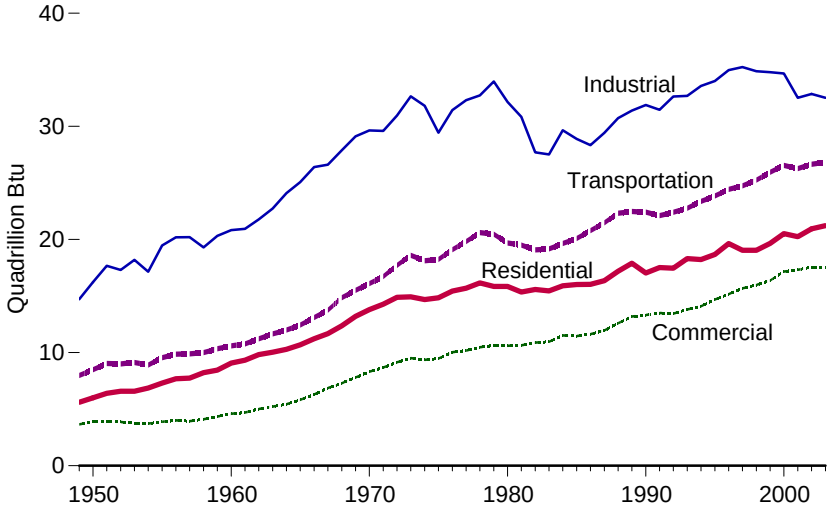
2 Energy Consumption by Sector

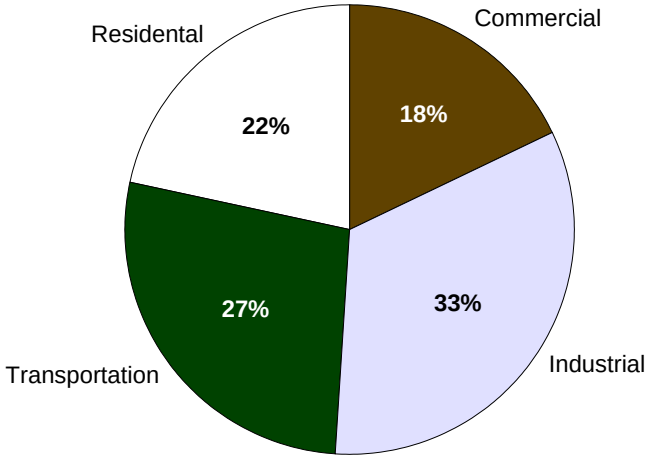
Office buildings, industries, residences, and transport systems, Baltimore, Maryland; east view from the inner harbor.
Source: U.S. Department of Energy.

Figure 2.1a Energy Consumption by Sector Overview

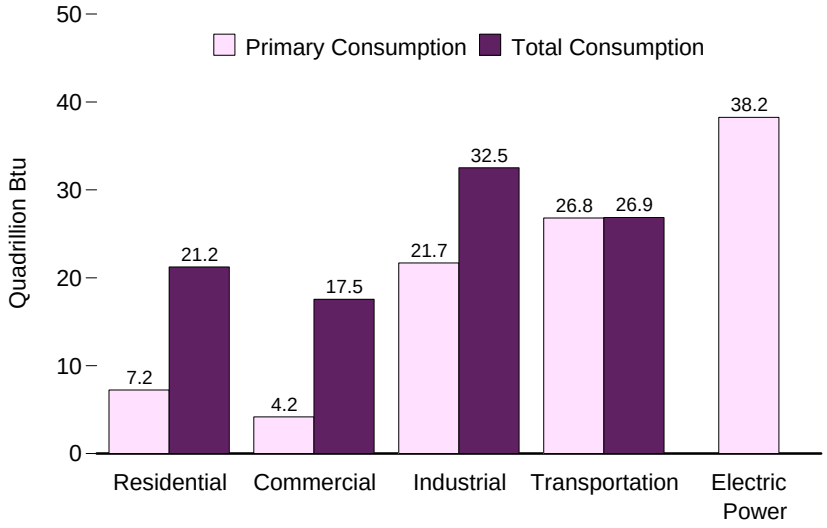
Total Consumption by End-Use Sector, 1949-2003



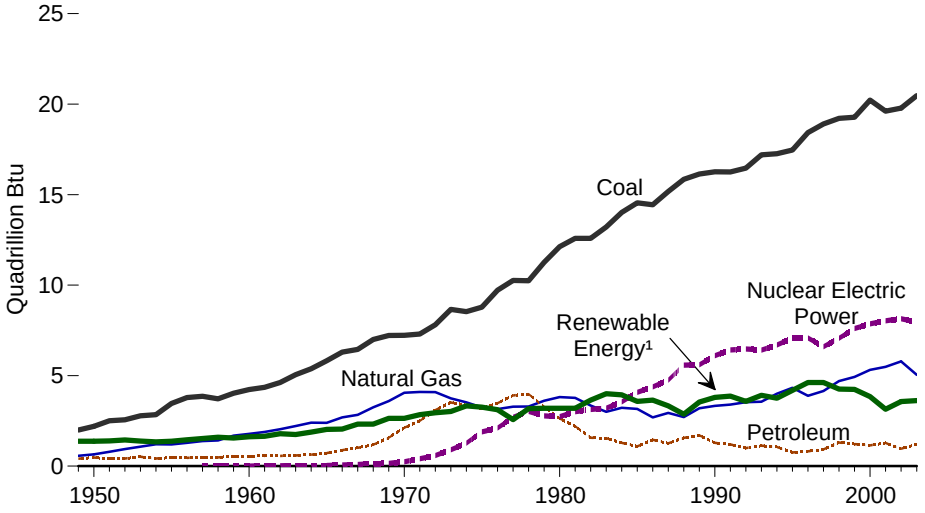
End-Use Sector Shares of Total Consumption, 2003



Primary and Total Consumption by Sector, 2003



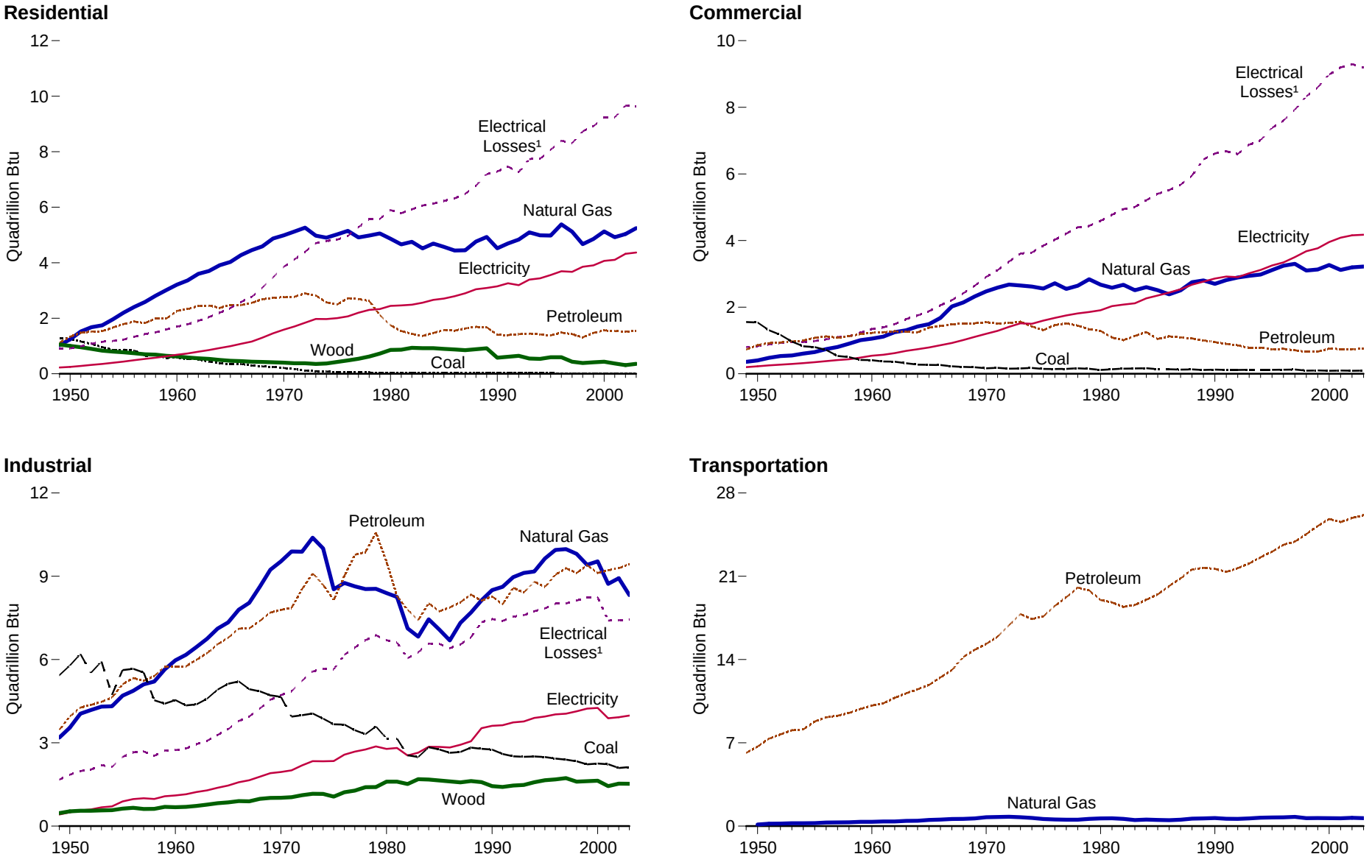
Electric Power Sector, 1949-2003



[1] Conventional hydroelectric power, wood, waste, geothermal, solar, and wind.
Note: Because vertical scales differ, graphs should not be compared.

Sources: Tables 2.1a and 2.1f.

Figure 2.1b Energy Consumption by End-Use Sector, 1949-2003



¹ Electrical system energy losses associated with the generation, transmission, and distribution of energy in the form of electricity.

Note: Because vertical scales differ, graphs should not be compared.
Sources: Tables 2.1b–2.1e.

Table 2.1a Energy Consumption by Sector, Selected Years, 1949-2003

(Trillion Btu)

Year	End-Use Sectors								Electric Power Sector [3]	Adjustments [4]	Total
	Residential		Commercial [1]		Industrial [2]		Transportation				
	Primary	Total	Primary	Total	Primary	Total	Primary	Total	Primary		
1949	4,475	5,614	2,661	3,661	12,627	14,717	7,880	7,990	4,339	(s)	31,982
1950	4,848	6,007	2,824	3,883	13,881	16,233	8,384	8,493	4,679	(s)	34,616
1955	5,633	7,303	2,548	3,882	16,091	19,472	9,475	9,551	6,461	(s)	40,208
1960	6,689	9,078	2,702	4,589	16,977	20,823	10,560	10,597	8,158	(s)	45,087
1965	7,328	10,689	3,150	5,820	20,124	25,075	12,400	12,434	11,014	(s)	54,017
1970	8,353	13,798	4,196	8,307	22,975	29,641	16,061	16,098	16,259	(s)	67,844
1971	8,457	14,278	4,283	8,681	22,732	29,601	16,693	16,729	17,124	(s)	69,289
1972	8,655	14,891	4,369	9,145	23,532	30,953	17,681	17,716	18,466	(s)	72,704
1973	8,250	14,930	4,381	9,507	24,741	32,653	18,576	18,612	19,753	7	75,708
1974	7,928	14,683	4,221	9,363	23,816	31,819	18,086	18,119	19,933	7	73,991
1975	8,006	14,842	4,023	9,466	21,454	29,447	18,209	18,244	20,307	1	71,999
1976	8,408	15,441	4,333	10,035	22,685	31,430	19,065	19,099	21,513	8	76,012
1977	8,207	15,689	4,217	10,177	23,193	32,307	19,784	19,820	22,591	7	78,000
1978	8,272	16,156	4,269	10,481	23,276	32,733	20,580	20,615	23,587	2	79,986
1979	7,934	15,842	4,333	10,627	24,211	33,962	20,436	20,471	23,987	2	80,903
1980	7,504	15,848	4,097	10,594	22,673	32,152	19,658	19,696	24,359	-1	78,289
1981	7,103	15,353	3,831	10,638	21,404	30,836	R19,476	R19,513	24,525	3	R76,342
1982	7,163	15,577	3,859	10,880	19,113	27,704	R19,051	R19,088	24,063	4	R73,253
1983	6,834	15,459	3,827	10,952	18,598	27,511	R19,133	R19,176	24,705	3	R73,101
1984	7,123	15,908	4,043	11,517	20,219	29,654	R19,608	R19,655	25,741	3	R76,736
1985	7,086	16,023	3,714	11,471	19,473	28,891	R20,042	R20,089	26,158	-4	R76,469
1986	6,912	16,026	3,674	11,628	19,092	28,334	R20,741	R20,790	26,359	3	R76,782
1987	6,972	16,359	3,752	11,965	19,960	29,433	R21,421	R21,471	27,124	-3	R79,225
1988	7,377	17,197	3,974	12,597	20,868	30,728	R22,268	R22,320	28,354	3	R82,844
1989	7,614	17,893	3,981	13,185	20,883	31,390	R22,426	R22,480	3 30,044	9	R84,957
1990	6,604	17,043	3,850	13,321	21,209	31,891	R22,368	R22,421	30,647	-9	R84,668
1991	6,791	17,514	3,896	13,494	20,843	31,467	R22,067	R22,120	30,999	1	R84,595
1992	6,999	17,456	3,941	13,438	21,770	32,637	R22,365	R22,418	30,873	(s)	R85,949
1993	7,185	18,312	3,923	13,819	R21,758	R32,688	22,716	22,770	32,006	-10	R87,578
1994	7,036	18,223	3,970	14,099	22,384	33,565	23,312	23,367	32,551	-6	89,248
1995	7,049	18,679	4,054	14,687	22,706	34,003	23,793	23,849	33,616	3	91,221
1996	7,555	19,642	4,226	15,170	23,428	34,969	24,384	24,439	34,626	4	94,224
1997	7,068	19,047	4,248	15,679	23,684	35,243	24,697	24,752	35,024	6	94,727
1998	6,454	19,044	3,963	15,972	23,166	34,876	25,203	25,258	36,363	-3	95,146
1999	6,831	19,654	4,008	16,371	22,938	34,791	25,894	25,951	37,097	6	96,774
2000	7,204	20,511	R4,223	R17,160	22,805	34,681	26,492	26,552	R38,180	2	R98,905
2001	R6,909	R20,247	R4,044	R17,323	R21,834	R32,527	R26,216	R26,276	R37,372	R4	R96,378
2002	R6,949	20,937	R4,116	R17,566	R22,126	R32,859	R26,596	R26,653	R38,228	R11	R98,026
2003P	7,242	21,229	4,178	17,548	21,690	32,524	26,800	26,857	38,248	-3	98,156

