7. Entity-Level Reporting and Future Commitments

Overview

The Voluntary Reporting Program permits three distinct types of emissions reporting:

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

Chapters 2 through 6 of this report cover project-level emissions. This chapter covers entity-level emissions, emission reductions, and commitments to reduce emissions in the future. Entity reporting and project reporting are not mutually exclusive. They correspond to different views of the appropriate answer to the question, "What is a reduction?" Most (171, or 75 percent) of the 227 nonconfidential participants in the program for the 2002 data year reported project-level information on emissions and/or reductions, and 114 (50 percent) reported entity-level information. Fifty-nine (26 percent) of all the participants in the program reported both entity-level information and project-level information. Thus, 52 percent of the entity-level reporters also chose to report project-level information on emissions and/or emission reductions. Fifty-five firms (24 percent of reporters) reported entity-level information only, whereas 112 (49 percent) submitted only project-level information. In addition, 79 entities, or 35 percent of all participants in the program, reported formal commitments to reduce future greenhouse gas emissions, to take action to reduce emissions in the future, or to provide financial support for activities related to greenhouse gas reductions.

Entity-Level Reporting

Who Reported

Electric power producers accounted for 44 of the 114 entity-level reporters. They included Allegheny Energy, PG&E, PacifiCorp, the Southern Company, the Tennessee Valley Authority (TVA), and most of the largest electric utilities in the United States. In addition, three subsidiaries of the AES Corporation (an independent power producer) reported on domestic power plants with emissions offset by international forestry projects. The remaining 70 entity-level reporters included an aluminum smelter (Alcan Primary Metals Group-Sebree Works), six plants of CommScope (a designer and manufacturer of cables for telecommunications applications), two semiconductor manufacturers (Lucent Technologies, Inc., and Motorola Austin), and several large manufacturers (DaimlerChrysler, Toyota Motor North America Inc., Ford, GM, IBM, Johnson & Johnson, and Rolls-Royce Corporation). Also reporting at the entity level were the Lehigh Cement Company, an oil company (Sunoco, Inc.), a chemical company (the Dow Chemical Company), an aircraft manufacturer (Sikorsky Aircraft Corporation), textile manufacturers (including two plants of Hanes Dye & Finishing, four plants of M.J. SOFFE Company, four plants of National Spinning, Inc., and the Valdese Manufacturing Company), a trade association (Integrated Waste Services Association [IWSA]), the Miller Brewing Company's Eden, NC, Facility, and Bethlehem Steel Corporation.

Reported Emissions

Total 2002 entity-level direct emissions of greenhouse gases reported to the Voluntary Reporting Program were 870 million metric tons carbon dioxide equivalent or 13 percent of total estimated U.S. emissions of greenhouse gases.[64] Total 2002 entity-level indirect emissions reported to the program were 107 million metric tons carbon dioxide equivalent, or 2 percent of total estimated U.S. emission of greenhouse gases. Reported entity-level direct carbon dioxide emissions for 2002 were 844 million metric tons, which represented 97 percent of reported direct emissions—weighted by global warming potential (GWP).

The single largest category of direct carbon dioxide emissions reported was the 863 million metric tons carbon dioxide emitted by stationary combustion sources, mostly electric utilities, which represented 99 percent of the total direct carbon dioxide emissions reported for 2002 (Table 25). The largest direct emissions reported were from the Tennessee Valley Authority, with emissions of 85 million metric tons carbon dioxide, followed by Cinergy Corporation (59 million metric tons), Duke Energy Corporation (58 million metric tons), and FPL

[64]Energy Information Administration, *Emissions of Greenhouse Gases in the United States 2002*, DOE/EIA-0573(2002) (Washington, DC, October 2003), web site web site www.eia.doe.gov/oiaf/1605/1605a.html.

Group (51 million metric tons) (Table 26). In addition, PacifiCorp, FirstEnergy Corporation, Allegheny Energy, Inc., DTE Energy/Detroit Edison, Entergy Services, Inc., Texas Genco, LP, the Dow Chemical Company, PG&E Corporation, and Florida Power Corporation each reported direct emissions of carbon dioxide in the range of 21 to 46 million metric tons for 2002.

Carbon dioxide also accounted for 94 percent of reported indirect emissions of greenhouse gases weighted by GWP. The single largest category of reported indirect emissions for 2002 was 101 million metric tons carbon dioxide resulting from the reporting entities' purchased power transactions. Manufacturers that purchase electricity usually view themselves as responsible for the electricity they consume and, consequently, for any reductions in the quantity of electricity consumed. Utilities, however, have adopted more diverse views. Most electric utilities view themselves as responsible only for the direct emissions from their stacks. This view is unambiguous, relatively easy to verify, and prevents the same emission from being reported by more than one utility; however, accounting for reductions in emissions caused by substitutions of purchased power for company-generated power adds complexity to the picture.

