

Table 1.5b 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
Biofuels ^a	0.126	0.111	0.129	0.146	0.171	0.190	0.202	0.145	0.187	0.205	0.213
Waste ^b	0.354	0.408	0.440	0.473	0.479	0.515	0.531	0.577	0.551	0.542	0.540
Wood and Derived Fuels	2.680	2.216	2.214	2.313	2.260	2.324	2.370	2.437	2.371	2.184	2.214
Geothermal	0.317	0.336	0.346	0.349	0.364	0.338	0.294	0.316	0.325	0.328	0.331
Hydroelectric Conventional	2.837	3.046	3.016	2.617	2.892	2.683	3.205	3.590	3.640	3.297	3.268
Solar/PV	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	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 and Derived Fuels ^c	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/PV ^d	0.053	0.056	0.058	0.060	0.062	0.064	0.065	0.065	0.065	0.065	0.064
Commercial	0.102	0.098	0.100	0.109	0.114	0.112	0.118	0.135	0.138	0.127	0.129
Biomass	0.099	0.094	0.095	0.105	0.109	0.106	0.113	0.129	0.131	0.118	0.121
Biofuels ^e	0.001	0.001	*	*	*	*	*	*	*	*	*
Waste ^b	0.022	0.028	0.026	0.032	0.033	0.035	0.040	0.053	0.058	0.054	0.054
Wood and Derived Fuels ^f	0.076	0.066	0.068	0.072	0.076	0.072	0.072	0.076	0.073	0.064	0.067
Geothermal	0.003	0.003	0.003	0.003	0.003	0.004	0.005	0.005	0.006	0.007	0.007
Hydroelectric Conventional	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
Industrial	1.870	1.716	1.683	1.737	1.772	1.927	1.992	2.033	2.058	1.931	1.936
Biomass	1.840	1.683	1.651	1.704	1.740	1.862	1.935	1.970	1.997	1.873	1.883
Biofuels ^g	0.056	0.049	0.057	0.064	0.075	0.083	0.087	0.062	0.082	0.090	0.093
Waste ^b	0.200	0.192	0.185	0.179	0.181	0.199	0.195	0.224	0.184	0.180	0.171
Wood and Derived Fuels ^f	1.584	1.442	1.410	1.461	1.484	1.580	1.652	1.683	1.731	1.603	1.620
Geothermal	0.002	0.002	0.002	0.002	0.002	0.003	0.003	0.003	0.003	0.003	0.004
Hydroelectric Conventional	0.028	0.031	0.030	0.031	0.030	0.062	0.055	0.061	0.058	0.055	0.049
Transportation	0.069	0.062	0.072	0.081	0.096	0.107	0.115	0.082	0.104	0.115	0.120
Biofuels ^h	0.069	0.062	0.072	0.081	0.096	0.107	0.115	0.082	0.104	0.115	0.120
Electric Power Sector ⁱ	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
Waste ^b	0.010	0.013	0.014	0.013	0.011	0.013	0.010	0.012	0.013	0.013	0.013
Wood and Derived Fuels ^f	0.010	0.008	0.008	0.008	0.009	0.008	0.007	0.008	0.008	0.007	0.007
Geothermal	0.197	0.181	0.170	0.169	0.158	0.145	0.099	0.110	0.115	0.109	0.036
Hydroelectric Conventional	2.765	2.948	2.923	2.521	2.774	2.549	3.056	3.423	3.485	3.149	3.067
Solar/PV	*	*	*	*	*	*	*	*	*	*	*
Wind	*	*	*	*	*	*	*	*	*	*	*
Independent Power Producer	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
Waste ^b	0.122	0.175	0.215	0.249	0.253	0.269	0.286	0.288	0.296	0.294	0.302
Wood and Derived Fuels ^f	0.089	0.120	0.118	0.132	0.141	0.144	0.119	0.130	0.129	0.129	0.131
Geothermal	0.111	0.145	0.165	0.168	0.193	0.180	0.181	0.191	0.194	0.202	0.276
Hydroelectric Conventional	0.043	0.066	0.062	0.065	0.087	0.072	0.093	0.104	0.096	0.092	0.151
Solar/PV	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

Table 1.5b. Historical Renewable Energy Consumption by Sector and Energy Source, 2000-2006 (Continued)
 (Quadrillion Btu)