[1] Commercial sector, including commercial combined-heat-and-power (CHP) and commercial electricity-only plants.

[2] Industrial sector, including industrial combined-heat-and-power (CHP) and industrial electricity-only plants.

[3] Electricity-only and combined-heat-and-power (CHP) plants within the NAICS (North American Industry Classification System) 22 category whose primary business is to sell electricity, or electricity and heat, to the public. Through 1988, data are for electric utilities only; beginning in 1989, data are for electric utilities and independent power producers.

[4] A balancing item. The sum of primary consumption in the five energy-use sectors equals the sum of total consumption in the four end-use sectors. However, total energy consumption does not equal the sum of the sectoral components due to the use of sector-specific conversion factors for natural gas and coal.

R=Revised. P=Preliminary. (s)=Less than 0.5 trillion Btu.

Notes: • Primary consumption includes coal, natural gas, petroleum, nuclear electric power, hydroelectric power, wood, waste, alcohol fuels, geothermal, solar, wind, coal coke net imports, and electricity net imports. • Total consumption includes primary consumption, electricity retail sales, and electrical system energy losses. See Note, "Electrical System Energy Losses," at end of section. • See Note 2, "Classification of Power Plants Into Energy-Use Sectors," at end of Section 8. • Totals may not equal sum of components due to independent rounding.

Web Page: For data not shown for 1951-1969, see http://www.eia.doe.gov/emeu/aer/enduse.html.

Sources: Tables 2.1b-2.1f.

Table 2.1b Residential Sector Energy Consumption, Selected Years, 1949-2003

(Trillion Btu)

Year	Primary Consumption									Electricity Retail Sales [5]	Electrical System Energy Losses [6]	Total
	Fossil Fuels				Renewable Energy [1]				Total Primary			
	Coal	Natural Gas [2]	Petroleum	Total	Wood	Geothermal [3]	Solar [4]	Total				
1949	1,272	1,027	1,121	3,420	1,055	NA	NA	1,055	4,475	228	911	5,614
1950	1,261	1,240	1,340	3,842	1,006	NA	NA	1,006	4,848	246	913	6,007
1955	867	2,198	1,792	4,858	775	NA	NA	775	5,633	438	1,232	7,303
1960	585	3,212	2,265	6,062	627	NA	NA	627	6,689	687	1,701	9,078
1965	352	4,028	2,481	6,860	468	NA	NA	468	7,328	993	2,368	10,689
1970	209	4,987	2,755	7,952	401	NA	NA	401	8,353	1,591	3,854	13,798
1971	172	5,126	2,777	8,075	382	NA	NA	382	8,457	1,704	4,116	14,278
1972	116	5,264	2,895	8,276	380	NA	NA	380	8,655	1,838	4,397	14,891
1973	94	4,977	2,825	7,896	354	NA	NA	354	8,250	1,976	4,703	14,930
1974	82	4,901	2,573	7,557	371	NA	NA	371	7,928	1,973	4,783	14,683
1975	63	5,023	2,495	7,580	425	NA	NA	425	8,006	2,007	4,829	14,842
1976	59	5,147	2,720	7,927	482	NA	NA	482	8,408	2,069	4,963	15,441
1977	57	4,913	2,695	7,666	542	NA	NA	542	8,207	2,202	5,280	15,689
1978	49	4,981	2,620	7,651	622	NA	NA	622	8,272	2,301	5,582	16,156
1979	37	5,055	2,114	7,206	728	NA	NA	728	7,934	2,330	5,578	15,842
1980	31	4,866	1,748	6,645	859	NA	NA	859	7,504	2,448	5,897	15,848
1981	30	4,660	1,543	6,234	869	NA	NA	869	7,103	2,464	5,786	15,353
1982	32	4,753	1,441	6,226	937	NA	NA	937	7,163	2,489	5,925	15,577
1983	31	4,516	1,362	5,909	925	NA	NA	925	6,834	2,562	6,063	15,459
1984	40	4,692	1,468	6,200	923	NA	NA	923	7,123	2,662	6,123	15,908
1985	39	4,571	1,578	6,187	899	NA	NA	899	7,086	2,709	6,227	16,023
1986	40	4,439	1,556	6,036	876	NA	NA	876	6,912	2,795	6,320	16,026
1987	37	4,449	1,634	6,120	852	NA	NA	852	6,972	2,902	6,485	16,359
1988	37	4,765	1,690	6,492	885	NA	NA	885	7,377	3,046	6,774	17,197
1989	31	4,929	1,679	6,639	918	5	53	976	7,614	3,090	7,189	17,893
1990	31	4,523	1,407	5,961	581	6	56	642	6,604	3,153	7,287	17,043
1991	25	4,697	1,392	6,114	613	6	58	677	6,791	3,260	7,463	17,514
1992	26	4,835	1,427	6,288	645	6	60	711	6,999	3,193	7,263	17,456
1993	26	5,095	1,448	6,569	548	7	62	616	7,185	3,394	7,733	18,312
1994	21	4,988	1,420	6,429	537	6	64	607	7,036	3,441	7,746	18,223
1995	17	4,981	1,383	6,382	596	7	65	667	7,049	3,557	8,073	18,679
1996	17	5,383	1,488	6,888	595	7	65	667	7,555	3,694	8,393	19,642
1997	16	5,118	1,428	6,562	433	8	65	506	7,068	3,671	8,308	19,047
1998	12	4,669	1,314	5,995	387	8	65	459	6,454	3,856	8,733	19,044
1999	14	4,858	1,473	6,345	414	9	64	486	6,831	3,906	8,917	19,654
2000	11	5,126	1,563	6,701	433	9	61	503	7,204	4,069	9,238	20,511
2001	12	R4,919	1,539	R6,470	R370	9	60	R439	R6,909	4,103	R9,234	R20,247
2002	R11	R5,036	1,519	R6,567	R313	10	R59	R382	R6,949	R4,323	R9,665	20,937
2003P	12	5,249	1,546	6,807	359	18	58	435	7,242	4,367	9,620	21,229

[1] All values are estimated; see Table 10.2a.
[2] Natural gas, plus a small amount of supplemental gaseous fuels that cannot be identified separately.
[3] Geothermal heat pump and direct use energy.
[4] Solar thermal direct use energy and photovoltaic electricity generation. Includes a small amount of commercial sector use.
[5] Electricity retail sales to ultimate customers reported by electric utilities and, beginning in 1996, other energy service providers.
[6] Total losses are calculated as the primary energy consumed by the electric power sector minus the energy content of electricity retail sales. Total losses are allocated to the end-use sectors in proportion to each sector's share of total electricity retail sales. See Note, "Electrical System Energy Losses," at end of section.

R=Revised. P=Preliminary. NA=Not available.
Note: Totals may not equal sum of components due to independent rounding.
Web Page: For data not shown for 1951-1969, see http://www.eia.doe.gov/emeu/aer/enduse.html.
Sources: Tables 2.1f, 5.14a, 6.5, 7.3, 8.9, 10.2a, A4, A5, and A6.

Table 2.1c Commercial Sector Energy Consumption, Selected Years, 1949-2003

(Trillion Btu)

Year	Primary Consumption										Electricity Retail Sales [5]	Electrical System Energy Losses [6]	Total
	Fossil Fuels				Renewable Energy [1]					Total Primary			
	Coal	Natural Gas [2]	Petroleum	Total	Hydropower [3]	Wood	Waste	Geothermal [4]	Total				
1949	1,554	360	727	2,641	NA	20	NA	NA	20	2,661	200	800	3,661
1950	1,542	401	862	2,805	NA	19	NA	NA	19	2,824	225	834	3,883
1955	801	651	1,081	2,533	NA	15	NA	NA	15	2,548	350	984	3,882
1960	407	1,056	1,228	2,690	NA	12	NA	NA	12	2,702	543	1,344	4,589
1965	265	1,490	1,386	3,142	NA	9	NA	NA	9	3,150	789	1,880	5,820
1970	165	2,473	1,551	4,189	NA	8	NA	NA	8	4,196	1,201	2,910	8,307
1971	179	2,587	1,510	4,276	NA	7	NA	NA	7	4,283	1,288	3,111	8,681
1972	153	2,678	1,530	4,362	NA	7	NA	NA	7	4,369	1,408	3,368	9,145
1973	160	2,649	1,565	4,374	NA	7	NA	NA	7	4,381	1,517	3,609	9,507
1974	175	2,617	1,423	4,214	NA	7	NA	NA	7	4,221	1,501	3,640	9,363
1975	147	2,558	1,310	4,015	NA	8	NA	NA	8	4,023	1,598	3,845	9,466
1976	144	2,718	1,461	4,323	NA	9	NA	NA	9	4,333	1,678	4,025	10,035
1977	148	2,548	1,511	4,207	NA	10	NA	NA	10	4,217	1,754	4,206	10,177
1978	165	2,643	1,450	4,257	NA	12	NA	NA	12	4,269	1,813	4,398	10,481
1979	149	2,836	1,334	4,319	NA	14	NA	NA	14	4,333	1,854	4,439	10,627
1980	115	2,674	1,287	4,076	NA	21	NA	NA	21	4,097	1,906	4,591	10,594
1981	137	2,583	1,090	3,810	NA	21	NA	NA	21	3,831	2,033	4,774	10,638
1982	155	2,673	1,008	3,837	NA	22	NA	NA	22	3,859	2,077	4,944	10,880
1983	162	2,508	1,136	3,805	NA	22	NA	NA	22	3,827	2,116	5,008	10,952
1984	169	2,600	1,252	4,021	NA	22	NA	NA	22	4,043	2,264	5,209	11,517
1985	137	2,508	1,045	3,690	NA	24	NA	NA	24	3,714	2,351	5,405	11,471
1986	135	2,386	1,126	3,647	NA	27	NA	NA	27	3,674	2,439	5,515	11,628
1987	125	2,505	1,093	3,723	NA	29	NA	NA	29	3,752	2,539	5,674	11,965
1988	131	2,748	1,063	3,942	NA	32	NA	NA	32	3,974	2,675	5,948	12,597
1989	115	2,802	1,002	3,919	1	36	22	3	61	3,981	2,767	6,437	13,185
1990	124	2,701	953	3,779	1	39	28	3	71	3,850	2,860	6,611	13,321
1991	116	2,813	895	3,824	1	41	26	3	72	3,896	2,918	6,681	13,494
1992	117	2,890	854	3,860	1	44	32	3	81	3,941	2,900	6,596	13,438
1993	117	2,942	780	3,839	1	46	33	3	84	3,923	3,019	6,877	13,819
1994	118	2,979	787	3,885	1	46	35	4	86	3,970	3,116	7,013	14,099
1995	117	3,113	732	3,962	1	46	40	5	92	4,054	3,252	7,381	14,687
1996	122	3,244	751	4,116	1	50	53	5	110	4,226	3,344	7,599	15,170
1997	129	3,302	704	4,135	1	49	58	6	113	4,248	3,503	7,928	15,679
1998	93	3,098	661	3,853	1	48	54	7	111	3,963	3,678	8,330	15,972
1999	103	3,130	661	3,894	1	52	54	7	114	4,008	3,766	8,597	16,371
2000	92	R3,265	756	R4,113	1	53	47	8	109	R4,223	3,956	8,982	R17,160
2001	97	R3,116	742	R3,955	1	R40	39	8	89	R4,044	R4,086	R9,194	R17,323
2002	R91	R3,196	R736	R4,023	RP (s)	R42	R42	9	RP93	R4,116	R4,157	R9,293	R17,566
2003	P99	P3,220	P753	P4,072	P1	P42	P48	P15	P106	P4,178	P4,174	P9,195	P17,548

[1] All values are estimated; see Table 10.2a.
[2] Natural gas, plus a small amount of supplemental gaseous fuels that cannot be identified separately.
[3] Conventional hydroelectric power.
[4] Geothermal heat pump and direct use energy.
[5] Electricity retail sales to ultimate customers reported by electric utilities and, beginning in 1996, other energy service providers.
[6] Total losses are calculated as the primary energy consumed by the electric power sector minus the energy content of electricity retail sales. Total losses are allocated to the end-use sectors in proportion to each sector's share of total electricity retail sales. See Note, "Electrical System Energy Losses," at end of section.

