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Preface

The *Renewable Energy Annual 2005 (REA)* is the eleventh annual report in its series published by the Energy Information Administration (EIA). The renewable energy resources in the report include: biomass (wood, wood waste, municipal solid waste, landfill gas, ethanol and biodiesel and other biomass); geothermal; wind; solar (solar thermal and photovoltaic); and conventional hydropower. Hydroelectric pumped storage is excluded, because it is usually based on non-renewable energy sources.

The *REA* comprises four component reports. The first, *Renewable Energy Trends in Consumption and Electricity, 2005*, provides an overview of U.S. renewable energy consumption and electricity from 2001 to 2005. The second, *Solar Thermal and Photovoltaic Collector Manufacturing Activities 2005*, presents current (through 2005) information on the U.S. solar energy industry. The third, *Survey of Geothermal Heat Pump Shipments, 2005*, presents information on the U.S. geothermal heat pump manufacturing activities. The fourth, *Green Pricing and Net Metering Programs, 2005*, presents information on the U.S. electric power industry's green pricing and net metering programs and customers.

The EIA was established formally by the Department of Energy Organization Act of 1977 (Public Law 95-91). The legislation requires EIA to carry out a comprehensive, timely, and accurate program of energy data collection and analysis. It also vests EIA with considerable independence in fulfilling its mission.

Definitions for terms used in this report can be found in EIA's Energy Glossary: http://www.eia.doe.gov/glossary/index.html. General information about all the EIA surveys with data related to renewable energy and referenced in this report can be found here: http://www.eia.doe.gov/oss/forms.html.

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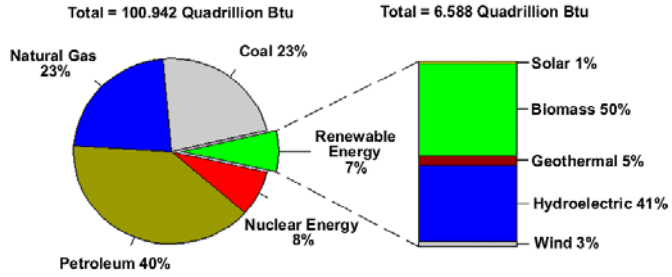
Consumption

Renewable energy consumption increased 2 percent between 2004 and 2005 (Table 1), while total U.S. energy consumption was essentially flat. Increases in coal and petroleum demand were offset by decreases in natural gas and nuclear energy. At 6.6 quadrillion btu, renewable energy's market share approached 7 percent, a slightly higher share than in the preceding few years (Figure H1). Data revisions and changes in the definition of biofuels combined to have a greater effect on the renewable energy balance than actual changes in the renewable energy industry; see the section, "Energy Consumption Revisions" below.

Figure H1. The Role of Renewable Energy Consumption in the Nation's Energy Supply, 2005



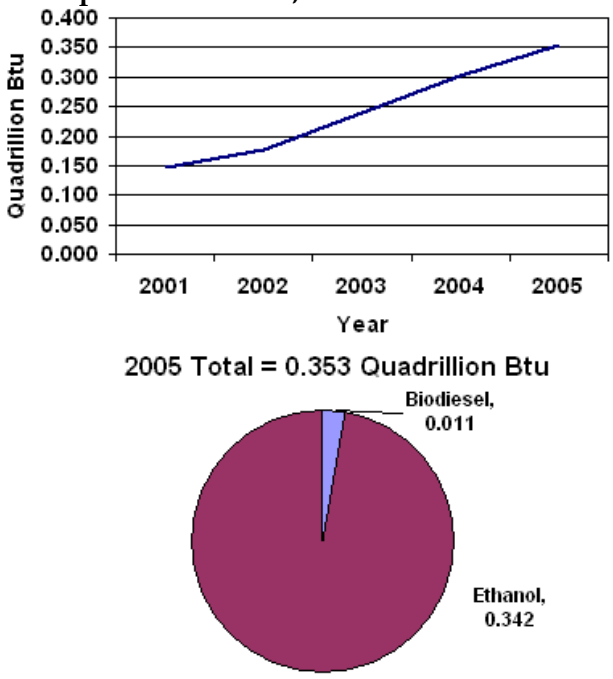
Source: Table 1 of this report.

The electric power and industrial sectors continued to have by far the largest portions of renewable energy consumption with 56 and 29 percent of the market, respectively (Table 2). Nonetheless, renewable energy still accounts for only 9 percent of total U.S. electricity generation. Wind energy experienced the most rapid growth at 26 percent between 2004 and 2005, while the biofuel industry's annual rate of growth was the second most rapid at over 15 percent. Wind energy now accounts for nearly 3 percent of total renewable energy, compared with barely over 1 percent in 2001.

Renewable energy consumed (by electric only and combined heat and power plants) remained flat at about 4,000 trillion btu between 2004 and 2005 at just over 60 percent of renewable energy demand (Tables 1 and 3). Wood/wood waste, conventional hydro, and wind energy consumed in the electric power sector for electricity generation increased, largely offsetting a decline in industrial wood/wood waste consumption for electricity generation. The remaining industrial sector renewable energy consumed for electricity, as well as commercial sector consumption, was either flat or increased just slightly.

Renewable energy consumed for non-electric use increased 7 percent, from 2.360 quadrillion btu to 2.525 quadrillion btu, following trends seen in recent years (Table 4). Most of the 500 trillion btu change between 2001 and 2005 was driven by growth in biofuel consumption in the transportation sector and in the industrial sector (i.e. at the biorefineries used to produce biofuels) (Figure H2). As a result, industrial biomass energy for non-electric purposes grew nearly 18 percent between 2001 and 2005, while biomass used to produce electricity in the industrial sector dropped by 16 percent. Biomass is the only form of renewable energy used more for non-electric purposes than to generate electricity-74 percent of total biomass consumption is for non-electric purposes (Tables 1 and 4). A smaller portion of the increase in non-electric use of renewable energy was due to industrial sector consumption of wood/wood waste for steam and process heat.

Figure H2. Biofuels Consumption in the Transportation Sector, 2001-2005

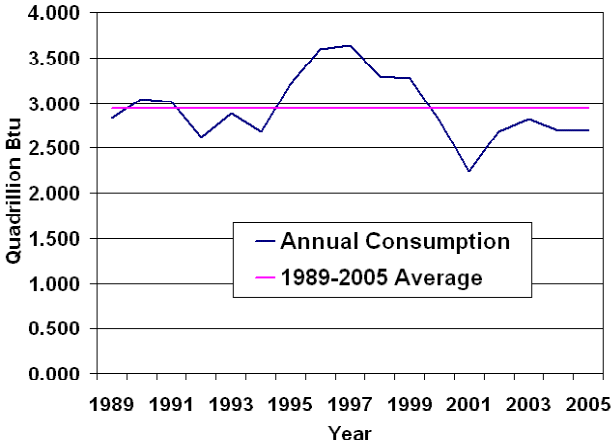


Source: Tables 2 of this report.

Tables 5a and 5b present historical renewable energy consumption from 1989 to 2005. Some general trends are of interest. Changes in the hydroelectric industry due to fluctuating levels of water influence renewable energy consumption as much or more than any other factor, including those discussed above. In 2001, renewable energy appeared to decline sharply, but a closer look reveals that hydroelectric power was at its lowest output between 1989 and 2005 due to

drought. In fact, the swing in hydropower between 1997 (the highest between 1989 and 2005) and 2001 (the lowest) was 1.4 quadrillion btu (Figure H3). By 2005, water levels returned to more normal levels, and renewable energy accounted for 7 percent of U.S. energy consumption, compared to 6 percent in 2001.

Figure H3. Hydroelectric Power Consumption, 1989-2005

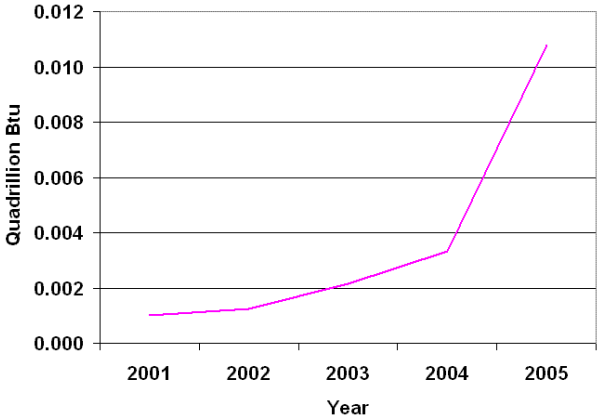


Source: Tables 5a and 5b of this report.

Biomass energy consumption increased by 3 percent overall to 3,298 trillion btu in 2005, or half of total renewable energy consumption (Tables 1 and 6). Nearly 65 percent of biomass energy consumption, or 2,126 trillion btu, was wood consumption, concentrated in the industrial sector's lumber and paper and pulp industries. Another 17 percent, 577 trillion btu, was energy from waste. Despite being a relatively small component of biomass, biofuels experienced the most rapid growth within the biomass fuel category. Ethanol consumption in the transportation sector was 342 trillion btu, or 4 billion gallons in 2005, well on the way to allowing the ethanol industry meet the Renewables Fuel Standard of 7.5 billion gallons in 2012.[2] Biodiesel consumption in the transportation sector represented a much smaller volume of biofuels than ethanol, but it increased almost fourfold to 11 trillion btu from 2004 to 2005, and up from just 1 trillion btu in 2001 (Figure H4). Including biofuel losses and coproducts in the industrial sector, total biofuel consumption was 594 trillion btu in 2005.

[2] The Energy Policy Act of 2005, signed into law in August 2005, established the Renewable Fuel Standard, which requires that gasoline sold in the United States contain 7.5 billion gallons of renewable fuels by 2012. Since then President Bush in his State of the Union address on January 23, 2007 proposed an "Alternate Fuel Standard" with a goal of 35 billion gallons of renewable and alternate fuels by 2017.

Figure H4. Biodiesel Consumption in the Transportation Sector, 2001-2005



Source: Table 2 of this report.

Energy consumption from waste in 2005 was little changed from the preceding few years (Tables 6 and 7). More than half, or 299 trillion btu, was municipal solid waste (MSW) consumed primarily by independent power producers and entities in the commercial sector for producing electric power. The vast majority of MSW energy was consumed by independent power producers. Landfill gas and other biomass consumption for 2005 were 148 trillion btu and 130 trillion btu, respectively.

Industrial biomass energy consumption increased about 2 percent to 1,875 trillion btu in 2005 (Tables 2 and 8). Biorefinery consumption, which is presented for the first time in this report, accounts for about 241 trillion btu of this total. This includes energy consumed to produce ethanol and biodiesel fuels and coproducts. While industries frequently cogenerate electricity and steam, most biomass energy consumption in the industrial sector, or 1,557 trillion btu, was used for useful thermal output or process heat during 2005.

The Paper and Allied Products industry consumed nearly two-thirds of all biomass for energy in 2005. This industry accounted for nearly 60 percent of biomass consumed to produce "useful thermal output" and over 90 percent of total biomass energy consumed to produce electricity. Seventy percent of biomass energy consumed by the Paper and Allied Products industry was black liquor, a residue of the kraft paper-making process.

A total of 109 electricity generating plants burned both biomass and coal in 2005. Table 9 shows the individual plant's total energy consumption and separately the percent each from biomass, coal, and other energy sources. Plants for which biomass is only a small fraction of total energy consumption compared to coal are generally "co-fired" plants attempting to reduce emissions without making major retrofit investments. The remaining plants are dual- or multi-fired plants consuming fuels based on availability, demand

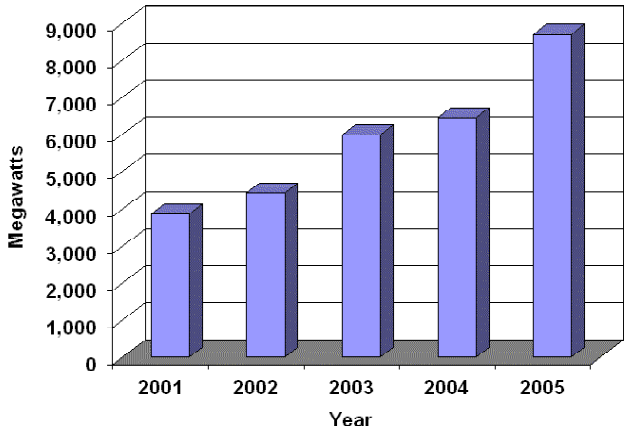
and price. The average fuel mix for plants that use both coal and biomass was about 36 percent biomass and 55 percent coal in 2005, with the remainder being other fuels.

Electricity

Renewable energy provided about 365 billion kilowatthours or 9 percent of total U.S. generation in 2005 (Table 11).[3] Conventional hydroelectric power provided about 74 percent or 270 billion kilowatthours of the renewable total. However, the biggest year to year increase, almost 4 billion kilowatthours, was for the expanding wind industry, which has grown at an average annual rate of 28 percent between 2001 and 2005. As a result, wind generation, which stood at half of geothermal generation in 2001, exceeded geothermal generation in 2005. Ninety percent of renewable generation was in the electric power sector, while the industrial and commercial sectors accounted for the remainder.

Renewable electric capacity increased by just over 2 percent to 98,791 megawatts in 2005. However, wind energy provided the second-greatest increase in capacity of all energy sources, renewable or non-renewable. Between 2004 and 2005, total U.S. net summer capacity increased by over 15,000 megawatts to 978,020 megawatts.[4] Of this increase, natural gas provided about 12,000 megawatts; wind followed in second place with over 2,000 megawatts (Table 12 and Figure H5). In December 2006 the federal renewable production tax credit was extended through 2008 with the passage of the Tax Relief and Health Care Act of 2006.[5] This is expected to support continued expansion in the renewable electric power industry.

Figure H5. Wind Net Summer Capacity, 2001-2005



Source: Table 12 of this report.

Although geothermal capacity increased by only 130 MW during 2005, there are proposals to greatly expand the geothermal resource base to be exploited. These proposals are based on a recent study commissioned by the U.S. Department of Energy, in which scientists at the Massachusetts Institute of Technology concluded that the U.S. has 100,000 MW of "enhanced geothermal capacity" which it could develop by 2050.[6]

Nevada and Arizona had the largest solar renewable portfolio standard requirements in place during 2005, and this is reflected in future plans for solar-electric generating plants. During 2007, Nevada Solar One, located south of Las Vegas near Boulder City, Nevada, will become the largest solar/photovoltaic plant to be operating anywhere in the world during the past 15 years. This 64-megawatt power plant is being developed by the North Carolina-based company Solargenix. During 2005, however, only a single new PV plant was reported to EIA as having gone into operation, the 1-MW Saguaro plant in Arizona.[7]

[3] Energy Information Administration, Monthly Energy Review January 2007 (Washington, DC, January 2007), Table 7.2a, p. 99.

[4] Energy Information Administration, Electric Power Annual 2005 (Washington, DC, Revised November 2006), Table 2.1.

[5] Without the extension the federal renewable production tax credit would have expired at the end of 2007. This provides a 1.9 cent per kilowatthour (adjusted for inflation) tax credit for electricity generated in the first ten years of a project's operation. Technologies that qualify are wind, solar, geothermal and "closed-loop" bioenergy facilities. Other technologies such as "open-loop" biomass, incremental hydropower, small irrigation systems, landfill gas, and municipal solid waste receive a lesser credit.

[6] "The Future of Geothermal Energy," prepared for the U.S. Department of Energy by the Massachussetts Institute of Technology. See http://www1.eere.energy.gov/geothermal/future_geothermal.html . The U.S. Department of Energy has broadly defined Enhanced (or "engineered") Geothermal Systems as engineered reservoirs that have been created to extract economical amounts of heat from low permeability and/or porosity geothermal resources. This includes all geothermal resources that are not currently in commercial production (e.g., the Geysers) and that require stimulation or enhancement.

[7] The EIA collects data only for those plants that have a capacity of 1 megawatt or more.

Forty-seven percent of renewable electricity generation in 2005 was in the Pacific Contiguous division, due to the large concentration of hydro power there (Table 13) and the availability of many other renewable resources in California. California also has a very proactive stance toward renewables. The Pacific division also had the highest concentration of geothermal and solar generation in 2005.

Biomass generation in the industrial sector totaled more than 29 billion kilowatthours in 2005 (Table 14). All but 5 percent of it was provided by black liquor (61 percent) and wood/wood waste solids (34 percent). The South Atlantic division had the most generation (9 billion kilowatthours) followed by the East South Central and West South Central divisions with about 6 billion kilowatthours each. Together, they made the South the predominant region for industrial biomass generation.

State Electricity

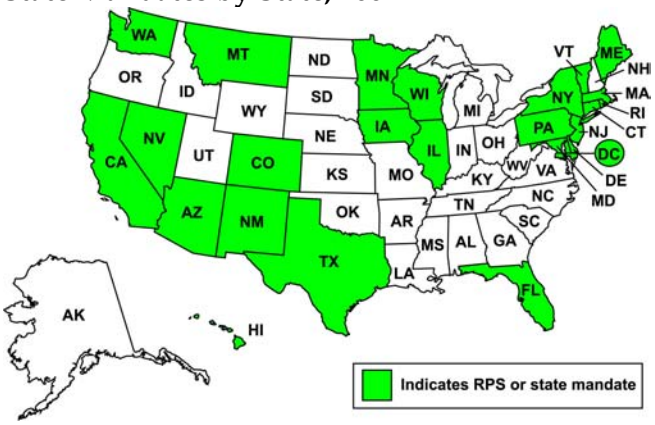
Renewable electricity generation increased by 6 billion kilowatthours between 2004 and 2005 (Tables 17 and 20). The largest increases were hydropower in California and New York and wind power in Texas. Renewable net summer capacity increased by almost 2,400 megawatts (Tables 23 and 26). Wind capacity accounted for over 90 percent (about 2,250 megawatts) of the increase. Texas experienced a 469 megawatt increase in wind capacity during 2005, while Oklahoma had 298. Iowa and Minnesota each had about 200 megawatt increases. The five largest new plants that came on line were: Horse Hollow (213 MW in Texas, by Florida Power and Light); the Century project (185 MW in Iowa, by Mid-America Energy); the Blue Canyon II project (151 MW in Oklahoma, by Blue Canyon Windpower); the Elk River project (150 MW in Kansas, by PPM Energy); and the Hopkins Ridge project (150 MW in Washington, by Puget Sound Energy).

As the capacity increases indicate, wind is becoming an increasingly diverse resource geographically. Whereas in 2001 wind farms operated in only 18 states, by 2005 they operated in a total of 27 states, reflecting significant growth from the early 1990's when most of the U.S. wind industry was in just one state, California.[8] According to the American Wind Energy Association, by the end of 2006 Texas overtook California as the Nation's leader in wind energy capacity.[9]

The percent of U.S. electricity provided by renewable energy stayed steady at about 9 percent between 2004 and 2005. However, this percentage has varied considerably over the past decade, due to large swings in hydropower output. The nonhydro renewable energy share, in contrast, has varied little over the past 10 years, amounting to just 2.2 percent of total electricity generation in 2005 (Table 27).

The renewable share of electricity varies widely across states. Idaho, Washington, and Oregon had the highest percentages of renewable generation in 2005 at 84.2 percent, 72.8 percent and 66.1 percent respectively. This was due to their large supplies of hydropower. Maine had the largest percent of nonhydro renewable generation at 21.6 percent, owing to Maine's Nation-leading generation from wood/wood waste. Twenty-three states had less than 2 percent of generation from nonhydro renewable sources, while Delaware and the District of Columbia had no reported renewable generation.

Figure H6. Renewable Portfolio Standards and State Mandates by State, 2007



(a) In Florida the RPS is not statewide.
Note: In a few states, such as Hawaii, Illinois, and Vermont the renewable portfolio standard (RPS) is voluntary. An unshaded state indicates there is no RPS or state mandate for that state.
Source: North Carolina Solar Center, Database of State Incentives for Renewable Energy (DSIRE) website: http://www.dsireusa.org (February 6, 2007)

By early 2007, 25 states had enacted renewable portfolio standards (RPS) or state mandates for the use of renewable energy (Table 28 and Figure H6). Delaware and Vermont adopted their standards in mid-2005, with Washington approving measures in late 2006. Delaware's standard requires the state's retail suppliers to use renewable energy to generate at least 10 percent of the electricity they sell by 2019.

[8] States that put in operation wind farms for the first time between the end of 2001 and end of 2005 (according to data collected on the Energy Information Administration's Form EIA-860) include: Alaska, Idaho, Illinois, Montana, New Mexico, North Dakota, Ohio, Oklahoma, and West Virginia.

[9] American Wind Energy Association press release, June 23, 2007. See **http://www.awea.org/newsroom/releases/Wind_Power_Capacity_012307.html** .

Vermont's renewable portfolio goal is for the state's electric utilities to meet growth in electricity demand between 2005 and 2012 by using energy efficiency and renewable energy resources. If Vermont's voluntary goal is not achieved by 2012, it will become mandatory in 2013. Washington already provided 72.8 percent of total generation from renewable energy sources, including a large share from conventional hydro in 2005. Washington's new Initiative Measure 937 would require investor-owned utilities to draw on new renewable energy sources for 15 percent of their electrical supply by 2020.

In addition, there was a flurry of activity in several states to strengthen existing standards during 2006. Arizona passed new rules for utilities to draw on renewable energy for 15 percent of their electricity supply by 2025. For 2006, the Arizona requirement was just 1.25 percent. New Jersey approved regulations to extend the renewable portfolio standard from 4 percent in 2008 to 20 percent in 2020 and expand the market for solar energy. Wisconsin significantly increased its standard from 2.2 percent in 2010 to 10 percent by 2015.

Energy Consumption Revisions

Biomass

Transportation Sector

The EIA has expanded its coverage of biofuels to include biodiesel fuel, whose consumption has grown from 1 trillion btu in 2001 to 11 trillion btu in 2005 (Table 2). These estimates are based on production data collected by the US Department of Agriculture Commodity Credit Corporation's Bioenergy Program, which ended in December 2005. The EIA forecast in the Annual Energy Outlook 2007 indicates that consumption of biodiesel, which is presently primarily made from soy bean oil, will continue to expand in the future.

Industrial Sector

The EIA has added coverage of biorefineries and biofuels to include: (1) the energy in feedstocks lost in the production of ethanol and biodiesel and (2) energy in the coproducts of ethanol and biodiesel production. In the case of ethanol, this adds almost 241 trillion btu to 2005 industrial sector biomass consumption and for biodiesel almost one-half trillion btu (Table 2). Since no data is currently collected in EIA on feedstock inputs to biorefineries, loss and coproduct data are estimates. The ethanol factors used to estimate apparent feedstocks and yields are extrapolated from data reported by the US Department of Agriculture in its 1998 and 2002 issues of the report, U.S. Ethanol Cost-of-Production Survey. The biodiesel factors used to estimate apparent feedstocks and yields are based on research and analysis conducted by the National Renewable Energy Laboratory.

Residential Sector

Since the last issue of this report, EIA conducted a review of its residential sector wood estimates and found there were inconsistencies between years in the approach taken. Baseline information is collected only once every three or four years in the EIA's Residential Energy Consumption Survey (RECS). Adjustments are made using changes in heating degree days to obtain estimates for the missing years. In the revised estimates here, adjustments are applied to previous year's estimates using regional heating degree days. Previously, this had been done inconsistently (only a few years had used regional heating degree days), and an additional small adjustment had been taken for wood pellet fuels which resulted in double counting in some years. In 2004 the revision resulted in an estimate of 410 trillion btu of wood consumption in the residential sector compared to 332 trillion btu (Table H1). Using regional heating degree days instead of national heating degree days accounts for most of the difference.

Table H1. Residential Sector Wood Energy Consumption, 2001-2005
(Quadrillion Btu)

Approach	2001	2002	2003	2004	2005
Old Basis	0.370	0.313	0.359	0.332	NA
New Basis	0.370	0.380	0.400	0.410	0.420

NA=Not Applicable.
Source: Old Basis: Energy Information Administration, Renewable Energy Trends 2004 (Washington, DC, August 2005), Table 2. New Basis: Residential sector biomass in Table 2 of this report.

Commercial Sector

Previously, the EIA estimates of commercial sector wood energy consumption were based on an assumption about the share of total wood energy used by the commercial sector. A review of available information supported exploration of wood data reported in EIA's Commercial Building Energy Consumption Survey (CBECS) conducted every three or four years and led to a revision in EIA's methodology. Using CBECS estimates of the square footage of commercial floor space heated by wood and an average number of btus required to heat a square foot, EIA derived estimates of wood consumption for the commercial sector in CBECS years.