Sector and Energy Source	2000	2001	2002	2003	2004	2005	2006
Total	6.264	5.316	5.893	6.150	6.261	6.444	6.922
Biomass	3.013	2.627	2.706	2.817	3.023	3.154	3.374
Biofuels ^a	0.241	0.258	0.309	0.414	0.513	0.595	0.795
Waste ^b	0.511	0.364	0.402	0.401	0.389	0.403	0.407
Wood and Derived Fuels	2.262	2.006	1.995	2.002	2.121	2.156	2.172
Geothermal	0.317	0.311	0.328	0.331	0.341	0.343	0.343
Hydroelectric Conventional	2.811	2.242	2.689	2.825	2.690	2.703	2.869
Solar/PV	0.066	0.065	0.064	0.064	0.065	0.066	0.072
Wind	0.057	0.070	0.105	0.115	0.142	0.178	0.264
Residential	0.490	0.439	0.449	0.471	0.483	0.527	0.495
Biomass	0.420	0.370	0.380	0.400	0.410	0.450	0.410
Wood and Derived Fuels ^c	0.420	0.370	0.380	0.400	0.410	0.450	0.410
Geothermal	0.009	0.009	0.010	0.013	0.014	0.016	0.018
Solar/PV ^d	0.061	0.060	0.059	0.058	0.059	0.061	0.067
Commercial	0.128	0.101	0.104	0.113	0.118	0.119	0.117
Biomass	0.119	0.092	0.095	0.101	0.105	0.105	0.102
Biofuels ^e	*	*	*	0.001	0.001	0.001	0.001
Waste ^b	0.047	0.025	0.026	0.029	0.034	0.034	0.036
Wood and Derived Fuels ^f	0.071	0.067	0.069	0.071	0.070	0.070	0.065
Geothermal	0.008	0.008	0.009	0.011	0.012	0.014	0.014
Hydroelectric Conventional	0.001	0.001	*	0.001	0.001	0.001	0.001
Industrial	1.930	1.721	1.723	1.731	1.861	1.884	1.999
Biomass	1.884	1.684	1.679	1.684	1.824	1.848	1.966
Biofuels ^g	0.102	0.112	0.136	0.178	0.217	0.248	0.311
Waste ^b	0.145	0.129	0.146	0.142	0.132	0.148	0.140
Wood and Derived Fuels ^f	1.636	1.443	1.396	1.363	1.476	1.452	1.515
Geothermal	0.004	0.005	0.005	0.003	0.004	0.004	0.004
Hydroelectric Conventional	0.042	0.033	0.039	0.043	0.033	0.032	0.029
Transportation	0.138	0.145	0.172	0.235	0.296	0.346	0.483
Biofuels ^h	0.138	0.145	0.172	0.235	0.296	0.346	0.483
Electric Power Sector ⁱ	3.579	2.910	3.445	3.601	3.503	3.568	3.827
Electric Utilities	2.607	2.063	2.529	2.615	2.522	2.530	2.688
Biomass	0.021	0.014	0.033	0.029	0.031	0.040	0.042
Waste ^b	0.014	0.008	0.022	0.012	0.011	0.013	0.015
Wood and Derived Fuels ^f	0.007	0.006	0.011	0.017	0.020	0.027	0.027
Geothermal	0.003	0.003	0.029	0.026	0.026	0.024	0.024
Hydroelectric Conventional	2.582	2.044	2.465	2.556	2.461	2.455	2.598
Solar/PV	*	*	*	*	*	*	*
Wind	*	0.001	0.002	0.004	0.004	0.010	0.023
Independent Power Producer	0.972	0.847	0.916	0.986	0.981	1.038	1.139
Biomass	0.432	0.323	0.347	0.368	0.357	0.365	0.370
Waste ^b	0.305	0.202	0.208	0.218	0.212	0.208	0.216
Wood and Derived Fuels ^f	0.127	0.121	0.140	0.151	0.145	0.158	0.154
Geothermal	0.293	0.286	0.275	0.277	0.285	0.285	0.282
Hydroelectric Conventional	0.185	0.165	0.185	0.224	0.196	0.215	0.242
Solar/PV	0.005	0.006	0.006	0.005	0.006	0.005	0.005
Wind	0.057	0.068	0.103	0.111	0.138	0.168	0.240

See footnotes at end of table.

Table 1.5a and 5b. Historical Renewable Energy Consumption by Sector and Energy Source, 1989-2006 (Continued)

Notes and Sources

- ^a Biofuels and biofuel losses and coproducts.
- ^b Municipal solid waste biogenic, landfill gases, agriculture byproducts/crops, sludge waste, and other biomass solids, liquids and gases. Includes municipal solid waste nonbiogenic and tires for 1989-2000.
- ^c Wood and wood pellet fuel
- ^d Includes small amounts of distributed solar thermal and photovoltaic energy used in the commercial, industrial and electric power sectors.
- ^e Ethanol primarily derived from corn.
- ^f Black liquor, and wood/woodwaste solids and liquids.
- ^g Ethanol primarily derived from corn and losses and coproducts from production of biodiesel and ethanol.
- ^h Biodiesel primarily derived from soy bean oil and ethanol primarily derived from corn
- ⁱ 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.
PV=Photovoltaic.
- Note: Revised data are in italics. 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. Biofuels for Transportation: Biodiesel: 2001-2005: U.S. Department of Agriculture, Commodity Credit Corporation, Bioenergy Program estimates of production assigned to consumption and 2006 and forward: U.S. Department of Commerce, Bureau of Census, Current Industrial Reports, Fats and Oils - Production, Consumption and Stocks, 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 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 adjustments (Table 1), plus finished motor gasoline adjustments (Table 1), plus fuel ethanol refinery and blender net inputs (Table 15).2006: EIA Petroleum Supply Monthly, monthly reports, Tables 1 and 27. Calculated as motor gasoline blending components adjustments (Table 1), plus finished motor gasoline adjustments (Table 1), plus fuel ethanol refinery and blender net inputs (Table 27). Small amounts of ethanol consumption are distributed to the commercial and industrial sectors according to those sector's shares of U.S. motor gasoline supplied. 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."