R=Revised. P=Preliminary. NA=Not available. (s)=Less than 0.5 trillion Btu.

Notes: • The commercial sector includes commercial combined-heat-and-power (CHP) and commercial electricity-only plants. See Note 2, "Classification of Power Plants Into Energy-Use Sectors," at end of Secion 8. • Totals may not equal sum of components due to independent rounding.

Web Page: For data not shown for 1951-1969, see http://www.eia.doe.gov/emeu/aer/enduse.html.

Sources: Tables 2.1f, 5.14a, 6.5, 7.3, 8.9, 10.2a, A4, A5, and A6.

Table 2.1d Industrial Sector Energy Consumption, Selected Years, 1949-2003

(Trillion Btu)

Year	Primary Consumption											Electricity Retail Sales [5]	Electrical System Energy Losses [6]	Total
	Fossil Fuels					Renewable Energy [1]					Total Primary			
	Coal	Coal Coke Net Imports	Natural Gas [2]	Petroleum	Total	Hydropower [3]	Wood	Waste	Geothermal [4]	Total				
1949	5,433	-7	3,188	3,468	12,083	76	468	NA	NA	544	12,627	418	1,672	14,717
1950	5,781	1	3,546	3,951	13,279	69	532	NA	NA	602	13,881	500	1,852	16,233
1955	5,620	-10	4,701	5,111	15,421	38	631	NA	NA	669	16,091	887	2,495	19,472
1960	4,543	-6	5,973	5,747	16,258	39	680	NA	NA	719	16,977	1,107	2,739	20,823
1965	5,127	-18	7,339	6,789	19,236	33	855	NA	NA	888	20,124	1,463	3,488	25,075
1970	4,656	-58	9,536	7,787	21,922	34	1,019	NA	NA	1,053	22,975	1,948	4,719	29,641
1971	3,944	-33	9,892	7,856	21,659	34	1,040	NA	NA	1,074	22,732	2,011	4,857	29,601
1972	3,993	-26	9,884	8,534	22,385	34	1,113	NA	NA	1,147	23,532	2,187	5,233	30,953
1973	4,057	-7	10,388	9,104	23,541	35	1,165	NA	NA	1,200	24,741	2,341	5,571	32,653
1974	3,870	56	10,004	8,694	22,624	33	1,159	NA	NA	1,192	23,816	2,337	5,666	31,819
1975	3,667	14	8,532	8,146	20,359	32	1,063	NA	NA	1,096	21,454	2,346	5,647	29,447
1976	3,661	(s)	8,762	9,010	21,432	33	1,220	NA	NA	1,253	22,685	2,573	6,171	31,430
1977	3,454	15	8,635	9,774	21,879	33	1,281	NA	NA	1,314	23,193	2,682	6,432	32,307
1978	3,314	125	8,539	9,867	21,845	32	1,400	NA	NA	1,432	23,276	2,761	6,696	32,733
1979	3,593	63	8,549	10,568	22,773	34	1,405	NA	NA	1,439	24,211	2,873	6,878	33,962
1980	3,155	-35	8,395	9,525	21,040	33	1,600	NA	NA	1,633	22,673	2,781	6,698	32,152
1981	3,157	-16	8,257	8,285	19,682	33	1,602	87	NA	1,722	21,404	2,817	6,615	30,836
1982	2,552	-22	7,121	7,795	17,446	33	1,516	118	NA	1,667	19,113	2,542	6,050	27,704
1983	2,490	-16	6,826	7,420	16,720	33	1,690	155	NA	1,879	18,598	2,648	6,265	27,511
1984	2,842	-11	7,448	8,025	18,303	33	1,679	204	NA	1,916	20,219	2,859	6,576	29,654
1985	2,760	-13	7,080	7,738	17,565	33	1,645	230	NA	1,908	19,473	2,855	6,563	28,891
1986	2,641	-17	6,690	7,880	17,194	33	1,610	256	NA	1,899	19,092	2,834	6,408	28,334
1987	2,673	9	7,323	8,065	18,069	33	1,576	282	NA	1,891	19,960	2,928	6,545	29,433
1988	2,828	40	7,696	8,339	18,902	33	1,625	308	NA	1,965	20,868	3,059	6,801	30,728
1989	2,787	30	8,131	8,120	19,068	28	1,584	200	2	1,814	20,883	3,158	7,349	31,390
1990	2,756	5	8,502	8,278	19,542	31	1,442	192	2	1,667	21,209	3,226	7,457	31,891
1991	2,601	10	8,619	7,987	19,216	30	1,410	185	2	1,626	20,843	3,230	7,394	31,467
1992	2,515	35	8,967	8,581	20,098	31	1,461	179	2	1,672	21,770	3,319	7,548	32,637
1993	2,496	27	9,120	8,418	20,062	30	R1,483	181	2	R1,696	R21,758	3,334	7,596	R32,688
1994	2,510	58	9,172	8,801	20,540	62	1,580	199	3	1,844	22,384	3,439	7,742	33,565
1995	2,488	61	9,637	8,614	20,801	55	1,652	195	3	1,905	22,706	3,455	7,842	34,003
1996	2,434	23	9,947	9,053	21,457	61	1,683	224	3	1,971	23,428	3,527	8,014	34,969
1997	2,395	46	9,976	9,290	21,708	58	1,731	184	3	1,976	23,684	3,542	8,017	35,243
1998	2,335	67	9,806	9,116	21,324	55	1,603	180	3	1,841	23,166	3,587	8,124	34,876
1999	2,227	58	9,415	9,396	21,095	49	1,620	171	4	1,843	22,938	3,611	8,242	34,791
2000	2,256	65	9,535	9,120	20,977	42	1,636	145	4	1,828	22,805	3,631	8,245	34,681
2001	2,230	R29	R8,725	9,220	R20,204	32	1,443	150	5	1,630	R21,834	3,290	R7,404	R32,527
2002	R2,094	R61	R8,931	R9,291	R20,377	RP39	R1,531	R174	5	RP1,748	R22,126	R3,317	R7,416	R32,859
2003	P2,129	P51	P8,324	P9,436	P19,940	P57	P1,524	P164	P5	P1,750	P21,690	P3,383	P7,451	P32,524

[1] All values are estimated; see Table 10.2a.
[2] Natural gas, plus a small amount of supplemental gaseous fuels that cannot be identified separately.
[3] Conventional hydroelectric power.
[4] Geothermal heat pump and direct use energy.
[5] Electricity retail sales to ultimate customers reported by electric utilities and, beginning in 1996, other energy service providers.
[6] Total losses are calculated as the primary energy consumed by the electric power sector minus the energy content of electricity retail sales. Total losses are allocated to the end-use sectors in proportion to each sector's share of total electricity retail sales. See Note, "Electrical System Energy Losses," at end of section.

R=Revised. P=Preliminary. NA=Not available. (s)=Less than +0.5 trillion Btu and greater than -0.5 trillion Btu.

Notes: • The industrial sector includes industrial combined-heat-and-power (CHP) and industrial electricity-only plants. See Note 2, "Classification of Power Plants Into Energy-Use Sectors," at end of Secion 8. • Totals may not equal sum of components due to independent rounding.

Web Page: For data not shown for 1951-1969, see http://www.eia.doe.gov/emeu/aer/enduse.html.

Sources: Tables 2.1f, 5.14b, 6.5, 7.3, 8.9, 10.2a, A4, A5, and A6.

Table 2.1e Transportation Sector Energy Consumption, Selected Years, 1949-2003

(Trillion Btu)

Year	Primary Consumption						Electricity Retail Sales [6]	Electrical System Energy Losses [7]	Total [4]
	Fossil Fuels				Renewable Energy [1]	Total Primary [4]			
	Coal	Natural Gas [2]	Petroleum [3,4]	Total	Alcohol Fuels [4,5]				
1949	1,727	NA	6,152	7,880	NA	7,880	22	88	7,990
1950	1,564	130	6,690	8,384	NA	8,384	23	86	8,493
1955	421	254	8,800	9,475	NA	9,475	20	56	9,551
1960	75	359	10,126	10,560	NA	10,560	10	26	10,597
1965	16	517	11,868	12,400	NA	12,400	10	24	12,434
1970	7	745	15,310	16,061	NA	16,061	11	26	16,098
1971	5	766	15,923	16,693	NA	16,693	10	25	16,729
1972	4	787	16,891	17,681	NA	17,681	10	25	17,716
1973	3	743	17,831	18,576	NA	18,576	11	25	18,612
1974	2	685	17,399	18,086	NA	18,086	10	24	18,119
1975	1	595	17,614	18,209	NA	18,209	10	24	18,244
1976	(s)	559	18,506	19,065	NA	19,065	10	24	19,099
1977	(s)	543	19,241	19,784	NA	19,784	10	25	19,820
1978	([8])	539	20,041	20,580	NA	20,580	10	24	20,615
1979	([8])	612	19,825	20,436	NA	20,436	10	24	20,471
1980	([8])	650	19,008	19,658	NA	19,658	11	27	19,696
1981	([8])	658	18,811	19,469	7	R19,476	11	26	R19,513
1982	([8])	612	18,420	19,032	19	R19,051	11	26	R19,088
1983	([8])	505	18,593	19,098	35	R19,133	13	30	R19,176
1984	([8])	545	19,020	19,565	43	R19,608	14	33	R19,655
1985	([8])	519	19,471	19,990	52	R20,042	14	33	R20,089
1986	([8])	499	20,182	20,681	60	R20,741	15	34	R20,790
1987	([8])	535	20,816	21,352	69	R21,421	16	35	R21,471
1988	([8])	632	21,567	22,198	70	R22,268	16	35	R22,320
1989	([8])	649	21,706	22,355	71	R22,426	16	38	R22,480
1990	([8])	680	21,625	22,305	63	R22,368	16	37	R22,421
1991	([8])	620	21,373	21,994	73	R22,067	16	37	R22,120
1992	([8])	608	21,674	22,282	83	R22,365	16	37	R22,418
1993	([8])	645	[4]22,072	22,716	[4]97	[4]22,716	16	37	[4]22,770
1994	([8])	709	22,603	23,312	109	23,312	17	38	23,367
1995	([8])	724	23,069	23,793	117	23,793	17	39	23,849
1996	([8])	737	23,647	24,384	84	24,384	17	38	24,439
1997	([8])	780	23,917	24,697	106	24,697	17	38	24,752
1998	([8])	666	24,537	25,203	117	25,203	17	38	25,258
1999	([8])	675	25,218	25,894	122	25,894	17	40	25,951
2000	([8])	672	25,820	26,492	139	26,492	18	42	26,552
2001	([8])	R659	25,556	R26,216	147	R26,216	19	R42	R26,276
2002	([8])	R702	R25,894	R26,596	174	R26,596	18	39	R26,653
2003P	([8])	669	26,131	26,800	239	26,800	18	40	26,857

[1] All values are estimated; see Table 10.2a.