Any organization that reports indirect emissions and reductions is presented with a methodological problem: because the reporter does not control the source of emissions, the reporter may not have sufficient information

Table 25. Total Reported Entity-Level Carbon Dioxide Emissions by Type and Source, Data Year 2002
(Million Metric Tons Carbon Dioxide)

Type of Emission Source	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
Direct Emissions													
Stationary Combustion	770.9	631.0	726.4	764.0	814.2	823.3	829.6	892.5	949.1	944.1	951.3	834.5	836.3
Transportation	0.7	0.2	0.3	0.3	0.7	0.8	0.8	0.9	0.9	0.9	0.9	1.1	1.1
Other Direct Sources	2.9	3.4	4.9	7.3	7.3	7.0	6.7	6.1	6.1	6.2	6.1	6.3	6.7
Total Direct	**774.5**	**634.7**	**731.5**	**771.5**	**822.3**	**831.1**	**837.1**	**899.5**	**956.1**	**951.3**	**958.4**	**841.9**	**844.0**
Indirect Emissions													
Purchased Power	67.8	61.7	59.7	65.5	66.1	71.4	86.0	114.9	96.6	100.1	105.6	106.5	100.9
Other Indirect Sources	374.2	365.3	369.4	370.5	372.0	366.6	360.0	352.5	345.3	340.8	0.2	0.2	0.2
Total Indirect	**442.0**	**427.0**	**429.0**	**436.0**	**438.1**	**438.0**	**446.0**	**467.4**	**441.8**	**440.8**	**105.8**	**106.7**	**101.1**
Electricity Wholesaling	8.0	13.5	8.1	7.0	4.2	5.7	-3.9	-51.3	-32.2	-24.5	-14.7	-12.7	36.5

Source: Energy Information Administration, Form EIA-1605.

Table 26. Largest Reported Entity-Level Direct Carbon Dioxide Emissions by Reporter and Source, Data Year 2002

Reporter	Emissions Source	Reported Direct Carbon Dioxide Emissions (Million Metric Tons)	Percentage of Total Reported Direct Emissions of All Greenhouse Gases
Tennessee Valley Authority	Stationary Combustion	85.3	8.7
Cinergy Corp.	Stationary Combustion	59.5	6.1
Duke Energy Corporation	Stationary Combustion	58.3	6.0
FPL Group	Stationary Combustion	51.5	5.3
PacifiCorp	Stationary Combustion	46.1	4.7
FirstEnergy Corporation	Stationary Combustion	43.9	4.5
Allegheny Energy, Inc.	Stationary Combustion	41.1	4.2
DTE Energy/ Detroit Edison	Stationary Combustion	38.8	4.0
Entergy Services, Inc.	Stationary Combustion	38.5	3.9
Texas Genco, LP	Stationary Combustion	38.1	3.9
Dow Chemical Company	Stationary Combustion	26.0	2.7
PG&E Corporation	Stationary Combustion	25.7	2.6
Florida Power Corporation	Stationary Combustion	21.1	2.2
Dynegy Midwest Generation Inc.	Stationary Combustion	20.0	2.0
Alliant Energy	Stationary Combustion	19.2	2.0
Total		**612.9**	**62.8**

Source: Energy Information Administration, Form EIA-1605.

to estimate emissions accurately. In the case of power purchases, firms that buy electricity may not always know precisely what emissions are associated with their purchases. Most reporters, however, reported only direct emissions. For those who reported indirect emissions, with a few exceptions, the impact of indirect emissions was generally small in comparison with the magnitude of direct emissions. Only a few companies reported direct emissions of other greenhouse gases at the entity level.

Reported direct emissions of gases other than carbon dioxide included 23 million metric tons carbon dioxide equivalent of methane, 1 million metric tons carbon dioxide equivalent of hydrofluorocarbons (HFCs), and 1 million metric tons carbon dioxide equivalent of sulfur hexafluoride. Reported direct emissions of nitrous oxide and perfluorocarbons (PFCs) were less than 1 million metric tons carbon dioxide equivalent each (Table 27).

Eleven companies reported entity-level direct emissions of methane for 2002, including Consol Coal Group, Jim Walter Resources, Inc., Peabody Holding Company, Inc., Dow Chemical Company, and Black Beauty Coal. These five entities together accounted for 88 percent of total reported entity-level direct emissions of other greenhouse gases for 2002 (Table 28). Only three participants in the program, Dow Chemical Company, Rochester Gas & Electric Company, and IWSA, reported direct emissions of nitrous oxide for 2002. The direct emissions of nitrous oxide reported by these three entities together accounted for less than 0.5 percent of total reported entity-level direct emissions of other greenhouse gases for 2002. In addition, two reporters (Alcan Primary Metals Group–Sebree Works and Dow Chemical Company) accounted for all direct emissions of perfluorocarbons reported, and seven companies (Dow Chemical Company, Duke Energy Corporation, Energy Services, Inc., NiSource/NIPSCO, Public Service Enterprise Group, Sacramento Municipal Utility District, and Southern Company) reported direct emissions of sulfur hexafluoride. Emissions of sulfur hexafluoride reported by these seven companies together accounted for 5 percent of total reported entity-level direct emissions of other greenhouse gases for 2002.

Reported Reductions

Entity-level reductions were, in general, much smaller than the corresponding emissions reported by participants in the Voluntary Reporting Program. Reported entity-level direct reductions totaled 209 million metric tons carbon dioxide equivalent for 2002, or 24 percent of all reported entity-level direct emissions. Reported entity-level indirect reductions totaled 36 million metric tons carbon dioxide equivalent, or 34 percent of all reported entity-level indirect emissions.

