

4. Carbon Sequestration

Background

Carbon sequestration plays an important role in the global carbon cycle. Green plants remove (sequester) carbon from the atmosphere through photosynthesis, extracting carbon dioxide from the air, separating the carbon atom from the oxygen atoms, returning oxygen to the atmosphere, and using the carbon to make biomass in the form of roots, stems, and foliage.

Every year in the United States and throughout the world a very large amount of carbon dioxide—on the order of 120 billion metric tons of carbon—is sequestered in biomass.³⁵ At the same time, carbon is released to the atmosphere from vegetative respiration, combustion of wood as fuel, degradation of manufactured wood products, consumption of biomass for food by animals, and the natural decay of expired vegetation. The net numerical difference, or flux, between carbon sequestration and release can be viewed as a measure of the relative contribution of biomass to the carbon cycle. World flux associated with Earth's living matter is difficult to measure, but biomass is thought to provide a net "sink" equivalent to about 5.1 billion metric tons carbon dioxide per year.³⁶

Forests can play an important role in offsetting human-produced carbon emissions. On average, trees are approximately 25 percent carbon by weight (live trees are approximately 50 percent water by weight, and oven-dried wood is approximately 50 percent carbon by weight).³⁷ The amount of carbon a plant can sequester depends on a number of variables, including species and age, but can be quite large. For example, one large sugar maple tree is capable of removing more than 450 pounds of carbon dioxide from the atmosphere in a year. At that

rate, preserving approximately 30 trees per operating automobile in the United States would offset all U.S. automobile-related carbon dioxide emissions.³⁸

Carbon sequestration on a national scale is substantial. The U.S. Environmental Protection Agency, relying heavily on the work of the U.S. Department of Agriculture's U.S. Forest Service, estimates annual U.S. carbon sequestration (generally defined according to the guidelines of the Intergovernmental Panel on Climate Change) at 838 million metric tons carbon equivalent,³⁹ which offsets approximately 12 percent of annual U.S. anthropogenic emissions of greenhouse gases.⁴⁰

Projects Reported

Fifty entities reported projects on Form EIA-1605 that involved forestry or natural resources that sequestered carbon or reduced emissions in 2002 (Table 14). The reporters included 47 electric utilities, a private service organization providing reforestation services to corporate clients, a real estate company, and a city cogeneration plant engaging in a forestry habitat restoration project. A total of 412 carbon sequestration projects were reported for 2002, an increase of 12 percent from the 2001 data year. Carbon sequestration projects were the most numerous type reported on the long form, representing 23 percent of the projects reported for 2002. Carbon sequestration projects outnumbered methane reduction (403), electricity (398), and end use (315) projects this reporting year. The reported carbon sequestration projects were dispersed over a wide geographic area, including 37 States and 8 foreign countries. A total of 344 domestic and 68 international forestry projects were reported. Thirty-three of the foreign projects

³⁵Intergovernmental Panel on Climate Change, *Climate Change 2001: The Scientific Basis* (Cambridge, UK: Cambridge University Press, 2001), p. 188.

³⁶Intergovernmental Panel on Climate Change, *Climate Change 2001: The Scientific Basis* (Cambridge, UK: Cambridge University Press, 2001), p. 39.

³⁷R.A. Birdsey, *Carbon Storage and Accumulation in United States Forest Ecosystems* (Washington, DC: USDA Forest Service, 1992), p. 12.

³⁸Average mileage and fuel consumption for passenger cars from Energy Information Administration, *Annual Energy Review 2002*, DOE/EIA-0384(2002) (Washington, DC, October 2003), p. 61, web site www.eia.doe.gov/emeu/aer/pdf/03842002.pdf. Carbon dioxide emissions per mile driven and gallon of motor fuel from U.S. Department of Energy, *Sector-Specific Issues and Reporting Methodologies Supporting the General Guidelines for the Voluntary Reporting of Greenhouse Gases Under Section 1605(b) of the Energy Policy Act of 1992*, DOE/PO-0028 (Washington, DC, October 1994), Vol. 2, p. 4.19.

