

## Energy and Utilities

This section presents statistics on fuel resources, energy production and consumption, electric energy, hydroelectric power, nuclear power, solar energy, wood energy, and the electric and gas utility industries. The principal sources are the U.S. Department of Energy's Energy Information Administration (EIA), the Edison Electric Institute, Washington, DC, and the American Gas Association, Arlington, VA. The Department of Energy was created in October 1977 and assumed and centralized the responsibilities of all or part of several agencies including the Federal Power Commission (FPC), the U.S. Bureau of Mines, the Federal Energy Administration, and the U.S. Energy Research and Development Administration. For additional data on transportation, see Section 23; on fuels, see Section 18; and on energy-related housing characteristics, see Section 20.

The EIA, in its *Annual Energy Review*, provides statistics and trend data on energy supply, demand, and prices. Information is included on petroleum and natural gas, coal, electricity, hydroelectric power, nuclear power, solar, wood, and geothermal energy. Among its annual reports are *Annual Energy Review; Electric Power Annual; Natural Gas Annual; Petroleum Supply Annual; State Energy Consumption, Price, and Expenditure Data; U.S. Crude Oil, Natural Gas, and Natural Gas Liquids Reserves; Electric Sales and Revenue; Annual Energy Outlook; and International Energy Annual*. These various publications contain state, national, and international data on production of electricity, net summer capability of generating plants, fuels used in energy production, energy sales and consumption, and hydroelectric power. The EIA also issues the *Monthly Energy Review*, which presents current supply, disposition, and price data and monthly publications on petroleum, coal, natural gas, and electric

power. Data on residential energy consumption, expenditures, and conservation activities are available from EIA's Residential Energy Consumption Survey and are published every 4 years.

The Edison Electric Institute's monthly bulletin and annual *Statistical Year Book of the Electric Utility Industry for the Year* contain data on the distribution of electric energy by public utilities; information on the electric power supply, expansion of electric generating facilities, and the manufacture of heavy electric power equipment is presented in the annual *Year-End Summary of the Electric Power Situation in the United States*. The American Gas Association, in its monthly and quarterly bulletins and its yearbook, *Gas Facts*, presents data on gas utilities and financial and operating statistics.

**Btu conversion factors**—Various energy sources are converted from original units to the thermal equivalent using British thermal units (Btu). A Btu is the amount of energy required to raise the temperature of 1 pound of water 1 degree Fahrenheit (F) at or near 39.2 degrees F. Factors are calculated annually from the latest final annual data available; some are revised as a result. The following list provides conversion factors used in 2007 for production and consumption, in that order, for various fuels: Petroleum, 5,800 and 5,347 mil. Btu per barrel; total coal, 20,341 and 20,169 mil. Btu per short ton; and natural gas (dry), 1,028 Btu per cubic foot for both. The factors for the production of nuclear power and geothermal power were 10,434 and 21,017 Btu per kilowatt-hour, respectively. The fossil fuel steam-electric power plant generation factor of 9,919 Btu per kilowatt-hour was used for hydroelectric power generation and for wood and waste, wind, photovoltaic, and solar thermal energy consumed at electric utilities.

In the past few years, EIA has restructured the industry categories it once used to gather and report electricity statistics. The electric power industry, previously divided into electric utilities and non-utilities, now consists of the Electric Power Sector, the Commercial Sector, and the Industrial Sector.

The Electric Power Sector is composed of electricity-only and combined-heat-and-power plants (CHPs) whose primary business is to sell electricity, or electricity and heat, to the public.

Electricity-only plants are composed of traditional electric utilities, and nontraditional participants, including energy service providers, power marketers, independent power producers (IPPs), and the portion of CHPs that produce only electricity.

A utility is defined as a corporation, person, agency, authority, or other legal entity or instrumentality aligned with distribution facilities for delivery of electric energy for use primarily by the public. Electric utilities include investor-owned electric utilities, municipal and state utilities, federal electric utilities, and rural electric cooperatives. In total, there are more than 3,100 electric utilities in the United States.

An independent power producer is an entity defined as a corporation, person, agency, authority, or other legal entity or instrumentality that owns or operates facilities whose primary business is to produce electricity for use by the public. They are not generally aligned with distribution facilities and are not considered electric utilities.