Reported entity-level direct emission reductions of carbon dioxide for 2002 totaled 131 million metric tons carbon dioxide (Table 29), equal to 2 percent of estimated total U.S. greenhouse gas emissions, and reported indirect emission reductions of carbon dioxide totaled 25 million metric tons. Reported direct reductions in emissions of other greenhouse gases for 2002 totaled 78

Table 27. Total Reported Entity-Level Emissions of Other Greenhouse Gases by Type of Emissions, Data Year 2002
(Million Metric Tons Carbon Dioxide Equivalent)

Gas and Type of Emissions	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
Methane													
Direct	52.9	18.1	18.5	14.2	32.4	33.3	30.0	31.9	32.3	27.1	25.8	24.6	23.1
Indirect	2.1	2.1	2.1	2.1	2.0	1.9	1.9	1.8	1.7	1.6	0.4	0.4	0.3
Nitrous Oxide													
Direct	*	*	*	*	*	*	*	*	*	*	0.7	*	0.1
Indirect	17.3	18.1	19.0	19.8	20.5	20.4	19.9	19.3	18.6	17.9	*	*	*
Hydrofluorocarbons													
Direct	*	*	*	*	*	*	*	*	0.1	0.2	0.4	0.8	1.3
Indirect	*	*	0.1	2.2	4.9	5.4	5.0	5.2	5.2	5.2	5.2	3.9	5.6
Perfluorocarbons													
Direct	0.5	0.5	0.5	0.5	0.3	0.2	0.2	0.3	0.2	0.1	0.1	0.2	0.2
Sulfur Hexafluoride													
Direct	0.4	0.5	0.5	0.5	1.6	1.7	1.7	1.4	1.1	0.6	1.1	1.2	1.2
Total													
Direct	**53.8**	**19.1**	**19.5**	**15.2**	**34.3**	**35.3**	**32.0**	**33.6**	**33.6**	**28.0**	**28.0**	**26.8**	**25.7**
Indirect	**19.5**	**20.2**	**21.2**	**24.1**	**27.3**	**27.7**	**26.8**	**26.3**	**25.5**	**24.8**	**5.6**	**4.3**	**5.9**

*Less than 0.05 million metric tons.
Source: Energy Information Administration, Form EIA-1605.

million metric tons carbon dioxide equivalent, and indirect emissions of other greenhouse gases totaled 11 million metric tons (Table 30).

The largest single direct reduction reported for 2002 was by Waste Management, Inc., at 30 million metric tons carbon dioxide equivalent (reductions of methane emissions from other direct sources), followed by TVA at 26 million metric tons carbon dioxide, FPL Group at 19 million metric tons carbon dioxide (direct reductions from stationary combustion sources), Consol Coal Group at 19 million metric tons carbon dioxide equivalent (reductions in methane from other direct sources), Southern Company at 15 million metric tons carbon dioxide, Duke Energy Corporation at 13 million metric tons carbon dioxide, and FirstEnergy Corporation at 11 million metric tons carbon dioxide equivalent (direct reductions from stationary combustion sources). These seven entity-level claims of reductions in direct emissions combined accounted for 64 percent (133 million metric tons) of total reported entity-level claims of direct emission reductions for 2002 (Table 31).

Most of the emission reductions reported were direct reductions attributable to energy-related carbon dioxide, although IWSA reported that its members' combustion of municipal solid waste reduced indirect emissions of carbon dioxide by 15 million metric tons and indirect emissions of methane by 8 million metric tons carbon dioxide equivalent. In addition, FPL Group and Southern Company reported indirect reductions of carbon dioxide emissions at 4 million and 3 million metric tons, respectively (Table 32). These four reductions combined to account for 30 million metric tons carbon dioxide equivalent or 62 percent of total reported positive indirect emission reductions at the entity level for 2002.[65]

Most of the larger reported reductions (direct and indirect) were computed on the basis of "modified" reference cases—i.e., the reporter indicated that emissions were lower than they would have been without the actions taken (Tables 31 and 32). TVA, for example, used a generation planning model to calculate what its emissions from 1990 through 2002 would have been if it had used the set of generating units operational in 1990 at the 1990 capacity factors and heat rates. Since 1990, TVA has greatly expanded nuclear generation. Browns Ferry Unit 2 returned to service in 1991, Browns Ferry Unit 3 returned to service in 1995, and Watts Bar Unit 1 started commercial operation in 1996. TVA's reported carbon dioxide emissions from stationary combustion sources for 2002 were 11 million metric tons above 1990 levels but 26 million metric tons below what they would have been if the 1990 generation mix and heat rates had been used.

IWSA reported two sources of indirect reductions: (1) by burning municipal solid waste to generate electricity, its members made it possible for electric utilities to burn

Table 28. Largest Reported Entity-Level Direct Emissions of Other Greenhouse Gases by Reporter and Emissions Source, Data Year 2002

Reporter	Gas	Emissions Source	Reported Direct Emissions (Thousand Metric Tons Carbon Dioxide Equivalent)	Percentage of Total Reported Direct Emissions of Other Greenhouse Gases
Consol Coal Group	Methane	Other Direct	12,519.7	48.6
Jim Walter Resources, Inc.	Methane	Other Direct	4,907.1	19.1
Peabody Holding Company, Inc.	Methane	Other Direct	3,300.9	12.8
Dow Chemical Company	HFC-134a	Other Direct	1,248.1	4.8
Black Beauty Coal Company	Methane	Other Direct	1,082.2	4.2
Public Service Enterprise Group	Methane	Other Direct	724.9	2.8
Duke Energy Corporation	Sulfur Hexafluoride	Other Direct	346.3	1.3
Public Service Enterprise Group	Sulfur Hexafluoride	Other Direct	344.4	1.3
Cinergy Corp.	Methane	Other Direct	310.7	1.2
Entergy Services, Inc.	Sulfur Hexafluoride	Other Direct	305.7	1.2
Dow Chemical Company	Methane	Other Direct	179.4	0.7
Alcan Primary Metals Group-Sebree Works	Perfluoromethane	Other Direct	163.4	0.6
Southern Company	Sulfur Hexafluoride	Other Direct	111.0	0.4
Total			**25,543.9**	**99.3**

Source: Energy Information Administration, Form EIA-1605.