³⁹U.S. Environmental Protection Agency, *Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2001*, EPA-430-R-03-004 (Washington, DC, April 2003), p. 6-2, web site <http://yosemite.epa.gov/oar/globalwarming.nsf/content/ResourceCenterPublicationsGHGEmissionsUSEmissionsInventory2003.html>.

⁴⁰U.S. anthropogenic greenhouse gases emissions were 6,862 million metric tons carbon dioxide equivalent in 2002. Energy Information Administration, *Emissions of Greenhouse Gases in the United States 2002*, DOE/EIA-0573(2002) (Washington, DC, October 2003), p. ix, web site www.eia.doe.gov/oiat/1605/1605a.html.

represent individual equity shares in a single forest preservation project in Belize, the Rio Bravo Carbon Sequestration Pilot Project.

The total sequestration reported on Form EIA-1605 for 2002 declined by 8 percent from the previous year, to 7,296,514 metric tons carbon dioxide (Table 14). The decline resulted from a change in PacifiCorp's Noel Kempff Mercado Climate Action Project, which was reported to have sequestered 735,066 metric tons carbon dioxide equivalent in 2001 but only 57,220 metric tons in 2002. The difference of 677,846 metric tons more than accounts for the decline of 660,309 metric tons in total reported carbon dioxide sequestration from 2001 to 2002. The Noel Kempff Mercado project is a forest preservation project;⁴¹ therefore, the sequestration (or avoided emissions) resulting from not harvesting the

forest are accounted for over the initial 5 years of the project in addition to the annual accumulation of carbon through forest growth.

Of the sequestration projects reported for 2002, most (322 or 78 percent) involved some kind of tree planting, which included afforestation, reforestation, urban forestry, and woody biomass production or agroforestry (Table 15).⁴² These projects accounted for 15 percent of the sequestration (and related direct and unspecified emission reductions) reported for 2002. Although only 38 forest preservation projects were reported, they accounted for 80 percent of the sequestration reported for 2002. Eighty-nine percent of the total sequestration for 2002 was reported on behalf of foreign projects, which include some very large forest preservation and agroforestry initiatives.

Table 14. Number of Projects, Carbon Sequestered, and Net Reductions Reported on Form EIA-1605 for Sequestration Projects, Data Years 1994-2002

Data Year	Number of Reporters	Number of Projects	Sequestration (Metric Tons Carbon Dioxide Equivalent)	Net Emission Reductions (Metric Tons Carbon Dioxide Equivalent)	
				Direct	Indirect
1994	23	58	746,545	189	23,127
1995	44	175	1,190,754	378	48,730
1996	51	175	8,676,591	1,291	32,215
1997	56	279	9,849,807	6,160	—
1998	57	321	12,490,927	716	—
1999	53	401	9,623,599	3,406	—
2000	53	468	9,011,117	1,041	—
2001	51	369	7,956,823	1,114	—
2002	50	412	7,296,514	1,875	—

Source: Energy Information Administration, Form EIA-1605.

Table 15. Number of Sequestration Projects Reported on Form EIA-1605 by Project Type, Data Years 1994-2002

Data Year	1994	1995	1996	1997	1998	1999	2000	2001	2002
Afforestation	26	38	38	91	101	158	181	245	283
Reforestation	15	81	79	91	109	136	167	10	10
Urban Forestry	8	17	21	23	28	28	31	33	32
Forest Preservation	2	22	29	38	43	38	42	37	38
Modified Forest Management	12	20	10	33	41	42	44	41	47
Woody Biomass Production and Other Agroforestry	8	14	2	3	3	3	3	3	3
Conservation Tillage	1	1	1	2	2	2	2	2	1
Other Projects	3	6	6	10	5	5	5	5	5
Total	58	175	175	279	321	401	468	468	412

Note: Project totals do not equal sum of components, because some projects are counted in more than one category.

Source: Energy Information Administration, Form EIA-1605.