[2] Natural gas consumed in the operation of pipelines (primarily in compressors) and small amounts consumed as vehicle fuel. See Table 6.5.

[3] Beginning in 1993, includes ethanol blended into motor gasoline.

[4] Beginning in 1993, ethanol blended into motor gasoline is included in both "Petroleum" and "Alcohol Fuels," but is counted only once in both total primary consumption and total consumption.

[5] "Alcohol Fuels" is ethanol blended into motor gasoline.

[6] Electricity retail sales to ultimate customers reported by electric utilities and, beginning in 1996, other energy service providers.

[7] Total losses are calculated as the primary energy consumed by the electric power sector minus the energy content of electricity retail sales. Total losses are allocated to the end-use sectors in proportion to each sector's share of total electricity retail sales. See Note, "Electrical System Energy Losses," at end of section.

[8] Since 1978, the small amounts of coal consumed for transportation are reported as industrial sector consumption.

R=Revised. P=Preliminary. NA=Not available. (s)=Less than 0.5 trillion Btu.

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

Web Page: For data not shown for 1951-1969, see http://www.eia.doe.gov/emeu/aer/enduse.html.

Sources: Tables 2.1f, 5.14c, 6.5, 7.3, 8.9, 10.2a, A4, A5, and A6.

Table 2.1f Electric Power Sector Energy Consumption, Selected Years, 1949-2003

(Trillion Btu)

	Primary Consumption														
	Fossil Fuels						Renewable Energy								
Year	Coal	Natural Gas [1]	Petroleum	Total	Nuclear Electric Power	Hydro-electric Pumped Storage [2]	Conventional Hydroelectric Power	Wood	Waste	Geothermal	Solar	Wind	Total	Electricity Net Imports	Total Primary
1949	1,995	569	415	2,979	0	([3])	1,349	6	NA	NA	NA	NA	1,355	5	4,339
1950	2,199	651	472	3,322	0	([3])	1,346	5	NA	NA	NA	NA	1,351	6	4,679
1955	3,458	1,194	471	5,123	0	([3])	1,322	3	NA	NA	NA	NA	1,325	14	6,461
1960	4,228	1,785	553	6,565	6	([3])	1,569	2	NA	1	NA	NA	1,571	15	8,158
1965	5,821	2,395	722	8,938	43	([3])	2,026	3	NA	4	NA	NA	2,033	(s)	11,014
1970	7,227	4,054	2,117	13,399	239	([3])	2,600	1	2	11	NA	NA	2,615	7	16,259
1971	7,299	4,099	2,495	13,893	413	([3])	2,790	1	2	12	NA	NA	2,806	12	17,124
1972	7,811	4,084	3,097	14,992	584	([3])	2,829	1	2	31	NA	NA	2,864	26	18,466
1973	8,658	3,748	3,515	15,921	910	([3])	2,827	1	2	43	NA	NA	2,873	49	19,753
1974	8,534	3,519	3,365	15,418	1,272	([3])	3,143	1	2	53	NA	NA	3,199	43	19,933
1975	8,786	3,240	3,166	15,191	1,900	([3])	3,122	(s)	2	70	NA	NA	3,194	21	20,307
1976	9,720	3,152	3,477	16,349	2,111	([3])	2,943	1	2	78	NA	NA	3,024	29	21,513
1977	10,262	3,284	3,901	17,446	2,702	([3])	2,301	3	2	77	NA	NA	2,383	59	22,591
1978	10,238	3,297	3,987	17,522	3,024	([3])	2,905	2	1	64	NA	NA	2,973	67	23,587
1979	11,260	3,613	3,283	18,156	2,776	([3])	2,897	3	2	84	NA	NA	2,986	69	23,987
1980	12,123	3,810	2,634	18,567	2,739	([3])	2,867	3	2	110	NA	NA	2,982	71	24,359
1981	12,583	3,768	2,202	18,553	3,008	([3])	2,725	3	1	123	NA	NA	2,852	113	24,525
1982	12,582	3,342	1,568	17,491	3,131	([3])	3,233	2	1	105	NA	NA	3,341	100	24,063
1983	13,213	2,998	1,544	17,754	3,203	([3])	3,494	2	2	129	NA	(s)	3,627	121	24,705
1984	14,019	3,220	1,286	18,526	3,553	([3])	3,353	5	4	165	(s)	(s)	3,527	135	25,741
1985	14,542	3,160	1,090	18,792	4,076	([3])	2,937	8	7	198	(s)	(s)	3,150	140	26,158
1986	14,444	2,691	1,452	18,586	4,380	([3])	3,038	5	7	219	(s)	(s)	3,270	122	26,359
1987	15,173	2,935	1,257	19,365	4,754	([3])	2,602	8	7	229	(s)	(s)	2,846	158	27,124
1988	15,850	2,709	1,563	20,123	5,587	([3])	2,302	10	8	217	(s)	(s)	2,536	108	28,354
1989 [4]	16,137	3,192	1,703	21,032	5,602	([3])	2,808	100	132	308	3	22	3,372	37	30,044
1990	16,261	3,332	1,289	20,883	6,104	-36	3,014	129	188	326	4	29	3,689	8	30,647
1991	16,250	3,399	1,198	20,847	6,422	-47	2,985	126	229	335	5	31	3,710	67	30,999
1992	16,466	3,534	991	20,990	6,479	-43	2,586	140	262	338	4	30	3,360	87	30,873
1993	17,196	3,560	1,124	21,880	6,410	-42	2,861	150	265	351	5	31	3,662	95	32,006
1994	17,261	4,000	1,059	22,320	6,694	-35	2,620	152	282	325	5	36	3,420	153	32,551
1995	17,466	4,325	755	22,546	7,075	-28	3,149	125	296	280	5	33	3,889	134	33,616
1996	18,429	3,883	817	23,129	7,087	-32	3,528	138	300	300	5	33	4,305	137	34,626
1997	18,905	4,146	927	23,977	6,597	-41	3,581	137	309	309	5	34	4,375	116	35,024
1998	19,216	4,698	1,306	25,220	7,068	-46	3,241	137	308	311	5	31	4,032	88	36,363
1999	19,279	4,926	1,211	25,416	7,610	-62	3,218	138	315	312	5	46	4,034	99	37,097
2000	20,220	5,316	1,144	26,680	7,862	-57	2,768	134	318	296	5	57	3,579	R115	R38,180
2001	R19,614	R5,481	1,277	R26,371	R8,033	-90	2,169	126	324	289	6	68	2,982	75	R37,372
2002	R19,783	R5,785	R961	R26,529	R8,143	RP-88	RP2,636	R150	R365	R305	P6	RP105	RP3,567	78	R38,228
2003	P20,468	P5,047	P1,207	P26,723	P7,973	P-88	P2,722	P161	P346	P276	P5	P108	P3,619	P22	P38,248

[1] Natural gas, plus a small amount of supplemental gaseous fuels that cannot be identified separately.
[2] Pumped storage facility production minus energy used for pumping.
[3] Included in "Conventional Hydroelectric Power."
[4] Through 1988, data are for electric utilities only. Beginning in 1989, data are for electric utilities and independent power producers.

R=Revised. P=Preliminary. NA=Not available. (s)=Less than 0.5 trillion Btu.

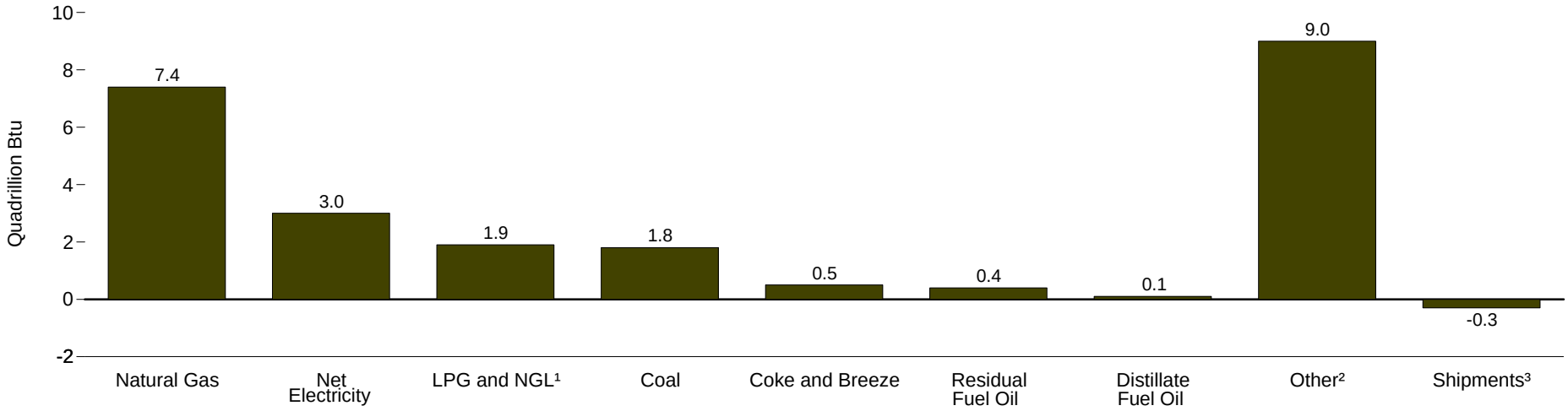
Notes: • Data are for fuels consumed to produce electricity and useful thermal output. • The electric power sector comprises electricity-only and combined-heat-and-power (CHP) plants within the NAICS (North American Industry Classification System) 22 category whose primary business is to sell electricity, or electricity and heat, to the public. • See Note 3, "Electricity Imports and Exports," at end of Section 8. • Totals may not equal sum of components due to independent rounding.

Web Page: For data not shown for 1951-1969, see http://www.eia.doe.gov/emeu/aer/enduse.html.

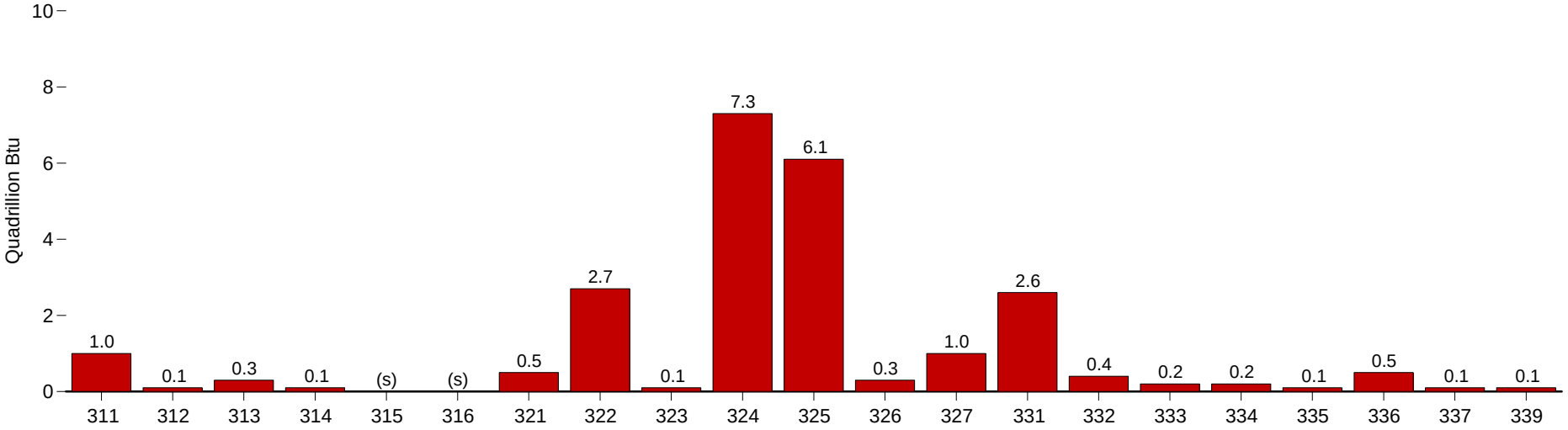
Sources: Tables 5.14c, 6.5, 7.3, 8.1, 10.2b, A4, A5, and A6.

Figure 2.2 Manufacturing Consumption of Energy for All Purposes, 1998

By Energy Source



By North American Industry Classification System (NAICS)[4]



[1] Liquefied petroleum gases and natural gas liquids.
[2] Includes all other types of energy that respondents indicated were consumed or allocated.
[3] Energy sources produced onsite from the use of other energy sources but sold or transferred to another entity.
[4] See Table 2.2 for Major Group titles of industries that correspond to the 3-digit NAICS codes.
(s)=Less than 0.05 quadrillion Btu.
Source: Table 2.2.