[65]Twenty-eight participants in the Voluntary Reporting Program reported negative indirect entity-level emission reductions (i.e., emission increases) for 2002.

less coal; and (2) if the municipal solid waste had not been burned, it could reasonably have been expected to be landfilled, and some portion of the landfilled waste would have decomposed anaerobically, producing methane emissions. Thus, IWSA reported that burning the waste reduced both fossil fuel burning and methane emissions on the part of others.

Thirty-three companies reported emission reductions or sequestration at the entity level using a "basic" reference case. A basic reference case is defined as total emissions in some baseline year—usually, but not always, 1990. In these cases, reductions were calculated as the difference between actual emissions in the data year and emissions in the baseline year. Of these 33 companies, 17 were

Table 29. Total Reported Entity-Level Carbon Dioxide Emission Reductions by Type and Source, Data Year 2002
(Million Metric Tons Carbon Dioxide)

Type of Reduction Source	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
Direct Reductions												
Stationary Combustion . .	21.5	40.2	41.6	58.5	80.8	89.6	88.9	108.2	112.3	127.6	132.1	132.3
Transportation	*	*	*	*	*	*	-0.2	-0.2	-0.2	-0.2	-0.4	-0.3
Other Direct Sources. . . .	0.2	-1.2	-1.3	-1.4	-1.1	-0.9	-0.1	*	-0.2	*	-0.2	-0.6
Total Direct.	**21.7**	**39.0**	**40.2**	**57.2**	**82.0**	**87.7**	**88.6**	**108.0**	**111.9**	**127.4**	**131.5**	**131.3**
Indirect Reductions												
Purchased Power	*	-2.9	-4.4	-9.9	-8.2	-6.4	-6.0	-2.7	-4.1	-4.1	-3.6	-2.9
Other Indirect Sources . .	12.8	13.7	13.3	15.2	18.9	20.6	20.5	21.0	24.9	24.0	24.7	28.1
Total Indirect	**12.8**	**10.8**	**8.9**	**5.3**	**10.8**	**14.2**	**14.5**	**18.2**	**20.7**	**19.9**	**21.2**	**25.2**
Carbon Sequestered	**0.6**	**1.6**	**6.0**	**6.1**	**6.9**	**6.9**	**7.7**	**7.9**	**7.9**	**7.3**	**7.5**	**6.8**

*Less than 0.05 million metric tons.
Note: Negative numbers indicate increases in emissions.
Source: Energy Information Administration, Form EIA-1605.

Table 30. Total Reported Entity-Level Reductions in Emissions of Other Greenhouse Gases by Gas and Source, Data Year 2002
(Thousand Metric Tons Carbon Dioxide Equivalent)

Gas and Type of Reduction	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
Methane												
Direct	5,904.6	8,094.7	16,751.0	22,862.4	33,213.9	38,974.4	44,274.5	49,123.9	54,850.0	60,818.7	70,329.8	77,530.9
Indirect	1,732.2	2,713.1	3,162.3	3,554.1	3,940.5	4,627.5	5,622.8	6,284.8	7,367.9	8,579.3	9,518.6	11,099.0
Nitrous Oxide												
Direct	-2.6	-2.7	-2.6	-2.4	-2.5	-2.2	-2.3	-4.8	-5.8	-669.2	-26.3	-44.7
Indirect	71.2	76.0	76.0	76.0	96.0	100.0	96.8	97.6	104.0	94.1	98.5	129.0
Hydrofluorocarbons												
Direct	—	—	—	*	1.5	-9.6	-18.3	-46.3	-193.9	-314.3	-713.1	-1,240.3
Indirect	—	—	—	—	—	—	—	—	—	—	—	—
Perfluorocarbons												
Direct	-0.2	31.2	31.3	87.4	104.5	122.6	78.8	182.3	249.1	229.8	365.0	369.5
Indirect	3.1	3.4	4.0	7.3	7.4	14.8	16.7	20.8	11.2	9.5	20.9	28.9
Sulfur Hexafluoride												
Direct	25.4	31.2	46.4	-126.0	-167.3	-203.9	304.6	688.5	685.5	683.5	859.0	1,143.3
Indirect	—	—	—	—	—	—	0.1	0.1	0.1	0.1	0.1	0.1
Total												
Direct	**5,927.1**	**8,154.4**	**16,826.2**	**22,821.4**	**33,150.2**	**38,881.4**	**44,637.3**	**49,943.7**	**55,584.9**	**60,748.4**	**70,814.5**	**77,758.7**
Indirect.	**1,806.5**	**2,792.4**	**3,242.3**	**3,637.4**	**4,043.9**	**4,742.3**	**5,736.4**	**6,403.3**	**7,483.2**	**8,683.1**	**9,638.2**	**11,257.0**

*Less than 0.05 thousand metric tons.
— = none reported.
Note: Negative numbers indicate increases in emissions.
Source: Energy Information Administration, Form EIA-1605.

electric power producers, including Consolidated Edison of New York, Inc., DTE Energy/Detroit Edison, Duke Energy Corporation, Florida Power Corporation, the Hawaiian Electric Company, PG&E Corporation, and the Tennessee Valley Authority. Also reporting entity-level emission reductions using a "basic" reference case were 16 reporters that were not electricity producers, including Consol Coal Group, Daimler/Chrysler Corporation, Dow Chemical Company, General Motors Corporation, International Truck and Engine Corporation, Lucent Technologies, Inc., Republic Metals Group, Rolls-Royce Corporation, and Toyota Motor North America, Inc.