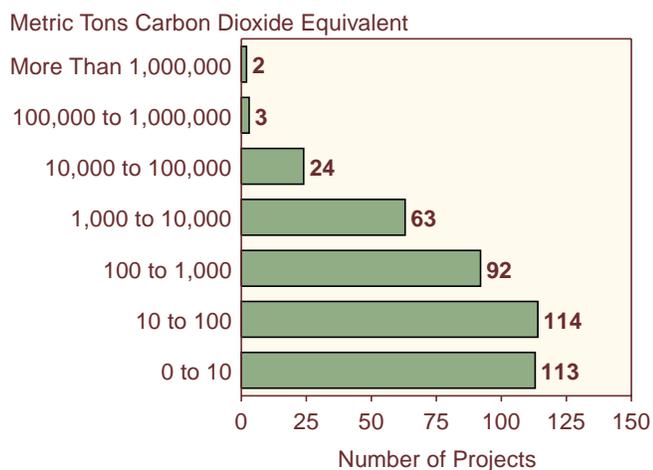
⁴¹Forest preservation entails protecting an existing forest from harvest or conversion to another land use.

⁴²Afforestation is the planting of trees in unforested areas. Reforestation is the planting of trees in forest areas that have recently been harvested. Urban forestry is the planting of trees individually or in small groups in urban or suburban settings. Agroforestry is the cultivation of trees in plantations for fuel or fiber.

Eight percent of the reported projects were urban forestry projects, involving the planting of trees in urban and suburban areas. Urban forestry projects are typically much smaller than forestry projects undertaken in rural or wilderness areas. The average carbon dioxide sequestration reported per urban forestry project for 2002 was just 451 metric tons. In contrast, projects in rural or wilderness areas generally are much larger: 5 such projects sequestered more than 100,000 metric tons carbon dioxide each in 2002 (Figure 12). For the 412 projects for which data were reported, average sequestration in 2002 was 17,710 metric tons carbon dioxide per project.

Almost all (383 or 93 percent) of the reported sequestration projects were undertaken in part to fulfill commitments made under the U.S. Department of Energy's Climate Challenge program. Twenty-eight of the investors in the UtiliTree Carbon Company each submitted reports on the nine projects that were operational in 2002. All the investors reporting were also participants in Climate Challenge. In addition, 35 (8 percent) of the sequestration projects reported on Form EIA-1605 for 2002 were undertaken as part of the U.S. Initiative on Joint Implementation (USIJI). Established under the Climate Change Action Plan (CCAP),⁴³ the USIJI is a pilot program that seeks to encourage foreign-based emission reduction and carbon sequestration projects conducted by U.S. and non-U.S. partners. Two USIJI-approved forestry projects were reported to the Voluntary Reporting Program: the Rio Bravo Carbon Sequestration Pilot

Figure 12. Carbon Sequestration Projects Reported on Form EIA-1605 by Amount of Carbon Sequestered, Data Year 2002



Source: Energy Information Administration, Form EIA-1605.

Project (Belize) and the Noel Kempff Mercado Climate Change Action Project (Bolivia).

Afforestation and Reforestation

Of the sequestration projects reported for 2002, 293 (71 percent) involved either afforestation or reforestation. The carbon sequestration and emission reductions reported for these projects totaled 676,057 metric tons carbon dioxide, representing 9 percent of the total sequestration reported for 2002. All the afforestation and reforestation projects reported for 2002 were domestic.

American Electric Power, Inc. (AEP), a large investor-owned utility, accounted for the largest number of sequestration projects (20 percent of the 289 afforestation and reforestation projects) reported for 2002. AEP reported 57 domestic afforestation projects, which sequestered a reported 108,154 metric tons carbon dioxide in 2002. AEP reported 24 new domestic afforestation projects initiated in 2002, which sequestered a reported 29,520 metric tons carbon dioxide in during the year.

UtiliTree Carbon Company members reported carbon sequestration for nine ongoing UtiliTree projects, including three afforestation projects that were first reported for 2001: the Bayou Cocodrie Bottomland Hardwood Forest Restoration project, the St. Catherine NFWF project, and the St. Catherine ESI project.⁴⁴ Twenty-seven separate UtiliTree members reported on each of the three new projects, as well as the ongoing effects of the six projects that were started before 2001. Allegheny Energy, Inc. reported on the three new projects for the first time in 2002.