Table 2.2 Manufacturing Consumption of Energy for All Purposes, 1998

(Trillion Btu)

NAICS [1] Code	Major Group	Coal	Coal Coke and Breeze	Natural Gas	Distillate Fuel Oil	LPG [2] and NGL [3]	Residual Fuel Oil	Net Electricity [4]	Other [5]	Shipments of Energy Sources [6]	Total [7]
311	Food	129	2	568	16	5	14	213	97	0	1,044
312	Beverage and Tobacco Products	29	0	45	2	1	2	24	4	0	108
313	Textile Mills	20	0	103	4	2	12	102	14	0	256
314	Textile Product Mills	3	0	25	Q	(s)	3	18	(s)	0	50
315	Apparel	1	0	23	1	1	2	18	4	0	48
316	Leather and Allied Products	0	0	4	(s)	(s)	(s)	3	(s)	0	8
321	Wood Products	2	0	73	13	4	1	72	343	0	509
322	Paper	277	0	586	9	5	151	240	1,478	0	2,747
323	Printing and Related Support	(s)	0	44	(s)	1	(s)	51	2	0	98
324	Petroleum and Coal Products	12	0	1,007	28	39	72	126	6,082	47	7,320
325	Chemicals	300	7	2,709	10	1,796	98	577	677	110	6,064
326	Plastics and Rubber Products	3	0	126	1	5	5	183	5	0	328
327	Nonmetallic Mineral Products	284	11	444	17	3	4	134	82	0	979
331	Primary Metals	715	437	933	9	3	30	545	82	192	2,560
332	Fabricated Metal Products	3	3	241	6	5	2	176	10	0	445
333	Machinery	6	0	99	3	3	1	96	7	0	217
334	Computer and Electronic Products	(s)	0	64	1	(s)	1	137	1	0	205
335	Electrical Equipment, Appliances, and Components	1	(s)	53	1	2	1	55	30	0	143
336	Transportation Equipment	29	1	212	15	4	5	195	31	0	492
337	Furniture and Related Products	2	0	27	1	1	(s)	30	28	0	88
339	Miscellaneous	(s)	0	40	2	1	1	40	4	0	89
—	Total Manufacturing	1,814	461	7,426	142	1,882	406	3,035	8,980	349	23,796

[1] The Standard Industrial Classification (SIC) system has been replaced by the North American Industry Classification System (NAICS).

[2] Liquefied petroleum gases.

[3] Natural gas liquids.

[4] "Net Electricity" is the sum of purchases, transfers in, and onsite generation from noncombustible renewable energy sources, minus quantities sold and transferred out; it excludes onsite generation from combustible fuels.

[5] Includes all other types of energy that respondents indicated were consumed or allocated, such as asphalt and road oil, lubricants, naphtha < 401° F, other oils >= 401° F, special naphthas, waxes, and miscellaneous nonfuel products, which are nonfuel products assigned to the petroleum refining industry group (NAICS 324110).

[6] Energy sources produced onsite from the use of other energy sources but sold or transferred to another entity.

[7] The sum of coal, coal coke and breeze, natural gas, distillate fuel oil, liquefied petroleum gases, natural gas liquids, residual fuel oil, net electricity, and other, minus shipments of energy sources.

(s)=Less than 0.5 trillion Btu. Q=Data withheld because the relative standard error was greater than 50 percent.

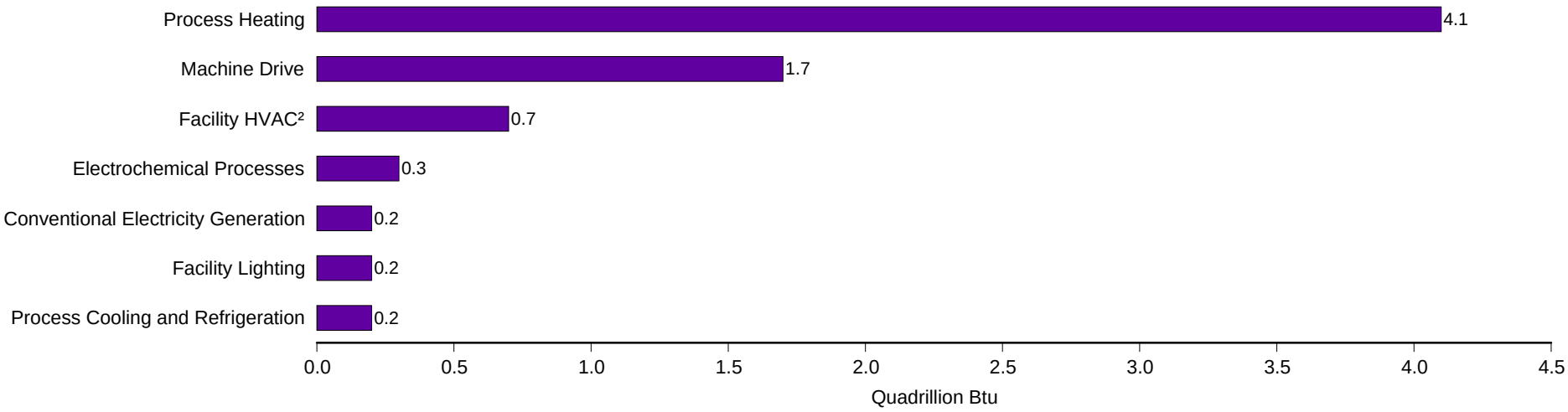
Notes: • "Consumption of Energy" was "First Use of Energy" in previous releases of this table. The estimates are for the first use of energy for heat and power and as feedstocks or raw material inputs. "First use" is the consumption of energy that was originally produced offsite or was produced onsite from input materials not classified as energy. • Totals may not equal sum of components due to independent rounding.

Web Page: For related information, see http://www.eia.doe.gov/emeu/mecs.

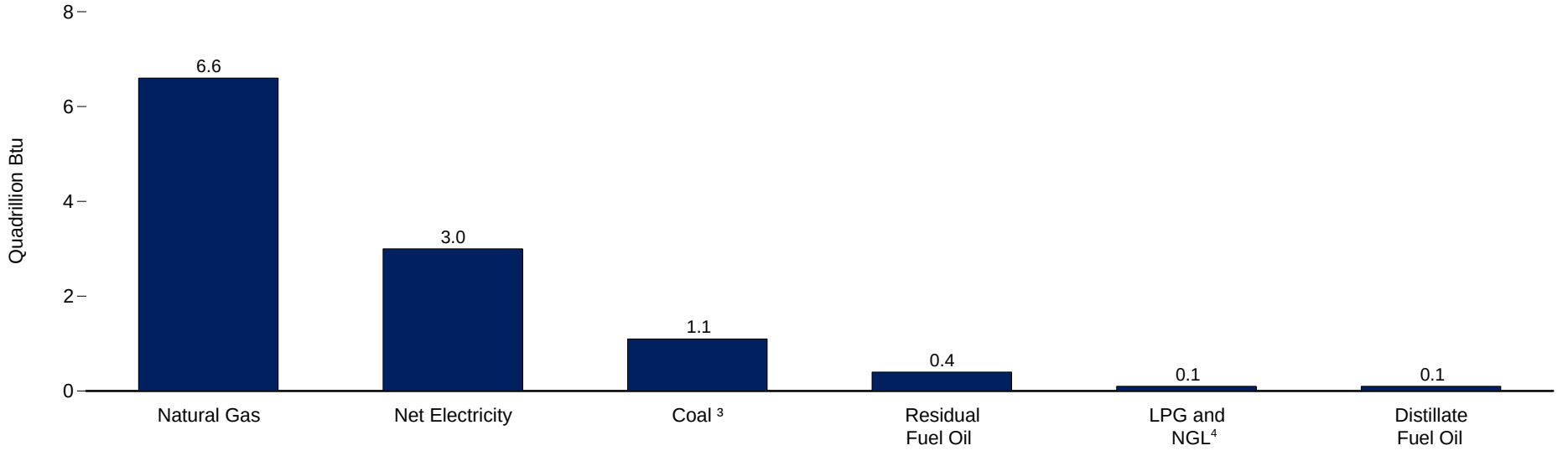
Source: Energy Information Administration, Form EIA-846, "1998 Manufacturing Energy Consumption Survey."

Figure 2.3 Manufacturing Inputs for Heat, Power, and Electricity Generation, 1998

By Selected End Use[1]



By Energy Source



[1] Excludes inputs of unallocated energy sources (6,248 trillion Btu).
[2] Heating, ventilation, and air conditioning.
[3] Excluding coal coke and breeze.
[4] Liquefied petroleum gases and natural gas liquids.
Source: Table 2.3.

Table 2.3 Manufacturing Inputs for Heat, Power, and Electricity Generation by End Use, 1998

End-Use Category	Net Electricity [1]	Residual Fuel Oil	Distillate Fuel Oil	Liquefied Petroleum Gases and Natural Gas Liquids	Natural Gas	Coal (Excluding Coal Coke and Breeze)	Total [2]
	Million Kilowatthours	Million Barrels			Billion Cubic Feet	Million Short Tons	
Indirect End Use (Boiler Fuel)	**5,568**	**39**	**6**	**7**	**2,471**	**35**	**—**
Direct End Use							
All Process Uses	**705,697**	**16**	**6**	**22**	**3,272**	**15**	**—**
Process Heating	103,299	15	3	19	3,104	15	—
Process Cooling and Refrigeration	54,473	(s)	(s)	1	21	(s)	—
Machine Drive	457,344	1	2	2	96	(s)	—
Electrochemical Processes	87,200	—	—	—	—	—	—
Other Process Uses	3,380	(s)	1	(s)	51	(s)	—
All Non-Process Uses	**157,736**	1	**9**	**8**	**656**	**1**	**—**
Facility Heating, Ventilation, and Air Conditioning [3]	79,355	1	1	1	393	(s)	—
Facility Lighting	61,966	—	—	—	—	—	—
Other Facility Support	14,338	(s)	1	(s)	39	(s)	—
Onsite Transportation	1,380	—	6	7	5	—	—
Conventional Electricity Generation	—	(s)	1	(s)	204	1	—
Other Non-Process Use	696	(s)	(s)	(s)	Q	0	—
End Use Not Reported	**20,473**	(s)	**1**	**1**	**70**	(s)	**—**
Total	**889,474**	**57**	**23**	**38**	**6,469**	**51**	**—**
				Trillion Btu			
Indirect End Use (Boiler Fuel)	**19**	**246**	**38**	**24**	**2,538**	**770**	**3,635**
Direct End Use							
All Process Uses	**2,408**	**103**	**37**	**78**	**3,361**	**338**	**6,325**
Process Heating	352	97	20	68	3,187	331	4,055
Process Cooling and Refrigeration	186	(s)	(s)	2	22	(s)	210
Machine Drive	1,560	5	13	7	99	7	1,691
Electrochemical Processes	298	—	—	—	—	—	298
Other Process Uses	12	1	3	1	52	(s)	69
All Non-Process Uses	**538**	**8**	**52**	**29**	**673**	**30**	**1,330**
Facility Heating, Ventilation, and Air Conditioning [3]	271	4	6	4	403	4	692
Facility Lighting	211	—	—	—	—	—	211
Other Facility Support	49	1	6	(s)	40	(s)	96
Onsite Transportation	5	—	35	24	5	—	69
Conventional Electricity Generation	—	3	3	(s)	210	27	243
Other Non-Process Use	2	(s)	1	(s)	Q	0	3
End Use Not Reported	**70**	**1**	**7**	**4**	**72**	3	**157**
Total	**3,035**	**357**	**133**	**135**	**6,644**	**1,143**	**11,447**

[1] "Net Electricity" is the sum of purchases, transfers in, and onsite generation from noncombustible renewable energy sources, minus quantities sold and transferred out; it excludes onsite generation from combustible fuels.

[2] Total of listed energy sources. Excludes inputs of unallocated energy sources (6,248 trillion Btu).

[3] Excludes steam and hot water.

— = Not applicable. (s)=Estimate less than 0.5. Q=Withheld because relative standard error is greater than 50 percent.