For 2002, the Waste Management, Inc., reported the largest individual entity-level direct emissions reduction, which it calculated with a basic reference case, at 30 million metric tons carbon dioxide, accounting for 14 percent of total reported carbon dioxide equivalent direct reductions during 2002. This direct reduction (from other direct source activities of Waste Management, Inc.) consisted of reduced methane emissions. In

Table 31. Largest Individual Reported Entity-Level Direct Emission Reductions by Gas, Source, and Type of Reference Case Employed, Data Year 2002

Reporter	Gas	Source	Reference Case	Reported Direct Emission Reduction (Million Metric Tons Carbon Dioxide Equivalent)	Percent of Total Reported Direct Reductions
Waste Management, Inc.	CH_4	Other Direct	Basic	30.1	14.4
Tennessee Valley Authority	CO_2	Stationary Combustion	Modified	26.3	12.6
FPL Group	CO_2	Stationary Combustion	Modified	19.3	9.2
Consol Coal Group	CH_4	Other Direct	Basic	18.9	9.0
Southern Company	CO_2	Stationary Combustion	Modified	15.3	7.3
Duke Energy Corporation	CO_2	Stationary Combustion	Modified	12.8	6.1
FirstEnergy Corporation	CO_2	Stationary Combustion	Modified	10.7	5.1
Entergy Services, Inc.	CO_2	Stationary Combustion	Modified	8.0	3.8
KeySpan Energy Corporation	CH_4	Other Direct	Modified	7.8	3.8
Jim Walter Resources, Inc.	CH_4	Other Direct	Modified	5.5	2.6
Florida Power Corporation	CO_2	Stationary Combustion	Modified	5.4	2.6
Palmer Capital Corporation	CH_4	Other Direct	Modified	5.2	2.5
Constellation Energy Group, Inc.	CO_2	Stationary Combustion	Modified	5.1	2.4
Bethlehem Steel Corporation	CO_2	Stationary Combustion	Modified	4.9	2.3
NiSource/NIPSCO	CH_4	Other Direct	Modified	4.8	2.3
Public Service Enterprise Group	CO_2	Stationary Combustion	Modified	4.7	2.3
PG&E Corporation	CH_4	Other Direct	Basic	4.0	1.9
PG&E Corporation	CO_2	Stationary Combustion	Modified	2.6	1.3
Municipal Electric Auth of Georgia (MEAG Power)	CO_2	Stationary Combustion	Modified	2.5	1.2
General Motors Corporation	CO_2	Stationary Combustion	Basic	2.1	1.0
Alliant Energy	CO_2	Stationary Combustion	Modified	2.1	1.0
KeySpan Energy Corporation	CO_2	Stationary Combustion	Basic	2.1	1.0
Dow Chemical Company	CO_2	Stationary Combustion	Basic	2.0	1.0
NiSource/NIPSCO	CO_2	Stationary Combustion	Modified	1.8	0.9
Allegheny Energy, Inc.	CO_2	Stationary Combustion	Modified	1.5	0.7
Cinergy Corp.	CO_2	Stationary Combustion	Modified	1.4	0.7
Hawaiian Electric Company, Inc.	CO_2	Stationary Combustion	Basic	1.4	0.7
Texas Genco, LP	CO_2	Stationary Combustion	Modified	1.4	0.6
DTE Energy/Detroit Edison	CO_2	Stationary Combustion	Basic	1.3	0.6
Los Angeles Department of Water and Power	CO_2	Stationary Combustion	Basic	1.3	0.6
Sunoco, Inc.	CO_2	Stationary Combustion	Basic	1.2	0.6
Santee Cooper	CO_2	Stationary Combustion	Modified	1.2	0.6
PacifiCorp	CO_2	Stationary Combustion	Modified	1.0	0.5
Total				**215.7**	**103.2**

Note: Twenty-two participants in the Voluntary Reporting of Greenhouse Gases Program reported negative direct entity-level emission reductions for 2002.

addition, Consol Coal Group, another entity-level reporter that relied on the use of a basic reference case to calculate emission reductions from other direct sources, reported the fourth largest single direct emissions reduction at 19 million metric tons carbon dioxide equivalent, representing 9 percent of total reported carbon dioxide equivalent direct reductions for 2002.

Future Commitments To Reduce Emissions

The Voluntary Reporting Program also permits entities to report commitments to reduce emissions or to take action to reduce emissions in the future. In previous years, virtually all companies reporting future commitments were electric utility participants in the Climate Challenge voluntary program. However, 42 (53 percent) of the 79 future commitment reporters in 2002—including Baxter Healthcare, Inc., Dow Chemical Company, IBM, Lucent Technologies, Inc., Miller Brewing Company's Eden, NC, Facility, Noranda Aluminum, Inc., Sikorsky Aircraft Corporation, and Toyota Motor North America, Inc.—were not utilities. Nine of these nonutility reporters indicated that they were participants in other voluntary programs, such as Climate Wise for manufacturers and the Voluntary Aluminum Industrial Partnership.