The Bayou Cocodrie Bottomland Hardwood Forest Restoration project was undertaken as a cooperative agreement between the U.S. Fish and Wildlife Service, the National Fish and Wildlife Foundation, and the UtiliTree Carbon Company. The project involves the restoration of 400 acres of bottomland hardwood on marginal agricultural farmland recently acquired by the Fish and Wildlife Service, which will be added to the Bayou Cocodrie National Wildlife Refuge in east central Louisiana. The project resulted in the reported sequestration of approximately 471 metric tons carbon dioxide among all 27 reporters for 2002.

The St. Catherine NFWF and ESI projects, located on the Mississippi River just south of Natchez, Mississippi, consist of the creation of carbon sinks by converting marginal agricultural lands (600 acres in the case of St. Catherine NFWF and 500 acres in the case of St.

⁴³President William J. Clinton and Vice President Albert Gore, Jr., *The Climate Change Action Plan* (Washington, DC, October 1993), Appendix II, web site www.gcario.org/USCCAP/toc.html.

⁴⁴UtiliTree is sponsoring two projects in the St. Catherine National Wildlife Refuge. The St. Catherine-NFWF project is being developed in conjunction with the National Fish and Wildlife Foundation, and the St. Catherine-ESI project is being undertaken with Environmental Sysnergy, Inc.

Catherine ESI) to forest cover by the planting of trees. According to the UtiliTree reporters, Federal funds would not be dedicated on the scale necessary to reforest the properties, and the land would likely be used for farming for the foreseeable future without these projects. Not only do the projects provide the benefit of sequestration of incremental carbon through the accumulation of biomass above and below ground, they will also eliminate carbon dioxide emissions from agricultural cultivation equipment. Together, these projects resulted in the reported sequestration of approximately 1,308 metric tons carbon dioxide among all 27 reporters for 2002.

Cinergy Corporation reported on three new afforestation projects for 2002: Hendricks County McCloud Park, Sycamore Land Trust, and NICHES (Northern Indiana Citizens Helping Ecosystems Survive). The three projects sequestered a reported total of 494 metric tons carbon dioxide in 2002. The Hendricks County McCloud Park project involves the afforestation of 25 acres recently purchased by the Hendricks County Parks Department along riparian⁴⁵ and flood plain areas of Big Walnut Creek in Hendricks County, Indiana. The Sycamore Land Trust project involves the planting of 15,000 tree seedlings on 50 acres of cropland along riparian and flood plain areas of Beanblossom Creek in Monroe County, Indiana. The NICHES project involves the planting of 21,000 tree seedlings on 70 acres of marginal cropland along riparian and flood plain areas of the Wabash River in Tippecanoe and Warren counties, Indiana.

Cleco Corporation reported two new afforestation projects for 2002. The Bayou Jean de Jean Reforestation project involves the reestablishment of bottomland hardwoods on 112 acres of marginal pasture land associated with the Cleco Corporation's Rodemacher Power Station in Lafayette, Louisiana. This project sequestered a reported 746 metric tons carbon dioxide in 2002. The Maknockanut Lake Plantation project involves the afforestation of 333 acres in Catahoula Parish, Louisiana, with a variety of bottomland hardwood species. The acreage is part of 3,607 acres of marginal farmland that was acquired by a subsidiary of Cleco Corporation and will undergo afforestation in the future. This project sequestered a reported 1,222 metric tons carbon dioxide in 2002.

Environmental Synergy, Inc., reported one new afforestation project for 2002, the Bottomland Hardwood Restoration project. This project sequestered a reported 2,995 metric tons carbon dioxide in 2002. It is a multi-year project located on various U.S. Fish and Wildlife Service National Wildlife Refuges in Mississippi and

Louisiana and U.S. Army Corps of Engineers recreation areas in Arkansas.