Changes in heating degree days are applied to the average consumption in the four CBECS years available and used to make calculations for the non-CBECS years. The revisions resulted in an estimate of almost 70 trillion btu of wood energy consumed in the commercial sector in 2004 compared to the 41 trillion btu previously estimated (Table H2).

Table H2. Commerical Sector Wood/Wood Waste Energy Consumption, 2001-2005
(Quadrillion Btu)

Approach	2001	2002	2003	2004	2005
Old Basis	0.040	0.039	0.040	0.041	NA
New Basis	0.067	0.069	0.071	0.070	0.070

NA=Not Applicable.
Note: Includes small amounts of wood/wood waste consumed for power generation.
Source: Old Basis: Energy Information Administration, Renewable Energy Trends 2004 (Washington, DC, August 2005), Table 2. New Basis: Commercial sector wood/wood waste in Table 2 of this report.

Geothermal

EIA made small revisions to its estimates of non-electric energy as a result of revisions made by the Oregon Geo-Heat Institute, which tracks energy consumed by geothermal heat pumps and for direct heat applications (e.g., crop drying).

Table 1. U.S. Energy Consumption by Energy Source, 2001-2005
(Quadrillion Btu)

Energy Source	2001	2002	2003	2004	2005
Total[a]	96.563	98.101	98.450	100.586	100.942
Fossil Fuels	83.138	83.994	84.386	86.191	86.451
Coal	21.914	21.904	22.321	22.466	22.785
Coal Coke Net Imports	0.029	0.061	0.051	0.138	0.044
Natural Gas[b]	22.861	23.628	22.967	22.993	22.886
Petroleum[c]	38.333	38.401	39.047	40.594	40.735
Electricity Net Imports	0.075	0.072	0.022	0.039	0.084
Nuclear Electric Power	8.033	8.143	7.959	8.222	8.160
Renewable Energy	5.465	6.067	6.321	6.433	6.588
Conventional Hydroelectric	2.242	2.689	2.825	2.690	2.703
Geothermal Energy	0.311	0.328	0.331	0.341	0.343
Biomass[d]	2.777	2.880	2.988	3.196	3.298
Solar Energy	0.065	0.064	0.064	0.064	0.066
Wind Energy	0.070	0.105	0.115	0.142	0.178

[a] Ethanol blended into motor gasoline is included in both "Petroleum" and "Biomass," but is counted only once in total consumption.

[b] Includes supplemental gaseous fuels.

[c] Petroleum products supplied, including natural gas plant liquids and crude oil burned as fuel.

[d] Biomass includes: black liquor, wood/wood waste liquids, wood/wood waste solids, municipal solid waste (MSW), landfill gas, agriculture byproducts/crops, sludge waste, tires, biodiesel, ethanol, losses and coproducts from production of biodiesel and ethanol, and other biomass solids, liquids and gases.

Note: Data revisions are discussed in Highlights section. Totals may not equal sum of components due to independent rounding.

Sources: Non-renewable energy: Energy Information Administration (EIA), Monthly Energy Review (MER) January 2007, DOE/EIA-0035 (2007/01) (Washington, DC, January 2007,) Tables 1.3 and 1.4. Renewable Energy: Table 2 of this report.

Table 2. Renewable Energy Consumption by Energy Use Sector and Energy Source, 2001-2005
(Quadrillion Btu)

Sector and Source	2001	2002	2003	2004	2005
Total	5.465	6.067	6.321	6.433	6.588
Residential	0.439	0.449	0.471	0.483	0.497
Biomass	0.370	0.380	0.400	0.410	0.420
Geothermal	0.009	0.010	0.013	0.014	0.016
Solar[a]	0.060	0.059	0.058	0.059	0.061
Commercial	0.115	0.120	0.131	0.139	0.139
Biomass	0.106	0.111	0.119	0.126	0.124
Wood/Wood Waste	0.067	0.069	0.071	0.070	0.070
MSW/Landfill Gas	0.035	0.037	0.042	0.048	0.047
Other Biomass[b]	0.004	0.005	0.006	0.008	0.007
Geothermal	0.008	0.009	0.011	0.012	0.014
Conventional Hydroelectric	0.001	*	0.001	0.001	0.001
Industrial	1.740	1.741	1.753	1.885	1.912
Biomass	1.703	1.697	1.707	1.848	1.875
Wood/Wood Waste	1.443	1.396	1.363	1.476	1.452
Biofuels Losses and Coproducts[c]	0.110	0.133	0.174	0.211	0.241
Biodiesel Feedstock	*	*	*	*	*
Ethanol Feedstock	0.110	0.133	0.174	0.210	0.241
MSW/Landfill Gas	0.074	0.087	0.085	0.086	0.093
Other Biomass[b]	0.076	0.081	0.085	0.076	0.090
Geothermal	0.005	0.005	0.003	0.004	0.004
Conventional Hydroelectric	0.033	0.039	0.043	0.033	0.032
Transportation					
Biofuels	0.148	0.176	0.240	0.303	0.353
Biodiesel[d]	0.001	0.001	0.002	0.003	0.011
Ethanol[e]	0.147	0.175	0.238	0.299	0.342
Electric Power[f]	3.023	3.581	3.725	3.625	3.688
Biomass	0.450	0.516	0.522	0.509	0.526
Wood/Wood Waste	0.126	0.150	0.167	0.165	0.185
MSW/Landfill Gas	0.310	0.343	0.314	0.309	0.307
Other Biomass[b]	0.014	0.022	0.041	0.036	0.033
Geothermal	0.289	0.305	0.303	0.311	0.309
Conventional Hydroelectric	2.209	2.650	2.781	2.656	2.670
Solar	0.006	0.006	0.005	0.006	0.006
Wind	0.070	0.105	0.115	0.142	0.178

[a] Includes small amounts of distributed solar thermal and photovoltaic energy used in the commercial, industrial and electric power sectors.
[b] Agriculture byproducts/crops, sludge waste, tires, and other biomass solids, liquids and gases.
[c] Losses and coproducts from the production of biodiesel and ethanol.
[d] Biodiesel primarily derived from soy bean oil.
[e] Ethanol primarily derived from corn. Includes small amounts of ethanol consumed in the commercial and industrial sectors.
[f] The electric power sector comprises electricity-only and combined-heat-power (CHP) plants within North American Classification System (NAICS) 22 category whose primary business is to sell electricity, or electricity and heat, to the public.
***=Less than 500 billion Btu.**
Note: Data revisions are discussed in the Highlights section. Totals may not equal sum of components due to independent rounding.
Sources: Analysis conducted by Energy Information Administration, Office of Coal, Nuclear, Electric, and Alternate Fuels and specific sources described as follows. Residential: Energy Information Administration, Form EIA-457A/G, "Residential Energy Consumption Survey;" Oregon Institute of Technology, Geo-Heat Center; and Energy Information Administration, Form EIA-63-A, "Annual Solar Thermal Collector Manufacturers Survey" and Form EIA-63B, "Annual Photovoltaic Module/Cell Manufacturers Survey." Commercial: Energy Information Administration, Form EIA-906, "Power Plant Report", "Form EIA-920, "Combined Heat and Power Plant Report;" and Oregon Institute of Technology, Geo-Heat Center. Industrial: Energy Information Administration, Form EIA-846 (A, B, C) "Manufacturing Energy Consumption Survey," Form EIA-906, "Power Plant Report" and Form EIA-920, "Combined Heat and Power Plant Report;" Oregon Institute of Technology, Geo-Heat Center; Government Advisory Associates, Resource Recovery Yearbook and Methane Recovery Yearbook; U.S. Environmental Protection Agency Landfill Methane Outreach Program estimates; and losses and coproducts from the production of biodiesel and ethanol calculated as the difference between energy in feedstocks and production.
Transportation: Biodiesel: U.S. Department of Agriculture, Commodity Credit Corporation, Bioenergy Program estimates of production assigned to consumption and Ethanol: 2001-2004: EIA, Petroleum Supply Annual, Tables 2 and 16. Calculated as ten percent of oxygenated finished motor gasoline field production (Table 2) plus fuel ethanol refinery input (Table 16).
2005: EIA Petroleum Supply Annual 2005, Tables 1 and 15. Calculated as motor gasoline blending components adustments (Table 1), plus finished motor gasoline adjustments (Table 1), plus fuel ethanol refinery and blender net inputs (Table 15).
Electric Power: Energy Information Administration, Form EIA-906, "Power Plant Report" and Form EIA-920, "Combined Heat and Power Plant Report."

Table 3. Renewable Energy Consumption for Electricity Generation by Energy Use Sector and Energy Source, 2001-2005
(Quadrillion Btu)

Sector/Source	2001	2002	2003	2004	2005
Total	3.439	4.109	4.150	4.073	4.063
Biomass	0.833	1.004	0.902	0.924	0.868
Wood/Wood Waste	0.486	0.605	0.519	0.534	0.482
MSW/Landfill Gas	0.323	0.360	0.335	0.342	0.339
Other Biomass[a]	0.023	0.039	0.048	0.048	0.046
Geothermal	0.289	0.305	0.303	0.311	0.309
Conventional Hydroelectric	2.242	2.689	2.825	2.690	2.703
Solar	0.006	0.006	0.005	0.006	0.006
Wind	0.070	0.105	0.115	0.142	0.178
Commercial	0.023	0.029	0.031	0.037	0.040
Biomass	0.023	0.029	0.031	0.036	0.039
Wood/Wood Waste	*	*	*	0.001	0.001
MSW/Landfill Gas	0.019	0.024	0.026	0.031	0.032
Other Biomass[a]	0.004	0.004	0.005	0.005	0.006
Conventional Hydroelectric	0.001	*	0.001	0.001	0.001
Industrial	0.412	0.520	0.422	0.423	0.351
Biomass	0.380	0.481	0.379	0.391	0.319
Wood/Wood Waste	0.370	0.464	0.362	0.376	0.306
MSW/Landfill Gas	0.003	0.001	0.002	0.004	0.003
Other Biomass[a]	0.007	0.016	0.015	0.011	0.011
Conventional Hydroelectric	0.033	0.039	0.043	0.033	0.032
Electric Power[b]	3.003	3.560	3.697	3.613	3.673
Biomass	0.430	0.494	0.493	0.498	0.510
Wood/Wood Waste	0.116	0.141	0.156	0.157	0.176
MSW/Landfill Gas	0.301	0.334	0.308	0.308	0.304
Other Biomass[a]	0.013	0.019	0.029	0.033	0.030
Geothermal	0.289	0.305	0.303	0.311	0.309
Conventional Hydroelectric	2.209	2.650	2.781	2.656	2.670
Solar	0.006	0.006	0.005	0.006	0.006
Wind	0.070	0.105	0.115	0.142	0.178

[a] Agriculture byproducts/crops, sludge waste, tires, and other biomass solids, liquids and gases.
[b] The electric power sector comprises electricity-only and combined-heat-power (CHP) plants within North American Classification System (NAICS) 22 category whose primary business is to sell electricity, or electricity and heat, to the public.
*** =Less than 500 billion Btu.**
Note: Data revisions are discussed in the Highlights section. Totals may not add due to independent rounding.
Sources: Analysis conducted by Energy Information Administration, Office of Coal, Nuclear, Electric, and Alternate Fuels and the following specific sources: Energy Information Administration, Form EIA-906, "Power Plant Report," and Form EIA-920, "Combined Heat and Power Plant Report."

Table 4. Renewable Energy Consumption for Nonelectric Use by Energy Use Sector and Energy Source, 2001-2005 (Quadrrillion Btu)

Sector/Source	2001	2002	2003	2004	2005
Total	2.027	1.958	2.171	2.360	2.525
Biomass	1.944	1.876	2.085	2.272	2.430
Wood	1.520	1.390	1.483	1.588	1.645
MSW/Landfill Gas	0.095	0.108	0.105	0.100	0.108
Other Biomass[a]	0.071	0.069	0.083	0.071	0.084
Biofuels[b]	0.258	0.309	0.414	0.513	0.594
Geothermal	0.022	0.024	0.027	0.030	0.034
Solar[c]	0.060	0.059	0.058	0.059	0.061
Residential	0.439	0.449	0.471	0.483	0.497
Biomass	0.370	0.380	0.400	0.410	0.420
Wood	0.370	0.380	0.400	0.410	0.420
Geothermal	0.009	0.010	0.013	0.014	0.016
Solar[c]	0.060	0.059	0.058	0.059	0.061
Commercial	0.092	0.091	0.099	0.102	0.099
Biomass	0.083	0.082	0.088	0.090	0.085
Wood	0.067	0.068	0.071	0.070	0.069
MSW/Landfill Gas	0.016	0.013	0.016	0.017	0.015
Other Biomass[a]	0.001	0.001	0.001	0.003	0.002
Geothermal	0.008	0.009	0.011	0.012	0.014
Industrial	1.328	1.221	1.331	1.461	1.561
Biomass	1.323	1.216	1.328	1.457	1.557
Wood	1.073	0.932	1.001	1.100	1.146
Biofuels Losses and Coproducts[d]	0.110	0.133	0.174	0.211	0.241
Biodiesel Feedstock	*	*	*	*	*
Ethanol Feedstock	0.110	0.133	0.174	0.210	0.241
MSW/Landfill Gas	0.071	0.086	0.083	0.082	0.090
Other Biomass[a]	0.069	0.065	0.070	0.065	0.079
Geothermal	0.005	0.005	0.003	0.004	0.004
Transportation					
Biofuels	0.148	0.176	0.240	0.303	0.353
Biodiesel[e]	0.001	0.001	0.002	0.003	0.011
Ethanol[f]	0.147	0.175	0.238	0.299	0.342
Electric Power[g]	0.020	0.022	0.028	0.012	0.015
Biomass	0.020	0.022	0.028	0.012	0.015
Wood	0.010	0.010	0.011	0.008	0.009
MSW/Landfill Gas	0.008	0.009	0.006	0.001	0.003
Other Biomass[a]	0.001	0.003	0.012	0.003	0.003

[a] Agriculture byproducts/crops, sludge waste, tires, and other biomass solids, liquids and gases.

[b] Biofuels and biofuel losses and coproducts.

[c] Includes small amounts of distributed solar thermal and photovoltaic energy used in the commercial, industrial and electric power sectors.

[d] Losses and coproducts from the production of biodiesel and ethanol.

[e] Biodiesel primarily derived from soy bean oil.

[f] Ethanol primarily derived from corn. Includes small amounts of ethanol consumed in the commercial and industrial sectors.

[g] The electric power sector comprises electricity-only and combined-heat-power (CHP) plants within North American Classification System (NAICS) 22 category whose primary business is to sell electricity, or electricity and heat, to the public.

***=Less than 500 billion Btu.**

Note: Data revisions are discussed in the Highlights section. Totals may not equal sum of components due to independent rounding.

Sources: Analysis conducted by Energy Information Administration, Office of Coal, Nuclear, Electric, and Alternate Fuels and specific sources described as follows. Residential: Energy Information Administration, Form EIA-457A/G, "Residential Energy Consumption Survey;" Oregon Institute of Technology, Geo-Heat Center; and Energy Information Administration, Form EIA-63-A, "Annual Solar Thermal Collector Manufacturers Survey" and Form EIA-63B, "Annual Photovoltaic Module/Cell Manufacturers Survey." Commercial: Energy Information Administration, Form EIA-906, "Power Plant Report", "Form EIA-920, "Combined Heat and Power Plant Report;" and Oregon Institute of Technology, Geo-Heat Center. Industrial: Energy Information Administration, Form EIA-846 (A, B, C) "Manufacturing Energy Consumption Survey," Form EIA-906, "Power Plant Report" and Form EIA-920, "Combined Heat and Power Plant Report;" Oregon Institute of Technology, Geo-Heat Center; Government Advisory Associates, Resource Recovery Yearbook and Methane Recovery Yearbook; U.S. Environmental Protection Agency, Landfill Methane Outreach Program estimates; and losses and coproducts from the production of biodiesel and ethanol calculated as the difference between energy in feedstocks and production.

Transportation: Biodiesel: U.S. Department of Agriculture, Commodity Credit Corporation, Bioenergy Program estimates of production assigned to consumption and Ethanol: 2001-2004: EIA, Petroleum Supply Monthly, Tables 2 and 16. Calculated as ten percent of oxygenated finished motor gasoline field production (Table 2) plus fuel ethanol refinery input (Table 16). 2005: EIA Petroleum Supply Annual 2005, Tables 1 and 15. Calculated as motor gasoline blending components adustments (Table 1), plus finished motor gasoline adjustments (Table 1), plus fuel ethanol refinery and blender net inputs (Table 15).

Electric Power: Energy Information Administration, Form EIA-906, "Power Plant Report" and Form EIA-920, "Combined Heat and Power Plant Report."

Table 5a. Historical Renewable Energy Consumption by Sector and Energy Source, 1989-1999
(Quadrillion Btu)

Sector and Energy Source	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Total	6.391	6.206	6.238	5.993	6.262	6.155	6.705	7.168	7.178	6.657	6.681
Biomass	3.160	2.735	2.782	2.933	2.910	3.030	3.104	3.159	3.108	2.931	2.967
Wood	2.680	2.216	2.214	2.313	2.260	2.324	2.370	2.437	2.371	2.184	2.214
Waste[a]	0.354	0.408	0.440	0.473	0.479	0.515	0.531	0.577	0.551	0.542	0.540
Biofuels[b]	0.126	0.111	0.129	0.146	0.171	0.190	0.202	0.145	0.187	0.205	0.213
Geothermal	0.317	0.336	0.346	0.349	0.364	0.338	0.294	0.316	0.325	0.328	0.331
Hydroelectric	2.837	3.046	3.016	2.617	2.892	2.683	3.205	3.590	3.640	3.297	3.268
Solar[c]	0.055	0.060	0.063	0.064	0.066	0.069	0.070	0.071	0.070	0.070	0.069
Wind	0.022	0.029	0.031	0.030	0.031	0.036	0.033	0.033	0.034	0.031	0.046
Residential Sector	0.978	0.641	0.674	0.706	0.618	0.590	0.591	0.612	0.503	0.452	0.462
Biomass	0.920	0.580	0.610	0.640	0.550	0.520	0.520	0.540	0.430	0.380	0.390
Wood	0.920	0.580	0.610	0.640	0.550	0.520	0.520	0.540	0.430	0.380	0.390
Geothermal	0.005	0.006	0.006	0.006	0.007	0.006	0.007	0.007	0.008	0.008	0.009
Solar[c]	0.053	0.056	0.058	0.060	0.062	0.064	0.065	0.065	0.065	0.065	0.064
Commercial Sector	0.102	0.098	0.099	0.109	0.113	0.111	0.118	0.135	0.138	0.127	0.128
Biomass	0.098	0.094	0.095	0.104	0.109	0.106	0.113	0.129	0.131	0.118	0.121
Wood	0.076	0.066	0.068	0.072	0.076	0.072	0.072	0.076	0.073	0.064	0.067
Waste[a]	0.022	0.028	0.026	0.032	0.033	0.035	0.040	0.053	0.058	0.054	0.054
Geothermal	0.003	0.003	0.003	0.003	0.003	0.004	0.005	0.005	0.006	0.007	0.007
Hydroelectric	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
Industrial Sector	1.869	1.715	1.682	1.735	1.771	1.926	1.991	2.032	2.057	1.929	1.935
Biomass	1.839	1.682	1.650	1.703	1.739	1.861	1.933	1.968	1.996	1.872	1.882
Wood	1.584	1.442	1.410	1.461	1.484	1.580	1.652	1.683	1.731	1.603	1.620
Biofuels Losses and Coproducts[d]	0.055	0.048	0.056	0.063	0.074	0.082	0.086	0.061	0.081	0.088	0.092
Waste[a]	0.200	0.192	0.185	0.179	0.181	0.199	0.195	0.224	0.184	0.180	0.171
Geothermal	0.002	0.002	0.002	0.002	0.002	0.003	0.003	0.003	0.003	0.003	0.004
Hydroelectric	0.028	0.031	0.030	0.031	0.030	0.062	0.055	0.061	0.058	0.055	0.049
Transportation Sector											
Biofuels[e]	0.071	0.063	0.073	0.083	0.097	0.109	0.117	0.084	0.106	0.117	0.122
Electric Power Sector[f]	3.372	3.689	3.710	3.360	3.662	3.420	3.889	4.305	4.375	4.032	4.034
Electric Utilities	2.983	3.151	3.114	2.712	2.953	2.714	3.173	3.553	3.620	3.279	3.123
Biomass	0.020	0.022	0.021	0.022	0.021	0.021	0.017	0.020	0.020	0.021	0.020
Wood	0.010	0.008	0.008	0.008	0.009	0.008	0.007	0.008	0.008	0.007	0.007
Waste[a]	0.010	0.013	0.014	0.013	0.011	0.013	0.010	0.012	0.013	0.013	0.013
Geothermal	0.197	0.181	0.170	0.169	0.158	0.145	0.099	0.110	0.115	0.109	0.036
Hydroelectric	2.765	2.948	2.923	2.521	2.774	2.549	3.056	3.423	3.485	3.149	3.067
Solar	*	*	*	*	*	*	*	*	*	*	*
Wind	*	*	*	*	*	*	*	*	*	*	*
Independent Power Producers	0.389	0.538	0.596	0.648	0.709	0.705	0.716	0.752	0.754	0.753	0.910
Biomass	0.211	0.295	0.333	0.381	0.394	0.413	0.405	0.418	0.426	0.424	0.433
Wood	0.089	0.120	0.118	0.132	0.141	0.144	0.119	0.130	0.129	0.129	0.131
Waste[a]	0.122	0.175	0.215	0.249	0.253	0.269	0.286	0.288	0.296	0.294	0.302
Geothermal	0.111	0.145	0.165	0.168	0.193	0.180	0.181	0.191	0.194	0.202	0.276
Hydroelectric	0.043	0.066	0.062	0.065	0.087	0.072	0.093	0.104	0.096	0.092	0.151
Solar	0.003	0.004	0.005	0.004	0.005	0.005	0.005	0.005	0.005	0.005	0.005
Wind	0.022	0.029	0.031	0.030	0.031	0.036	0.033	0.033	0.034	0.031	0.046

Footnotes at the end of table.

Table 5b. Historical Renewable Energy Consumption by Sector and Energy Source, 2000-2005(Continued)
(Quadrillion Btu)

Sector and Energy Source	2000	2001	2002	2003	2004	2005
Total	6.264	5.465	6.067	6.321	6.433	6.588
Biomass	3.013	2.777	2.880	2.988	3.196	3.298
Wood	2.262	2.006	1.995	2.002	2.121	2.126
Waste[a]	0.511	0.514	0.576	0.571	0.562	0.577
Biofuels[b]	0.241	0.258	0.309	0.414	0.513	0.594
Geothermal	0.317	0.311	0.328	0.331	0.341	0.343
Hydroelectric	2.811	2.242	2.689	2.825	2.690	2.703
Solar[c]	0.066	0.065	0.064	0.064	0.064	0.066
Wind	0.057	0.070	0.105	0.115	0.142	0.178
Residential Sector	0.490	0.439	0.449	0.471	0.483	0.497
Biomass	0.420	0.370	0.380	0.400	0.410	0.420
Wood	0.420	0.370	0.380	0.400	0.410	0.420
Geothermal	0.009	0.009	0.010	0.013	0.014	0.016
Solar[c]	0.061	0.060	0.059	0.058	0.059	0.061
Commercial Sector	0.127	0.115	0.120	0.131	0.139	0.139
Biomass	0.119	0.106	0.111	0.119	0.126	0.124
Wood	0.071	0.067	0.069	0.071	0.070	0.070
Waste[a]	0.047	0.039	0.042	0.047	0.055	0.054
Geothermal	0.008	0.008	0.009	0.011	0.012	0.014
Hydroelectric	0.001	0.001	*	0.001	0.001	0.001
Industrial Sector	1.929	1.740	1.741	1.753	1.885	1.912
Biomass	1.882	1.703	1.697	1.707	1.848	1.875
Wood	1.636	1.443	1.396	1.363	1.476	1.452
Biofuels Losses and Coproducts[d]	0.101	0.110	0.133	0.174	0.211	0.241
Waste[a]	0.145	0.150	0.168	0.170	0.162	0.182
Geothermal	0.004	0.005	0.005	0.003	0.004	0.004
Hydroelectric	0.042	0.033	0.039	0.043	0.033	0.032
Transportation Sector						
Biofuels[e]	0.139	0.148	0.176	0.240	0.303	0.353
Electric Power Sector[f]	3.579	3.023	3.581	3.725	3.625	3.688
Electric Utilities	2.607	2.067	2.545	2.622	2.528	2.541
Biomass	0.021	0.019	0.049	0.036	0.036	0.046
Wood	0.007	0.006	0.011	0.017	0.020	0.027
Waste[a]	0.014	0.013	0.038	0.020	0.016	0.019
Geothermal	0.003	0.003	0.029	0.026	0.026	0.024
Hydroelectric	2.582	2.044	2.465	2.556	2.461	2.460
Solar	*	*	*	*	*	*
Wind	*	0.001	0.002	0.004	0.004	0.010
Independent Power Producers	0.972	0.956	1.036	1.103	1.097	1.147
Biomass	0.432	0.432	0.467	0.485	0.473	0.479
Wood	0.127	0.121	0.140	0.151	0.145	0.158
Waste[a]	0.305	0.311	0.327	0.335	0.328	0.322
Geothermal	0.293	0.286	0.275	0.277	0.285	0.285
Hydroelectric	0.185	0.165	0.185	0.224	0.196	0.210
Solar	0.005	0.006	0.006	0.005	0.006	0.005
Wind	0.057	0.068	0.103	0.111	0.138	0.168

Footnotes at the end of table.

