsumed by newer programs. In addition to various ENERGY STAR programs, other voluntary programs represented among the commitments reported for 2004 included the EPA's Climate Leaders Program, the EPA's Voluntary Aluminum Industrial Program, the U.S. Initiative on Joint Implementation, the EPA's Landfill Methane Outreach Program, DOE's Motor Challenge, the EPA's Sulfur Hexafluoride Emissions Reduction Partnership for Electric Power Systems, DOE's Cool Communities Program, and EPA's Natural Gas Star.

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 emissions through a specific project. 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 emissions consequences of the expenditure.

For 2004, 55 firms made 60 specific promises to reduce, avoid, or sequester future emissions at the entity level. Some of those entity-level 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 relative to a baseline emissions growth trend. In their reports for 2004, companies reported commitments to reduce entity-level emissions by a total of 81 million MTCO₂e, including 13 commitments, representing 61 million MTCO₂e or 76 percent of the emission reductions promised, that were to be fulfilled by 2004. The 13 other entity-level commitments, which promised reductions totaling 19 million MTCO₂e, were to be fulfilled by 2005 or later.

Commitments to undertake 107 individual emission reduction projects were reported by 20 companies. Some of the commitments were linked to results from projects already underway; others were for projects not yet begun. Reporters indicated that the projects were expected to reduce future emissions or increase carbon

sequestration by 63 million MTCO₂e. In addition, 13 firms made 29 financial commitments. Entities promised a total of \$19 million and spent \$1.1 million of that total in 2004.

Projects Reported on the Short Form

A total of 212 projects were reported on Form EIA-1605EZ for 2004 (Table S4), down from 226 projects reported on the short form for 2003. The decrease was primarily in landfill gas recovery projects, which dropped from 42 to 19 projects. U.S. Energy Biogas Corporation, which reported 36 projects in 2003, did not submit data for 2004. Of the remaining 193 projects reported for 2004, 101 focused on improvements in energy end-use efficiency, and 49 emphasized reductions in emissions from electric power generation, transmission, and distribution.

Federal voluntary programs played an important role in those projects reported on Form EIA-1605EZ. Of the projects reported, 102 (48 percent) were associated with

Table S8. Number of Entities Reporting at the Entity Level, Reported Emissions by Source, Emission Reductions by Source and Type of Reference Case Employed, and Sequestration, Data Years 1994-2004

(Million Metric Tons Carbon Dioxide Equivalent)

Year	Number of Entities Reporting	Emissions		Emission Reductions by Type of Reference Case						Sequestration
		Direct	Indirect	Direct			Indirect			
				Modified	Basic	Total	Modified	Basic	Total	
1994	39	752.7	494.9	38.2	22.6	60.8	1.6	1.2	2.8	0.5
1995	50	875.8	499.6	56.0	39.3	95.3	46.0	2.7	48.6	0.8
1996	55	1,183.1	461.5	65.4	44.6	110.0	42.9	5.7	48.6	7.9
1997	60	1,006.6	525.8	73.7	20.3	94.0	24.8	3.4	28.2	7.1
1998	76	1,110.7	473.5	105.8	22.6	128.4	28.3	13.2	41.6	11.2
1999	83	967.9	481.0	114.7	35.3	150.0	30.3	8.4	38.7	8.4
2000	109	1,068.2	111.7	123.6	83.0	206.7	34.8	-7.8	27.0	7.5
2001	113	799.6	111.5	121.4	90.4	211.9	38.9	-6.7	32.2	7.5
2002	119	889.3	111.2	148.4	83.3	231.6	44.2	-8.3	35.9	6.9
2003 ^(R) . .	130	899.5	106.4	183.6	31.8	215.4	46.0	-3.0	43.0	6.9
2004	121	933.9	75.3	180.8	27.5	208.3	49.0	-0.8	48.2	6.9

(R) = revised.

Notes: 2003 data year includes 7 late reports that were not received in time to be included in last year's annual report and database. Negative reductions represent increases in emissions.

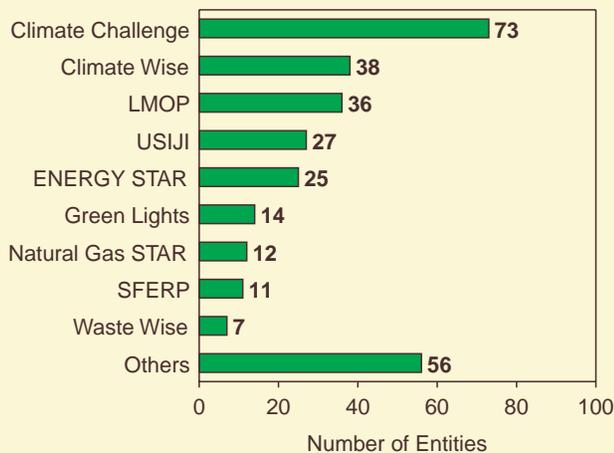
Source: Energy Information Administration, Form EIA-1605.

some Federal voluntary initiative: 62 were associated with the DOE's Climate Challenge program, and 18 were associated with the EPA's ENERGY STAR Program.