Combined-heat-and-power producers are plants designed to produce both heat and electricity from a single heat source. These types of electricity producers can be independent power producers or industrial or commercial establishments. As some independent power producers are CHPs, their information is included in the data for the combined-heat-and-power sector. There are approximately 2,800 unregulated independent power producers and CHPs in the United States.

The Commercial Sector consists of commercial CHPs and commercial electricity-only plants. Industrial CHPs and industrial electricity-only plants make up the Industrial Sector. For more information, please refer to the *Electric Power Annual 2006* Web site located at [http://www.eia.doe.gov/cneaf/electricity/epa/epa\\_sum.html](http://www.eia.doe.gov/cneaf/electricity/epa/epa_sum.html).

















**Table 892. Renewable Energy, Consumption by Sector and Source—  
Estimates, 2005 and 2006, and Projections, 2010 to 2030**

[In quadrillions of Btu per year. For definition of Btu, see source and text, this section. Data represent actual heat rates used to determine fuel consumption for all renewable fuels except hydropower, solar, and wind. Consumption at hydroelectric, solar, and wind facilities determined by using the fossil fuel equivalent of 10,280 Btu per kilowatt hour]

Sector and source	2005	2006	Projections				
			2010	2015	2020	2025	2030
<b>MARKETED RENEWABLE ENERGY <sup>1</sup></b>							
<b>Total marketed renewable energy . . . . .</b>	<b>6.30</b>	<b>6.77</b>	<b>8.56</b>	<b>10.00</b>	<b>11.74</b>	<b>13.44</b>	<b>13.73</b>
Residential (wood) . . . . .	0.45	0.41	0.44	0.42	0.40	0.39	0.38
Commercial (biomass) . . . . .	0.13	0.13	0.13	0.13	0.13	0.13	0.13
Industrial <sup>2</sup> . . . . .	1.88	1.99	2.34	2.75	3.32	4.21	4.33
Conventional hydroelectric . . . . .	0.03	0.03	0.03	0.03	0.03	0.03	0.03
Municipal waste <sup>3</sup> . . . . .	0.16	0.15	0.15	0.15	0.15	0.15	0.15
Biomass . . . . .	1.45	1.51	1.48	1.57	1.65	1.75	1.83
Biofuels heat and coproducts . . . . .	0.24	0.30	0.67	1.00	1.49	2.28	2.31
Transportation . . . . .	0.35	0.50	1.13	1.66	2.24	2.77	2.77
Ethanol used in E85 <sup>4</sup> . . . . .	—	—	—	0.12	0.64	0.93	0.88
Ethanol used in gasoline blending . . . . .	0.34	0.47	1.05	1.22	1.18	1.13	1.13
Biodiesel used in distillate blending . . . . .	0.01	0.03	0.08	0.17	0.13	0.14	0.16
Liquids from biomass . . . . .	—	—	—	0.15	0.29	0.56	0.60
Electric power <sup>5</sup> . . . . .	3.49	3.74	4.53	5.05	5.64	5.94	6.13
Conventional hydroelectric . . . . .	2.67	2.86	2.89	2.96	2.97	2.97	2.97
Geothermal . . . . .	0.31	0.31	0.37	0.48	0.58	0.70	0.80
Municipal waste <sup>6</sup> . . . . .	0.20	0.15	0.23	0.23	0.23	0.23	0.23
Biomass . . . . .	0.18	0.16	0.28	0.48	0.82	0.87	0.86
Dedicated plants . . . . .	0.14	0.12	0.12	0.16	0.27	0.30	0.36
Cofiring . . . . .	0.04	0.03	0.16	0.33	0.55	0.57	0.49
Solar thermal . . . . .	0.01	—	0.01	0.02	0.02	0.02	0.02
Solar photovoltaic . . . . .	—	—	—	—	0.01	0.01	0.01
Wind . . . . .	0.12	0.26	0.74	0.87	1.02	1.13	1.24
<b>Ethanol, total . . . . .</b>	<b>0.34</b>	<b>0.47</b>	<b>1.05</b>	<b>1.34</b>	<b>1.82</b>	<b>2.06</b>	<b>2.01</b>
Sources:							
Corn . . . . .	0.33	0.41	0.95	1.18	1.26	1.26	1.26
Cellulose . . . . .	—	—	0.01	0.03	0.23	0.58	0.58
Other feedstocks . . . . .	—	—	—	—	0.01	0.02	0.01
Net imports . . . . .	0.01	0.06	0.09	0.14	0.31	0.19	0.15
<b>NONMARKETED RENEWABLE ENERGY</b>							
<b>Selected consumption <sup>7</sup>:</b>							
<b>Residential . . . . .</b>	<b>0.01</b>	<b>0.02</b>	<b>0.02</b>	<b>0.03</b>	<b>0.04</b>	<b>0.05</b>	<b>0.07</b>
Solar hot water heating . . . . .	0.01	0.01	0.02	0.02	0.03	0.04	0.05
Geothermal heat pumps . . . . .	—	—	—	0.01	0.01	0.01	0.01
Solar photovoltaic . . . . .	—	—	—	—	—	—	0.01
Wind . . . . .	—	—	—	—	—	—	—
<b>Commercial . . . . .</b>	<b>0.03</b>	<b>0.03</b>	<b>0.03</b>	<b>0.03</b>	<b>0.03</b>	<b>0.04</b>	<b>0.04</b>
Solar thermal . . . . .	0.02	0.02	0.03	0.03	0.03	0.03	0.03
Solar photovoltaic . . . . .	—	—	—	—	—	0.01	0.01
Wind . . . . .	—	—	—	—	—	—	—