Urban Forestry

A total of 32 urban forestry projects were reported for 2002 by 23 reporters, all of which were electric utilities. For the 32 projects, a total of 14,428 metric tons carbon dioxide was sequestered in 2002. Urban forestry projects are unique, in that under some circumstances they can reduce energy consumption as well as sequester carbon. Shade trees planted near buildings reduce summer air conditioning requirements; in addition, trees can act as windbreaks, reducing heating needs in the winter. Although the emission reductions associated with energy effects of urban forestry can be several times the sequestration benefits on a carbon dioxide equivalent basis, they are difficult to estimate. As a result, none of the reporting entities submitted information on energy-related emission reductions for urban forestry projects.

Four new urban forestry projects were reported in 2002. Alliant Energy, through its Branching Out program, has been encouraging and facilitating tree plantings in its Iowa service territory since 1990. Up to 2002, Alliant Energy's sequestration project was listed as two separate projects (Urban Forestry IES-830 and Urban Forestry IPC-831). Since IES Utilities (IES) and Interstate Power Company (IPC) merged in 2002 to form Interstate Power and Light Company (IP&L), the two projects were combined into one (Urban Forestry IP&L-4335). This project sequestered a reported 1,255 metric tons carbon dioxide in 2002. DTE/Detroit Edison reported on two new urban forestry projects for 2002: 70,317 trees were planted in the first project and 99,517 in the second. Combined, the two new projects sequestered a reported 440 metric tons carbon dioxide in 2002. Southern California Edison Company reported one new urban forestry project in 2002, which involved donating seedlings of fast-growth hardwoods and medium-growth bushes to various cities and counties for community plantings.

Forest Preservation

Forest preservation projects sequester carbon by avoiding the harvesting of timber or clearing of land and thus preventing the release of stored carbon. A total of 38 forest preservation projects were reported for 2002 by 30 reporters. The two largest forest preservation projects were reported by AES Hawaii and AES Shady Point, subsidiaries of the AES Corporation. AES Hawaii reported on the Mbaracayu Conservation project in Paraguay, and AES Shady Point reported on the OXFAM America Amazon project in Bolivia. Together, the two projects sequestered a reported 5.69 million metric tons carbon dioxide in 2002, representing 78 percent of the

⁴⁵Riparian areas are those located on the banks of a natural watercourse, such as a river, lake, or tidewater.

total sequestration reported for forest preservation projects.

Two utilities (AEP and PacifiCorp) reported on the Noel Kempff Mercado Climate Action Project in Bolivia, which was accepted by the USIJI in November 1996. The project, which involves the preservation of 634,286 hectares of land on the southern and western boundary of the Noel Kempff Mercado National Park by incorporating it into the park, includes the following components: (1) carbon dioxide emission reductions through the cessation of logging activities and the protection of forest land from conversion to agricultural use; (2) protection, regeneration, and preservation; and (3) leakage prevention.⁴⁶ The sequestration reported by AEP and PacifiCorp totaled 211,272 metric tons carbon dioxide for 2002.

The Rio Bravo Carbon Sequestration Pilot Project, a forest preservation project in Belize, was included in the reports submitted by 27 utilities, each of which reported its prorated share of the total sequestration for the project. Begun in 1995, the project is being undertaken through a partnership between Cinergy Corporation, DTE/Detroit Edison, PacifiCorp, Wisconsin Electric Power Co., the UtiliTree Carbon Company, the Nature Conservancy, and a Belizean nongovernmental organization (Programme for Belize). The project includes the purchase of a 14,400-acre parcel of endangered forest threatened with conversion to agriculture.

The entire Rio Bravo Carbon Sequestration Pilot Project sequestered an estimated 115,860 metric tons carbon dioxide in 2002, of which 105,107 metric tons (91 percent) was reported to the Voluntary Reporting Program.⁴⁷ The reported carbon sequestration for this project was estimated by defining a reference case that assumes a profile of carbon releases that would have occurred if the project had not been undertaken and the forest had been converted to agriculture over a 5-year period (1995-1999). The estimated carbon sequestration equals the projected avoided carbon releases. To date, the entire project has sequestered an estimated 4.4 million metric tons carbon dioxide. The UtiliTree Carbon Company estimates that most (92 percent) of that carbon dioxide was sequestered during the 5-year preservation phase of the project. The smaller annual sequestration totals reported for years after 2000 represent the accumulation of carbon in the forest after the first 5 years.