Table 5b. Historical Renewable Energy Consumption by Sector and Energy Source, 2000-2005(Continued)
(Quadrillion Btu)

[a] Municipal solid waste, landfill gases, agriculture byproducts/crops, sludge waste, tires, and other biomass solids, liquids and gases.
[b] Biofuels and biofuel losses and coproducts.
[c] Includes small amounts of distributed solar thermal and photovoltaic energy used in the commercial, industrial and electric power sectors.
[d] Losses and coproducts from production of biodiesel and ethanol.
e Biodiesel primarily derived from soy bean oil and ethanol primarily derived from corn. Includes small amounts of ethanol consumed in the commercial and industrial sectors.
f The electric power sector comprises electricity-only and combined-heat-power (CHP) plants within North American Classification System (NAICS) 22 category whose primary business is to sell electricity, or electricity and heat, to the public.
*=Less than 500 billion Btu.
Note: Data revisions are discussed in the Highlights section. Totals may not equal sum of components due to independent rounding.
Sources: Analysis conducted by Energy Information Administration, Office of Coal, Nuclear, Electric, and Alternate Fuels and Specific sources described as follows. Residential: Energy Information Administration, Form EIA-457A/G, "Residential Energy Consumption Survey;" Oregon Institute of Technology, Geo-Heat Center and Energy Information Administration, Form EIA-63-A, "Annual Solar Thermal Collector Manufacturers Survey" and Form EIA-63B, "Annual Photovoltaic Module/Cell Manufacturers Survey." Commercial: Energy Information Administration, Form EIA-867, "Annual Nonutility Power Producer Report," Form EIA-860B, " Annual Electric Generator Report - Nonutility," Form EIA-906, "Power Plant Report," Form EIA-920, "Combined Heat and Power Plant Report," and Oregon Institute of Technology, Geo-Heat Center. Industrial: Energy Information Administration, Form EIA-846 (A,B,C) "Manufacturing Energy Consumption Survey," Form EIA-867, "Annual Nonutility Power Producer Report," Form EIA-860B, " Annual Electric Generator Report - Nonutility," Form EIA-906, "Power Plant Report", and Form EIA-902, "Combined Heat and Power Plant Report," Oregon Institute of Technology, Geo-Heat Center; Government Advisory Associates, *Resource Recovery Yearbook and Methane Recovery Yearbook*; U.S. Environmental Protection Agency, Landfill Methane Outreach Program estimates; and losses and coproducts from the production of biodiesel and ethanol calculated as the difference between energy in feedstocks and production.
Transportation: Biodiesel: U.S. Department of Agriculture, Commodity Credit Corporation, Bioenergy Program estimates of production assigned to consumption and Ethanol: 1989: EIA, *Estimates of U.S. Biofuels Consumption 1990*, Table 10, 1990-1992: EIA, *Estimates of U.S. Biomass Energy Consumption 1992*, Table D2, 1993-2004: EIA, *Petroleum Supply Annual*, Tables 2 and 16. Calculated as ten percent of oxygenated finished motor gasoline field production (Table 2) plus fuel ethanol refinery input (Table 16). 2005: EIA, *Petroleum Supply Annual 2005*, Tables 1 and 15. Calculated as motor gasoline blending components adustments (Table 1), plus finished motor gasoline adjustments (Table 1), plus fuel ethanol refinery and blender net inputs (Table 15).
Electric Power: Energy Information Administration, Form EIA-759, "Monthly Power Plant Report, "Form EIA-867, "Annual Nonutility Power Producer Report, "Form EIA-860B, " Annual Electric Generator Report - Nonutility," and Form EIA-906"Monthly Power Plant Report," and Form EIA-920, "Combined Heat and Power Plant Report."

Table 6. Biomass Energy Consumption by Energy Source and Energy Use Sector, 2001-2005
(Trillion Btu)

Source/Sector	2001	2002	2003	2004	2005
Total	2,777	2,880	2,988	3,196	3,298
Wood Energy Total	2,006	1,995	2,002	2,121	2,126
Residential	370	380	400	410	420
Commercial	67	69	71	70	70
Industrial	1,443	1,396	1,363	1,476	1,452
Electric Power[a]	126	150	167	165	185
Waste Energy Total	514	576	571	562	577
MSW/Landfill Gas	419	467	440	442	447
Commercial	35	37	42	48	47
Industrial	74	87	85	86	93
Electric Power[a]	310	343	314	309	307
Other Biomass[b]	95	108	131	119	130
Commercial	4	5	6	8	7
Industrial	76	81	85	76	90
Electric Power[a]	14	22	41	36	33
Biofuels Total	258	309	414	513	594
Biodiesel Feedstock					
Industrial					
Losses and Coproducts[c]	*	*	*	*	*
Biodiesel					
Transportation[d]	1	1	2	3	11
Ethanol Feedstock					
Industrial					
Losses and Coproducts[e]	110	133	174	210	241
Ethanol					
Transportation[f]	147	175	238	299	342

[a] The electric power sector comprises electricity-only and combined-heat-power (CHP) within the North American Industry Classification System (NAICS)22 category whose primary business is to sell electricity, or electricity and heat, to the public.
[b] Agriculture byproducts/crops, sludge waste, tires, and other biomass solids, liquids and gases.
[c] Losses and coproducts from production of biodiesel.
[d] Biodiesel primarily derived from soy bean oil.
[e] Losses and coproducts from the production of ethanol.
f Ethanol primarily derived from corn.
***=Less than 500 billion Btu.**
Note: Data revisions are discussed in the Highlights section. Totals may not equal sum. of components due to independent rounding.
Sources: Table 2 of this report.

Table 7. Waste Energy Consumption by Type of Waste and Energy Use Sector, 2005
(Trillion Btu)

Type	Sector				
	Commercial	Industrial	Electric Power		Total
			Electric Utilities	Independent Power Producers	
Total	54	182	19	322	577
MSW and Landfill Gas	47	93	14	293	447
MSW	44	12	8	234	299
Landfill Gas	3	81	6	59	148
Other Biomass[a]	7	90	5	28	130

[a]Agriculture byproducts/crops, sludge waste, tires, and other biomass solids, liquids and gases.
MSW = Municipal Solid Waste
Note: Totals may not equal sum of components due to independent rounding.
Sources: Energy Information Administration, Form EIA-906, " Power Plant Report,"
Form EIA-920, "Combined Heat and Power Plant Report,"
and Government Advisory Associates, Resource Recovery Yearbook
and Methane Recovery Yearbook; U.S. Environmental Protection Agency,
Landfill Methane Outreach Program estimates;
and analysis conducted by the Energy Information
Administration, Office of Coal, Nuclear, Electric and Alternate Fuels.

Table 8. Industrial Biomass Energy Consumption and Electricity Net Generation by Primary Purpose of Business and Energy Source, 2005

Industry	Energy Source	Biomass Energy Consumption (Trillion Btus)			Net Generation (Million Kilowatthours)
		Total	For Electricity	For Useful Thermal Output	
Total		1,875.335	318.702	1,556.633	29,208
Agriculture, Forestry and Mining	Total	9.889	1.989	7.901	174
	Agricultural Byproducts/Crops	9.889	1.989	7.901	174
Manufacturing	Total	1,781.201	316.714	1,464.488	29,034
Food and Kindred Products	Total	39.148	1.371	37.777	139
	Agricultural Byproducts/Crops	35.116	0.877	34.239	44
	Other Biomass Gases	0.730	0.050	0.680	9
	Other Biomass Liquids	0.040	0.040	-	5
	Tires	0.570	0.111	0.458	22
	Wood/Wood Waste Solids	2.692	0.293	2.399	59
Lumber	Total	241.388	12.085	229.304	1,426
	Sludge Waste	0.126	0.026	0.100	3
	Wood/Wood Waste Solids	241.263	12.059	229.204	1,423
Paper and Allied Products	Total	1,219.899	299.851	920.048	27,252
	Agricultural Byproducts/Crops	1.331	0.027	1.304	5
	Black Liquor	859.994	205.199	654.795	17,899
	Landfill Gas	0.081	0.015	0.066	2
	Municipal Solid Waste	2.773	0.555	2.218	45
	Other Biomass Gases	0.252	0.017	0.235	3
	Other Biomass Liquids	0.017	0.003	0.013	1
	Other Biomass Solids	4.479	0.798	3.681	158
	Sludge Waste	7.263	2.881	4.382	191
	Tires	11.310	3.070	8.240	269
	Wood/Wood Waste Liquids	8.057	1.695	6.362	197
	Wood/Wood Waste Solids	324.343	85.591	238.752	8,481
Chemicals and Allied Products	Total	4.127	1.300	2.827	41
	Landfill Gas	0.168	0.069	0.099	3
	Municipal Solid Waste	1.459	0.686	0.773	22
	Other Biomass Liquids	0.062	0.010	0.052	2
	Other Biomass Solids	0.004	-	0.004	-
	Sludge Waste	0.406	-	0.406	-
	Wood/Wood Waste Solids	2.030	0.536	1.494	13
Biorefineries	Total	241.320	-	241.320	-
	Biofuel Losses and Coproducts[a]				
	Biodiesel Feedstock	0.458	-	0.458	-
	Ethanol Feedstock	240.862	-	240.862	-
Other[b]	Total	35.319	2.107	33.212	176
Nonspecified[c]	Total	84.244	-	84.244	-
	Landfill Gas	79.103	-	79.103	-
	Municipal Solid Waste	5.141	-	5.141	-

[a] Losses and coproducts from production of biodiesel and ethanol calculated as the difference between energy in feedstocks and production.

[b] Other includes Apparel; Petroleum Refining; Rubber and Misc. Plastic Products; Transportation Equipment; Stone, Clay, Glass, and Concrete Products; Furniture and Fixtures; and related industries.

[c] Primary purpose of business is not specified.

- = Not Applicable.

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

Sources: Energy Information Administration, Form EIA-906, "Power Plant Report," and Form-920 "Combined Heat and Power Report;" Government Advisory Associates, Resource Recovery Yearbook and Methane Recovery Yearbook; U.S. Environmental Protection Agency, Landfill Methane Outreach Program estimates; and analysis conducted by the Energy Information Administration, Office of Coal, Nuclear, Electric and Alternate Fuels.

Table 9. Net Generation and Fuel Consumption at Power Plants Consuming Coal and Biomass by State and Plant Name, 2005

State	Company Name	Plant I.D.	Plant Name	County	Net Electricity Generation (Thousand Kilowatthours)	Total Energy Consumed (MMBTU)	Energy Consumed from Biomass (MMBTU)	Percent of Energy Consumed from		
								Biomass	Coal	Other
AL	Bowater Nwprt Coosa Pines Op	54216	U S Alliance Coosa Pines	Talladega	142,488	13,110,140	5,744,180	43.81	55.36	0.83
AL	DTE Energy Services	50407	Mobile Energy Services LLC	Mobile	387,965	6,425,852	3,370,564	52.45	41.04	6.51
AL	Georgia-Pacific Corp	10699	Georgia Pacific Naheola Mill	Choctaw	402,737	17,055,879	13,408,385	78.61	12.96	8.43
AL	International Paper Co	52140	International Paper Prattville Mill	Autauga	427,978	18,616,432	14,567,359	78.25	8.88	12.87
AL	Rock-Tenn Company	54763	Rock-Tenn Mill	Marengo	191,054	24,223,648	10,501,848	43.35	1.13	55.52
AL	Weyerhaeuser Co	54752	Weyerhaeuser Pine Hill Operations	Wilcox	497,132	15,617,618	11,473,623	73.47	11.1	15.43
AK	U S Air Force-Eielson AFB	50392	Eielson AFB Central Heat & Power Plant	Fairbanks North Star	83,000	2,823,917	12,740	0.45	99.17	0.38
AZ	Tucson Electric Power Co	126	H Wilson Sundt Generating Station	Pima	1,152,849	12,510,168	174,904	1.4	66.04	32.56
AR	Domtar Industries Inc	54104	Ashdown	Little River	809,243	26,704,660	21,002,865	78.65	11.91	9.44
CA	Air Products Energy Enterprise	10640	Stockton Cogen	San Joaquin	462,958	5,906,960	416,898	7.06	59.89	33.05
CA	Mt Poso Cogeneration Co	54626	Mt Poso Cogeneration	Kern	475,579	5,407,121	127,460	2.36	67.74	29.91
CO	Aquila, Inc.	462	W N Clark	Fremont	290,843	3,926,061	7,620	0.19	99.81	
CT	Covanta Mid-Connecticut Inc	54945	Covanta Mid-Connecticut Energy	Hartford	411,792	7,974,770	7,960,380	99.82	0.18	
FL	International Paper Co-Pensacola	50250	International Paper Pensacola	Escambia	374,014	17,345,114	14,029,583	80.88	13.1	6.01
FL	JEA	667	Northside Generating Station	Duval	4,976,838	50,213,325	50,541	0.1	15.12	84.78
FL	Jefferson Smurfit Corp	10202	Jefferson Smurfit Fernandina Beach	Nassau	581,192	20,651,236	12,914,831	62.54	30.55	6.91
FL	Orlando Utilities Comm	564	Stanton Energy Center	Orange	6,253,086	64,657,806	944,018	1.46	98.42	0.12
FL	Stone Container Corp-Panama Ci	50807	Stone Container Panama City Mill	Bay	243,381	16,444,075	13,041,443	79.31	11.74	8.95
FL	US Operating Services Company	10672	US Operating Services Co - Cedar Bay	Duval	1,945,826	23,205,526	77,534	0.33	99.42	0.24
GA	Georgia Pacific Corp	54101	Georgia Pacific Cedar Springs	Early	604,831	24,554,556	17,191,276	70.01	24.63	5.36
GA	Georgia-Pacific Corp - Savannah	10361	Savannah River Mill	Effingham	640,872	10,449,438	39,800	0.38	7.15	92.47
GA	Inland Paperboard & Package Inc	10426	Inland Paperboard Packaging Rome	Floyd	370,047	20,782,626	14,240,566	68.52	25.39	6.08
GA	International Paper Co	50398	International Paper Savanna Mill	Chatham	830,947	22,596,142	13,423,446	59.41	33.37	7.23
GA	International Paper Co-Augusta	54358	International Paper Augusta Mill	Richmond	465,539	25,008,372	17,799,825	71.18	18.79	10.03
GA	Riverwood Intl USA Inc	54464	Riverwood International Macon Mill	Bibb	245,377	12,098,827	9,065,736	74.93	12.77	12.29
GA	SP Newsprint Company	54004	SP Newsprint	Laurens	237,763	6,887,118	3,049,787	44.28	45.07	10.65
HI	AES Hawaii Inc	10673	AES Hawaii	Oahu	1,625,715	15,480,453	199,609	1.29	97.49	1.22
HI	Hawaiian Com & Sugar Co Ltd	10604	Hawaiian Comm & Sugar Puunene Mill	Maui	183,753	5,811,644	4,231,730	72.81	25.01	2.18
IL	Archer Daniels Midland Co	10865	Archer Daniels Midland Decatur	Macon	1,528,478	39,388,800	569,604	1.45	98.55	
IL	Dynegy Midwest Generation Inc	889	Baldwin Energy Complex	Randolph	12,618,528	126,173,357	175,758	0.14	99.77	0.09
IL	Springfield City of	963	Dallman	Sangamon	2,084,104	23,975,750	98,602	0.41	99.5	0.08
IL	Springfield City of	964	Lakeside	Sangamon	208,452	2,812,813	70,921	2.52	97.13	0.34
IA	Ames City of	1122	Ames Electric Services Power Plant	Story	506,131	6,575,890	298,471	4.54	95.14	0.32
IA	Interstate Power and Light Co	1073	Prairie Creek	Linn	918,004	9,897,250	155,570	1.57	97.99	0.44
IA	University of Iowa	54775	University of Iowa Main Power Plant	Johnson	84,634	3,443,773	589,747	17.13	74.25	8.63
KY	Owensboro City of	1374	Elmer Smith	Daviess	2,198,360	23,209,771	253,807	1.09	98.6	0.3
LA	IPC-Mansfield Mill	54091	Mansfield Mill	De Soto	777,313	25,699,719	20,528,166	79.88	3.46	16.66
LA	International Paper Co	54090	International Paper Louisiana Mill	Morehouse	355,303	25,967,936	22,702,242	87.42	3.67	8.9
LA	Temple-Inland Corp	54427	Gaylord Container Bogalusa	Washington	509,001	16,866,776	15,126,280	89.68	1.12	9.2
ME	NewPage Corporation	10495	Rumford Cogeneration	Oxford	728,420	16,777,657	12,998,505	77.48	22.44	0.09
ME	S D Warren Co.- Westbrook	50447	S D Warren Westbrook	Cumberland	421,998	7,252,607	3,834,375	52.87	38.97	8.17
MD	NewPage Corporation	50282	Luke Mill	Allegany	471,901	17,990,330	7,395,472	41.11	58.89	
MI	Decorative Panels International, Inc.	10149	Louisiana Pacific	Alpena	46,738	1,942,145	422,074	21.73	47.37	30.89
MI	International Paper Co-Quinnes	50251	International Paper Quinnesec Mich Mill	Dickinson	209,862	10,446,845	10,076,055	96.45	0.94	2.61
MI	MeadWestvaco Corp.	10208	Escanaba Paper Company	Delta	688,065	19,849,738	12,684,406	63.9	21.3	14.8
MI	S D Warren Co	50438	S D Warren Muskegon	Muskegon	199,569	6,023,088	1,813,439	30.11	65.97	3.92
MI	TES Filer City Station LP	50835	TES Filer City Station	Manistee	448,582	5,764,326	428,847	7.44	77.74	14.82
MI	Wyandotte Municipal Serv Comm	1866	Wyandotte	Wayne	313,968	4,548,820	738,966	16.25	83.21	0.54
MN	International Paper Co-Sartell	50252	International Paper Sartell Mill	Benton	119,593	2,821,101	491,062	17.41	71.4	11.19
MN	Minnesota Power Inc	1897	M L Hibbard	St Louis	76,127	1,402,405	322,806	23.02	76.73	0.25
MN	Minnesota Power Inc	10686	Rapids Energy Center	Itasca	132,074	2,898,959	1,911,078	65.92	26.35	7.72
MS	Weyerhaeuser Co	50184	Weyerhaeuser Columbus MS	Lowndes	644,858	19,035,561	18,279,671	96.03	1.31	2.66
MO	Anheuser-Busch Inc	10430	Anheuser Busch St Louis	St Louis City	104,258	3,878,943	315,967	8.15	87.74	4.12
MO	Aquila, Inc.	2098	Lake Road	Buchanan	605,789	7,288,483	114,521	1.57	96.97	1.46
MO	Aquila, Inc.	2094	Sibley	Jackson	2,880,026	30,801,020	274,340	0.89	99.05	0.06
MO	Empire District Electric Co	2076	Asbury	Jasper	1,369,663	15,474,326	187,992	1.21	98.74	0.05
MO	Hercules Incorporated	10207	Hercules Missouri Chemical Works	Pike	77,852	2,734,388	3,657	0.13	98.89	0.97
MO	Union Electric Co	2107	Sioux	St Charles	6,636,478	66,295,679	146,392	0.22	98.8	0.98

Footnotes at end of table.

Table 9. Net Generation and Fuel Consumption at Power Plants Consuming Coal and Biomass by State and Plant Name, 2005 (Continued)

State	Company Name	Plant I.D.	Plant Name	County	Net Electricity Generation (Thousand Kilowatthours)	Total Energy Consumed (MMBTU)	Energy Consumed from Biomass (MMBTU)	Percent of Energy Consumed from		
								Biomass	Coal	Other
MO	University of Missouri-Columba	50969	University of Missouri Columbia	Boone	144,525	3,582,669	98,339	2.74	91.02	6.24
NY	AES Greenidge	2527	AES Greenidge LLC	Yates	893,636	10,271,415	75,456	0.73	99.02	0.24
NY	Black River Generation LLC	10464	Black River Generation	Jefferson	355,836	4,478,923	474,900	10.6	62.97	26.42
NY	Trigen-Syracuse Energy Corp	50651	Trigen Syracuse Energy	Onondaga	119,350	5,072,613	586,888	11.57	87.02	1.41
NY	WPS Power Developement	50202	WPS Power Niagara	Niagara	304,228	3,950,298	1,124,480	28.47	46.12	25.42
NC	Blue Ridge Paper Products Inc	50244	Canton North Carolina	Haywood	308,870	20,869,323	9,886,342	47.37	51.37	1.26
NC	Corn Products Intl Inc	54618	Corn Products Winston Salem	Forsyth	62,361	2,863,306	2,692,004	94.02	4.89	1.1
NC	Green Power Energy Holdings Corporation	10381	Green Power Kenansville	Duplin	14,126	611,541	589,591	96.41	3.59	
NC	International Paper Co-Buckspt	50254	International Paper Roanoke Rapid NC	Halifax	134,281	10,212,119	7,178,826	70.3	24.61	5.1
NC	International Paper Co-Riegel	54656	International Paper Riegelwood Mill	Columbus	471,396	10,806,199	6,706,716	62.06	3.52	34.42
NC	Primary Energy of North Carolina LLC	10379	Primary Energy Roxboro	Person	203,410	2,755,347	516,113	18.73	81.27	
NC	Primary Energy of North Carolina LLC	10378	Primary Energy Southport	Brunswick	306,887	6,202,069	536,502	8.65	91.35	
NC	Weyerhaeuser Co	50189	Weyerhaeuser Plymouth NC	Martin	823,066	28,096,371	19,456,324	69.25	25.81	4.94
OH	Chillicothe Paper Inc	10244	Chillicothe Paper Inc	Ross	518,776	15,812,457	8,577,520	54.25	44.55	1.21
PA	Kimberly-Clark Corp	50410	Chester Operations	Delaware	372,016	6,329,892	1,043	0.02	46.58	53.4
PA	P H Glatfelter Co	50397	P H Glatfelter	York	649,234	17,484,232	8,609,528	49.24	50.12	0.64
PA	US Operating Services Company	50888	Northampton Generating Company	Northampton	777,946	9,159,311	149,648	1.63	75.37	22.99
PA	Weyerhaeuser	54638	Johnsonburg Mill	Elk	312,017	9,362,644	5,176,622	55.29	42.94	1.77
SC	International Paper Co-Eastovr	52151	International Paper Eastover Facility	Richland	759,898	21,561,156	17,459,107	80.97	14.78	4.25
SC	International Paper Co-GT Mill	54087	International Paper Georgetown Mill	Georgetown	541,816	22,390,956	18,605,745	83.09	7.64	9.26
SC	Smurfit-Stone Container Enterprises Inc	50806	Stone Container Florence Mill	Florence	667,875	20,484,615	13,665,363	66.71	23.73	9.56
SC	South Carolina Electric&Gas Co	7737	Cogen South	Charleston	535,048	10,343,717	6,437,610	62.24	37.76	
SD	Otter Tail Power Co	6098	Big Stone	Grant	2,846,712	30,194,662	240	0	99.89	0.11
TN	Bowater Newsprint Calhoun Ops	50956	Bowater Newsprint Calhoun Operation	McMinn	434,579	22,693,002	17,646,793	77.76	20.44	1.8
TN	Eastman Chemical Co-TN Ops	50481	Tennessee Eastman Operations	Sullivan	1,248,883	42,902,532	405,685	0.95	97.32	1.73
TN	Packaging Corp of America	50296	Packaging Corp of America	Hardin	357,812	17,974,636	14,019,556	78	11.92	10.08
VA	Cogentrix of Richmond Inc	54081	Cogentrix of Richmond	City of Richmond	1,445,205	23,400,420	420,464	1.8	98.2	
VA	Dominion Virginia Power	10773	Altavista Power Station	Campbell	348,093	4,326,435	696	0.02	99.43	0.56
VA	Georgia Pacific Corp - Big Island Mill	50479	Georgia Pacific Big Island	Bedford	54,775	5,118,368	1,864,430	36.43	23.83	39.75
VA	International Paper	52152	International Paper Franklin Mill	Isle of Wight	680,665	36,945,448	26,196,698	70.91	15.21	13.88
VA	Smurfit-Stone Container Enterprises Inc	50813	Stone Container Hopewell Mill	Hopewell City	305,698	8,925,541	7,148,868	80.09	18.87	1.04
VA	Smurfit-Stone Container Enterprises, Inc	10017	West Point Mill	King William	562,561	18,034,409	13,902,417	77.09	17.26	5.65
VA	Westvaco Corp	50900	Covington Facility	Covington	595,329	31,433,752	13,786,601	43.86	44.26	11.89
WA	Weyerhaeuser Co	50187	Weyerhaeuser Longview WA	Cowlitz	292,117	16,724,688	13,586,317	81.24	6.9	11.87
WV	Monongahela Power Co	3942	Albright	Preston	1,067,772	12,308,892	5,494	0.04	99.5	0.46
WV	Monongahela Power Co	3946	Willow Island	Pleasants	634,413	7,403,915	139,318	1.88	97.54	0.58
WI	Domtar Industries Inc	50395	Georgia-Pacific Corp - Nekoosa Mill	Wood	199,999	6,708,158	2,863,544	42.69	47.83	9.48
WI	Manitowoc Public Utilities	4125	Manitowoc	Manitowoc	334,285	5,352,802	99,893	1.87	64.99	33.14
WI	Minergy Neenah LLC	56037	Minergy Neenah	Winnebago	43,362	3,181,884	1,101,420	34.62	65.38	
WI	Mosinee Paper Corp	50614	Mosinee Paper	Marathon	119,332	12,395,426	10,609,106	85.59	12.42	1.99
WI	Northern States Power Co	3982	Bay Front	Ashland	337,076	4,876,668	1,542,238	31.62	62.54	5.84
WI	Packaging Corp of America	50476	Packaging of America Tomahawk Mill	Lincoln	126,009	5,473,367	2,671,163	48.8	44.99	6.2
WI	State of Wisconsin	54408	Univ of Wisc Madison Charter Sreet Plant	Dane	51,012	4,226,311	251,958	5.96	85.9	8.13
WI	State of Wisconsin	54407	Waupun Correctional Central Heating Plt	Dodge	3,017	277,034	11,732	4.23	95.48	0.28
WI	Stora Enso North America	10234	Biron Mill	Wood	235,150	4,602,457	187,114	4.07	92.91	3.02
WI	Stora Enso North America	54857	Niagara Mill	Marinette	107,567	2,901,597	191,189	6.59	73.81	19.6
WI	Stora Enso North America	10476	Whiting Mill	Portage	23,007	1,610,452	253,396	15.73	73.7	10.57
WI	Stora Enso North America	10477	Wisconsin Rapids Pulp Mill	Wood	355,057	11,925,204	8,389,643	70.35	24.99	4.66
WI	Thilmany LLC	54098	International Paper Kaukauna Mill	Outagamie	199,958	7,727,406	3,589,498	46.45	38.9	14.65
WI	Wisconsin Power & Light Co	4050	Edgewater	Sheboygan	4,294,686	44,715,599	347,085	0.78	98.89	0.33
WI	Wisconsin Power & Light Co	4054	Nelson Dewey	Grant	1,390,001	15,511,995	105,865	0.68	80.13	19.19
Total					91,249,657	1,696,301,974	612,020,435	36.08	54.61	9.31