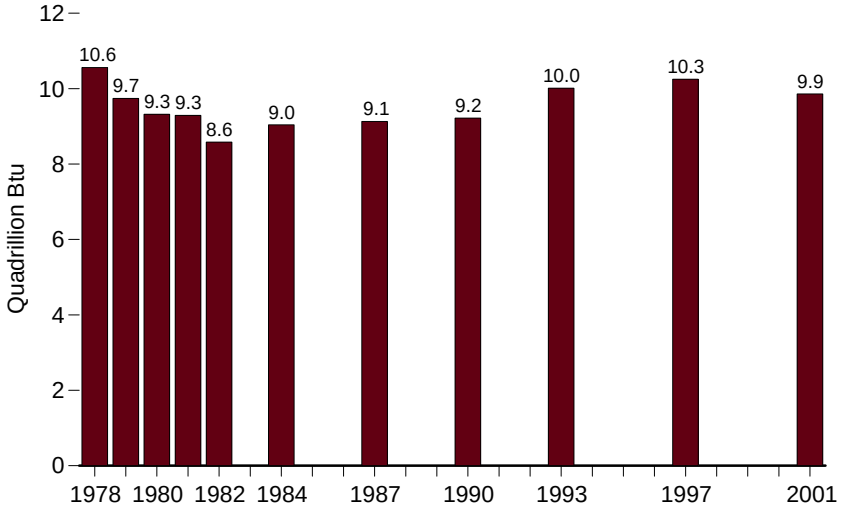
Notes: • Totals may not equal sum of components due to independent rounding. • The estimates presented in this table are for the total consumption of energy for the production of heat, power, and electricity generation, regardless of where the energy was produced. Specifically, the estimates include the quantities of energy that were originally produced offsite and purchased by or transferred to the establishment, plus those that were produced onsite from other energy or input materials not classified as energy, or were extracted from captive (onsite) mines or wells. • Allocations to end uses are made on the basis of reasonable approximations by respondents.

Web Page: For related information, see http://www.eia.doe.gov/emeu/mecs.

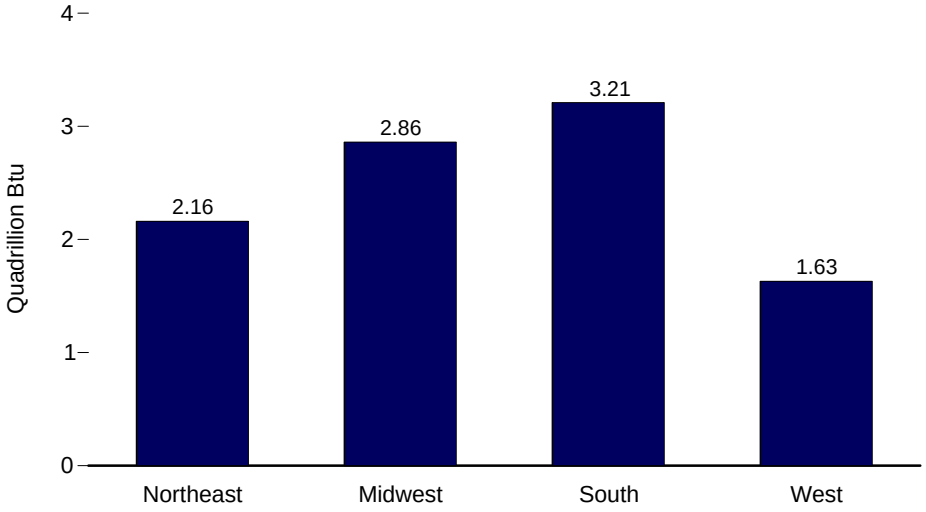
Source: Energy Information Administration, Form EIA-846, "1998 Manufacturing Energy Consumption Survey."

Figure 2.4 Household Energy Consumption

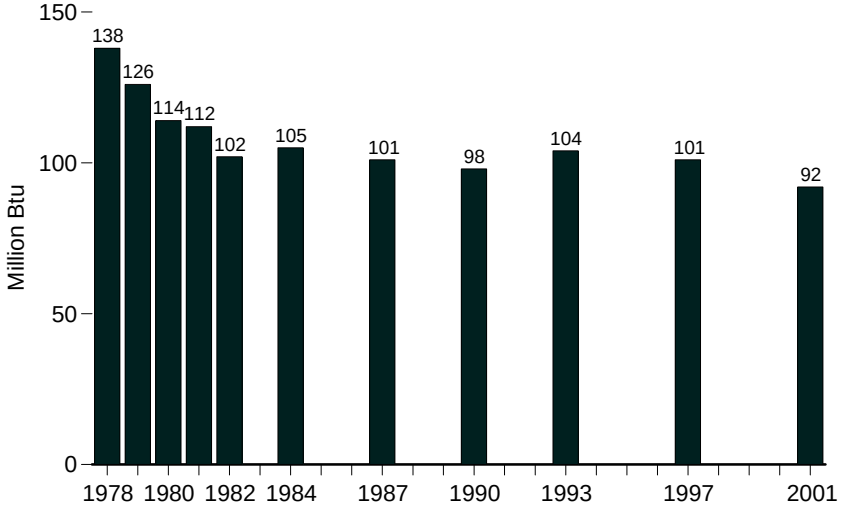
Consumption by All Households, Selected Years, 1978-2001



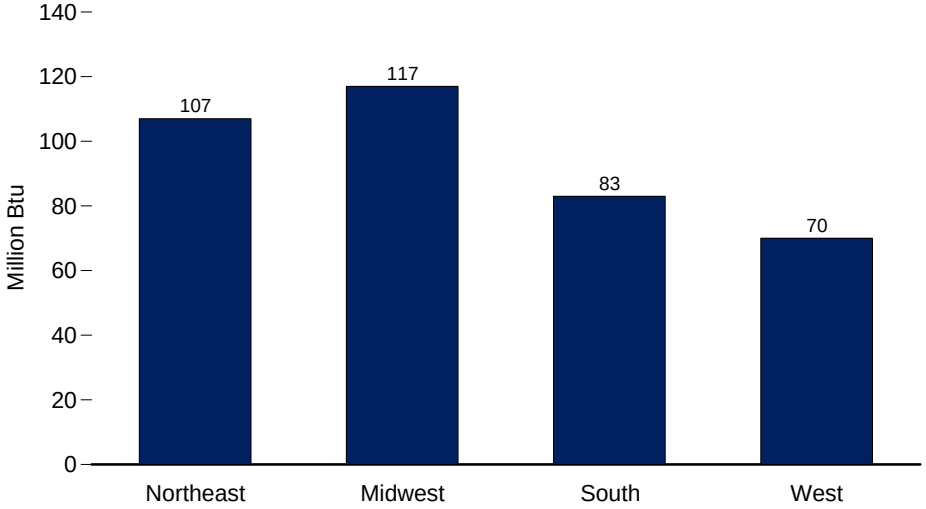
Consumption by All Households, by Census Region, 2001



Consumption per Household, Selected Years, 1978-2001



Consumption per Household, by Census Region, 2001



Notes: • For years not shown, there are no data available. Data for 1978 through 1984 are for April of the year shown through March of the following year; data for 1987, 1990, 1993, 1997, and 2001 are for the calendar year. • Because vertical scales differ, graphs should not be compared. • See Appendix C for Census regions.

Source: Table 2.4.

Table 2.4 Household Energy Consumption by Census Region, Selected Years, 1978-2001

(Quadrillion Btu, Except as Noted)

Census Region [1]	1978	1979	1980	1981	1982	1984	1987	1990	1993	1997	2001
Northeast	**2.89**	**2.50**	**2.44**	**2.36**	**2.19**	**2.29**	**2.37**	**2.30**	**2.38**	**2.38**	**2.16**
Natural Gas	1.14	1.05	0.94	1.01	0.96	0.93	1.03	1.03	1.11	1.03	0.98
Electricity [2]	0.39	0.39	0.41	0.40	0.37	0.41	0.44	0.47	0.47	0.49	0.53
Distillate Fuel Oil and Kerosene	1.32	1.03	1.07	0.93	0.83	0.93	0.87	0.78	0.78	0.84	0.60
Liquefied Petroleum Gases	0.03	0.03	0.03	0.03	0.02	0.03	0.02	0.02	0.03	0.03	0.05
Consumption per Household (million Btu)	166	145	138	132	122	125	124	120	122	121	107
Midwest	**3.70**	**3.48**	**2.96**	**3.09**	**2.61**	**2.80**	**2.73**	**2.81**	**3.13**	**3.22**	**2.86**
Natural Gas	2.53	2.48	2.05	2.22	1.78	1.99	1.83	1.88	2.07	2.20	1.84
Electricity [2]	0.60	0.59	0.60	0.56	0.56	0.55	0.61	0.66	0.74	0.75	0.81
Distillate Fuel Oil and Kerosene	0.46	0.31	0.17	0.19	0.16	0.13	0.16	0.13	0.13	0.11	0.06
Liquefied Petroleum Gases	0.12	0.10	0.15	0.13	0.11	0.13	0.13	0.13	0.19	0.17	0.15
Consumption per Household (million Btu)	180	168	141	146	122	129	123	122	134	134	117
South	**2.43**	**2.30**	**2.57**	**2.41**	**2.45**	**2.50**	**2.61**	**2.60**	**2.95**	**3.01**	**3.21**
Natural Gas	0.96	0.91	1.12	1.15	1.14	1.15	1.09	1.03	1.18	1.13	1.13
Electricity [2]	1.00	0.97	1.06	1.01	1.01	1.06	1.22	1.36	1.51	1.67	1.89
Distillate Fuel Oil and Kerosene	0.32	0.28	0.25	0.14	0.18	0.16	0.17	0.11	0.13	0.10	0.08
Liquefied Petroleum Gases	0.15	0.14	0.14	0.12	0.12	0.12	0.12	0.10	0.13	0.12	0.12
Consumption per Household (million Btu)	99	92	95	87	87	85	84	81	88	84	83
West	**1.54**	**1.47**	**1.34**	**1.42**	**1.33**	**1.45**	**1.42**	**1.51**	**1.55**	**1.63**	**1.63**
Natural Gas	0.95	0.88	0.86	0.90	0.85	0.91	0.88	0.92	0.91	0.93	0.90
Electricity [2]	0.48	0.47	0.41	0.46	0.41	0.47	0.48	0.54	0.56	0.64	0.66
Distillate Fuel Oil and Kerosene	0.09	0.09	0.04	0.03	0.03	0.04	0.02	0.02	0.03	0.03	0.02
Liquefied Petroleum Gases	0.03	0.04	0.04	0.04	0.04	0.03	0.05	0.03	0.04	0.04	0.06
Consumption per Household (million Btu)	110	100	84	87	81	85	78	78	76	75	70
United States	**10.56**	**9.74**	**9.32**	**9.29**	**8.58**	**9.04**	**9.13**	**9.22**	**10.01**	**10.25**	**9.86**
Natural Gas	5.58	5.31	4.97	5.27	4.74	4.98	4.83	4.86	5.27	5.28	4.84
Electricity [2]	2.47	2.42	2.48	2.42	2.35	2.48	2.76	3.03	3.28	3.54	3.89
Distillate Fuel Oil and Kerosene	2.19	1.71	1.52	1.28	1.20	1.26	1.22	1.04	1.07	1.07	0.75
Liquefied Petroleum Gases	0.33	0.31	0.35	0.31	0.29	0.31	0.32	0.28	0.38	0.36	0.38
Consumption per Household (million Btu)	138	126	114	112	102	105	101	98	104	101	92

[1] See Appendix C for Census regions.

[2] One kilowatthour = 3,412 Btu.

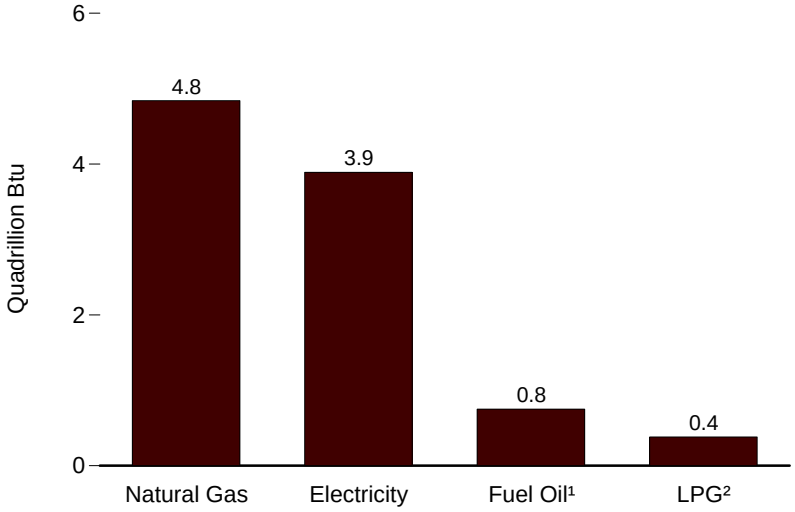
Notes: • This table shows major energy items only. • For years not shown, there are no data available. • Data for 1978-1984 are for April of year shown through March of following year; data for 1987 forward are for the calendar year. • Totals may not equal sum of components due to independent rounding.