— Represents or rounds to zero. <sup>1</sup> Includes nonelectric renewable energy groups for which the energy source is bought and sold in the marketplace, although all transactions may not necessarily be marketed, and marketed renewable energy inputs for electricity entering the marketplace on the electric power grid. Excludes electricity imports. <sup>2</sup> Includes all electricity production by industrial and other combined heat and power for the grid and for own use. <sup>3</sup> Includes municipal solid waste, landfill gas, and municipal sewage sludge. All municipal solid waste is included, although a portion of the municipal solid waste stream contains petroleum-derived plastics and other nonrenewable sources. For municipal waste used to produce electric power, incremental growth is assumed to be for landfill gas facilities. <sup>4</sup> Excludes motor gasoline component of E85. <sup>5</sup> Includes consumption of energy by electricity-only and combined heat and power plants whose primary business is to sell electricity, or electricity and heat, to the public. Includes small power producers and exempt wholesale generators. <sup>6</sup> Includes biogenic municipal waste, landfill gas, and municipal sewage sludge. Incremental growth is assumed to be for landfill gas facilities. Only biogenic municipal waste is included. <sup>7</sup> Includes selected renewable energy consumption data for which the energy is not bought or sold, either directly or indirectly as an input to marketed energy.

Source: U.S. Energy Information Administration, Annual Energy Outlook 2008. See also <[http://www.eia.doe.gov/oiaf/aeo/aeoref\\_tab.html](http://www.eia.doe.gov/oiaf/aeo/aeoref_tab.html)> (released June 2008).

























**Table 917. Public Drinking Water Systems by Size of Community Served and Source of Water: 2006**

[As of **September**. Covers systems that provide water for human consumption through pipes and other constructed conveyances to at least 15 service connections or serve an average of at least 25 persons for at least 60 days a year. Based on reported data in the Safe Drinking Water Information System maintained by the Environmental Protection Agency]