⁴⁶Leakage refers to the migration of logging and land-clearing activities that would have occurred in the preserve to areas outside the preserve, which would offset the sequestration achievements of the project.

⁴⁷Eleven UtiliTree participants did not submit reports to the Voluntary Reporting Program for data year 2002, including one Canadian utility that is ineligible to report.

⁴⁸This project was originally sponsored by New England Power Company and reported by its parent company, New England Electric System (NEES) Company. In August 1998, USGen New England, Inc. (USGenNE) completed the acquisition of New England Electric System (NEES) Company's hydroelectric and fossil power generation business previously operated by New England Power. As part of the acquisition, the rights to the emission reductions and carbon sequestration achieved by this and other projects were transferred to USGenNE. For 2000, the activities previously reported by USGenNE were incorporated into the report submitted by its parent, PG&E Corporation.

Only one domestic forest preservation project was reported for 2002, by Alliant Energy, which reported sequestering 1,597 metric tons carbon dioxide by maintaining forested buffer lands around its power plants in the Wisconsin River Valley.

Two new large-scale forest preservation projects were reported for 2002: the Mbaracayu Conservation project, reported by AES Hawaii, Inc.; and the OXFAM America Amazon project reported by AES Shady Point, LLC. The Mbaracayu Conservation project is designed to offset carbon dioxide emissions from the AES Hawaii plant, a 180-megawatt circulating fluidized-bed coal-fired cogeneration plant on the island of Oahu. Sequestration of carbon is accomplished through the planting of fruit trees and cash-producing indigenous trees in the 143,000-acre Mbaracayu forest tract, which without the project, according to AES, would be sold to a timber company. This project sequestered a reported 1,540,000 metric tons carbon dioxide in 2002.

AES Shady Point is supporting an innovative project to protect the tropical forest in the Amazon region of Peru, Ecuador, and Bolivia in cooperation with OXFAM America and indigenous groups from the South American countries. The project is intended to offset carbon dioxide emissions from the AES Shady Point plant in Oklahoma. The OXFAM America Amazon project will support indigenous groups from Peru, Ecuador, and Bolivia in gaining control over their lands and developing sustainable resource extraction plans for the forest. The World Resources Institute, which assisted AES Shady Point in locating and calculating the offset quantities involved with the project, estimates that 10 years of support of these activities can conservatively be expected to protect 1.2 million acres of pristine rain forest and avoid at least 70 million short tons of carbon emissions that would be released if the forest were cleared, as is the practice in the affected project areas. This project sequestered a reported 4,150,000 metric tons carbon dioxide in 2002.

Modified Forest Management

Of the 47 modified forest management projects reported for 2002, 28 were associated with two related reduced-impact logging initiatives in Malaysia. The first initiative was a pilot project reported by PG&E Corporation.⁴⁸ Started in 1992, this project implemented new logging

techniques with the goal of reducing logging damage by 50 percent. The new techniques include pre-cutting of vines, directional felling, and planned extraction of timber on impact-reducing skid trails. Twenty-seven utilities reported their shares in the second initiative—a full-scale project sponsored by the UtiliTree Carbon Company that introduced reduced-impact logging practices to 2,422 acres of forest beginning in 1997. The second initiative increased sequestration by a reported 10,365 metric tons carbon dioxide equivalent in 2002.

DTE Energy/Detroit Edison conducted selective harvesting operations in previously unmanaged wood lots and reported increasing sequestration by 1,340 metric tons in 2002. Alliant Energy reported enhanced forest management activities as a component of its afforestation project. AEP reported 12 projects that involved the utility's annual additions to its modified forest management efforts conducted in upland central hardwood stands. The stands are selectively harvested, removing over mature, mature, cull, and diseased trees, and other steps are undertaken as necessary to improve growing space relationships and maximize the growth rates of the stands. The combined additional sequestration reported by AEP for these projects in 2002 was 16,969 metric tons carbon dioxide. AEP initiated an additional modified forest management project in 2002, which sequestered a reported 386 metric tons carbon dioxide in 2002.