*** = Less than .005 percent.**
MMBtu = One million British thermal units.
Note: State abbreviations are documented on the United States Postal Service website: http://www.usps.com/ncsc/lookups/usps_abbreviations.htm.
Blank cell indicates the plant had no consumption or other energy to report.
Sources: Energy Information Administration, Form EIA-860, "Annual Electric Generator Report," Form EIA-906," Power Plant Report," and Form EIA-920, "Combined Heat and Power Report."

Table 10. Average Heat Content of Selected Biomass Fuels

Fuel Type	Heat Content	Units
Agricultural Byproducts	8.248	Million Btu/Short Ton
Black Liquor	11.758	Million Btu/Short Ton
Digester Gas	0.619	Million Btu/Thousand Cubic Feet
Landfill Gas	0.490	Million Btu/Thousand Cubic Feet
Methane	0.841	Million Btu/Thousand Cubic Feet
Municipal Solid Waste	9.945	Million Btu/Short Ton
Paper Pellets	13.029	Million Btu/Short Ton
Peat	8.000	Million Btu/Short Ton
Railroad Ties	12.618	Million Btu/Short Ton
Sludge Waste	7.512	Million Btu/Short Ton
Sludge Wood	10.071	Million Btu/Short Ton
Solid Byproducts	25.830	Million Btu/Short Ton
Spent Sulfite Liquor	12.720	Million Btu/Short Ton
Tires	26.865	Million Btu/Short Ton
Utility Poles	12.500	Million Btu/Short Ton
Waste Alcohol	3.800	Million Btu/Barrel
Wood/Wood Waste	9.961	Million Btu/Short Ton

Source: Energy Information Administration, Form EIA-860B (1999), Annual Electric Generator Report - Nonutility 1999.

Table 11. Electricity Net Generation From Renewable Energy by Energy Use Sector and Energy Source, 2001-2005 (Thousand Kilowatthours)

Sector/Source	2001	2002	2003	2004	2005
Total	294,946,101	351,250,925	363,216,799	358,825,775	365,253,632
Biomass	56,964,469	61,521,672	61,264,772	60,878,599	61,879,790
Wood/ Wood Waste	35,199,905	38,665,040	37,529,099	37,576,421	38,681,146
MSW/Landfill Gas	19,931,054	20,184,615	20,179,386	19,952,469	20,018,688
Other Biomass[a]	1,833,510	2,672,017	3,556,287	3,349,709	3,179,956
Geothermal	13,740,501	14,491,310	14,424,231	14,810,974	14,691,745
Conventional Hydroelectric	216,961,044	264,328,833	275,806,329	268,417,306	270,321,254
Solar	542,755	554,831	534,001	575,155	550,294
Wind	6,737,332	10,354,279	11,187,466	14,143,741	17,810,549
Commercial	1,548,113	1,597,470	1,966,052	2,426,114	2,508,115
Biomass	1,481,629	1,584,673	1,893,807	2,321,148	2,422,079
Wood/ Wood Waste	17,626	12,505	13,049	13,644	15,998
MSW/Landfill Gas	1,181,829	1,267,614	1,455,294	1,891,688	1,913,666
Other Biomass[a]	282,174	304,554	425,464	415,816	492,415
Conventional Hydroelectric	66,484	12,797	72,245	104,966	86,036
Industrial	30,848,318	34,572,015	33,223,295	32,213,951	32,403,405
Biomass	27,703,049	30,747,367	29,000,871	28,965,457	29,207,965
Wood/ Wood Waste	26,888,483	29,643,207	27,988,372	27,835,477	28,097,528
MSW/Landfill Gas	237,271	202,209	161,467	176,982	179,980
Other Biomass[a]	577,295	901,951	851,032	952,998	930,457
Conventional Hydroelectric	3,145,269	3,824,648	4,222,424	3,248,494	3,195,440
Electric Power[b]	262,549,670	315,081,440	328,027,452	324,185,710	330,342,112
Biomass	27,779,791	29,189,632	30,370,094	29,591,994	30,249,746
Wood/ Wood Waste	8,293,796	9,009,328	9,527,678	9,727,300	10,567,620
MSW/Landfill Gas	18,511,954	18,714,792	18,562,625	17,883,799	17,925,042
Other Biomass[a]	974,041	1,465,512	2,279,791	1,980,895	1,757,084
Geothermal	13,740,501	14,491,310	14,424,231	14,810,974	14,691,745
Conventional Hydroelectric	213,749,291	260,491,388	271,511,660	265,063,846	267,039,778
Solar	542,755	554,831	534,001	575,155	550,294
Wind	6,737,332	10,354,279	11,187,466	14,143,741	17,810,549

[a] Agriculture byproducts/crops, sludge waste, tires, and other biomass solids, liquids and gases.

[b] The electric power sector comprises electricity-only and combined-heat-power (CHP) plants within North American Classification System (NAICS) 22 category whose primary business is to sell electricity, or electricity and heat, to the public.

[P]=Preliminary.

Note: Data revisions are discussed in Highlights section. Totals may not add due to independent rounding.

Sources: Energy Information Administration, Form EIA-906, "Power Plant Report," and Form EIA-920, "Combined Heat and Power Plant Report."

Table 12. U.S. Electric Net Summer Capacity, 2001-2005
(Megawatts)

Source	2001	2002	2003	2004	2005
Total	848,254	905,301	948,446	962,942	978,020
Renewable Total	95,096	96,111	96,893	96,403	98,791
Biomass	9,709	9,689	9,674	9,757	9,848
Wood/Wood Waste	5,882	5,844	5,871	6,182	6,193
MSW/Landfill Gas	3,292	3,330	3,304	3,055	3,055
Other Biomass[a]	535	515	499	520	600
Geothermal	2,216	2,252	2,133	2,152	2,285
Conventional Hydroelectric	78,916	79,356	78,694	77,641	77,541
Solar	392	397	397	398	411
Wind	3,864	4,417	5,995	6,456	8,706
Nonrenewable Total	753,158	809,191	851,553	866,539	879,228

[a] Agriculture byproducts/crops, sludge waste, tires, and other biomass solids, liquids and gases.
[P]=Preliminary.
Note: Data revisions are discussed in Highlights section. Totals may not equal sum of components due to independent rounding.
Sources: Energy Information Administration, Form EIA-860, "Annual Electric Generator Report."

Table 13. Renewable Electricity Net Generation by Energy Source and Census Division, 2005
(Thousand Kilowatthours)

Census Division	Geothermal	Conventional Hydroelectric	MSW / Landfill Gas	Other Biomass[a]	Solar	Wind	Wood / Wood Waste	Total
Total	14,691,745	270,321,254	20,018,688	3,179,956	550,294	17,810,549	38,681,146	365,253,632
New England		8,627,523	3,827,507	407,164		11,486	5,110,198	17,983,878
Middle Atlantic		28,045,810	5,606,383	143,952		387,231	1,225,006	35,408,382
East North Central		4,284,990	1,915,402	347,211		248,806	2,985,339	9,781,748
West North Central		8,192,781	805,165	148,403		4,130,491	649,416	13,926,256
South Atlantic		17,268,419	5,118,893	892,135		153,892	10,587,522	34,020,861
East South Central		22,415,315	92,857	58,143		3,339	6,145,707	28,715,361
West South Central		7,856,385	206,798	239,477		5,084,982	5,483,989	18,871,631
Mountain	1,447,509	29,415,041	51,741	42,189	13,581	2,288,128	654,791	33,912,980
Pacific Contiguous	13,022,639	142,654,860	2,102,865	727,757	536,713	5,494,973	5,838,797	170,378,604
Pacific Noncontiguous	221,597	1,560,130	291,077	173,525		7,221	381	2,253,931

[a] **Agriculture byproducts/crops, sludge waste, tires, and other biomass solids, liquids and gases.**
Note: Blank cell indicates the division has no data to report for that energy source. Totals may not add due to independent rounding.
Source: Energy Information Administration, Form EIA-906, "Power Plant Report."

Table 14. Industrial Biomass Electricity Net Generation by Census Division and Energy Sources, 2005
(Thousand Kilowatthours)

Energy Source	Census Division										
	New England	Middle Atlantic	East North Central	West North Central	South Atlantic	East South Central	West South Central	Mountain	Pacific Contiguous	Pacific Noncontiguous	Total
Total	2,157,258	745,510	1,914,858	572,330	9,444,490	5,988,361	5,595,326	554,582	2,217,445	17,805	29,207,967
Agricultural Byproducts/Crops				9,989	156,967	5,344	20,953		17,399	12,932	223,584
Black Liquor	947,511	542,822	873,880	149,751	6,527,657	4,302,943	3,661,308	271,974	621,359		17,899,205
Landfill Gases			102,175		1,783	3,494			5,630		113,082
Municipal Solid Waste					66,898						66,898
Other Biomass Gases			3,382	9,249							12,632
Other Biomass Liquids	582	2,005								4,873	7,460
Other Biomass Solids	9,979		43,975		147,457						201,411
Sludge Waste	37,514	4,023	7,773	6,476	78,145	18,564	5,722		35,479		193,695
Tires	64,597		26,128		99,029	17,262	84,663				291,678
Wood/Wood Waste Liquids		76,579	30,983			398			89,289		197,249
Wood/Wood Waste Solids	1,097,076	120,081	826,563	396,865	2,366,555	1,640,356	1,822,681	282,608	1,448,289		10,001,074

Note: Blank cell indicates the division has no data to report for that energy source. Totals may not add due to independent rounding.
Source: Energy Information Administration, Form EIA-906, "Power Plant Report."

Table 15. Renewable Electric Power Sector Net Generation by Energy Source and State, 2004
(Thousand Kilowatthours)

State	Geothermal	Hydroelectric Conventional	MSW / Landfill Gas	Other Biomass[a]	Solar	Wind	Wood / Wood Waste	Total
Alabama		10,626,221					177,891	10,804,112
Alaska		1,498,020						1,498,020
Arizona		6,973,147	43,994		4,265			7,021,406
Arkansas		3,643,439		28,712				3,672,151
California	13,105,306	34,140,926	1,661,291	293,895	570,890	4,305,875	2,885,776	56,963,959
Colorado		1,194,665		34,893		220,141	87	1,449,786
Connecticut		462,612	1,344,128	159,451			5,457	1,971,648
Delaware								
District of Columbia								
Florida		265,258	3,034,164	347,474			444,727	4,091,623
Georgia		3,668,499	17,601					3,686,100
Hawaii	213,288	57,268		163,074		7,495		441,125
Idaho		8,461,655					83,908	8,545,563
Illinois		150,268	529,653	256,811		78,073		1,014,805
Indiana		443,721	86,217					529,938
Iowa		945,959	86,318			1,049,952		2,082,229
Kansas		12,547				358,632		371,179
Kentucky		3,780,251	57,029	15,528				3,852,808
Louisiana		1,098,825		73,373				1,172,198
Maine		2,867,071	228,362	80,324			1,464,152	4,639,909
Maryland		2,507,521	644,876					3,152,397
Massachusetts		993,205	1,899,196	1,619			114,336	3,008,356
Michigan		1,509,330	585,046	121,233		1,875	1,105,483	3,322,967
Minnesota		606,649	515,792			812,371	107,849	2,042,661
Mississippi								
Missouri		1,479,914		106,630			192	1,586,736
Montana		8,856,031						8,856,031
Nebraska		913,021	26,739	6		38,431		978,197
Nevada	1,297,504	1,615,123						2,912,627
New Hampshire		1,309,895	218,100				624,441	2,152,436
New Jersey		36,248	1,298,025					1,334,273
New Mexico		138,947				513,465		652,412
New York		23,906,973	1,868,160	74,329		116,450	264,151	26,230,063
North Carolina		4,730,564	107,865	55,944			375,598	5,269,971
North Dakota		1,545,864				214,523		1,760,387
Ohio		729,876	26,368				46,141	802,385
Oklahoma		2,976,676				572,744		3,549,420
Oregon		33,080,819	112,539	15,180		619,012		33,827,550
Pennsylvania		3,155,338	1,790,537	1,377		306,312	202,120	5,455,684
Rhode Island		5,461	101,526					106,987
South Carolina		2,444,837	23,391				215,855	2,684,083
South Dakota		3,597,509				157,678		3,755,187
Tennessee		9,649,206	19,987			3,813		9,673,006
Texas		1,300,609	204,465	72,190		3,137,690		4,714,954
Utah	194,876	449,848	6,982					651,706
Vermont		1,166,269				11,364	387,099	1,564,732
Virginia		1,582,930	731,879	16,290			511,523	2,842,622
Washington		71,500,753	230,610	7,504		736,576	611,706	73,087,149
West Virginia		607,560		14,272		161,191	552	783,575
Wisconsin		1,783,371	382,959	40,786		103,563	98,256	2,408,935
Wyoming		593,147				616,515		1,209,662
Total	14,810,974	265,063,846	17,883,799	1,980,895	575,155	14,143,741	9,727,300	324,185,710

[a] Agriculture byproducts/crops, sludge waste, tires and other biomass solids, liquids and gases.
Note: The electric power sector comprises electricity-only and combined-heat-power (CHP) plants within North American Classification System (NAICS) 22 category whose primary business is to sell electricity, or electricity and heat, to the public. Blank cell indicates the state has no data to report for that energy source. Totals may not equal sum of components due to independent rounding.
Source: Energy Information Administration, Form EIA-906,"Power Plant Report," and Form EIA-920, "Combined Heat and Power Plant Report."

Table 16. Renewable Commercial and Industrial Sector Net Generation by Energy Source and State, 2004 (Thousand Kilowatthours)

State	Hydroelectric Conventional	MSW / Landfill Gas	Other Biomass[a]	Wood / Wood Waste	Total
Alabama		5,109	40,258	3,545,581	3,590,948
Alaska			8,828	387	9,215
Arizona			4		4
Arkansas			4,761	1,725,894	1,730,655
California	3	92,293	318,150	940,970	1,351,416
Colorado					
Connecticut					
Delaware					
District of Columbia					
Florida		5,302	198,059	1,785,019	1,988,380
Georgia	23,897		105,285	3,133,085	3,262,267
Hawaii	36,633	323,903	10,103		370,639
Idaho				489,828	489,828
Illinois	3,261	76,901	11,830		91,992
Indiana		69,173			69,173
Iowa			31,493		31,493
Kansas					
Kentucky			4,847	349,753	354,600
Louisiana			75,031	2,631,087	2,706,118
Maine	563,178	171,774	247,546	1,709,053	2,691,551
Maryland		39,786		172,412	212,198
Massachusetts	5,076		9,385		14,461
Michigan	30,254	274,066	3,098	746,470	1,053,888
Minnesota	131,662	19,600	4,365	480,707	636,334
Mississippi			35,540	1,446,191	1,481,731
Missouri			38,819		38,819
Montana				59,950	59,950
Nebraska			12,773		12,773
Nevada					
New Hampshire	5,861			103,624	109,485
New Jersey	1,255		3,136		4,391
New Mexico					
New York	82,689	239,981		248,350	571,020
North Carolina	704,635		18,495	1,284,707	2,007,837
North Dakota			5,603		5,603
Ohio			3,816	294,744	298,560
Oklahoma				249,348	249,348
Oregon				454,582	454,582
Pennsylvania		207,780	8,745	478,668	695,193
Rhode Island					
South Carolina	2,072	82,853	51,175	1,443,096	1,579,196
South Dakota					
Tennessee	758,906			559,847	1,318,753
Texas		16,097	27,425	906,649	950,171
Utah					
Vermont	20,987			5,615	26,602
Virginia	120	416,473	25,538	1,252,494	1,694,625
Washington	74,947		17,025	782,859	874,831
West Virginia	710,719				710,719
Wisconsin	197,305	27,579	47,681	568,151	840,716
Wyoming					
Total	3,353,460	2,068,670	1,368,814	27,849,121	34,640,065

[a] Agriculture byproducts/crops, sludge waste, tires and other biomass solids, liquids and gases.
Note: Blank cell indicates the state has no data to report for that energy source. Totals may not equal sum of components due to independent rounding.
Source: Energy Information Administration, Form EIA-906,"Power Plant Report," and Form EIA-920, "Combined Heat and Power Plant Report."

Table 17. Total Renewable Net Generation by Energy Source and State, 2004
(Thousand Kilowatthours)

State	Geothermal	Hydroelectric Conventional	MSW / Landfill Gas	Other Biomass[a]	Solar	Wind	Wood / Wood Waste	Total
Alabama		10,626,221	5,109	40,258			3,723,472	14,395,059
Alaska		1,498,020		8,828			387	1,507,236
Arizona		6,973,147	43,994	4	4,265			7,021,410
Arkansas		3,643,439		33,473			1,725,894	5,402,806
California	13,105,306	34,140,929	1,753,584	612,045	570,890	4,305,875	3,826,745	58,315,375
Colorado		1,194,665		34,893		220,141	87	1,449,786
Connecticut		462,612	1,344,128	159,451			5,457	1,971,648
Delaware								
District of Columbia								
Florida		265,258	3,039,467	545,533			2,229,745	6,080,003
Georgia		3,692,396	17,601	105,285			3,133,085	6,948,367
Hawaii	213,288	93,901	323,903	173,177		7,495		811,764
Idaho		8,461,655					573,736	9,035,391
Illinois		153,529	606,554	268,641		78,073		1,106,797
Indiana		443,721	155,391					599,112
Iowa		945,959	86,318	31,493		1,049,952		2,113,721
Kansas		12,547				358,632		371,179
Kentucky		3,780,251	57,029	20,375			349,753	4,207,408
Louisiana		1,098,825		148,404			2,631,087	3,878,316
Maine		3,430,249	400,136	327,870			3,173,205	7,331,461
Maryland		2,507,521	684,662				172,412	3,364,595
Massachusetts		998,281	1,899,196	11,004			114,336	3,022,816
Michigan		1,539,584	859,113	124,331		1,875	1,851,953	4,376,856
Minnesota		738,311	535,392	4,365		812,371	588,556	2,678,995
Mississippi				35,540			1,446,191	1,481,730
Missouri		1,479,914		145,449			192	1,625,555
Montana		8,856,031					59,950	8,915,981
Nebraska		913,021	26,739	12,778		38,431		990,969
Nevada	1,297,504	1,615,123						2,912,628
New Hampshire		1,315,756	218,100				728,066	2,261,922
New Jersey		37,503	1,298,025	3,136				1,338,664
New Mexico		138,947				513,465		652,412
New York		23,989,661	2,108,140	74,329		116,450	512,502	26,801,082
North Carolina		5,435,199	107,865	74,439			1,660,305	7,277,808
North Dakota		1,545,864		5,603		214,523		1,765,990
Ohio		729,876	26,368	3,816			340,885	1,100,945
Oklahoma		2,976,676				572,744	249,348	3,798,768
Oregon		33,080,819	112,539	15,180		619,012	454,582	34,282,132
Pennsylvania		3,155,338	1,998,317	10,122		306,312	680,788	6,150,877
Rhode Island		5,461	101,526					106,987
South Carolina		2,446,909	106,244	51,175			1,658,951	4,263,279
South Dakota		3,597,509				157,678		3,755,187
Tennessee		10,408,112	19,987			3,813	559,847	10,991,759
Texas		1,300,609	220,561	99,614		3,137,690	906,649	5,665,123
Utah	194,876	449,848	6,982					651,706
Vermont		1,187,256				11,364	392,714	1,591,335
Virginia		1,583,050	1,148,352	41,828			1,764,017	4,537,246
Washington		71,575,700	230,610	24,529		736,576	1,394,565	73,961,979
West Virginia		1,318,279		14,272		161,191	552	1,494,294
Wisconsin		1,980,676	410,538	88,467		103,563	666,407	3,249,651
Wyoming		593,147				616,515		1,209,662
Total	14,810,975	268,417,308	19,952,469	3,349,703	575,155	14,143,741	37,576,418	358,825,770

[a] Agriculture byproducts/crops, sludge waste, tires and other biomass solids, liquids and gases.
Note: Blank cell indicates the state has no data to report for that energy source. Totals may not equal sum of components due to independent rounding.
Source: Energy Information Administration, Form EIA-906,"Power Plant Report," and Form EIA-920, " Combined Heat and Power Plant Report."