There are three types of future commitments 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; and 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 has no emissions reporting counterpart: it is a commitment to spend a particular sum of money on emission reduction activities, without a specific promise on the emissions consequences of the expenditure. Most firms reported more than a single commitment, and many reported more than one type of commitment. Entity commitments are usually to make emissions lower than some level in a target year. Project commitments are usually to reduce emissions by a particular amount over a period of years. Because project

Table 32. Largest Individual Reported Entity-Level Indirect Emission Reductions by Gas, Source, and Type of Reference Case Employed, Data Year 2002

Reporter	Gas	Source	Reference Case	Reported Indirect Emission Reduction (Million Metric Tons Carbon Dioxide Equivalent)	Percent of Total Reported Positive Indirect Reductions
Integrated Waste Services Association	CO_2	Other Indirect	Modified	15.3	32.0
Integrated Waste Services Association	CH_4	Other Indirect	Modified	7.9	16.4
FPL Group	CO_2	Other Indirect	Modified	3.5	7.3
Southern Company	CO_2	Other Indirect	Modified	3.0	6.3
Public Service Enterprise Group	CO_2	Purchased Power	Modified	1.9	4.0
Portland General Electric Co.	CO_2	Purchased Power	Modified	1.2	2.6
Sacramento Municipal Utility District	CO_2	Purchased Power	Basic	1.2	2.5
Berkshire Power, LLC	CO_2	Other Indirect	Modified	0.9	1.9
PG&E Corporation	CO_2	Other Indirect	Modified	0.9	1.9
FirstEnergy Corporation	CH_4	Other Indirect	Modified	0.8	1.8
Alliant Energy	CO_2	Other Indirect	Modified	0.8	1.7
PG&E Corporation	CH_4	Other Indirect	Modified	0.7	1.5
Texas Genco, LP	CO_2	Other Indirect	Modified	0.7	1.4
Cinergy Corp.	CH_4	Other Indirect	Modified	0.7	1.4
Waste Management, Inc.	CO_2	Purchased Power	Basic	0.6	1.3
Peabody Holding Company, Inc.	CO_2	Purchased Power	Basic	0.5	1.1
Total				**40.8**	**85.1**

Note: Twenty-eight participants in the Voluntary Reporting of Greenhouse Gases Program reported negative indirect entity-level emission reductions for 2002.

Source: Energy Information Administration, Form EIA-1605.

commitments can cover a range of years, they are sometimes difficult to compare directly with project-level data for a single year of "achieved reductions."

Entity-Level Commitments

Twenty-four participants in the Voluntary Reporting Program reported entity-level commitments to reduce greenhouse gas emissions. These firms made 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 in comparison with a baseline emissions growth trend. Participants reporting entity-level commitments to reduce greenhouse gas emissions in the future included Allegheny Energy, Inc., Alliant Energy, City of Klamath Falls, Entergy Services, Inc., FirstEnergy Corporation, FPL Group, Middlesex Generating Company, National Grid USA, Noranda Aluminum, Inc., and TVA.

In their reports for 2002, reporters of entity-level commitments pledged to reduce emissions in the future by 340 million metric tons carbon dioxide (Table 33), with 74 percent of the total coming from a new participant in the Voluntary Reporting Program, The Forest Bird Society (253 million metric tons carbon dioxide). Other pledges were reported by TVA at 7 percent of the total (23 million metric tons carbon dioxide), National Grid USA at 4 percent (15 million metric tons carbon dioxide), FPL Group at 3 percent (10 million metric tons carbon dioxide), Middlesex Generating Company at 2 percent (8 million metric tons carbon dioxide), and City of Klamath Falls at 2 percent (6 million metric tons carbon dioxide). These six commitments combined accounted for 93 percent (315 million metric tons carbon dioxide) of the total reported entity-level commitments to reduce greenhouse gases. National Grid USA and City of Klamath Falls measured their reduction commitments using basic reference cases. The four others used modified reference cases.

Project-Level Commitments

Twenty-six companies reported on commitments to undertake 185 individual emission reduction 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. Twenty reporters provided data on the quantities of reductions expected for 95 projects.

Reporters indicated that projects were expected to reduce future emissions by 329 million metric tons carbon dioxide equivalent. Of that amount, 95 percent (313

Table 33. Largest Reported Individual Entity-Level Commitments To Reduce Greenhouse Gases by Gas and Type of Reference Case, Data Year 2002

Reporter	Gas	Reference Case	Reported Entity-Level Commitment (Million Metric Tons Carbon Dioxide Equivalent)	Percent of Total Reported Reduction Commitments
The Forest Bird Society	CO_2	Modified	253.1	74.4
Tennessee Valley Authority	CO_2	Modified	22.6	6.6
National Grid USA	CO_2	Basic	15.1	4.5
FPL Group	CO_2	Modified	10.0	2.9
Middlesex Generating Company, LLC	CH_4	Modified	8.4	2.5
City of Klamath Falls	CO_2	Basic	6.3	1.9
Entergy Services, Inc.	CO_2	Basic	5.0	1.5
FirstEnergy Corporation	CO_2	Modified	2.9	0.8
Noranda Aluminum, Inc.	CF_4	Basic	2.8	0.8
Alliant Energy	CO_2	Modified	2.4	0.7
Greater New Bedford Regional Refuse Mgt District	CH_4	Modified	2.1	0.6
South Carolina Electric & Gas Company	CO_2	Basic	1.8	0.5
Allegheny Energy, Inc.	CO_2	Basic	1.8	0.5
Alliant Energy	CO_2	Modified	1.8	0.5
Public Service Company of New Mexico	CO_2	Basic	1.5	0.4
Alliant Energy	CO_2	Modified	1.0	0.3
Total			**338.4**	**99.4**