Type of system	Total	Size of community served					Water source	
		500 or fewer persons	501 to 3,300 persons	3,301 to 10,000 persons	10,001 to 100,000	100,001 persons or more	Ground water	Surface water
<b>Total systems</b> . . . . .	<b>156,644</b>	<b>128,094</b>	<b>19,502</b>	<b>4,960</b>	<b>3,695</b>	<b>393</b>	<b>142,100</b>	<b>14,544</b>
<b>COMMUNITY WATER SYSTEMS <sup>1</sup></b>								
Number of systems . . . . .	52,339	29,448	14,098	4,745	3,659	389	40,315	12,024
Percent of systems . . . . .	100	56	27	9	7	1	77	23
Population served (1,000) . . . . .	281,700	4,896	20,017	27,473	103,301	126,013	85,035	196,665
Percent of population . . . . .	100	2	7	10	37	45	30	70
<b>NONTRANSIENT NONCOMMUNITY WATER SYSTEM <sup>2</sup></b>								
Number of systems . . . . .	19,045	16,259	2,659	108	19	–	18,429	616
Percent of systems . . . . .	100	85	14	1	–	–	97	3
Population served (1,000) . . . . .	6,008	2,261	2,668	586	494	–	5,407	602
Percent of population . . . . .	100	38	44	10	8	–	90	10
<b>TRANSIENT NONCOMMUNITY WATER SYSTEM <sup>3</sup></b>								
Number of systems . . . . .	85,260	82,387	2,745	107	17	4	83,356	1,904
Percent of systems . . . . .	100	97	3	–	–	–	98	2
Population served (1,000) . . . . .	13,981	7,261	2,691	580	454	2,994	11,281	2,699
Percent of population . . . . .	100	52	19	4	3	21	81	19

– Represents zero. <sup>1</sup> A public water system that supplies water to the same population year-round. <sup>2</sup> A public water system that regularly supplies water to at least 25 of the same people at least 6 months per year, but not year-round. Some examples are schools, factories, and office buildings which have their own water systems. <sup>3</sup> A public water system that provides water in a place such as a gas station or campground where people do not remain for long periods of time.

Source: U.S. Environmental Protection Agency, *Factoids: Drinking Water and Ground Water Statistics for 2006*, annual reports. See also <<http://www.epa.gov/safewater/data/getdata.html>> (published March 2008).

**Table 918. Sewage Treatment Facilities: 2005**

[Based on the North American Industry Classification System (NAICS), 2002; see text, Section 15]

State	Sewage treatment facilities (NAICS 22132)		State	Sewage treatment facilities (NAICS 22132)	
	Number of establishments	Paid employees		Number of establishments	Paid employees
<b>U.S.</b> . . . . .	<b>750</b>	<b>6,062</b>	MO . . . . .	21	(1)
AL . . . . .	8	(1)	MT . . . . .	9	(2)
AK . . . . .	3	(2)	NE . . . . .	3	(2)
AZ . . . . .	10	24	NV . . . . .	2	(2)
AR . . . . .	6	35	NH . . . . .	2	(2)
CA . . . . .	30	(9)	NJ . . . . .	13	(3)
CO . . . . .	10	36	NM . . . . .	6	23
CT . . . . .	7	57	NY . . . . .	35	294
DE . . . . .	1	(2)	NC . . . . .	22	(1)
DC . . . . .	(NA)	(NA)	ND . . . . .	(NA)	(NA)
FL . . . . .	67	(1)	OH . . . . .	16	(1)
GA . . . . .	8	(3)	OK . . . . .	10	(1)
HI . . . . .	14	(1)	OR . . . . .	6	(2)
ID . . . . .	7	(1)	PA . . . . .	96	567
IL . . . . .	38	(5)	RI . . . . .	3	(1)
IN . . . . .	43	199	SC . . . . .	11	47
IA . . . . .	4	(1)	SD . . . . .	2	(2)
KS . . . . .	5	(1)	TN . . . . .	10	84
KY . . . . .	9	87	TX . . . . .	66	1,344
LA . . . . .	24	(2)	UT . . . . .	2	(2)
ME . . . . .	3	(2)	VT . . . . .	2	(2)
MD . . . . .	6	(2)	VA . . . . .	9	(2)
MA . . . . .	12	(3)	WA . . . . .	6	(2)
MI . . . . .	25	(1)	WV . . . . .	16	83
MN . . . . .	6	(1)	WI . . . . .	12	(1)
MS . . . . .	21	121	WY . . . . .	3	36

NA Not available. <sup>1</sup> 20–99 employees. <sup>2</sup> 0–19 employees. <sup>3</sup> 100–249 employees. <sup>4</sup> 500 to 999 employees. <sup>5</sup> 250–499 employees.

Source: U.S. Census Bureau, "County Business Patterns"; <<http://www.census.gov/epcd/cbp/view/cbpview.html>>.