Table 18. Renewable Electric Power Sector Net Generation by Energy Source and State, 2005
(Thousand Kilowatthours)

State	Geothermal	Hydroelectric Conventional	MSW / Landfill Gas	Other Biomass[a]	Solar	Wind	Wood / Wood Waste	Total
Alabama		10,144,581					202,010	10,346,591
Alaska		1,463,942				589		1,464,531
Arizona		6,410,064	44,690		13,581		12,058	6,480,393
Arkansas		3,082,516		22,770				3,105,286
California	13,022,639	39,626,441	1,624,498	303,503	536,713	4,262,229	2,748,429	62,124,452
Colorado		1,415,296		33,879		776,234	448	2,225,857
Connecticut		478,199	1,311,180	164,437			7,314	1,961,130
Delaware								
District of Columbia								
Florida		266,159	3,013,801	273,987			479,219	4,033,166
Georgia		4,012,283	16,247					4,028,530
Hawaii	221,597	62,321		155,720		6,632		446,270
Idaho		8,542,121					87,703	8,629,824
Illinois		129,037	516,661	65,366		141,146		852,210
Indiana		438,282	20,022					458,304
Iowa		959,526	93,564			1,647,134		2,700,224
Kansas		11,337				425,823		437,160
Kentucky		2,961,193	62,098	16,973				3,040,264
Louisiana		810,948		75,961				886,909
Maine		3,465,890	242,996	103,677			1,875,102	5,687,665
Maryland		1,703,639	669,662					2,373,301
Massachusetts		1,041,455	1,884,193	1,880			120,027	3,047,555
Michigan		1,432,730	610,459	139,257		1,848	1,064,194	3,248,488
Minnesota		645,120	667,343			1,582,477	102,799	2,997,739
Mississippi								
Missouri		1,159,326		66,147				1,225,473
Montana		9,587,349						9,587,349
Nebraska		871,473	24,566	7,449		96,608		1,000,096
Nevada	1,262,707	1,702,380						2,965,087
New Hampshire		1,790,729	214,628				661,530	2,666,887
New Jersey		29,392	1,352,085					1,381,477
New Mexico		164,993		4,644		794,630		964,267
New York		25,719,915	1,959,631	135,832		102,990	286,416	28,204,784
North Carolina		4,656,454	100,088	60,182			388,115	5,204,839
North Dakota		1,341,824				220,345		1,562,169
Ohio		515,744	22,526			13,268	44,273	595,811
Oklahoma		2,630,361				847,773		3,478,134
Oregon		30,948,345	111,170	13,319		734,274	311,132	32,118,240
Pennsylvania		2,232,179	1,847,668	1,672		284,241	199,107	4,564,867
Rhode Island		6,734						6,734
South Carolina		2,935,642	44,159				272,908	3,252,709
South Dakota		3,074,566		21		158,104		3,232,691
Tennessee		8,537,997	27,265			3,339		8,568,601
Texas		1,332,560	192,377	9,045		4,237,209		5,771,191
Utah	184,802	784,463	7,051					976,316
Vermont		1,189,668				11,486	401,638	1,602,792
Virginia		1,471,118	698,454	26,078			540,332	2,735,982
Washington		72,022,983	235,522	5,889		498,470	620,298	73,383,162
West Virginia		891,891		11,468		153,892	460	1,057,711
Wisconsin		1,530,237	310,438	57,928		92,544	142,108	2,133,255
Wyoming		808,375				717,264		1,525,639
Total	14,691,745	267,039,778	17,925,042	1,757,084	550,294	17,810,549	10,567,620	330,342,112

[a] Agriculture byproducts/crops, sludge waste, tires and other biomass solids, liquids and gases.
Note: The electric power sector comprises electricity-only and combined-heat-power (CHP) plants within North American Classification System (NAICS) 22 category whose primary business is to sell electricity, or electricity and heat, to the public. Blank cell indicates the state has no data to report for that energy source. Totals may not equal sum of components due to independent rounding.
Source: Energy Information Administration, Form EIA-906,"Power Plant Report," and Form EIA-920, "Combined Heat and Power Plant Report."

Table 19. Renewable Commercial and Industrial Sector Net Generation by Energy Source and State, 2005 (Thousand Kilowatthours)

State	Hydroelectric Conventional	MSW / Landfill Gas	Other Biomass[a]	Wood / Wood Waste	Total
Alabama		3,494	29,551	3,536,410	3,569,455
Alaska			4,873	381	5,254
Arizona			3,666		3,666
Arkansas			20,215	1,706,996	1,727,211
California	5,425	131,675	369,568	861,668	1,368,336
Colorado					
Connecticut					
Delaware					
District of Columbia					
Florida		1,783	340,090	1,526,718	1,868,591
Georgia	19,770	22,185	91,718	3,148,749	3,282,422
Hawaii	33,867	291,077	12,932		337,876
Idaho				489,337	489,337
Illinois		76,664	22,877		99,541
Indiana		65,236			65,236
Iowa			34,852		34,852
Kansas					
Kentucky			1,222	359,065	360,287
Louisiana			73,917	2,643,987	2,717,904
Maine	625,036	174,510	112,672	1,911,531	2,823,749
Maryland		41,280		195,466	236,746
Massachusetts	495		24,498		24,993
Michigan	28,978	264,015	3,021	737,135	1,033,149
Minnesota	129,609	19,692	6,476	546,617	702,394
Mississippi			10,397	1,519,941	1,530,338
Missouri			12,838		12,838
Montana				65,245	65,245
Nebraska			10,631		10,631
Nevada					
New Hampshire	8,174			124,203	132,377
New Jersey	1,721		2,425		4,146
New Mexico					
New York	62,603	233,572		251,094	547,269
North Carolina	740,048		11,770	1,351,468	2,103,286
North Dakota			9,989		9,989
Ohio			6,217	314,741	320,958
Oklahoma				289,217	289,217
Oregon			14,031	498,174	512,205
Pennsylvania		213,427	4,023	488,389	705,839
Rhode Island					
South Carolina	2,505	77,842	56,022	1,424,557	1,560,926
South Dakota					
Tennessee	771,544			528,281	1,299,825
Texas		14,421	37,569	843,789	895,779
Utah					
Vermont	21,143			8,853	29,996
Virginia	13,235	433,392	20,820	1,259,530	1,726,977
Washington	51,666		21,447	799,096	872,209
West Virginia	555,675				555,675
Wisconsin	209,982	29,381	52,545	682,888	974,796
Wyoming					
Total	3,281,476	2,093,646	1,422,872	28,113,526	34,911,520

[a] Agriculture byproducts/crops, sludge waste, tires and other biomass solids, liquids and gases.
Note: Blank cell indicates the state has no data to report for that energy source .Totals may not equal sum of components due to independent rounding.
Source: Energy Information Administration, Form EIA-906,"Power Plant Report,"and Form EIA-920, "Combined Heat and Power Plant Report."

Table 20. Total Renewable Net Generation by Energy Source and State, 2005
(Thousand Kilowatthours)

State	Geothermal	Hydroelectric Conventional	MSW / Landfill Gas	Other Biomass[a]	Solar	Wind	Wood / Wood Waste	Total
Alabama		10,144,581	3,494	29,551			3,738,420	13,916,046
Alaska		1,463,942		4,873		589	381	1,469,785
Arizona		6,410,064	44,690	3,666	13,581		12,058	6,484,059
Arkansas		3,082,516		42,985			1,706,996	4,832,497
California	13,022,639	39,631,866	1,756,173	673,071	536,713	4,262,229	3,610,097	63,492,788
Colorado		1,415,296		33,879		776,234	448	2,225,857
Connecticut		478,199	1,311,180	164,437			7,314	1,961,130
Delaware								
District of Columbia								
Florida		266,159	3,015,584	614,077			2,005,937	5,901,757
Georgia		4,032,053	38,432	91,718			3,148,749	7,310,952
Hawaii	221,597	96,188	291,077	168,652		6,632		784,146
Idaho		8,542,121					577,040	9,119,161
Illinois		129,037	593,325	88,243		141,146		951,751
Indiana		438,282	85,258					523,540
Iowa		959,526	93,564	34,852		1,647,134		2,735,076
Kansas		11,337				425,823		437,160
Kentucky		2,961,193	62,098	18,195			359,065	3,400,551
Louisiana		810,948		149,878			2,643,987	3,604,813
Maine		4,090,926	417,506	216,349			3,786,633	8,511,414
Maryland		1,703,639	710,942				195,466	2,610,047
Massachusetts		1,041,950	1,884,193	26,378			120,027	3,072,548
Michigan		1,461,708	874,474	142,278		1,848	1,801,329	4,281,637
Minnesota		774,729	687,035	6,476		1,582,477	649,416	3,700,133
Mississippi				10,397			1,519,941	1,530,338
Missouri		1,159,326		78,985				1,238,311
Montana		9,587,349					65,245	9,652,594
Nebraska		871,473	24,566	18,080		96,608		1,010,727
Nevada	1,262,707	1,702,380						2,965,087
New Hampshire		1,798,903	214,628				785,733	2,799,264
New Jersey		31,113	1,352,085	2,425				1,385,623
New Mexico		164,993		4,644		794,630		964,267
New York		25,782,518	2,193,203	135,832		102,990	537,510	28,752,053
North Carolina		5,396,502	100,088	71,952			1,739,583	7,308,125
North Dakota		1,341,824		9,989		220,345		1,572,158
Ohio		515,744	22,526	6,217		13,268	359,014	916,769
Oklahoma		2,630,361				847,773	289,217	3,767,351
Oregon		30,948,345	111,170	27,350		734,274	809,306	32,630,445
Pennsylvania		2,232,179	2,061,095	5,695		284,241	687,496	5,270,706
Rhode Island		6,734						6,734
South Carolina		2,938,147	122,001	56,022			1,697,465	4,813,635
South Dakota		3,074,566		21		158,104		3,232,691
Tennessee		9,309,541	27,265			3,339	528,281	9,868,426
Texas		1,332,560	206,798	46,614		4,237,209	843,789	6,666,970
Utah	184,802	784,463	7,051					976,316
Vermont		1,210,811				11,486	410,491	1,632,788
Virginia		1,484,353	1,131,846	46,898			1,799,862	4,462,959
Washington		72,074,649	235,522	27,336		498,470	1,419,394	74,255,371
West Virginia		1,447,566		11,468		153,892	460	1,613,386
Wisconsin		1,740,219	339,819	110,473		92,544	824,996	3,108,051
Wyoming		808,375				717,264		1,525,639
Total	14,691,745	270,321,254	20,018,688	3,179,956	550,294	17,810,549	38,681,146	365,253,632

[a] **Agriculture byproducts/crops, sludge waste, tires and other biomass solids, liquids and gases.**
Note: Blank cell indicates the state has no data to report for that energy source. Totals may not equal sum of components due to independent rounding.
Source: Energy Information Administration, Form EIA-906,"Power Plant Report," and Form EIA-920, "Combined Heat and Power Plant Report."

Table 21. Renewable Electric Power Sector Net Summer Capacity by Energy Source and State, 2004 (Megawatts)

State	Geothermal	Hydroelectric Conventional	MSW / Landfill Gas	Other Biomass[a]	Solar	Wind	Wood / Wood Waste	Total
Alabama		3,280						3,280
Alaska		395				1		396
Arizona		2,710	4		8			2,722
Arkansas		1,388		4				1,392
California	1,956	10,072	242	49	390	2,023	425	15,157
Colorado		643		10		227		880
Connecticut		146	166	26				338
Delaware								
District of Columbia								
Florida		55	438	75			67	635
Georgia		2,004	2					2,007
Hawaii	31	17		46		11		105
Idaho		2,391					12	2,402
Illinois		32	94	45		50		221
Indiana		59	10					69
Iowa		140	6			621		767
Kansas		3				113		116
Kentucky		817	9					826
Louisiana		192		12				204
Maine		622	30				252	903
Maryland		566	118					684
Massachusetts		253	258				26	537
Michigan		241	90			1	158	490
Minnesota		147	136			487	76	847
Mississippi								
Missouri		556						556
Montana		2,627						2,627
Nebraska		266	3	1		13		284
Nevada	142	1,047						1,189
New Hampshire		517	31				91	640
New Jersey		11	181	19				211
New Mexico		82		6		264		352
New York		4,195	267			48	37	4,547
North Carolina		1,792	14				45	1,851
North Dakota		485				64		549
Ohio		122	4			7	7	140
Oklahoma		788				176		964
Oregon		8,330	14	3		223	66	8,636
Pennsylvania		751	310			132	28	1,220
Rhode Island		4	15					19
South Carolina		1,339	3					1,342
South Dakota		1,526				43		1,569
Tennessee		2,429	5			29	7	2,469
Texas		668	40			1,286		1,994
Utah	23	254	1					278
Vermont		299				5	72	376
Virginia		779	93				83	954
Washington		21,066	35	4		243	136	21,485
West Virginia		123				66		189
Wisconsin		438	71	1		36	44	591
Wyoming		303				285		588
Total	2,152	76,970	2,692	303	398	6,456	1,630	90,601

[a] Agriculture byproducts/crops, sludge waste, tires and other biomass solids, liquids and gases.
*** =Less than 500 kilowatts.**
Note: The electric power sector comprises electricity-only and combined-heat-power (CHP) plants within North American Classification System (NAICS) 22 category whose primary business is to sell electricity, or electricity and heat, to the public. Blank cell indicates the state has no data to report for that energy source. Totals may not equal sum of components due to independent rounding.
Source: Energy Information Administration, Form EIA-860,"Annual Electric Generator Report."

Table 22. Renewable Commercial and Industrial Sector Net Summer Capacity by Energy Source and State, 2004 (Megawatts)

State	Hydroelectric Conventional	MSW / Landfill Gas	Other Biomass[a]	Wood / Wood Waste	Total
Alabama				555	555
Alaska					
Arizona					
Arkansas			2	292	293
California	6	13	44	166	228
Colorado					
Connecticut					
Delaware					
District of Columbia					
Florida			79	278	357
Georgia	7	2	44	457	510
Hawaii	5	60	3		68
Idaho				66	66
Illinois	1	12	3		15
Indiana		9			9
Iowa			3		3
Kansas					
Kentucky				43	43
Louisiana			5	318	322
Maine	100	24		390	514
Maryland		7		2	9
Massachusetts	7		9		16
Michigan	4	67		52	122
Minnesota	29	3		61	92
Mississippi				229	229
Missouri					
Montana				17	17
Nebraska			3		3
Nevada					
New Hampshire				14	14
New Jersey			1		1
New Mexico					
New York	15	33			48
North Carolina	160			211	371
North Dakota			10		10
Ohio				47	47
Oklahoma		16		63	78
Oregon				119	119
Pennsylvania		28		80	108
Rhode Island					
South Carolina	1	10		220	231
South Dakota					
Tennessee	179			100	279
Texas			8	100	107
Utah					
Vermont	5			4	8
Virginia	4	76		324	403
Washington	4			190	194
West Virginia	101				101
Wisconsin	43	4	7	154	208
Wyoming					
Total	670	363	218	4,551	5,801

[a] Agriculture byproducts/crops, sludge waste, tires and other biomass solids, liquids and gases.
Note: Blank cell indicates the state has no data to report for that energy source. Totals may not equal sum of components due to independent rounding.
Source: Energy Information Administration, Form EIA-860,"Annual Electric Generator Report."

Table 23. Total Renewable Net Summer Capacity by Energy Source and State, 2004
(Megawatts)

State	Geothermal	Hydroelectric Conventional	MSW / Landfill Gas	Other Biomass[a]	Solar	Wind	Wood / Wood Waste	Total
Alabama		3,280					555	3,835
Alaska		395				1		396
Arizona		2,710	4		8			2,722
Arkansas		1,388		6			292	1,686
California	1,956	10,078	255	93	390	2,023	591	15,386
Colorado		643		10		227		880
Connecticut		146	166	26				338
Delaware								
District of Columbia								
Florida		55	438	154			345	992
Georgia		2,012	5	44			457	2,517
Hawaii	31	22	60	49		11		173
Idaho		2,391					77	2,468
Illinois		33	106	48		50		237
Indiana		59	19					78
Iowa		140	6	3		621		771
Kansas		3				113		116
Kentucky		817	9				43	869
Louisiana		192		17			318	527
Maine		722	53				642	1,418
Maryland		566	125				2	693
Massachusetts		260	258	9			26	553
Michigan		245	157			1	210	612
Minnesota		176	139			487	137	939
Mississippi							229	229
Missouri		556						556
Montana		2,627					17	2,645
Nebraska		266	3	4		13		287
Nevada	142	1,047						1,189
New Hampshire		518	31				104	654
New Jersey		12	181	20				212
New Mexico		82		6		264		352
New York		4,210	301			48	37	4,596
North Carolina		1,951	14				256	2,222
North Dakota		485		10		64		559
Ohio		122	4			7	54	186
Oklahoma		788	16			176	63	1,043
Oregon		8,330	14	3		223	186	8,756
Pennsylvania		751	338			132	108	1,329
Rhode Island		4	15					19
South Carolina		1,340	13				220	1,573
South Dakota		1,526				43		1,569
Tennessee		2,608	5			29	107	2,748
Texas		668	40	8		1,286	100	2,101
Utah	23	254	1					278
Vermont		304				5	76	385
Virginia		782	168				407	1,358
Washington		21,070	35	4		243	326	21,678
West Virginia		224				66		290
Wisconsin		482	75	8		36	198	799
Wyoming		303				285		588
Total	2,152	77,641	3,055	520	398	6,456	6,182	96,403

[a] Agriculture byproducts/crops, sludge waste, tires and other biomass solids, liquids and gases.
*** =Less than 500 kilowatts.**
Note: Blank cell indicates the state has no data to report for that energy source. Totals may not equal sum of components due to independent rounding.
Source: Energy Information Administration, Form EIA-860,"Annual Electric Generator Report."

Table 24. Renewable Electric Power Sector Net Capacity by Energy Source and State, 2005
(Megawatts)

State	Geothermal	Hydroelectric Conventional	MSW / Landfill Gas	Other Biomass[a]	Solar	Wind	Wood / Wood Waste	Total
Alabama		3,240						3,240
Alaska		397				10		406
Arizona		2,720	4		9		3	2,736
Arkansas		1,388		4				1,392
California	2,046	10,082	245	49	402	2,052	429	15,306
Colorado		652		10		228		889
Connecticut		146	166	26				339
Delaware								
District of Columbia								
Florida		55	442	75			67	639
Georgia		2,007	2					2,010
Hawaii	31	18		46		11		107
Idaho		2,390				11	12	2,412
Illinois		32	88	45		105		270
Indiana		60	10					69
Iowa		131	6			820		958
Kansas		3				263		266
Kentucky		817	10					827
Louisiana		192		12				204
Maine		620	30	35			217	901
Maryland		566	118					684
Massachusetts		253	261				26	540
Michigan		249	90			1	158	498
Minnesota		147	133			687	76	1,043
Mississippi								
Missouri		552						552
Montana		2,619				135		2,754
Nebraska		269	3	1		73		346
Nevada	185	1,047						1,233
New Hampshire		507	31				91	629
New Jersey		3	181	19				203
New Mexico		82		6		404		492
New York		4,192	270			185	37	4,683
North Carolina		1,785	14				79	1,879
North Dakota		432				96		528
Ohio		101	4			7	7	119
Oklahoma		800				474		1,274
Oregon		8,336	14	3		298	56	8,708
Pennsylvania		748	310			223	28	1,309
Rhode Island		4	24					28
South Carolina		1,347	9					1,356
South Dakota		1,500				43		1,543
Tennessee		2,415	5	2		29	12	2,463
Texas		673	41			1,755		2,469
Utah	23	255	1					279
Vermont		304				5	72	381
Virginia		669	93				83	844
Washington		21,138	35	4		393	136	21,707
West Virginia		163				66		229
Wisconsin		444	46	1		45	73	610
Wyoming		303				287		590
Total	2,285	76,852	2,685	339	411	8,706	1,662	92,941

[a] Agriculture byproducts/crops, sludge waste, tires and other biomass solids, liquids and gases.

Note: The electric power sector comprises electricity-only and combined-heat-power (CHP) plants within North American Classification System (NAICS) 22 category whose primary business is to sell electricity, or electricity and heat, to the public. Blank cell indicates the state has no data to report for that energy source. Totals may not equal sum of components due to independent rounding.

Source: Energy Information Administration, Form EIA-860,"Annual Electric Generator Report."

Table 25. Renewable Commercial and Industrial Sector Net Summer Capacity by Energy Source and State, 2005 (Megawatts)

State	Hydroelectric Conventional	MSW / Landfill Gas	Other Biomass[a]	Wood / Wood Waste	Total
Alabama				553	553
Alaska					
Arizona					
Arkansas			2	292	293
California	6	13	96	147	262
Colorado					
Connecticut					
Delaware					
District of Columbia					
Florida			70	276	346
Georgia	7	2	44	450	504
Hawaii	5	60	3		68
Idaho				66	66
Illinois	1	12	3		15
Indiana		9			9
Iowa			3		3
Kansas					
Kentucky				43	43
Louisiana			3	318	321
Maine	100	24		388	512
Maryland		7		2	9
Massachusetts	7		9		16
Michigan	4	67		52	122
Minnesota	29	4		60	93
Mississippi				229	229
Missouri					
Montana				17	17
Nebraska			3		3
Nevada					
New Hampshire				14	14
New Jersey			1		1
New Mexico					
New York	15	33			48
North Carolina	160			211	371
North Dakota			10		10
Ohio				17	17
Oklahoma		16		63	78
Oregon				136	136
Pennsylvania		34		80	114
Rhode Island					
South Carolina	1	10		217	228
South Dakota					
Tennessee	193			100	293
Texas			16	130	145
Utah					
Vermont	5			4	8
Virginia	4	76		326	405
Washington	8			192	200
West Virginia	101				101
Wisconsin	43	4		148	195
Wyoming					
Total	688	369	261	4,532	5,850

[a] Agriculture byproducts/crops, sludge waste, tires and other biomass solids, liquids and gases.
Note: Blank cell indicates the state has no data to report for that energy source. Totals may not equal sum of components due to independent rounding.
Source: Energy Information Administration, Form EIA-860,"Annual Electric Generator Report."

Table 26. Total Renewable Net Summer Capacity by Energy Source and State, 2005
(Megawatts)

State	Geothermal	Hydroelectric Conventional	MSW / Landfill Gas	Other Biomass[a]	Solar	Wind	Wood / Wood Waste	Total
Alabama		3,240					553	3,793
Alaska		397				10		406
Arizona		2,720	4		9		3	2,736
Arkansas		1,388		6			292	1,686
California	2,046	10,088	258	145	402	2,052	577	15,567
Colorado		652		10		228		889
Connecticut		146	166	26				339
Delaware								
District of Columbia								
Florida		55	442	145			343	985
Georgia		2,014	5	44			450	2,513
Hawaii	31	24	60	49		11		175
Idaho		2,390				11	78	2,478
Illinois		33	100	48		105		285
Indiana		60	19					78
Iowa		131	6	3		820		961
Kansas		3				263		266
Kentucky		817	10				43	870
Louisiana		192		15			318	525
Maine		720	53	35			605	1,413
Maryland		566	125				2	693
Massachusetts		260	261	9			26	556
Michigan		253	157			1	210	620
Minnesota		176	137			687	136	1,136
Mississippi							229	229
Missouri		552						552
Montana		2,619				135	17	2,772
Nebraska		269	3	4		73		349
Nevada	185	1,047						1,233
New Hampshire		507	31				104	643
New Jersey		3	181	20				204
New Mexico		82		6		404		492
New York		4,207	303			185	37	4,732
North Carolina		1,945	14				291	2,250
North Dakota		432		10		96		537
Ohio		101	4			7	24	135
Oklahoma		800	16			474	63	1,353
Oregon		8,336	14	3		298	193	8,844
Pennsylvania		748	344			223	108	1,423
Rhode Island		4	24					28
South Carolina		1,348	19				217	1,583
South Dakota		1,500				43		1,543
Tennessee		2,608	5	2		29	113	2,756
Texas		673	41	16		1,755	130	2,614
Utah	23	255	1					279
Vermont		309				5	76	389
Virginia		672	168				409	1,249
Washington		21,146	35	4		393	328	21,907
West Virginia		264				66		330
Wisconsin		487	50	1		45	221	805
Wyoming		303				287		590
Total	2,285	77,541	3,055	600	411	8,706	6,193	98,791

[a] Agriculture byproducts/crops, sludge waste, tires and other biomass solids, liquids and gases.
Note: Blank cell indicates the state has no data to report for that energy source. Totals may not equal sum of components due to independent rounding.
Source: Energy Information Administration, Form EIA-860,"Annual Electric Generator Report."