CO_2 = carbon dioxide. CH_4 = methane. CF_4 = perfluoromethane.
Note: Reporters are not asked to indicate whether future reductions will be direct, indirect, or sequestration.
Source: Energy Information Administration, Form EIA-1605.

million metric tons) would be carbon dioxide, 4 percent (12 million metric tons) would be methane, and 1 percent (1 million metric tons) would be perfluorocarbons. Nitrous oxide and sulfur hexafluoride together would constitute less than 1 percent.

Five of the six largest individual project-level commitment, made by the Forest Bird Society, were related to land afforestation, management, preservation, and reforestation activities in Ecuador, South America. In total those commitments would offset 232 million metric tons of carbon dioxide emissions. The fifth largest individual project-level commitment, made by TVA, was described as "an increase in low emitting capacity," most likely a result of TVA's nuclear power program. It would reduce carbon dioxide emissions by 18 million metric tons. These six project-level commitments accounted for 76 percent of total reported project-level commitments, or 249 million metric tons carbon dioxide equivalent (Table 34).

Financial Commitments

Twenty-one companies, 17 of which were electric utilities, made a total of 41 financial commitments (including 3 for which no data were provided) to reduce

Table 34. Largest Reported Individual Project-Level Commitments To Reduce Greenhouse Gas Emissions, Data Year 2002

Reporter	Project Description	Reported Commitment (Million Metric Tons Carbon Dioxide Equivalent)	Percent of Total Reported Project-Level Commitments
The Forest Bird Society	San Lorenzo - Lowlands of Ecuador, preservation	104.0	31.6
The Forest Bird Society	Yanahurco - Highlands of Ecuador, mixed preservation	54.7	16.6
The Forest Bird Society	Llama Hills - Highlands of Ecuador, afforestation	44.8	13.6
Tennessee Valley Authority	Increase in low-emitting capacity	17.6	5.4
The Forest Bird Society	Mindo Slopes - Slopes of the Andes (Ecuador), preservation	16.1	4.9
The Forest Bird Society	La Siberia - Lowlands of Ecuador, mixed reforestation and forest management	12.0	3.6
Middlesex Generating Company, LLC	Landfill gas control and energy recovery to produce electric power	8.4	2.5
The Forest Bird Society	Pedernales - Lowlands of Ecuador, preservation	7.6	2.3
The Forest Bird Society	El Sinche - Highlands of Ecuador, afforestation	6.5	2.0
FirstEnergy Corporation	Undertake supply side efficiency improvements	4.4	1.3
The Forest Bird Society	Chiles Pond - Lowlands of Ecuador, preservation	3.9	1.2
City of Klamath Falls	As part of KCP's carbon offset proposal to EFSC, $1.5 million in funding was committed to the FRT program to support reforestation of underproducing lands in western Oregon	3.0	0.9
Noranda Aluminum, Inc.	Reduction of PFC emissions through anode effect reduction program in keeping with USEPA goal of 30-60%; 90% reduction in PFC emissions from Lines 1 & 2 and 69% reduction from Line 3; all reductions from 1990 baseline emissions	2.8	0.8
FirstEnergy Corporation	Nuclear generation operation improvement	2.5	0.8
City of Klamath Falls	Under the Oregon State Energy Facility Siting Council Site Certificate, the Klamath Cogeneration Project committed to invest $1 million (in 1998 dollars) to extract useful energy (methane) for electricity production from two largely untapped sources	2.5	0.8
Municipal Electric Auth of Georgia (MEAG Power)	Increase nuclear unit availability	2.5	0.7
Alliant Energy	Modified forest management	2.4	0.7
New York Power Authority	NYPA customer energy services programs	2.3	0.7
Tennessee Valley Authority	Fuel switching	2.2	0.7
Greater New Bedford Regional Refuse Mgt District	Landfill gas control and future utilization	2.1	0.6
City of Klamath Falls	Cogeneration of steam to displace fossil-fired boilers used at an off-site industrial facility	2.0	0.6
The Forest Bird Society	Pinantura Condor - Highlands of Ecuador, afforestation	2.0	0.6
Total		**306.2**	**93.1**

Source: Energy Information Administration, Form EIA-1605.

greenhouse gas emissions in the future. The total amount of funds promised was $51.3 million. The single largest reported financial commitment to reduce greenhouse gas emissions was that of Entergy Services, Inc., which committed to spend $25.0 million on a "carbon burnout plant" to make fly ash suitable for sale to cement companies, followed by Noranda Aluminum, Inc. ($5.5 million), Ameren Corporation ($5.0 million), and Minnesota Power ($3.0 million). FirstEnergy Corporation, CLE Resources, and Kansas City Power & Light Company each committed to spend $2.0 million, and the City of Klamath Falls reported two individual financial commitments that totaled $2.5 million. These eight entities reported financial commitments that together accounted for 92 percent of the reported total for 2002 (Table 35). The largest reported expenditures during 2002 were made by Entergy Services, Inc. ($2.0 million each), followed by Noranda Aluminum, Inc. ($1.6 million), Ameren Corporation ($0.5 million), and Dynegy Midwest Generation, Inc. ($0.4 million). Bountiful City Light & Power, NiSource/NIPSCO, and PacifiCorp reported expenditures of $0.2 million each to reduce greenhouse gas emissions. These seven expenditures combined accounted for 97 percent of the total reported expenditures in 2002 to reduce greenhouse gas emissions (Table 36).