Southern California Edison Company reported three new modified forest management projects in 2002, each of which deals with a different component of the 20,000 acres of forest land at Shaver Lake that is owned by Southern California Edison. The projects involve the management of 1,600 acres of forest land and timber harvesting to restore the natural balance of the forest, to enhance wildlife habitat, and to improve the health of the forest. The three projects sequestered a reported total of 24,663 metric tons carbon dioxide in 2002.

Forest Plantations

Forest plantations include woody biomass production and agroforestry. Woody biomass production is the cultivation of trees in intensively managed plantations for the purpose of producing fuel or fiber. Agroforestry involves mixing trees with annual crops to provide wind shelter, stabilize soil, sequester carbon, and produce fuel wood and fruit crops.

One of the three woody biomass production projects reported for 2002 was a project involving the establishment of a short-rotation cottonwood plantation on a river bottom site in Alabama, reported by J.M. Gilmer and Company. The cottonwoods will be harvested on a 12-year rotation and used as biofuel (displacing fossil fuel) or for pulpwood. After cutting, the cottonwood

stand will be regrown, and a second 12-year crop rotation will begin. J.M. Gilmer and Company reported that this plantation sequestered 180 metric tons carbon dioxide in 2002.

AES Thames reported an agroforestry project in Guatemala that involves establishing a plantation of fruit, pulp, and fuel wood trees. Using a revised estimation method, AES Thames reported that its project sequestered 410,000 metric tons carbon dioxide in 2002.

The third forest plantation project reported for 2002 was Minnesota Power's Short Rotation Woody Crop Establishment project, in which the utility contracts with landowners enrolled in its Conservation Reserve Program to plant hybrid poplars. Minnesota Power reported the sequestration of 17,802 metric tons carbon dioxide through this effort in 2002.

Conservation Tillage and Other Sequestration Projects

Not all the carbon sequestration projects reported for 2002 involved conventional forestry. Other projects reported involved conservation tillage, reuse of utility poles, and restoration of terrestrial, wetland, and marine habitats. Six such projects were reported for 2002.

Exelon (formerly Commonwealth Edison and PECO) reported on its Illinois Prairie Grass Plantings project, in which native prairie grasses are planted on various properties in the utility's State system. In contrast to conventional turf grass, the deep root systems of native Illinois prairie grasses afford environmental benefits that include reducing soil erosion and downstream flooding and eliminating the need for irrigation, fertilizers, pesticides, and herbicides. In addition, the deeper root systems sequester more carbon dioxide. For this project, Exelon claimed responsibility for the sequestration of 696 metric tons carbon dioxide in 2002. In another project, Exelon reused wood utility poles that are structurally sound in order to avoid the harvesting of trees to manufacture new utility poles. The utility pole reuse project was reported to have sequestered 649 metric tons carbon dioxide in 2002.

Alliant Energy reported on a conservation tillage project in south central Wisconsin that involved the conversion of 956 acres of former corn and soybean row cropland to a variety of other uses, including tall grass prairie, wetlands, conservation tillage, and oak savanna. This project reportedly sequestered 4,390 metric tons carbon dioxide in 2002. Alliant Energy also reported on a habitat restoration project in Wisconsin, which sequestered 3,493 metric tons carbon dioxide in 2002.

Other carbon sequestration projects include the reclamation of 6 acres of wetlands by Conectiv Atlantic

Generation and reclamation of wetlands in Texas and Louisiana by Entergy Services, Inc. The two projects sequestered a reported total of 54,895 metric tons carbon dioxide in 2002.

For the 2001 reporting year there was one new reporter in the carbon sequestration project category. The

Indiana Association of Soil and Water Conservation Districts (IASWCD) reported for 2001 on a project that involved collection of county-level data on historical agricultural and drainage practices in the State's 92 Soil and Water Conservation Districts. IASWCD did not report again in 2002.