Table 27. Renewable Market Share of Net Generation by State, 2004 and 2005
(Thousand Kilowatthours)

State	2004			2005		
	Total State Generation	Percent Renewable	Percent NonHydro Renewable	Total State Generation	Percent Renewable	Percent NonHydro Renewable
Alabama	137,354,771	10.5	2.7	137,948,581	10.1	2.7
Alaska	6,526,717	23.1	0.1	6,576,659	22.3	0.1
Arizona	104,564,143	6.7	0.0	101,478,654	6.4	0.1
Arkansas	51,927,632	10.4	3.4	47,794,509	10.1	3.7
California	194,780,355	29.9	12.4	200,292,818	31.7	11.9
Colorado	47,869,492	3.0	0.5	49,616,694	4.5	1.6
Connecticut	32,633,408	6.0	4.6	33,549,747	5.8	4.4
Delaware	7,855,553	-	-	8,136,568	-	-
District of Columbia	36,487	-	-	226,042	-	-
Florida	218,117,928	2.8	2.7	220,256,412	2.7	2.6
Georgia	126,812,715	5.5	2.6	136,667,892	5.3	2.4
Hawaii	11,410,403	7.1	6.3	11,522,805	6.8	6.0
Idaho	10,863,039	83.2	5.3	10,824,984	84.2	5.3
Illinois	191,957,778	0.6	0.5	194,120,146	0.5	0.4
Indiana	127,770,396	0.5	0.1	130,371,573	0.4	0.1
Iowa	43,248,189	4.9	2.7	44,156,160	6.2	4.0
Kansas	46,782,659	0.8	0.8	45,862,696	1.0	0.9
Kentucky	94,529,947	4.5	0.5	97,822,419	3.5	0.4
Louisiana	98,172,309	4.0	2.8	92,616,878	3.9	3.0
Maine	19,098,885	38.4	20.4	18,843,978	45.2	23.5
Maryland	52,052,770	6.5	1.6	52,661,600	5.0	1.7
Massachusetts	47,500,483	6.4	4.3	47,515,443	6.5	4.3
Michigan	118,487,269	3.7	2.4	121,619,771	3.5	2.3
Minnesota	52,364,127	5.1	3.7	53,018,995	7.0	5.5
Mississippi	43,662,613	3.4	3.4	45,067,453	3.4	3.4
Missouri	87,632,910	1.9	0.2	90,828,230	1.4	0.1
Montana	26,788,768	33.3	0.2	27,938,778	34.5	0.2
Nebraska	32,008,709	3.1	0.2	31,464,734	3.2	0.4
Nevada	37,667,435	7.7	3.4	40,213,752	7.4	3.1
New Hampshire	23,875,787	9.5	4.0	24,470,013	11.4	4.1
New Jersey	55,882,342	2.4	2.3	60,549,583	2.3	2.2
New Mexico	32,940,361	2.0	1.6	35,135,642	2.7	2.3
New York	137,964,794	19.4	2.0	146,887,419	19.6	2.0
North Carolina	126,329,957	5.8	1.5	129,748,578	5.6	1.5
North Dakota	29,936,106	5.9	0.7	31,932,615	4.9	0.7
Ohio	148,345,905	0.7	0.3	156,976,323	0.6	0.3
Oklahoma	60,729,560	6.3	1.4	68,607,827	5.5	1.7
Oregon	51,381,278	66.7	2.3	49,325,003	66.2	3.4
Pennsylvania	214,658,501	2.9	1.4	218,091,125	2.4	1.4
Rhode Island	4,939,420	2.2	2.1	6,053,294	0.1	0.0
South Carolina	97,939,929	4.4	1.9	102,514,665	4.7	1.8
South Dakota	7,510,214	50.0	2.1	6,520,769	49.6	2.4
Tennessee	97,594,542	11.3	0.6	97,117,165	10.2	0.6
Texas	390,299,132	1.5	1.1	396,668,722	1.7	1.3
Utah	38,211,977	1.7	0.5	38,165,131	2.6	0.5
Vermont	5,470,379	29.1	7.4	5,716,755	28.6	7.4
Virginia	78,900,040	5.8	3.7	78,943,045	5.7	3.8
Washington	102,165,052	72.4	2.3	101,965,850	72.8	2.1
West Virginia	89,749,562	1.7	0.2	93,626,285	1.7	0.2
Wisconsin	60,444,933	5.4	2.1	61,824,664	5.0	2.2
Wyoming	44,807,604	2.7	1.4	45,567,307	3.3	1.6
Total	3,970,555,263	9.0	2.3	4,055,422,750	9.0	2.3

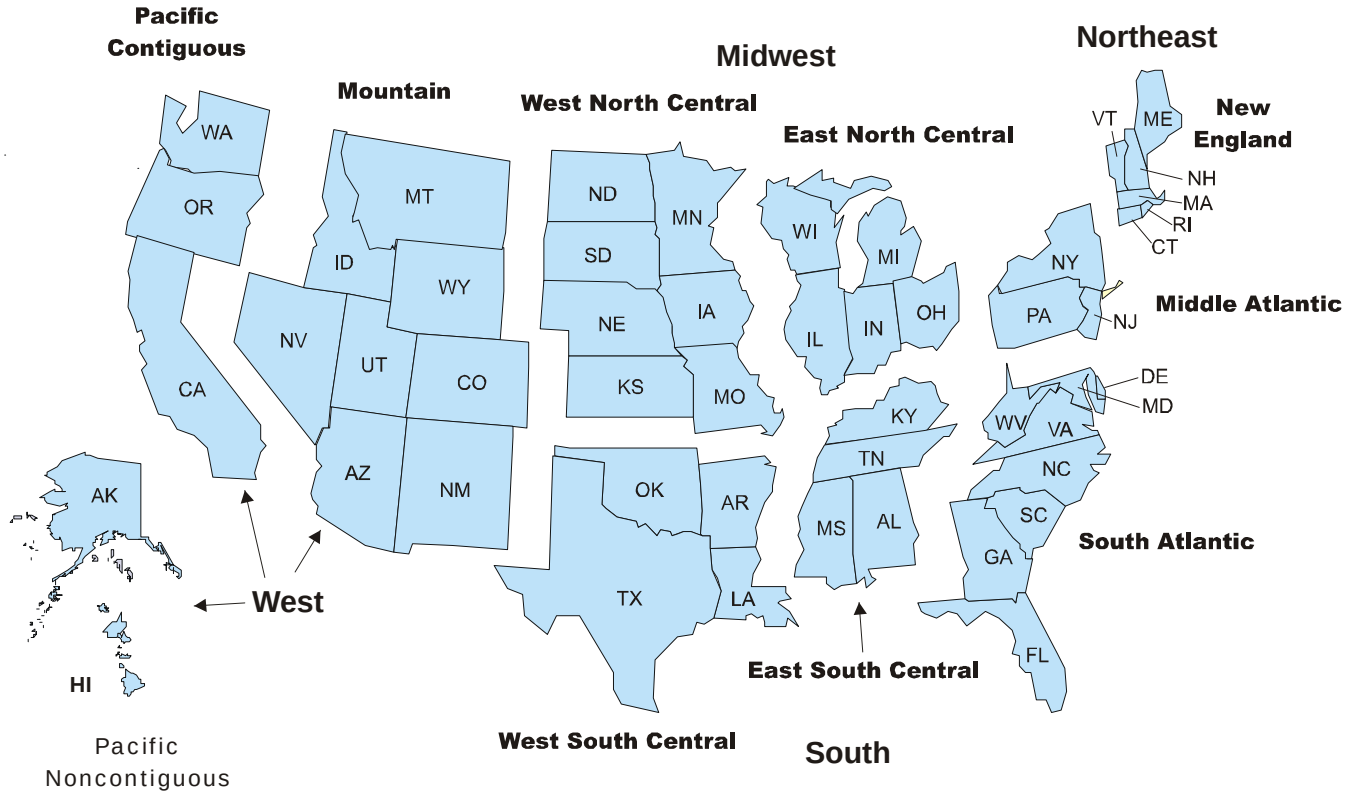
*** = Less than .05 percent.**
- = Not applicable.
Note: Totals may not equal sum of components due to independent rounding.
Source: Energy Information Administration, Form EIA-906, "Power Plant Report," and Form EIA-920, "Combined Heat and Power Plant Report."

Table 28. Renewable Portfolio Standards and State Mandates by State, 2007

	RPS or Mandate
Alabama	
Alaska	
Arizona	X
Arkansas	
California	X
Colorado	X
Connecticut	X
Delaware	X
District of Columbia	X
Florida[a]	X
Georgia	
Hawaii	X
Idaho	
Illinois	X
Indiana	
Iowa	X
Kansas	
Kentucky	
Lousiana	
Maine	X
Maryland	X
Massachusetts	X
Michigan	
Minnesota	X
Mississippi	
Missouri	
Montana	X
Nebraska	
Nevada	X
New Hampshire	
New Jersey	X
New Mexico	X
New York	X
North Carolina	
North Dakota	
Ohio	
Oklahoma	
Oregon	
Pennsylvania	X
Rhode Island	X
South Carolina	
South Dakota	
Tennessee	
Texas	X
Utah	
Vermont	X
Virginia	
Washington	X
West Virginia	
Wisconsin	X
Wyoming	

[a] In Florida the RPS is not statewide.
Note: In a few states, such as Hawaii, Illinois, and Vermont the renewable portfolio standard (RPS) is voluntary.
Blank cell indicates there is no RPS or state mandate for that state.
Source: North Carolina Solar Center, Database of State Incentives for Renewable Energy (DSIRE) website: http://www.dsireusa.org (February 6, 2007)

Figure E1. U.S. Census Regions and Divisions



Source: Energy Information Administration, Office of Coal, Nuclear, Electric and Alternate Fuels.

Solar Thermal and Photovoltaic Collector Manufacturing Activities 2005

Overview

Since the beginning of 2005, U.S. energy prices have been generally increasing, in part due to hurricanes Katrina and Rita, and demand pressure on oil supplies from the Far East. This has increased interest in alternate energy sources, which include renewable energy sources such as solar.

The U.S. manufacture of both solar thermal collector and photovoltaic (PV) cells and modules continued to grow at a strong pace in 2005. This occurred despite the fact that prices for solar panels and PV cells and modules rose due to material cost increases. The solar industry has been able to absorb most of the rising material costs because it has become more flexible in its production methods and supply arrangements over the past years. It has recovered from the nationwide economic downturn in 2003, showing significant growth in 2004 and 2005.

Solar Thermal Collectors

Domestic shipments of solar thermal collectors rose 10.4 percent to 14.7 million square feet in 2005 (Table 29). There were 25 companies shipping solar collectors in 2005, one more than in 2004. Total shipments rose to 16 million square feet, a 13.7 percent increase over 2004 (Table 30 and Figure F1). Exports surged 67.4 percent, while imports increased 22.1 percent (Table 30).

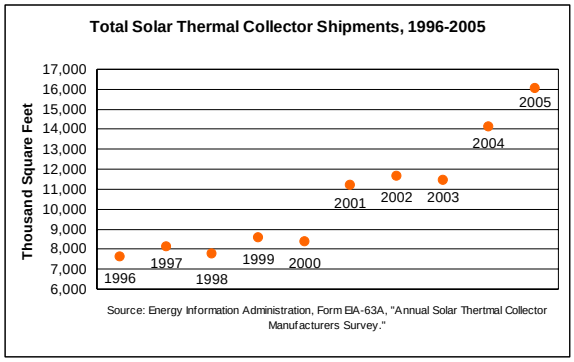


Figure F1
Total Solar Thermal Collector Shipments, 1996-2005

Low-temperature solar collectors represent 95 percent of total shipments. Medium-temperature collectors were responsible for more than 4 percent of total shipments (Table 31). High-temperature collectors represented less than 1 percent (0.7%). Included in the statistics are collectors shipped to Arizona Public Service's (APS) Saguaro Solar Trough Power Plant, the first concentrating solar power plant built in the U.S. since 1988.[1] The Saguaro Solar Trough Power Plant features more than 100,000 square feet of parabolic-trough shaped mirrors and stands more than 15 feet tall. It was built on a patch of desert in Red Rock, adjacent to APS' Saguaro Power Plant, about 30 miles north of Tucson. It has the capability of generating one megawatt of clean electrical power, enough electricity to meet the demands of about 200 homes (Figure F2).

Figure F2
APS Saguaro Solar Trough Power Plant
Courtesy of Arizona Public Service (APS)

In 2005, 71 percent of all collectors were produced in five states: New Jersey, California, Florida, Tennessee, and Arizona (Table 32), with 63 percent of the total shipped from New Jersey and California alone. Twenty-eight percent of all collectors shipped were imported, mostly from Israel.

More than 70 percent of all collectors were shipped to the top five domestic destinations: Florida, California, Arizona, New York, and Illinois (Table 32 and Figure F3). Florida and California accounted for 60 percent of total shipments. (Table 33 shows these data for 2004.)

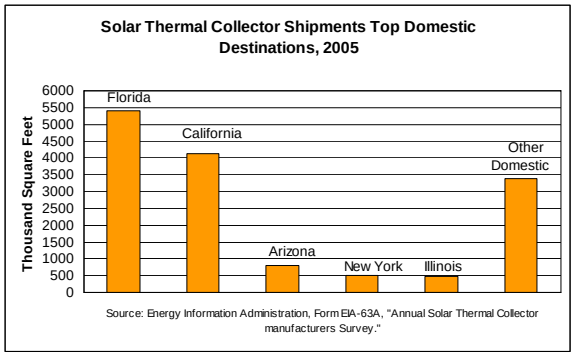


Figure F3
Solar Thermal Collector Shipments Top Domestic Destinations, 2005

As indicated in Table 34, domestic shipments were sent to all 50 States within the U.S., plus the District of Columbia, Guam, Puerto Rico, and the U.S. Virgin Islands.

Exports experienced a record growth from 0.8 million square feet to 1.4 million square feet, mainly to Canada (36.37 percent), Brazil (20.97 percent), France (9.54 percent), and Mexico (8.14 percent) (Table 35). Fifty-eight percent of total shipments were sent directly to wholesale distributors, 33 percent to retail distributors, 4 percent to exporters, 4 percent to installers, and more than 1 percent to other end users (Table 36).

The value of total shipments increased to $45.8 million in 2005 from $34.3 million in 2004 (Table 37).

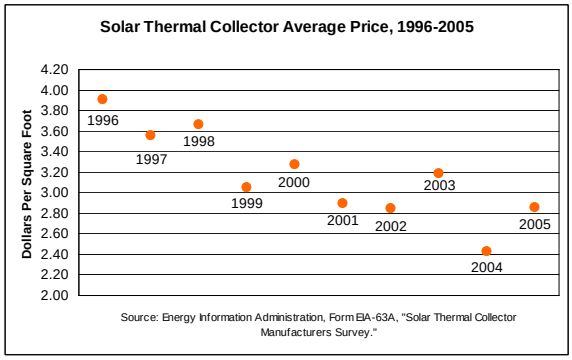


Figure F4
Solar Thermal Collector Average Price, 1996-2005

Average price per square foot for low-temperature collectors rose to $2.00 from $1.80 in 2004. In contrast, the average price for medium- and high-temperature collectors decreased from $19.30 to $18.77 per square foot. As a result, the overall average price for total shipments increased more than 17.7 percent, from $2.43 per square foot in 2004 to $2.86 per square foot in 2005, just one cent higher than the average price per square foot in 2002. Notably, there has been a pattern of the average price per square foot rising and falling every other year, which is primarily due to material costs growing slightly faster than efficiency and production economies of scale (Table 37 and Figure F4).

In general, the market was heavily dominated by low-temperature collectors for water heating applications (mainly swimming pool heating). Not surprisingly, the residential sector continued to be the largest market for solar thermal collectors in 2005. Solar thermal collectors shipped to the residential sector in 2005 totaled 14.7 million square feet, nearly 92 percent of total shipments. The distant second-largest market for solar thermal collectors was the commercial sector, which accounted for only 1.2 million square feet, or about 7 percent of total shipments. The largest end use for solar thermal collectors shipped in 2005 was for heating swimming pools, representing nearly 94 percent of the total shipments or 15 million square feet shipped. The distant second-largest end use for solar thermal collectors shipped in 2005 was domestic hot water systems, consuming 4 percent of the total shipments or 0.6 million square feet (Table 38).

The number of complete systems rose 72 percent to 51,265 systems in 2005. However, the value of complete systems increased 12 percent only (Table 39). This is mainly caused by more small systems being shipped in 2005 compared to fewer larger systems with almost the same value and total square feet in the prior year.

In 2005, almost 70 percent of the active companies indicated their intention to introduce new solar-related products in the near future (Table 40). As in the previous years, the industry remained highly concentrated, with 92 percent of sales made by the 5 largest companies (Table 41). Employment increased more than 11 percent in 2005 (Table 42) to its second highest level over the past 10 years. A total of 22 companies were involved in the design of collectors or systems, 11 were involved in prototype collector development, and 11 were active in prototype system development (Table 43). Sixteen companies had 90 percent or more of their total company-wide sales in solar collectors, while six companies had 50 to 89 percent, and three companies had less than 10 percent (Table 44).

Photovoltaic Cells and Modules

The photovoltaic (PV) cell and module domestic shipments reached a record high of 134,465 peak kilowatts in 2005, a substantial 72 percent increase from the 2004 record of 78,346 peak kilowatts, and was an increase of more than 176 percent from the 2003 level (Table 45 and Figure F5). Rising electricity prices during the past 2 years have increased demand for PV products, which spawned new PV technology and business opportunities during 2005.

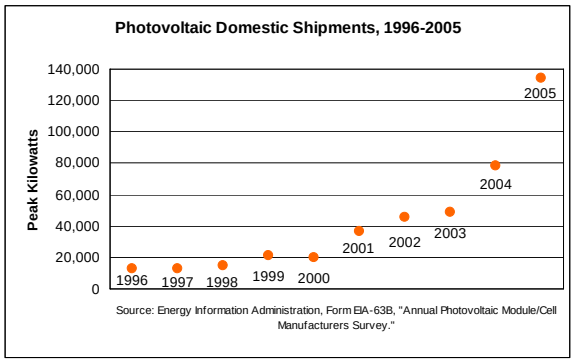


Figure F5
Photovoltaic Domestic Shipments, 1996-2005

Total shipments of PV cells and modules rose to 226,916 peak kilowatts in 2005, a 25 percent increase over the 2004. Module shipments increased 43 percent to 204,996 peak kilowatts, but cell shipments decreased to 21,920 peak kilowatts from 37,842 peak kilowatts in 2004 (Table 46 and Figure F6). This suggests a potential shift in manufacturer focus of offering unique PV modules to meet the strong demand of their customers, likely caused, in part, by higher energy prices. Among the indicators of the shift is the recent increase in module supply agreements by the PV manufacturers. This increased demand comes at a time of an industry-wide shortage of silicon, the principal feedstock of PV cells. The price of silicon wafers on the market has doubled in each of the past 2 years.[2] The tight silicon supply has also created back orders of several months. Demand is far greater than supply and PV manufacturers have simply not been able to keep up. Because of this, manufacturing costs have risen sharply,

and manufacturers such as Evergreen Solar and SunPower have changed their business strategies to maintain profits and continue to finance their plans to expand their production and strengthen their distribution capabilities. For example, in November 2005, Evergreen Solar and PowerLight Corporation entered into a definitive agreement for a guaranteed contract, which called for Evergreen Solar to ship a minimum of $70 million of PV modules to PowerLight over the next four years.[3] In December 2005, SunPower announced its largest ever product supply contract with PowerLight Corporation.[4] The supply agreement with PowerLight, called for the delivery of $330 million of solar panels from 2005 through 2009.

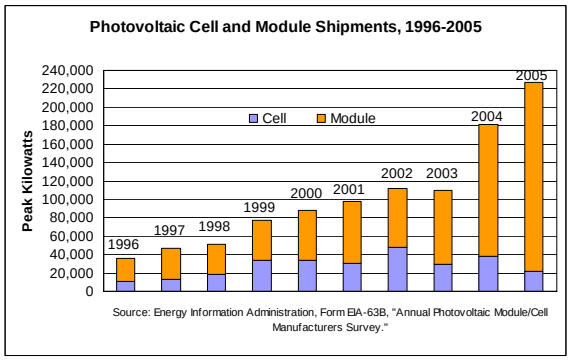


Figure F6
Photovoltaic Cell and Module Shipments, 1996-2005

Prior to 2005, the number of active companies shipping PV cells and modules had remained steady, averaging 20 over the past two decades. In 2005, however, the number of active companies surged to 29, compared to just 19 in 2004 (Table 47).

Imports jumped to 90,981 peak kilowatts in 2005 from 47,703 peak kilowatts in 2004, an increase of 91 percent (Table 47 and Figure F7). The main contributors to the increase are American subsidiaries of Japanese companies who are principally importing cells.

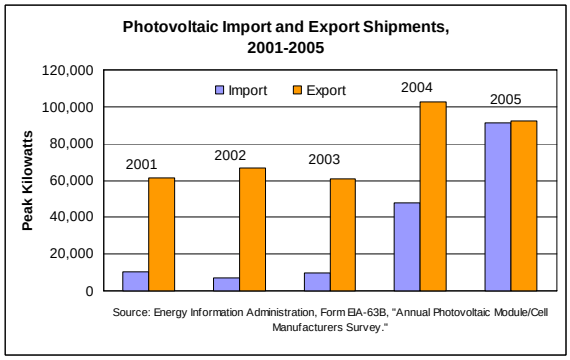


Figure F7
Photovoltaic Import and Export Shipments, 2001-2005

In contrast, exports dropped to 92,451 peak kilowatts in 2005 from 102,770 peak kilowatts in the previous year, a decrease of 10 percent (Table 47 and Figure F7). This decrease is greatly influenced by the decline of shipments from a single company, due to silicon supply disruptions throughout 2005. In a major development that will affect the export market as well as the type of product sold, Shell Solar announced in February 2006 the sale of its crystalline silicon solar business to SolarWorld.[5] Shell Solar will focus on Copper, Indium and Selenium (CIS) thin film solar business instead.

Shipments to wholesale distributors, the largest business category, increased more than 22 percent from 106,400 peak kilowatts in 2004 to 130,086 peak kilowatts in 2005. Shipments to the second-largest business category, installers, surged 94 percent to 67,437 peak kilowatts in 2005 (Table 48).

Although the market share of crystalline silicon cells and modules has declined to 76 percent from 88 percent in 2004, it is still the dominant type of solar cell (Table 49 and Figure F8). Within that category, single-crystal shipments fell to 71,901 peak kilowatts, or slightly less than 32 percent of total shipments in 2005, compared to 94,899 peak kilowatts in 2004. In contrast, cast and ribbon silicon shipments rose to 101,065 peak kilowatts in 2005, or close to 45 percent of total shipments, compared to 64,239 peak kilowatts in 2004 (Table 49). Cast and ribbon is now the predominant PV technology.

The increased cast and ribbon silicon shipments were largely attributable to three of the largest PV manufacturers.

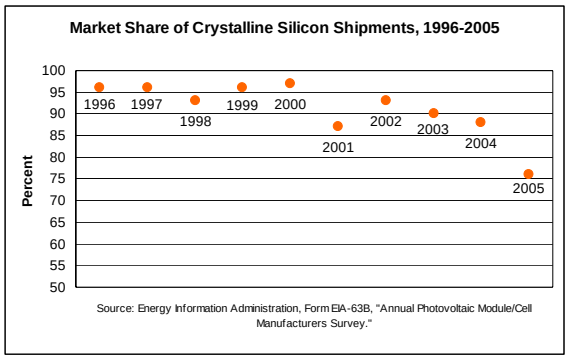


Figure F8
Market Share of
Crystalline Silicon Shipments,
1996-2005

The theoretical potential of thin-film solar technology has been encouraging PV industry research in this area for many years. Now, companies promoting thin-film solar are rapidly attracting venture capital. In 2005, thin-film startups, companies such as Miasolé, Nanosolar, and HelioVolt, successfully raised venture funding to enter and explore the thin-film solar business. In February 2006, Konarka, which specializes in plastics that convert light into electricity, announced it had raised $20 million in its latest round of venture funding. The financing is the company's fifth round and brings its total amount raised to $60 million.

Fueled by the rapidly growing market, and the continuing tight silicon supply--thin film technology uses less silicon per unit of electrical output than does crystalline silicon technology--shipments of the small thin-film market more than doubled to 53,826 peak kilowatts in 2005, compared to 21,978 peak kilowatts in 2004 (Table 49 and Figure F9). Thin-film now accounts for nearly one-fourth of the PV market.