Table 35. Largest Reported Individual Entity-Level Financial Commitments To Reduce Greenhouse Gas Emissions, Data Year 2002

Reporter	Industry	Financial Commitment (Dollars)	Voluntary Program Affiliation	Percent of Total Reported Financial Commitments
Entergy Services, Inc.	Electric, Gas, and Sanitary Services	25,000,000	None	48.7
Noranda Aluminum, Inc.	Primary Metals Industries	5,500,000	Voluntary Aluminum Industrial Partnership	10.7
Ameren Corporation (formerly UE and CIPS)	Electric, Gas, and Sanitary Services	5,000,000	Climate Challenge	9.7
Minnesota Power	Electric, Gas, and Sanitary Services	3,039,000	Climate Challenge	5.9
CLE Resources	Holding and Other Investment Offices	2,000,000	None	3.9
FirstEnergy Corporation	Electric, Gas, and Sanitary Services	2,000,000	Climate Challenge	3.9
Kansas City Power & Light Company	Electric, Gas, and Sanitary Services	2,000,000	Climate Challenge	3.9
City of Klamath Falls	Services, not elsewhere classified	1,500,000	None	2.9
City of Klamath Falls	Services, not elsewhere classified	1,000,000	None	1.9
PacifiCorp	Electric, Gas, and Sanitary Services	610,000	Climate Challenge	1.2
Bountiful City Light & Power	Electric, Gas, and Sanitary Services	517,296	Climate Challenge	1.0
City of Klamath Falls	Services, not elsewhere classified	500,000	None	1.0
Dynegy Midwest Generation, Inc.	Electric, Gas, and Sanitary Services	450,000	Climate Challenge	0.9
FirstEnergy Corporation	Electric, Gas, and Sanitary Services	400,000	Climate Challenge	0.8
Kansas City Power & Light Company	Electric, Gas, and Sanitary Services	264,000	Climate Challenge	0.5
Conectiv Atlantic Generation (CAG)	Electric, Gas, and Sanitary Services	200,000	Climate Challenge	0.4
FirstEnergy Corporation	Electric, Gas, and Sanitary Services	200,000	Climate Challenge	0.4
NiSource/NIPSCO	Electric, Gas, and Sanitary Services	200,000	Climate Challenge	0.4
Dynegy Midwest Generation, Inc.	Electric, Gas, and Sanitary Services	105,000	Climate Challenge	0.2
TXU	Electric, Gas, and Sanitary Services	105,000	Climate Challenge	0.2
TXU	Electric, Gas, and Sanitary Services	105,000	Climate Challenge	0.2
City of Klamath Falls	Services, not elsewhere classified	100,000	None	0.2
Constellation Energy Group, Inc.	Electric, Gas, and Sanitary Services	100,000	Climate Challenge	0.2
Total		**50,895,296**		**99.2**

Source: Energy Information Administration, Form EIA-1605.

Table 36. Reported Entity-Level Financial Expenditures To Reduce Greenhouse Gas Emissions, Data Year 2002

Reporter	Industry	2002 Financial Expenditure (Dollars)	Voluntary Program Affiliation	Percent of Total Reported Financial Expenditures
Entergy Services, Inc.	Electric, Gas, and Sanitary Services	2,000,000	None	38.0
Noranda Aluminum, Inc.	Primary Metals Industries	1,589,441	Voluntary Aluminum Industrial Partnership	30.2
Ameren Corporation (formerly UE and CIPS)	Electric, Gas, and Sanitary Services	500,000	Climate Change	9.5
Dynegy Midwest Generation, Inc.	Electric, Gas, and Sanitary Services	400,000	Climate Change	7.6
PacifiCorp	Electric, Gas, and Sanitary Services	218,067	Climate Change	4.1
Bountiful City Light & Power	Electric, Gas, and Sanitary Services	211,385	Climate Change	4.0
NiSource/NIPSCO	Electric, Gas, and Sanitary Services	200,000	Climate Change	3.8
Cleco Corporation	Electric, Gas, and Sanitary Services	49,704	None	0.9
Cleco Corporation	Electric, Gas, and Sanitary Services	33,678	None	0.6
TXU	Electric, Gas, and Sanitary Services	20,000	Climate Change	0.4
TXU	Electric, Gas, and Sanitary Services	20,000	Climate Change	0.4
Kansas City Power & Light Company	Electric, Gas, and Sanitary Services	10,000	Climate Change	0.2
Cleco Corporation	Electric, Gas, and Sanitary Services	5,000	USIJI	0.1
NiSource/NIPSCO	Electric, Gas, and Sanitary Services	5,000	Climate Change	0.1
Xcel Energy	Electric, Gas, and Sanitary Services	5,000	Climate Change	0.1
Total		**5,267,277**		**100.0**

Source: Energy Information Administration, Form EIA-1605.