Status of Policy Initiatives

In 2004, the Bush Administration continued to develop components of its Global Climate Change Initiative, including enhancement of the Voluntary Reporting of Greenhouse Gases Program (see box on page 16). In addition, States and other organizations continued to develop greenhouse gas registry and trading programs; and the U.S. Congress considered, but did not pass, legislation relevant to greenhouse gas reporting. The developments in 2005 did not affect the reported emissions and emission reductions data for activities in 2004

Figure S3. Number of Entities Reporting Commitments Associated with Voluntary Programs in Data Year 2004, by Program



Notes: LMOP = Landfill Methane Outreach Program, USIJI = United States Initiative on Joint Implementation, SFERP = Sulfur Hexafluoride Emissions Reduction Partnership. Others include Coalbed Methane Outreach Program, Cool Communities Program, Motor Challenge Program, and Voluntary Aluminum Industry Partnership. The sum of entities reporting commitments associated with each program exceeds the total number of entities reporting commitments because several entities reported commitments associated with more than one program.

Source: Energy Information Administration, Form EIA-1605.

discussed in this report; however, they may affect the future of the Voluntary Reporting Program, future reporting of reductions or commitments, or both.

Enhanced 1605(b) Voluntary Emissions Reduction Registry

Pursuant to a key objective of the Global Climate Change Initiative, DOE is working to improve and expand the 1605(b) Voluntary Reporting of Greenhouse Gases Program. The primary goal of this effort is to enhance the program's credibility and transparency in reporting. In addition, a goal of the enhanced 1605(b) Program is to allow businesses and individuals to record their reductions and ensure that reporters are not penalized under a future climate policy. The objective of improving the registry is to help motivate firms to take cost-effective, voluntary actions to reduce greenhouse gas emissions, which would, in part, aid in the achievement of the Initiative's greenhouse gas intensity goal.

An interagency working group has undertaken several actions to improve the Voluntary Reporting Program, including outreach efforts, solicitation of public comments, and review of the existing program. On July 8, 2002, the Secretary of Energy, joined by the Secretary of Commerce, the Secretary of Agriculture, and the EPA Administrator, submitted recommendations to the White House to guide the process for improving and expanding the Voluntary Reporting Program.

In 2005, DOE continued to collaborate with the Department of Agriculture, the EPA, and other Federal agencies in developing revised Guidelines for the Voluntary Reporting of Greenhouse Gases Program. In March 2005, DOE released interim final General Guidelines and draft Technical Guidelines. The guidelines outline the principles that will govern the revised program and specify the methods and factors reporters must use in measuring and estimating greenhouse gas emissions, emission reductions, and carbon sequestration under the revised Program. DOE also held a public workshop on the subject in Crystal City, Virginia, on April 26-27, 2005. The Department of Agriculture and DOE jointly sponsored a workshop on May 5, 2005, to solicit comments on the forestry- and agriculture-related provisions of the guidelines.

The General Guidelines were issued as an interim final rule to be effective on September 20, 2005; however, on September 19, 2005, DOE announced that the effective date of the guidelines would be delayed until June 1, 2006,⁹ to allow time for DOE to finalize the guidelines.

When the guidelines are finalized, EIA intends to develop new reporting forms and software. Reporting under the revised guidelines is expected to begin in 2007.

⁹*Federal Register*, Vol. 70, No. 180 (September 19, 2005), p. 54835.

The Global Climate Change Initiative

On February 14, 2002, President George W. Bush announced the Administration's Global Climate Change Initiative, which includes new emission intensity reduction goals, incentives for clean technology development, added support for scientific research, expanded collaboration with foreign governments on climate change, and the development of a framework for the enhancement of the Voluntary Reporting of Greenhouse Gases Program.

A primary goal of the Global Climate Change Initiative is to slow the growth rate of greenhouse gas emissions while sustaining economic growth, using market mechanisms and energy technology development. In the proposal, the President established a national goal of reducing the greenhouse gas intensity of the U.S. economy by 18 percent between 2002 and 2012. Emissions intensity is a measure of the ratio of greenhouse gas emissions to economic output (gross domestic product). To achieve the goal, the Initiative focuses on fossil fuel energy conservation, methane recovery, and carbon sequestration in the short term and development of advanced energy technologies in the longer term.

Key domestic and international elements of the Global Climate Change Initiative include:

- Domestic climate change initiatives:
 - Enhancement of the 1605(b) Voluntary Reporting of Greenhouse Gases Program
 - Significantly expanded funding for basic scientific research and advanced technology development
 - Tax incentives, such as credits for renewable energy, cogeneration, and new technology
 - Challenges for business to undertake voluntary initiatives and commit to greenhouse gas intensity goals, such as through recent agreements

with the semiconductor and aluminum industries

- Transportation programs, including technology research and development and fuel economy standards
- Carbon sequestration programs, which include increased funding for U.S. Department of Agriculture conservation programs under the Farm Bill to enhance the natural storage of carbon, promote the development of targeted incentives for forestry and agriculture projects to increase carbon sequestration, and establish accounting rules and guidelines for crediting sequestration projects
- International climate change initiatives:
 - Investments in climate observation systems in developing countries
 - Funding for "debt-for-nature" forest conservation programs
 - Use of economic incentives to encourage developing countries to participate in climate change initiatives
 - Expanding technology transfer and capacity building in the developing world
 - Joint research with Japan, Italy, and Central America.

The Global Climate Change Initiative includes a future progress check: the U.S. Government, in 2012, will evaluate whether its greenhouse gas emissions reduction progress is sufficient and whether scientific understanding at that time will justify further action. If further action is deemed necessary, the Initiative proposes to accelerate technology development and deployment using additional market-based mechanisms, voluntary measures, and incentive programs.