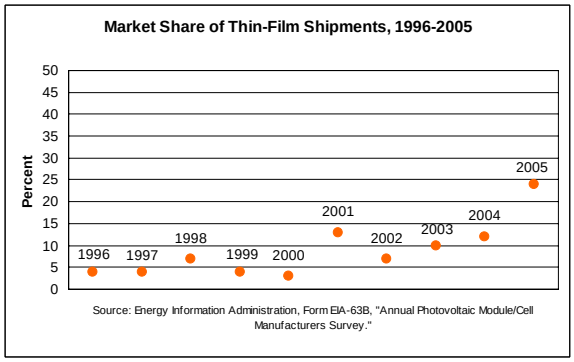


Figure F9
Market Share of
Thin-Film Shipments,
1996-2005

The total value of PV cell and module shipments grew nearly 40 percent to $701.7 million in 2005 (Table 50). The average price for modules (dollars per peak watt) increased more than 6 percent, from $2.99 in 2004 to $3.19 in 2005. For photovoltaic cells, the average price rose 13 percent, from $1.92 in 2004 to $2.17 in 2005. The rise in average prices was primarily due to an increase in material costs. Among the indicators of the rise in average price was the continuing shortage of refined silicon, which has driven up the price of photovoltaic cells and modules (Table 50 and Figure F10). Responding to the rapidly rising demand for silicon from the booming PV market, in November 2005, Hemlock Semiconductor - the world's largest producer of polycrystalline silicon, broke ground on an expansion at its existing facility in Hemlock, Michigan, that will increase its current annual capacity of 10,000 metric tons to 14,500 metric tons in 2008 and then to 19,000 metric tons by 2009.[6] Sharp Corporation and BP Solar also announced their latest developments of making thinner solar panels, which use less silicon.

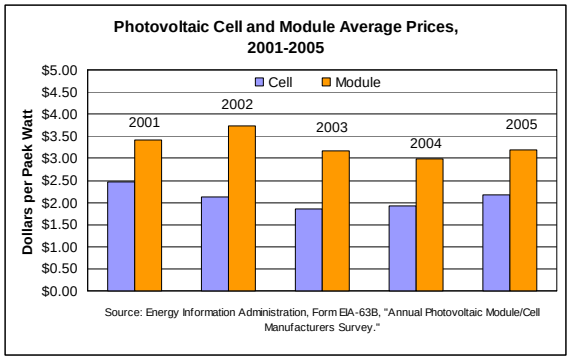


Figure F10
Photovoltaic Cell and Module Average Prices, 2001-2005

Among the market sectors, the commercial sector remained the largest sector for PV shipments, followed by the residential and industrial sectors. Commercial sector shipments totaled 89,459 peak kilowatts and grew at a rate of 20 percent from 2004 to 2005. The residential sector totaled 75,040 peak kilowatts in 2005, increasing more than 39 percent over the previous year (Table 51). Electricity generation, which consists of both grid-interactive (those connected to electric power grid)[7] and remote applications (those not connected), continues to be the predominant end use for PV cells and modules. In 2005, electric generation was about 85 percent of the total shipments, and was 31 percent more than in 2004 (Table 51).

Nearly 78 percent of PV exports were modules during 2005 (Table 52). Shipments to Europe represented more than 72 percent of total U.S. exports, with Germany being responsible for slightly over 53 percent of the total. Although the Netherlands continued as the second-largest U.S. export market, exports to the Netherlands declined from 28,744 peak kilowatts in 2004 to 11,997 peak kilowatts in 2005 (Table 53).

Shipments of complete PV systems surged 118 percent from 16,990 systems in 2004 to 37,115 systems in 2005. While the total value of completed systems increased 9 percent to $43.0 million, total peak kilowatts dropped from 8,110 in 2004 to 6,583 in 2005. These statistics reflect the evolution of thin-film technology, as the systems shipped in 2005 were smaller, more flexible, and lighter-weight compared to conventional PV systems (Table 54).

Employment in the PV manufacturing industry increased more than 6 percent, from 2,916 person-years in 2004 to 3,108 person-years in 2005 (Table 55).

PV manufacturing companies continue to not only manufacture innovative products, but to keep pace with the rapidly changing environment. Aiming to penetrate into the existing marketplace, eighteen companies expect to introduce new crystalline silicon products, seven companies plan to introduce thin film products, and one company plans to introduce concentrator products (Table 56). Table 57 shows that of the companies involved in PV-related activities, twelve are involved in cell manufacturing and twenty-three in module or systems design. Eighteen are involved in prototype module development and nine in prototype systems development. Nineteen companies are active in wholesale distribution, seven in retail distribution, and seven are involved in installation.

References:

[1] Arizona Public Service Company (April 20, 2006) "APS Completes First Solar Trough Power Plant in Arizona."

[2] EE Times (May 20, 2005) "Polysilicon prices jump amid severe product shortages."

[3] Evergreen Solar (November 04, 2005) "Evergreen Solar Announces $70 Million Sales Agreement with PowerLight Corporation."

[4] SunPower Corporation (December 15, 2005) "SunPower Announces $330 Million Global Solar Supply Agreement With PowerLight."

[5] SolarWorld AG (February 02, 2006) "SolarWorld expands globally with addition of Shell Solar crystalline operations."

[6] Hemlock Semiconductor Corporation (November 15, 2005) "Demand in Solar Energy Industry Drives $400 Million Hemlock Semiconductor Expansion."

[7] See EIA glossary that defines electric power grid as a system of synchronized power providers and consumers connected by transmission and distribution lines and operated by one or more control centers.

Table 29. Annual Solar Thermal Collector Domestic Shipments, 1996-2005

Year	Solar Thermal Collectors[a] (Thousand Square Feet)
1996	7,162
1997	7,759
1998	7,396
1999	8,046
2000	7,857
2001	10,349
2002	11,004
2003	10,926
2004	13,301
2005 [p]	14,680
Total	98,481

[a] Total shipments minus export shipments.
P = Preliminary
Notes: Totals may not equal sum of components due to independent rounding. Total shipments include those made in or shipped to U.S. Territories.
Source: Energy Information Administration, Form EIA-63A, "Annual Solar Thermal Collector Manufacturers Survey."

Table 30. Annual Shipments of Solar Thermal Collectors, 1996-2005

Year	Number of Companies	Collector Shipments [a] (Thousand Square Feet)		
		Total [b]	Imports	Export
1996	28	7,616	1,930	454
1997	29	8,138	2,102	379
1998	28	7,756	2,206	360
1999	29	8,583	2,352	537
2000	26	8,354	2,201	496
2001	26	11,189	3,502	840
2002	27	11,663	3,068	659
2003	26	11,444	2,986	518
2004	24	14,114	3,723	813
2005 [p]	25	16,041	4,546	1,361

[a] Includes imputation of shipment data to account for nonrespondents.
[b] Includes shipments of solar thermal collectors to the government, including some military, but excluding space applications.
P = Preliminary.
Note: Total shipments as reported by respondents include all domestic and export shipments and may include imported collectors that subsequently were shipped to domestic or foreign customers.
Source: Energy Information Administration, Form EIA-63A, "Annual Solar Thermal Collector Manufacturers Survey."

Table 31. Annual Shipments of Solar Thermal Collectors by Type , 1996-2005
(Thousand Square Feet)

	Low-Temperature		Medium-Temperature		
Year	Total Shipments [a, b]	Average per Manufacturer	Total Shipments [a]	Average per Manufacturer	High-Temperature Total Shipments [a, c]
1996	6,821	487	785	41	10
1997	7,524	579	606	29	7
1998	7,292	607	443	23	21
1999	8,152	627	427	21	4
2000	7,948	723	400	25	5
2001	10,919	1,092	268	16	2
2002	11,126	856	535	31	2
2003	10,877	906	560	33	7
2004 [p]	13,608	1,512	506	30	0
2005	15,224	1,522	702	41	115

[a] **Includes imputation of shipment data to account for nonrespondents.**
[b] **Includes shipments of solar thermal collectors to the government, including some military, but excluding space applications.**
[c] **For high-temperature collectors, average annual shipments per manufacturer are not disclosed.**
P = Preliminary.
Source: Energy Information Administration, Form EIA-63A, "Annual Solar Thermal Collector Manufacturers Survey."

Table 32. Shipments of Solar Thermal Collectors Ranked by Origin and Destination, 2005

Origin/Destination	2005 Shipments[P]	
	Thousand Square Feet	Percent of U.S. Total
Origin		
Top Five States	11,328	71
New Jersey	5,130	32
California	4,961	31
Florida	933	6
Tennessee	190	1
Arizona	114	1
Other Domestic	166	1
Imported	4,546	28
U.S. Total	16,041	100
Destination		
Top Five States	11,299	70
Florida	5,408	34
California	4,137	26
Arizona	794	5
New York	499	3
Illinois	461	3
Other Domestic	3,381	21
Exported	1,361	8
U.S. Total	16,041	100

*** = Less than 0.5 percent.**
P = Preliminary.
Notes: Totals may not equal sum of components due to independent rounding. U.S. total includes territories.
Source: Energy Information Administration, Form EIA-63A, "Annual Solar Thermal Collector Manufacturers Survey."

Table 33. Shipments of Solar Thermal Collectors Ranked by Origin and Destination, 2004

Origin/Destination	2004 Shipments	
	Thousand Square Feet	Percent of U.S.Total
Origin		
Top Five States	10,375	74
New Jersey	5,200	37
California	4,480	32
Florida	544	4
Puerto Rico	93	1
Hawaii	58	*
Other Domestic	16	*
Imported	3,723	26
U.S. Total	14,114	100
Destination		
Top Five States	10,960	78
Florida	4,955	35
California	4,306	31
Arizona	702	5
New Jersey	600	4
Illinois	396	3
Other Domestic	2,342	17
Exported	813	6
U.S. Total	14,114	100

Notes: Totals may not equal sum of components due to independent rounding. U.S. total includes territories.
Source: Energy Information Administration, Form EIA-63A, "Annual Solar Thermal Collector Manufacturers Survey."

Table 34. Shipments of Solar Thermal Collectors by Destination, 2005
(Square Feet)

Destination	Shipments[p]
Alabama	51,306
Alaska	324
Arizona	794,477
Arkansas	22,104
California	4,136,510
Colorado	62,931
Connecticut	327,876
Delaware	676
District of Columbia	350
Florida	5,407,966
Georgia	47,241
Guam	328
Hawaii	363,282
Idaho	15,782
Illinois	461,368
Indiana	50,341
Iowa	16,268
Kansas	18,437
Kentucky	15,961
Louisiana	23,401
Maine	28,005
Maryland	25,007
Massachusetts	73,253
Michigan	237,464
Minnesota	28,903
Mississippi	1,924
Missouri	16,939
Montana	530
Nebraska	16,351
Nevada	284,422
New Hampshire	23,420
New Jersey	424,670
New Mexico	15,804
New York	498,918
North Carolina	142,409
North Dakota	3,208
Ohio	34,663
Oklahoma	14,970
Oregon	269,251
Pennsylvania	233,797
Puerto Rico	116,737
Rhode Island	16,227
South Carolina	3,191
South Dakota	509
Tennessee	1,811
Texas	47,948
Utah	2,677
Vermont	12,938
Virgin Islands of the U.S.	4,086
Virginia	221,762
Washington	16,265
West Virginia	13,241
Wisconsin	31,148
Wyoming	485
Shipments to United States/Territories	14,679,862
Exports	1,361,116
Total Shipments	16,040,978

P = Preliminary.
Source: Energy Information Administration, Form EIA-63A, "Annual Solar Thermal Collector Manufacturers Survey."

Table 35. Distribution of U.S. Solar Thermal Collector Exports by Country, 2005

Country	U.S. Export Shipments (Square Feet) [P]	Percent of U.S. Exports
Africa		
Reunion	1,584	0.12
Total	1,584	0.12
Europe		
Austria	14,950	1.10
Belgium	12,888	0.95
Czech Republic	11,775	0.87
Federal Republic of Germany	75,000	5.51
France	129,801	9.54
Italy	10,891	0.80
Spain	52,198	3.83
Sweden	49,172	3.61
Switzerland	2,880	0.21
Total	359,555	26.42
North & Central America		
Antigua and Barbuda	2,128	0.16
Bahamas	2,471	0.18
Bermuda	971	0.07
Canada	495,048	36.37
Cayman Islands	380	0.03
Costa Rica	4,305	0.32
Dominican Republic	1,426	0.10
Guatemala	6,598	0.48
Jamaica	125	0.01
Mexico	110,740	8.14
Netherlands Antilles	126	0.01
Trinidad and Tobago	1,200	0.09
Turks and Caicos Islands	2,950	0.22
Total	628,468	46.17
Oceania & Australia		
Australia	71,989	5.29
New Zealand	13,989	1.03
Total	85,978	6.32
South America		
Brazil	285,451	20.97
Ecuador	80	0.01
Total	285,531	20.98
Total	1,361,116	100.00

P = Preliminary.
*** = Less than 0.01 percent.**
Notes: Totals may not equal sum of components due to independent rounding.
Source: Energy Information Administration, Form EIA-63A, "Annual Solar Thermal Collector Manufacturers Survey."

Table 36. Distribution of Solar Thermal Collector Shipments, 2004 and 2005

Recipient	Shipments (Thousand Square Feet)	
	2004	2005[p]
Wholesale Distribution	8,248	9,248
Retail Distributors	5,092	5,342
Exporters	253	571
Installers	398	633
End Users and Other[a]	124	248
Total	14,114	16,041

[a] **Other includes minimal shipments not explained on form EIA-63A.**
P = Preliminary.
Notes: Totals may not equal sum of components due to independent rounding. Total includes U.S. territories.
Source: Energy Information Administration, Form EIA-63A, "Annual Solar Thermal Collector Manufacturers Survey."

Table 37. Solar Thermal Collector Shipments by Type, Quantity, Value, and Average Price, 2004 and 2005

Type	2004			2005 [P]		
	Quantity (Thousand Square Feet)	Value (Thousand Dollars)	Average Price (Dollars per Square Foot)	Quantity (Thousand Square Feet)	Value (Thousand Dollars)	Average Price (Dollars per Square Foot)
Low-Temperature						
Liquid and Air	13,608	24,545	1.80	15,224	30,513	2.00
Medium/High Temperature	506	9,769	19.30	817	15,337	18.77
Medium						
Air	4	W	W	3	W	W
Liquid						
ICS/Thermosiphon	118	2,772	23.57	165	4,327	26.23
Flate Plate	383	6,802	17.75	530	8,161	15.38
Evacuated Tube	2	W	W	3	W	W
Concentrator				0	0	0
High						
Parabolic Dish and Trough				115	W	W
Total	14,114	34,313	2.43	16,041	45,850	2.86

ICS = Integral collector storage.
W = Data withheld to avoid disclosure of proprietary company data
P = Preliminary
Notes: Totals may not equal sum of components due to independent rounding.
Source: Energy Information Administration, Form EIA-63A, "Annual Solar Thermal Collector Manufacturers Survey."

Table 38. Shipments of Solar Thermal Collectors by Market Sector, End Use, and Type, 2004 and 2005
(Thousand Square Feet)

Type	Low-Temperature	Medium-Temperature					High-Temperature		
	Liquid/Air		Liquid						
	Metallic and Nonmetallic	Air	ICS/Thermo-siphon	Flat-Plate (Pumped)	Evacuated Tube	Concentrator	Parabolic Dish/Trough	2005 Total [p]	2004 Total
Market Sector									
Residential	14,045	3	151	479	3	0	0	14,681	12,864
Commercial	1,099	0	12	46	*	0	2	1,160	1,178
Industrial	30	0	1	0	0	0	0	31	70
Utility	0	0	0	0	0	0	114	114	0
Other [a]	50	0	*	6	0	0	0	56	3
Total	15,224	3	165	530	3	0	115	16,041	14,114
End use									
Pool Heating	15,022	0	0	20	*	0	0	15,041	13,634
Hot Water	12	0	165	461	2	0	0	640	452
Space Heating	190	3	0	34	1	0	0	228	13
Space Cooling	0	0	0	0	0	0	2	2	0
Combined Space and Water Heating	0	0	0	16	0	0	0	16	16
Process Heating	0	0	0	0	0	0	0	0	0
Electricty Generation	0	0	0	0	0	0	114	114	0
Other [b]	0	0	0	0	0	0	0	0	0
Total	15,224	3	165	530	3	0	115	16,041	14,114

[a] Other market sector includes shipments of solar thermal collectors to sectors such as government, including the military but excluding space applications.
[b] Other end use includes shipments of solar thermal collectors for other uses such as cooking, water pumping, water purification, desalinization, distillation, etc.
***=Less than 500 square feet.**
ICS= Integral Collector Storage.
P = Preliminary.
Note: Totals may not equal sum of components due to independent rounding.
Source: Energy Information Administration, Form EIA-63A, "Annual Solar Thermal Collector Manufacturers Survey."

Table 39. Shipments of Complete Solar Thermal Collector Systems, 2004 and 2005

Shipment Information	2004	2005[P]
Complete Collector Systems		
Shipped	29,769	51,265
Thousand Square Feet	5,560	5,748
Percent of Total Shipments	39	36
Number of Companies	18	18
Value of Systems (Thousand Dollars)	18,293	20,402

P = Preliminary.
Source: Energy Information Administration, Form EIA-63A, "Annual Solar Thermal Collector Manufacturers Survey."

Table 40. Number of Companies Expecting to Introduce New Solar Thermal Collector Products in 2006

New Product Type	Number of Companies
Low-Temperature Collectors	6
Medium-Temperature Collectors	9
High-Temperature Collectors	2
Noncollector Components	4

Source: Energy Information Administration, Form EIA-63A, "Annual Solar Thermal Collector Manufacturers Survey."

Table 41. Percent of Solar Thermal Collectors Shipments by 10 Largest Companies, 1996-2005

Year	Company Rank	Shipments (Thousand Square Feet)	Percent of Total Shipments
1996	1-5	6,452	85
	6-10	910	12
1997	1-5	7,183	88
	6-10	731	9
1998	1-5	6,938	89
	6-10	613	8
1999	1-5	7,813	91
	6-10	563	7
2000	1-5	7,521	90
	6-10	567	7
2001	1-5	10,732	96
	6-10	325	3
2002	1-5	10,755	92
	6-10	670	6
2003	1-5	10,485	92
	6-10	700	6
2004	1-5	13,291	94
	6-10	664	5
2005[P]	1-5	14,801	92
	6-10	934	6

P = Preliminary.
Note: Totals may not equal sum of components due to independent rounding.
Source: Energy Information Administration, Form EIA-63A, "Annual Solar Thermal Collector Manufacturers Survey."

Table 42. Employment in the Solar Thermal Collector Industry, 1996-2005

Year	Person Years
1996	239
1997	184
1998	207
1999	289
2000	284
2001	256
2002	356
2003	287
2004	317
2005[p]	353

P = Preliminary.
Source: Energy Information Administration, Form EIA-63A, "Annual Solar Thermal Collector Manufacturers Survey."

Table 43. Companies Involved in Solar Thermal Collector Activities by Type, 2004 and 2005

Type of Activity	2004	2005 [p]
Collector or System Design	19	22
Prototype Collector Development	10	11
Prototype System Development	8	11
Wholesale Distribution	22	23
Retail Distribution	11	11
Installation	8	9
Noncollector System Component Manufacture	11	10

P = Preliminary.
Source: Energy Information Administration, Form EIA-63A, "Annual Solar Thermal Collector Manufacturers Survey."

Table 44. Solar-Related Sales as a Percentage of Total Company Sales, 2004 and 2005

Percent of Total Sales	Number of Companies	
	2004	2005 [P]
90-100	15	16
50-89	6	6
10-49	0	0
Less than 10	3	3
Total	24	25

P = Preliminary.
Source: Energy Information Administration, Form EIA-63A, "Annual Solar Thermal Collector Manufacturers Survey."

Table 45. Annual Photovoltaic Domestic Shipments, 1996-2005

Year	Photovoltaic Cells and Modules[a] (Peak Kilowatts)
1996	13,016
1997	12,561
1998	15,069
1999	21,225
2000	19,838
2001	36,310
2002	45,313
2003	48,664
2004	78,346
2005 [p]	134,465
Total	424,807

[a] Total shipments minus export shipments.
P = Preliminary.
Notes: Totals may not equal sum of components due to independent rounding. Total shipments include those made in or shipped to U.S. Territories.
Sources: Energy Information Administration, Form EIA-63B, "Annual Photovoltaic Module/Cell Manufacturers Survey."

Table 46. Annual Shipments of Photovoltaic Cells and Modules, 2003-2005
(Peak Kilowatts)

Item	2003	2004	2005 [P]
Cells	29,295	37,842	21,920
Modules	80,062	143,274	204,996
Total	109,357	181,116	226,916

P = Preliminary.
Sources: Energy Information Administration, Form EIA-63B, "Annual Photovoltaic Module/Cell Manufacturers Survey."

Table 47. Annual Shipments of Photovoltaic Cells and Modules, 1996-2005

Year	Number of Companies	Photovoltaic Cell and Modules Shipments [a] (Peak Kilowatts)		
		Total	Imports	Exports
1996	25	35,464	1,864	22,448
1997	21	46,354	1,853	33,793
1998	21	50,562	1,931	35,493
1999	19	76,787	4,784	55,562
2000	21	88,221	8,821	68,382
2001	19	97,666	10,204	61,356
2002	19	112,090	7,297	66,778
2003	20	109,357	9,731	60,693
2004 [p]	19	181,116	47,703	102,770
2005	29	226,916	90,981	92,451

[a] Does not include shipments of cells and modules for space/satellite applications.
P = Preliminary.
Note: Total shipments as reported by respondents include all domestic and export shipments and may include imported cells and modules that subsequently were shipped to domestic or foreign customers.
Source: Energy Information Administration, Form EIA-63B, "Annual Photovoltaic Module/Cell Manufacturers Survey."

Table 48. Distribution of Photovoltaic Cells and Modules, 2003-2005

Recipient	Shipments (Peak Kilowatts)		
	2003	2004	2005[p]
Wholesale Distributers	65,477	106,400	130,086
Retail Distributers	6,624	5,140	2,362
Exporters	7,600	2,354	1,088
Installers	11,733	34,779	67,437
End-Users	8,286	1,029	3,142
Module Manufacturers	8,738	11,868	15,347
Other [a]	899	19,546	7,455
Total	109,357	181,116	226,916

[a] Other includes categories not identified by reporting companies.
P = Preliminary.
Note: Totals may not equal sum of components due to independent rounding.
Source: Energy Information Administration, Form EIA-63B, "Annual Photovoltaic Module/Cell Manufacturers Survey."

Table 49. Photovoltaic Cell and Module Shipments by Type, 2003-2005

Type	Shipments (Peak kilowatts)			Percent of Total		
	2003	2004	2005[p]	2003	2004	2005[p]
Crystalline Silicon						
Single-Crystal	59,379	94,899	71,901	54	52	32
Cast and Ribbon	38,561	64,239	101,065	35	35	45
Subtotal	97,940	159,138	172,965	90	88	76
Thin-Film	10,966	21,978	53,826	10	12	24
Concentrator	452	0	125	*	0	*
Other [a]	0	0	0	0	0	0
Total	109,357	181,116	226,916	100	100	100

[a] Includes categories not identified by reporting companies.
*** = Less than 0.5 percent.**
P = Preliminary.
Note: Data do not include shipments of cells and modules for space/satellite applications. Totals may not equal sum of components due to independent rounding.
Source: Energy Information Administration, Form EIA-63B, "Annual Photovoltaic Module/Cell Manufacturers Survey."

Table 50. Photovoltaic Cell and Module Shipment Values by Type, 2004 and 2005

Type	2004			2005[P]		
	Value (Thousand Dollars)	Average Price (Dollars per Peak Watt)		Value (Thousand Dollars)	Average Price (Dollars per Peak Watt)	
		Modules	Cells		Modules	Cells
Crystalline Sillicon						
Single-Crystal	253,558	3.09	1.94	227,751	3.48	2.20
Cast and Ribbon	188,371	3.00	1.76	318,690	3.20	2.02
Subtotal	441,930	3.04	1.92	546,440	3.30	2.17
Thin-Film Silicon	W	W	W	W	W	W
Concentrator Silicon	W	W	W	W	W	W
Other[a]	0	---	---	0	---	---
Total	501,739	2.99	1.92	701,718	3.19	2.17

[a] Includes categories not identified by reporting companies.
W = Data withheld to avoid disclosure of proprietary company data.
---= Does not apply.
P = Preliminary.
Notes: Data do not include shipments of cells and modules for space/satellite applications. Totals may not equal sum of components due to independent rounding.
Source: Energy Information Administration, Form EIA-63B, "Annual Photovoltaic Module/Cell Manufacturers Survey."