Web Page: For related information, see http://www.eia.doe.gov/emeu/recs.

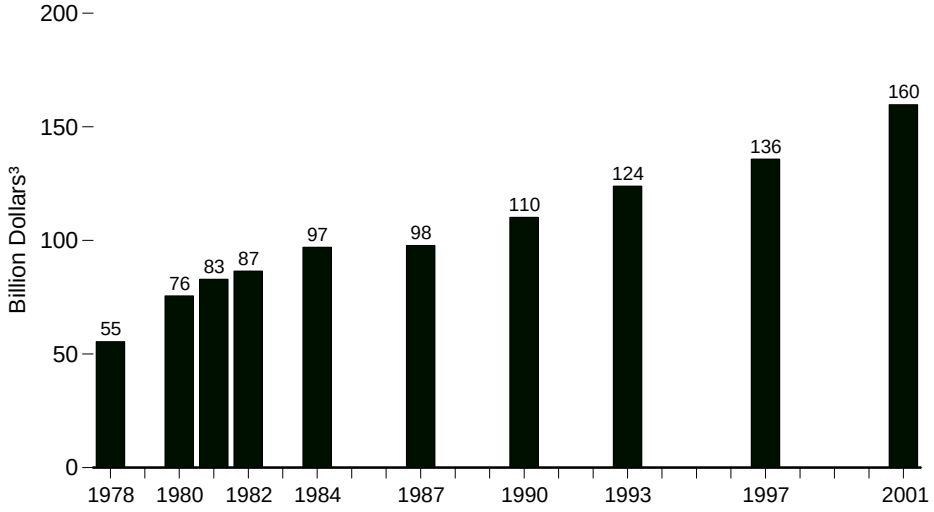
Sources: • 1978 and 1979—Energy Information Administration (EIA), Form EIA-84, "Residential Energy Consumption Survey." • 1980 forward—EIA, Form EIA-457, "Residential Energy Consumption Survey."

Figure 2.5 Household Energy Consumption and Expenditures

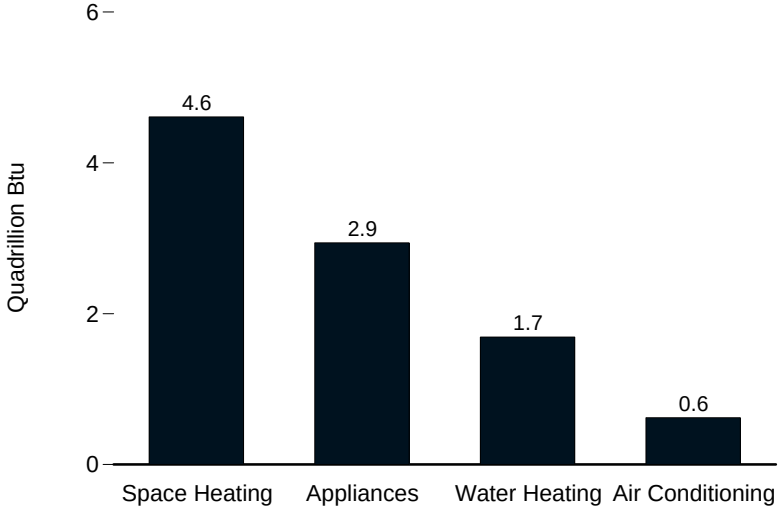
Consumption by Energy Source, 2001



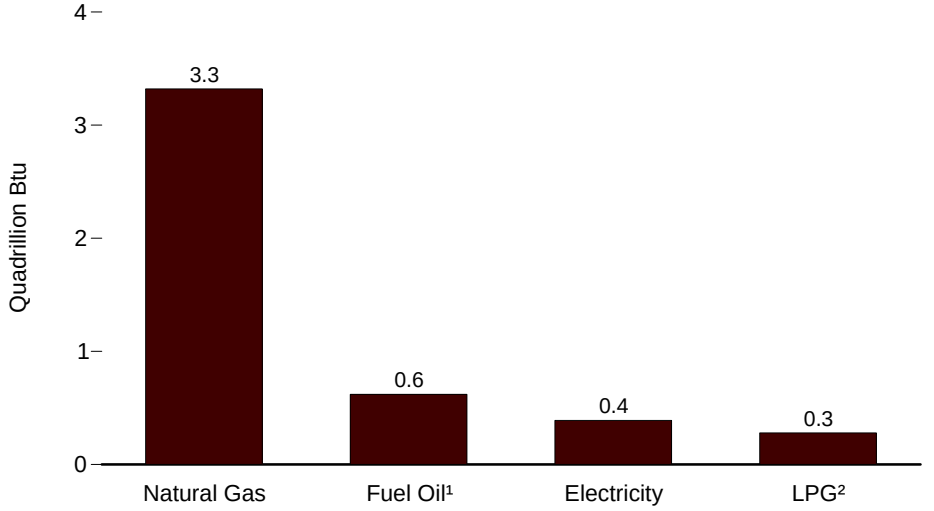
Expenditures, Selected Years, 1978-2001



Consumption by End Use, 2001



Consumption for Space Heating, 2001



[1] Distillate fuel oil and kerosene.
[2] Liquefied petroleum gases.
[3] Nominal dollars.

Notes: • For years not shown, there are no data available. • Because vertical scales differ, graphs should not be compared.
Source: Table 2.5.

Table 2.5 Household Energy Consumption and Expenditures by End Use and Energy Source, Selected Years, 1978-2001

Year	Space Heating				Air Conditioning [1]	Water Heating				Appliances [2,3]			Total			
	Natural Gas	Electricity [4]	Fuel Oil [5]	LPG [6]	Electricity [4]	Natural Gas	Electricity [4]	Fuel Oil [5]	LPG [6]	Natural Gas	Electricity [4]	LPG [6]	Natural Gas [1]	Electricity [4]	Fuel Oil [3,5]	LPG [6]
	Consumption (quadrillion Btu)															
1978	4.26	0.40	2.05	0.23	0.32	1.04	0.29	0.14	0.06	0.28	1.45	0.03	5.58	2.47	2.19	0.33
1980	3.41	0.27	1.30	0.23	0.36	1.15	0.30	0.22	0.07	0.36	1.54	0.05	4.97	2.48	1.52	0.35
1981	3.69	0.26	1.06	0.21	0.34	1.13	0.30	0.22	0.06	0.43	1.52	0.05	5.27	2.42	1.28	0.31
1982	3.14	0.25	1.04	0.19	0.31	1.15	0.28	0.15	0.06	0.43	1.50	0.05	4.74	2.35	1.20	0.29
1984	3.51	0.25	1.11	0.21	0.32	1.10	0.32	0.15	0.06	0.35	1.59	0.04	4.98	2.48	1.26	0.31
1987	3.38	0.28	1.05	0.22	0.44	1.10	0.31	0.17	0.06	0.34	1.72	0.04	4.83	2.76	1.22	0.32
1990	3.37	0.30	0.93	0.19	0.48	1.16	0.34	0.11	0.06	0.33	1.91	0.03	4.86	3.03	1.04	0.28
1993	3.67	0.41	0.95	0.30	0.46	1.31	0.34	0.12	0.05	0.29	2.08	0.03	5.27	3.28	1.07	0.38
1997	3.61	0.40	0.91	0.26	0.42	1.29	0.39	0.16	0.08	0.37	2.33	0.02	5.28	3.54	1.07	0.36
2001	3.32	0.39	0.62	0.28	0.62	1.15	0.36	0.13	0.05	0.37	2.52	0.05	4.84	3.89	0.75	0.38
	Expenditures (billion dollars [7])															
1978	11.49	3.53	8.06	1.05	4.12	2.88	3.14	0.56	0.36	0.93	19.10	0.25	15.30	29.89	8.62	1.66
1980	13.22	3.78	10.48	1.78	5.84	4.51	4.45	1.76	0.57	1.91	26.74	0.44	19.77	40.81	12.24	2.80
1981	16.62	3.93	9.44	1.78	6.23	5.13	4.94	1.94	0.51	2.17	29.70	0.52	24.03	44.80	11.29	2.81
1982	17.74	4.21	8.80	1.69	6.23	6.51	5.00	1.28	0.54	2.58	31.29	0.52	26.96	46.74	10.07	2.75
1984	20.66	4.62	8.51	2.00	7.06	6.63	6.44	1.09	0.58	2.31	36.36	0.54	29.78	54.48	9.60	3.12
1987	18.05	5.53	6.25	1.85	9.77	6.02	6.45	0.94	0.50	2.02	39.83	0.46	26.15	61.58	7.21	2.81
1990	18.59	6.16	7.42	2.01	11.23	6.59	7.21	0.83	0.65	2.03	46.95	0.48	27.26	71.54	8.25	3.14
1993	21.95	8.66	6.24	2.81	11.31	8.08	7.58	0.74	0.58	1.98	53.52	0.42	32.04	81.08	6.98	3.81
1997	24.11	8.56	6.57	2.79	10.20	8.84	8.99	1.04	0.89	2.86	60.57	0.36	35.81	88.33	7.61	4.04
2001	31.84	8.98	5.66	4.04	15.94	11.31	8.47	1.15	0.69	3.83	66.94	0.86	46.98	100.34	6.83	5.60

[1] A small amount of natural gas used for air conditioning is included in "Natural Gas" under "Total."
[2] Includes refrigerators.
[3] A small amount of distillate fuel oil and kerosene used for appliances is included in "Fuel Oil" under "Total."
[4] One kilowatthour = 3,412 Btu.
[5] Distillate fuel oil and kerosene.
[6] Liquefied petroleum gases.
[7] Nominal dollars.

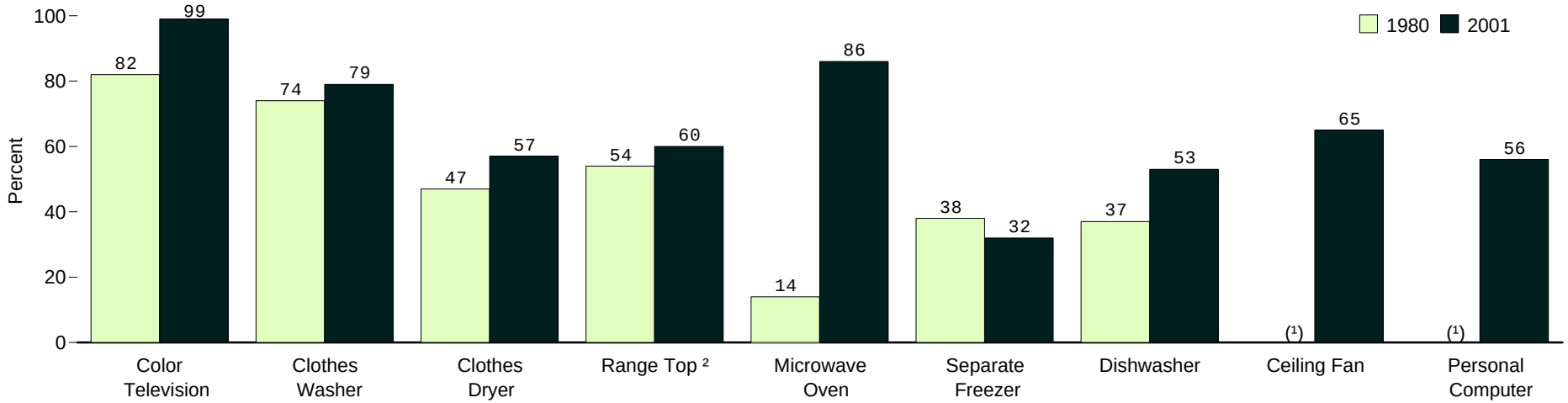
Notes: • For years not shown, there are no data available. Consumption data by energy source for 1979 are available on Table 2.4. • Totals may not equal sum of components due to independent rounding.

Web Page: For related information, see http://www.eia.doe.gov/emeu/recs.