Table 51. Shipments of Photovoltaic Cells and Modules by Market Sector, End Use, and Type, 2004 and 2005 (Peak Kilowatts)

Sector and End Use	Crystalline Silicon [a]	Thin-Film Silicon	Concentrator Silicon	Other	2005 Total [p]	2004 Total
Market						
Industrial	21,674	525	0	0	22,199	30,493
Residential	70,986	4,029	25	0	75,040	53,928
Commercial	61,084	28,349	25	0	89,459	74,509
Transportation	1,621	0	0	0	1,621	1,380
Utility	68	0	75	0	143	3,233
Government [b]	8,034	20,649	0	0	28,683	3,257
Other [c]	9,498	274	0	0	9,772	14,316
Total	172,965	53,826	125	0	226,916	181,116
End Use						
Electricty Generation						
Grid Interactive	126,157	42,217	100	0	168,474	129,265
Remote	23,589	1,344	25	0	24,958	18,371
Communication	8,507	159	0	0	8,666	11,348
Consumer Goods	5,511	276	0	0	5,787	6,444
Transportation	2,159	0	0	0	2,159	1,380
Water Pumping	1,273	70	0	0	1,343	1,322
Cells/Modules to OEM [d]	2,008	9,669	0	0	11,677	6,452
Health						341
Other [e]	3,762	91	0	0	3,853	6,193
Total	172,965	53,826	125	0	226,916	181,116

[a] Includes single-crystal and cast and ribbon types.
[b] Includes Federal, State, local governments, excluding military.
[c] Other includes shipments that are manufactured for private contractors for research.
[d] Original equipment manufacturer.
[e] Other includes shipments of photovoltaic cells and modules for other uses, such as cooking food, desalinization, distillation, etc.
P = Preliminary.
Note: Totals may not equal sum of components due to independent rounding.
Source: Energy Information Administration, Form EIA-63B, "Annual Photovoltaic Module/Cell Manufacturers Survey."

Table 52. Export Shipments of Photovoltaic Cells and Modules by Type, 2004 and 2005
(Peak Kilowatts)

Item	Type							
	Crystalline		Thin-Film Silicon		Concentrator Silicon		Total	
	2004	2005[p]	2004	2005[p]	2004	2005[p]	2004	2005[p]
Cells	36,492	20,434	0	0	0	0	36,492	20,434
Modules	52,938	39,992	13,341	32,000	0	25	66,278	72,017
Totals	89,430	60,426	13,341	32,000	0	25	102,770	92,451

P = Preliminary.
Notes: Totals may not equal sum of components due to independent rounding.
Source: Energy Information Administration, Form EIA-63B, "Annual Photovoltaic Module/Cell Manufacturers Survey."

Table 53. Destination of U.S. Photovoltaic Cell and Module Export Shipments by Country, 2005

Country	Peak Kilowatts [P]	Percent of U.S. Exports
Africa		
Angola	0.3	*
Egypt	232.3	0.3
Gambia	1.3	*
Kenya	84.0	0.1
Nigeria	76.7	0.1
South Africa	548.5	0.6
Total	943.1	1.0
Asia		
China	1,938.7	2.1
Hong Kong	2,935.1	3.2
India	1,480.2	1.6
Israel	14.0	*
Japan	1,085.2	1.2
Malaysia	1.9	*
Nepal	93.0	0.1
North Korea	78.4	0.1
Oman	64.0	0.1
Pakistan	64.3	0.1
Philippines	37.0	*
Saudi Arabia	1.0	*
Singapore	8,560.2	9.3
South Korea	575.3	0.6
SriLanka	12.9	*
Taiwan	114.3	0.1
Thailand	101.0	0.1
United Arab Emirates	1.0	*
Vietnam	3.0	*
Total	17,160.5	18.6
Europe		
Austria	587.0	0.6
Belgium	4.0	*
Denmark	56.0	0.1
Federal Republic of Germany	49,249.9	53.3
Finland	20.0	*
France	43.0	*
Italy	673.1	0.7
Kazakhstan	1.1	*
Luxembourg	925.0	1.0
Netherlands	11,996.7	13.0
Norway	0.2	*
Poland	1.0	*
Portugal	1,902.0	2.1
Russia	17.0	*
Slovakia	90.0	0.1
Spain	706.4	0.8
Sweden	0.2	*
Switzerland	183.8	0.2
Turkey	1.6	*
United Kingdom	555.2	0.6
Uzbekistan	1.0	*
Total	67,014.2	72.5
North & Central America		
Antigua and Barbuda	1.6	*
Bermuda	1.0	*
Canada	3,226.5	3.5
Costa Rica	342.6	0.4
Dominican Republic	64.4	0.1
Guadeloupe	271.6	0.3
Guatemala	16.2	*
Haiti	53.7	0.1
Honduras	32.5	*
Martinique	4.6	*
Mexico	1,073.7	1.2
Netherlands Antilles	14.3	*
Nicaragua	0.8	*

See footnotes at end of table.

Table 53. Destination of U.S. Photovoltaic Cell and Module Export Shipments by Country, 2005 (Continued)

Country	Peak Kilowatts [P]	Percent of U.S. Exports
Panama	56.2	0.1
Trinidad and Tobago	1.0	*
Total	5,160.7	5.6
Oceania & Australia		
Australia	1,006.0	1.1
New Zealand	66.3	0.1
Total	1,072.3	1.2
South America		
Argentina	120.3	0.1
Bolivia	33.7	*
Brazil	461.1	0.5
Chile	39.7	*
Colombia	55.0	0.1
Ecuador	2.5	*
Guyana	16.5	*
Peru	355.2	0.4
Uruguay	1.2	*
Venezuela	14.9	*
Total	1,100.1	1.2
Total U.S. Export	92,450.9	100.0

P = Preliminary.
*** = Value less than 0.05 percent.**
Note: Totals may not equal sum of components due to independent rounding.
Source: Energy Information Administration, Form EIA-63B, "Annual Photovoltaic Module/Cell Manufacturers Survey."

Table 54. Shipments of Complete Photovoltaic Module Systems, 2003-2005

Shipment Information	2003	2004	2005[P]
Complete Photovoltaic Module System Shipped	5,525	16,990	37,115
Peak Kilowatts	9,545	8,110	6,583
Percentage of Total Module Shipments	12	6	3
Value of Systems (Thousand Dollars)	50,412	39,459	43,029

P = Preliminary.
Source: Energy Information Administration, Form EIA-63B, "Annual Photovoltaic Module/Cell Manufacturers Survey."

Table 55. Employment in the Photovoltaic Manufacturing Industry, 1996-2005

Year	Number of Companies	Number of Person-Years
1996	25	1,280
1997	21	1,736
1998	21	1,988
1999	19	2,013
2000	21	1,913
2001	19	2,666
2002	19	2,696
2003	20	2,590
2004	19	2,916
2005[p]	29	3,108

P = Preliminary.
Source: Energy Information Administration, Form EIA-63B, "Annual Photovoltaic Module/Cell Manufacturers Survey."

Table 56. Companies Expecting to Introduce New Photovoltaic Products in 2006

New Product Type	Number of Companies
Crystalline Silicon	
Single-Crystal Silicon Modules	9
Cast Silicon Modules	7
Ribbon Silicon Modules	2
Thin-Film	
Amorphous Silicon Modules	4
Other (Thin Film)	3
Other (Flat Plate)	1
Concentrators	1
Nonmodule System Components	0

Source: Energy Information Administration, Form EIA-63B, "Annual Photovoltaic Module/Cell Manufacturers Survey."

Table 57. Number of Companies Involved in Photovoltaic-Related Activities, 2004 and 2005

Type of Activity	Number of Companies	
	2004	2005 [P]
Cell Manufacturing	12	12
Module or Systems Design	18	23
Prototype Module Development	13	18
Prototype Systems Development	9	9
Wholesale Distribution	16	19
Retail Distribution	10	7
Installation	6	7
Noncollector System Component Manufacturing	3	3

P = Preliminary.
Source: Energy Information Administration, Form EIA-63B, "Annual Photovoltaic Module/Cell Manufacturers Survey."

Survey of Geothermal Heat Pump Shipments, 2005

Shipments of geothermal heat pumps (GHPs) increased just over 9 percent in 2005 to 47,830 units (Table 58). Most of the unit increase was for (ARI-325/330) systems. The 47,830 units shipped in 2005 represented the largest number shipped since EIA began tracking GHP shipments in 1999. Shipments have fluctuated over this period.

GHP capacity shipped grew slightly more than the number of units, increasing 11 percent between 2004 and 2005 to 160,402 tons (Table 59). ARI-325/330 tonnage shipments grew roughly the same as units, while (ARI-320) and Non-ARI rated tonnage grew faster than units shipped. In contrast to units shipped, total capacity shipped in 2005 did not exceed 1999's 191,651 tons. Average capacity per unit has generally declined over the period, from 4.6 tons/unit in 1999 to 3.4 tons/unit in 2005. This decrease reflects a decision to use more smaller units for commercial and school installations (e.g., "zoned" systems) rather than a single large unit.

Over 90 percent of GHPs were shipped to domestic destinations during 2005 (Table 60). Three-fourths of domestic GHP shipments went to the South (which has the most favorable temperature profile for GHP operation) or the Midwest (where land access for installing closed loop systems is easiest). More open-loop systems (ARI-320) were shipped to the South than any other region, reflecting the relatively shallow depth required to dig wells to access sufficient water for the GHP, combined with the favorable climate.

Over 60 percent of all GHPs shipped during 2005 went to wholesalers (Table 61). Virtually all of the rest were shipped to installers. End users (e.g., homeowners) rarely buy GHPs directly from manufacturers. Closed-loop systems are even more likely to be shipped to wholesale distributors; two-thirds of all ARI-325/330 units shipped in 2005 went to wholesalers.

Direct use geothermal energy (e.g., low-temperature water from conventional geothermal sources for crop-drying) and energy consumed by GHPs both increased in 2005. GHP energy consumed increased 13 percent in 2005 to an estimated 24 trillion Btus, while direct use inched upward from 8.6 trillion Btu to 8.8 trillion Btu (Table 62).

Regarding GHP use, most units in the United States are sized for the peak cooling season and are thus oversized for heating in the United States.[1] This is important in interpreting the estimates given above for energy consumed by GHPs, because only energy used from the ground fluid (i.e., during the heating season) is counted as GHP energy consumed. During the cooling cycle, heat (energy) is "rejected" to the ground (cooling fluid) and is not considered to be consumed. However, while the GHP is not "consuming" energy in this mode, it is certainly replacing other energy that would be required for cooling. Currently, most U.S. residential GHP units are estimated to be operating about 1,200 full-load hours per year in heating mode.[2] In contrast, GHPs in Europe are sized for the peak heating season. As a result, units there may operate in heating mode from 2,000 to 6,000 full-load hours per year.

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1 Dr. John W. Lund, Oregon Institute of Technology, Geo Heat Center, Bulletin, "Geothermal Heat Pumps Overview," (Klamath Falls, Oregon, March 2001). See website: http://geoheat.oit.edu/bulletin/bull22-1/art1.pdf, as of April 11, 2007.

2 Based on data from the American Society of Heating, Refrigerating and Air-Conditioning Engineers.

Table 58. Geothermal Heat Pump Shipments by Model Type, 1999-2005
(Number of Units)

Model	1999	2000	2001	2002	2003	2004	2005
ARI-320	7,910	7,808	NA	6,445	10,306	9,130	9,411
ARI-325/330	31,631	26,219	NA	26,802	25,211	31,855	34,861
Other Non-ARI Rated	2,138	1,554	NA	3,892	922	2,821	3,558
Totals	41,679	35,581	NA	37,139	36,439	43,806	47,830

NA=Not Available. No survey was conducted for 2001.
Source: Energy Information Administration, Form EIA-902, "Annual Geothermal Heat Pump Manufacturers Survey."

Table 59. Capacity of Geothermal Heat Pump Shipments by Model Type, 1999-2005
(Total Rated Capacity Tons)

Model	1999	2000	2001	2002	2003	2004	2005
ARI-320	27,970	26,469	NA	16,756	29,238	23,764	28,064
ARI-325/330	153,947	130,132	NA	96,541	89,731	100,317	110,291
Other Non-ARI Rated	9,735	7,590	NA	12,000	5,469	20,220	22,047
Totals	191,651	164,191	NA	125,297	124,438	144,301	160,402

NA=Not Available. No survey was conducted for 2001.
Note: One ton of capacity is equal to 12,000 Btus per hour.
Source: Energy Information Administration, Form EIA-902, "Annual Geothermal Heat Pump Manufacturers Survey."

Table 60. Geothermal Heat Pump Shipments by Destination and Model Type, 2005
(Number of Units)

Destination	ARI-320	ARI-325/330	Other Non-ARI Rated GHPs	Total
Exported	262	3,206	1,093	4,561
Midwest	1,463	13,942	1,231	16,636
Northeast	1,785	4,711	355	6,851
South	4,081	11,187	589	15,857
West	1,815	1,795	290	3,900
US Territories	5	20		25
Total	9,411	34,861	3,558	47,830

Note: The Midwest Census Region consists of Illinois, Indiana, Iowa, Kansas, Michigan, Minnesota, Missouri, Nebraska, North Dakota, Ohio, South Dakota, and Wisconsin. The Northeast Census Region consists of Connecticut, Maine, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, and Vermont. The South Census Region consists of Alabama, Arkansas, Delaware, District of Columbia, Florida, Georgia, Kentucky, Louisiana, Maryland, Mississippi, North Carolina, Oklahoma, South Alaska, Arizona, California, Colorado, Hawaii, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Washington, and Wyoming.
"Export" in Table 60 and "Exporter" in Table 61 are different. "Export" refers to shipments outside of the country, while "Exporter" is the type of customer.
Source: Energy Information Administration, Form EIA-902, "Annual Geothermal Heat Pump Manufacturers Survey."

Table 61. Geothermal Heat Pump Shipments by Customer Type and Model Type, 2005
(Number of Units)

Customer	ARI-320	ARI-325/330	Other Non-ARI Rated GHPs	Total
Exporter	0	0	18	18
Wholesale Distributor	5,040	22,892	1,402	29,334
Retail Distributor	109	112	398	619
Installer	4,250	11,494	1,565	17,309
End-User	0	265	140	405
Others	12	98	35	145
Total	9,411	34,861	3,558	47,830

Note: "Export" in Table 60 and "Exporter" in Table 61 are different. "Export" refers to shipments outside of the country, while "Exporter" is the type of customer.
Source: Energy Information Administration, Form EIA-902, "Annual Geothermal Heat Pump Manufacturers Survey."

Table 62. Geothermal Energy Used by Heat Pumps and for Direct Use, 1990-2005
(Quadrillion Btu)

Year	Direct Use	Heat Pumps	Total
1990	0.0048	0.0054	0.0102
1991	0.0050	0.0060	0.0110
1992	0.0051	0.0067	0.0118
1993	0.0053	0.0072	0.0125
1994	0.0056	0.0076	0.0132
1995	0.0058	0.0083	0.0141
1996	0.0059	0.0093	0.0152
1997	0.0061	0.0101	0.0162
1998	0.0063	0.0115	0.0178
1999	0.0079	0.0114	0.0193
2000	0.0084	0.0122	0.0206
2001	0.0090	0.0135	0.0225
2002	0.0090	0.0147	0.0237
2003	0.0086	0.0188	0.0274
2004	0.0086	0.0212	0.0298
2005	0.0088	0.0240	0.0328

Note: Data for 2003 and 2004 is revised. Direct use includes applications such as: district heating, aquaculture pond and raceway heating, greenhouse heating and agricultural drying.
Source: John Lund, Oregon Institute of Technology, Geo-Heat Center (Klamath Falls, Oregon, March 2006).

Green Pricing and Net Metering Programs, 2005

Background

Green pricing/marketing programs allow electricity customers to voluntarily pay the additional costs for renewable energy through direct payments on their monthly bills. In return, the electricity provider guarantees that it will provide either directly or by contract that amount of renewable-based electricity.

The Energy Information Administration (EIA) collects information about green pricing programs on the Form EIA-861, "Annual Electric Power Industry Report," which is a survey of electric industry participants.[1] All respondents, except independent power producers and qualifying facilities, were asked to report their number of customers in green pricing programs by state and customer class.

Net metering programs usually permit customers operating very small generators to purchase extra electricity when needed. Also, any excess power at the end of the month can be sold back to the utility. Provisions vary by state and utility and often apply to solar or wind energy. In addition, pricing schemes vary by individual utility and customer circumstance. This system facilitates the ease of operating intermittent generators, such as those using solar and wind energy, and improves their economics. The EIA collects information on net metering on the Form EIA-861 in much the same manner as it does green pricing.

2005 In Review

In 2005, the number of electric industry participants reporting customers in green pricing programs increased by 39 to 442 (Table H1). The total number of green pricing customers was nearly 943,000. Residential customers represented 92 percent of the total. Net gains of more than 102,000 customers in 33 states were largely offset by net losses of about 88,000 primarily in four states (Ohio, California, Pennsylvania, and Tennessee) (Table 63).

Of particular interest in reviewing these results is the status of one company, Green Mountain Energy, an Austin, Texas based green power marketer, which was a dominant player in the market during 2005. Early in 2006, the company reported that effective December 31, 2005, it had pulled out of the Ohio market, where it had some 450,000 green pricing customers. Also, its customer base in Pennsylvania, where it once had 100,000 customers, began plunging during 2005 due to rising energy prices.[2]

Growth in the number of net metering customers has been rapid. In 2005, 188 electric industry participants reported 21,146 net metering customers, up by 5,320 or 34 percent from the previous year (Table H1). Ninety-one percent were residential customers. Thirty-two states reported net gains of net metering customers (Table 64). California accounted for a net gain of 3,921 customers, followed by New Jersey with 297. This is attributed in part to more aggressive support for renewable energy in these two states, particularly for energy sources like roof-top solar, which is a popular application for net metering.[3]

[1] "Electric industry participants" include electric utilities, wholesale power marketers, energy service providers, and electric power producers.

[2] Austin American Statesman, "Green's Alternative Power Play: Austin-based company has faced mountain of challenges in quest to bring wind, other renewable energy to forefront," (Austin, Texas, January 22, 2006). See this website: http://www.statesman.com/business/content/business/stories/other/01/22greenmountain.html

[3] For details of individual state net metering programs, including some history, see the North Carolina Solar Center DSIRE database on this website: http://www.dsireusa.org/summarytables/reg1.cfm?&CurrentPageID=7&EE=1&RE=1

Table H1. Estimated U.S. Green Pricing Customers by Customer Class, 2002-2005

Year	Electric Industry Participants	Participarting Customers		
		Customer Class		Total
		Residential	Non-residential	
2002	212	688,069	23,481	711,550
2003	308	819,579	57,547	877,126
2004	403	864,794	63,539	928,333
2005	442	871,774	70,998	942,772

Note: Non-residential may include some customers for whom no customer class is specified.
Totals may not equal the sum of the components due to independent rounding.
Source: Energy Information Administration, Form EIA-861, "Annual Electric Power Industry Report."

Table H2. Estimated U.S. Net Metering Customers by Customer Class, 2002-2005

Year	Electric Industry Participants	Participarting Customers		
		Customer Class		Total
		Residential	Non-residential	
2002	96	3,559	913	4,472
2003	127	5,870	943	6,813
2004	166	14,114	1,712	15,826
2005	188	19,244	1,902	21,146

Note: Non-residential may include some customers for whom no customer class is specified.
Totals may not equal the sum of the components due to independent rounding.
Source: Energy Information Administration, Form EIA-861, "Annual Electric Power Industry Report."

Table 63. Estimated U.S. Green Pricing Customers by State and Customer Class, 2004 and 2005

State	Electric Industry Participants 2005[a]	2005			2004
		Residential	Non-Residential	Total	Total
Alabama	2	970	5	975	755
Alaska	1	320	5	325	
Arizona	3	5,783	113	5,896	5,792
Arkansas					
California	9	38,728	1,708	40,436	62,090
Colorado	24	39,387	1,022	40,409	40,166
Connecticut					
Delaware					15
District of Columbia	2	4,743	2,306	7,049	5,222
Florida	4	23,569	30	23,599	11,076
Georgia	16	3,738	57	3,795	3,241
Hawaii	3	4,234	45	4,279	4,005
Idaho	6	3,764	114	3,878	4,283
Illinois	6	1,225	2	1,227	31
Indiana	10	1,400	27	1,427	1,339
Iowa	54	7,896	154	8,050	7,313
Kansas					
Kentucky	10	796	13	809	513
Louisiana					
Maine	2	1,707	312	2,019	8
Maryland	2	28,772	3,955	32,727	15,178
Massachusetts	3	4,543	166	4,709	2,866
Michigan	9	1,867	147	2,014	1,376
Minnesota	93	24,374	314	24,688	23,058
Mississippi	1	3	0	3	81
Missouri	15	443	8	451	398
Montana	6	392	8	400	407
Nebraska	4	3,720	48	3,768	4,071
Nevada	3	384	0	384	498
New Hampshire					
New Jersey	2	1,390	302	1,692	1,911
New Mexico	11	9,400	452	9,852	8,461
New York	7	6,192	385	6,577	1,485
North Carolina	19	7,610	277	7,887	6,266
North Dakota	12	6,835	22	6,857	4,687
Ohio	3	360,398	42,035	402,433	454,509
Oklahoma	7	10,274	480	10,754	9,537
Oregon	11	62,267	1,488	63,755	53,902
Pennsylvania	3	29,718	40	29,758	36,328
Rhode Island	2	3,385	92	3,477	1,505
South Carolina	10	2,188	267	2,455	2,076
South Dakota	7	687	28	715	473
Tennessee					6,523
Texas	7	74,948	12,276	87,224	68,380
Utah	5	16,294	419	16,713	14,067
Vermont	1	2,008	87	2,095	899
Virginia	2	2,989	20	3,009	3,438
Washington	20	30,679	672	31,351	28,109
West Virginia					
Wisconsin	55	38,668	1,033	39,701	29,199
Wyoming	5	3,086	64	3,150	2,796
Total	442	871,774	70,998	942,772	928,333

[a] Includes entities with green pricing programs in more than one state.

Note: Non-residential may include some customers for whom no customer class is specified. Blank cells indicate no data was reported for the state or the number of customers in a class was zero. Totals may not equal the sum of the components due to independent rounding.

Source: Energy Information Administration, Form EIA-861, "Annual Electric Power Industry Report."

Table 64. Estimated U.S. Net Metering Customers by State and Customer Class, 2004 and 2005

State	Electric Industry Participants 2005[a]	2005			2004
		Residential	Non-Residential	Total	Total
Alabama	2	1	12	13	13
Alaska					
Arizona	5	145	7	152	43
Arkansas	2	4	1	5	3
California	18	16,134	1,293	17,427	13,506
Colorado	10	132	13	145	87
Connecticut	2	64	11	75	31
Delaware	1	12	8	20	
District of Columbia					
Florida	5	21	8	29	30
Georgia	1	1	0	1	2
Hawaii	4	90	8	98	46
Idaho	3	18	3	21	19
Illinois	4	1	7	8	2
Indiana	2	8	8	16	16
Iowa	5	10	6	16	8
Kansas	3	7	4	11	10
Kentucky	3	1	2	3	2
Louisiana					
Maine	1	2	6	8	
Maryland	5	8	1	9	9
Massachusetts	4	226	20	246	170
Michigan	2	5	2	7	5
Minnesota	25	177	16	193	233
Mississippi					1
Missouri	3	3	2	5	2
Montana	2	177	76	253	186
Nebraska					
Nevada	2	178	10	188	100
New Hampshire	4	65	28	93	81
New Jersey	2	550	54	604	307
New Mexico	5	9	7	16	11
New York	2	88	42	130	87
North Carolina					1
North Dakota	2	4	0	4	4
Ohio	5	21	10	31	18
Oklahoma	2	3	27	30	31
Oregon	9	301	40	341	232
Pennsylvania	4	106	28	134	89
Rhode Island	2	62	19	81	25
South Carolina					
South Dakota					
Tennessee					7
Texas	7	152	11	163	16
Utah	2	26	4	30	10
Vermont	5	149	15	164	67
Virginia	9	26	2	28	19
Washington	11	73	23	96	73
West Virginia	1	0	1	1	1
Wisconsin	9	176	64	240	212
Wyoming	5	8	3	11	11
Total	188	19,244	1,902	21,146	15,826

[a] Includes entities with net metering programs in more than one state.

Note: Non-residential may include some customers for whom no customer class is specified. Blank cells indicate no data was reported for the state or the number of customers in a class was zero. Totals may not equal the sum of the components due to independent rounding.

Source: Energy Information Administration, Form EIA-861, "Annual Electric Power Industry Report."