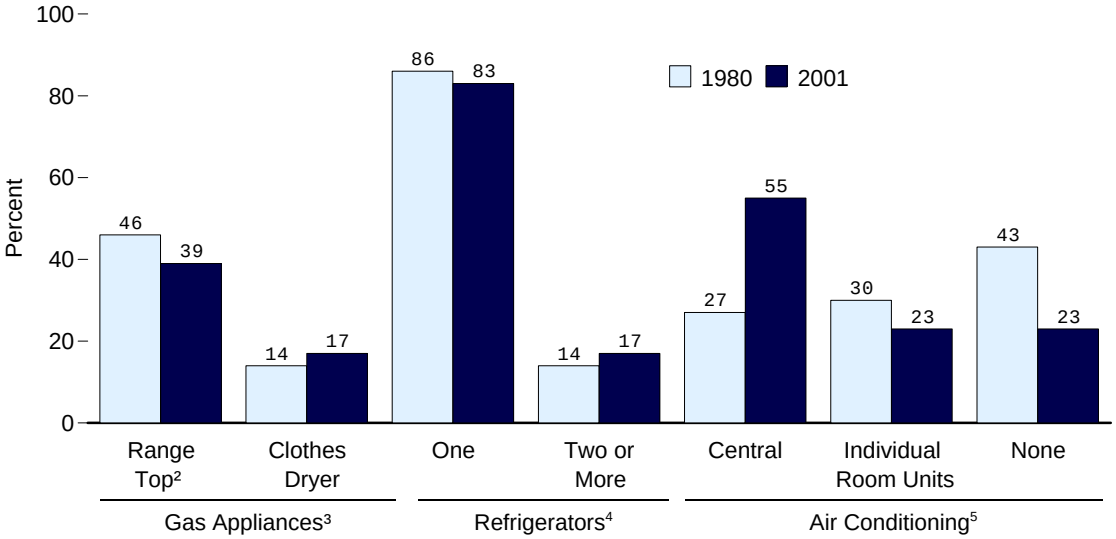
Sources: • 1978—Energy Information Administration (EIA), Form EIA-84, "Residential Energy Consumption Survey." • 1980 forward—EIA, Form EIA-457, "Residential Energy Consumption Survey."

Figure 2.6 Households With Selected Appliances and Types of Main Heating Fuel

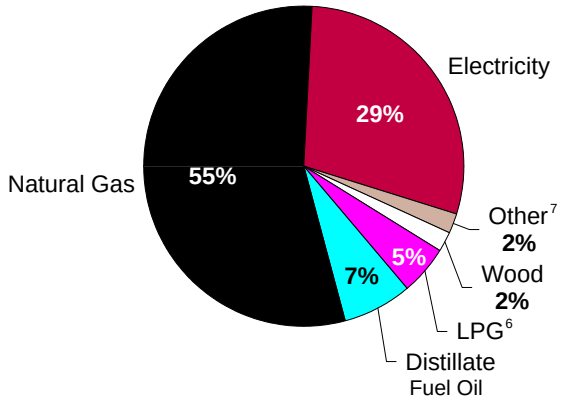
Households With Selected Electric Appliances, 1980 and 2001



Households With Other Selected Appliances, 1980 and 2001



Type of Main Heating Fuel, 2001



[1] Not collected in 1980.
[2] Or burners.
[3] Natural gas or liquefied petroleum gases.
[4] Fewer than 0.5 percent of the households do not have a refrigerator.
[5] Households with both central and individual room units are counted only under "Central."
[6] Liquefied Petroleum Gas.
[7] No heat, kerosene, district steam, coal, and solar.
Source: Table 2.6.

Table 2.6 Households With Selected Appliances and Types of Main Heating Fuel, Selected Years, 1978-2001

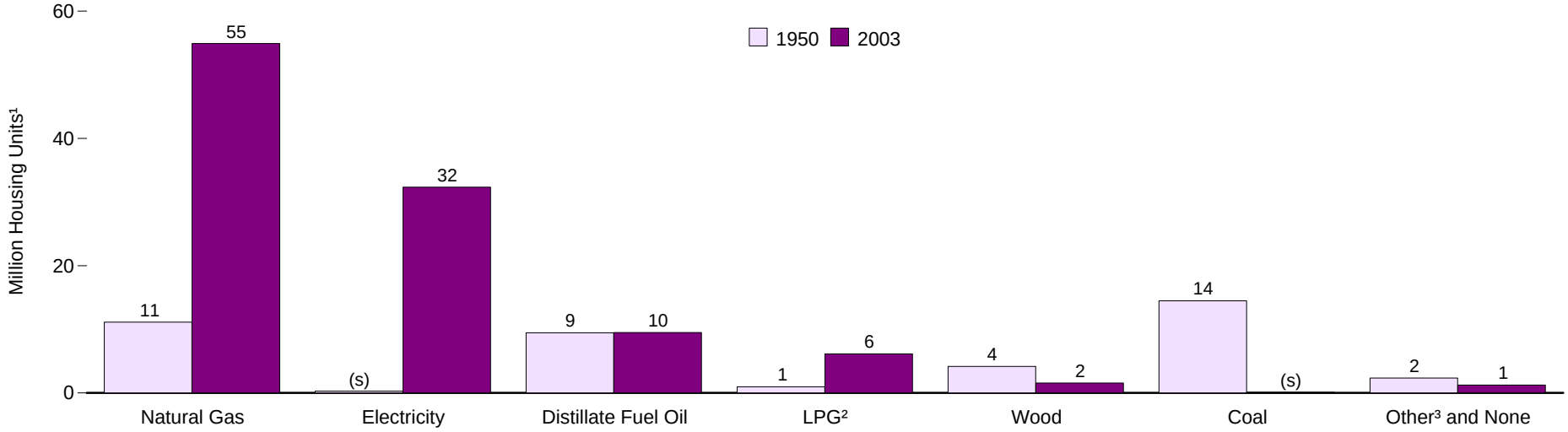
Appliance	Year											Change
	1978	1979	1980	1981	1982	1984	1987	1990	1993	1997	2001	1980 to 2001
Total Households (millions)	77	78	82	83	84	86	91	94	97	101	107	26
	Percent of Households											
Type of Main Heating Fuel												
Natural Gas	55	55	55	56	57	55	55	55	53	53	55	R 1
Electricity	16	17	18	17	16	17	20	23	26	29	R 29	R 11
Liquefied Petroleum Gases	4	5	5	4	5	5	5	5	5	5	5	0
Distillate Fuel Oil	20	17	15	14	13	12	12	11	11	9	R 7	R -8
Wood	2	4	6	6	7	7	6	4	3	2	2	-4
Type of Appliances												
Electric Appliances												
Television Set (Color)	NA	NA	82	83	85	88	93	96	98	99	99	17
Television Set (B/W)	NA	NA	51	48	46	43	36	31	20	NA	NA	NA
Television Set (Any)	NA	NA	98	98	98	98	98	99	99	NA	NA	NA
Clothes Washer	74	NA	74	73	71	73	75	76	77	77	79	R 4
Range Top or Burners	53	NA	54	54	53	54	57	58	61	60	R 60	R 6
Oven, Microwave	8	NA	14	17	21	34	61	79	84	83	86	72
Clothes Dryer	45	NA	47	45	45	46	51	53	57	55	57	10
Separate Freezer	35	NA	38	38	37	37	34	34	35	33	32	-6
Dishwasher	35	NA	37	37	36	38	43	45	45	50	53	16
Dehumidifier	NA	NA	9	9	9	9	10	12	9	NA	11	2
Waterbed Heaters	NA	NA	NA	NA	NA	10	14	15	12	8	5	NA
Window or Ceiling Fan	NA	NA	NA	NA	28	35	46	51	60	NA	NA	NA
Ceiling Fan	NA	NA	NA	NA	NA	NA	NA	NA	54	61	65	NA
Whole House Fan	NA	NA	NA	NA	8	8	9	10	4	NA	NA	NA
Evaporative Cooler	NA	NA	4	4	4	4	3	4	3	NA	3	-1
Personal Computer	NA	NA	NA	NA	NA	NA	NA	16	23	35	56	NA
Pump for Well Water	NA	NA	NA	NA	NA	NA	NA	15	13	14	13	NA
Swimming-Pool Pump [1]	NA	NA	3	4	3	NA	NA	5	5	5	6	3
Gas [2] Appliances												
Range Top or Burners	48	NA	46	46	47	45	43	42	38	39	R 39	R -7
Clothes Dryer	14	NA	14	16	15	16	15	16	15	16	R 17	2
Outdoor Gas Grill	6	NA	9	9	11	13	20	26	29	NA	NA	NA
Outdoor Gas Light	2	NA	2	2	2	1	1	1	1	1	(s)	R -1
Swimming Pool Heater [3]	NA	NA	(s)	(s)	(s)	1	1	1	1	1	1	0
Refrigerators [4]												
One	86	NA	86	87	86	88	86	84	85	85	83	-3
Two or More	14	NA	14	13	13	12	14	15	15	15	17	R 3
Air Conditioning (A/C)												
Central [5]	23	24	27	27	28	30	34	39	44	47	55	28
Individual Room Units [5]	33	31	30	31	30	30	30	29	25	25	23	-7
None	44	45	43	42	42	40	36	32	32	28	23	-20
Portable Kerosene Heaters	(s)	NA	(s)	1	3	6	6	5	3	2	R 2	R 2

[1] Through 1990, data are for all reported swimming pools, which were assumed to have an electric pump for filtering and circulating the water. Beginning in 1993, data are explicitly for pools with filters.
[2] Natural gas or liquefied petroleum gases.
[3] In 1984 and 1987, also includes heaters for jacuzzis and hot tubs.
[4] Fewer than 0.5 percent of the households do not have a refrigerator.
[5] Households with both central and individual room units are counted only under "Central."

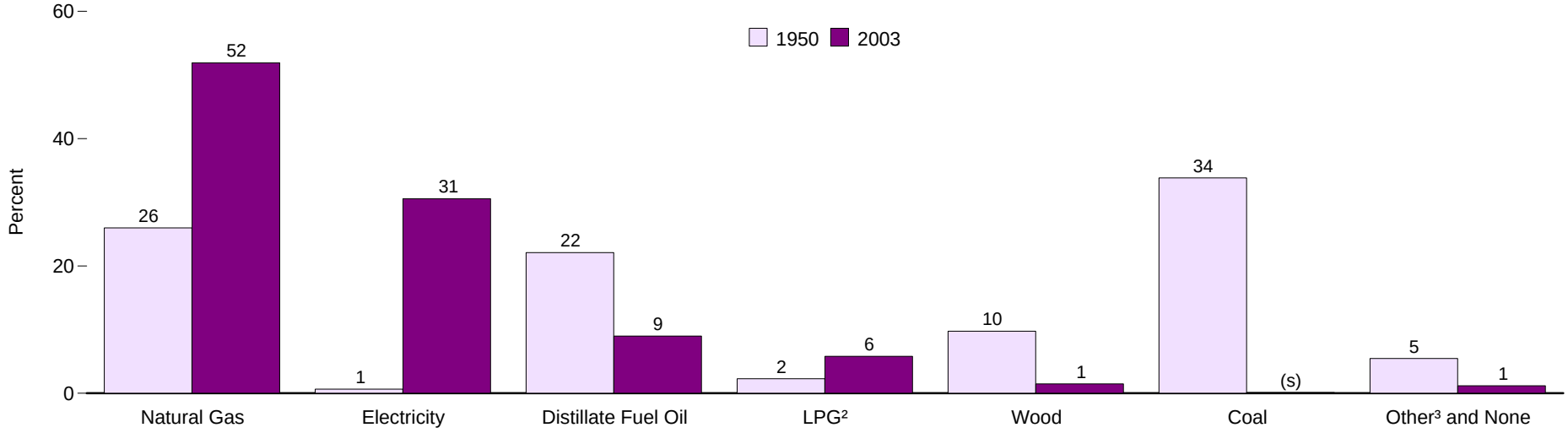
R=Revised data. NA=Not available. (s)=Less than 0.5 percent.
Note: For years not shown, there are no data available.
Web Page: For related information, see http://www.eia.doe.gov/emeu/recs.
Sources: • 1978 and 1979—Energy Information Administration (EIA), Form EIA-84, "Residential Energy Consumption Survey." • 1980 forward—EIA, Form EIA-457, "Residential Energy Consumption Survey."

Figure 2.7 Type of Heating in Occupied Housing Units, 1950 and 2003

By Fuel Type



By Fuel Type, Share of Total



[1] Sum of components do not equal total due to independent rounding.
[2] Liquefied petroleum gases.
[3] Kerosene, solar, and other.

(s)=Less than 0.5.
Source: Table 2.7.

Table 2.7 Type of Heating in Occupied Housing Units, Selected Years, 1950-2003

Year	Coal [1]	Distillate Fuel Oil	Kerosene	Liquefied Petroleum Gases	Natural Gas	Electricity	Wood	Solar	Other [2]	None [3]	Total
					Millions						
1950	14.48	9.46	([4])	0.98	11.12	0.28	4.17	NA	0.77	1.57	42.83
1960	6.46	17.16	([4])	2.69	22.85	0.93	2.24	NA	0.22	0.48	53.02
1970	1.82	16.47	([4])	3.81	35.01	4.88	0.79	NA	0.27	0.40	63.45
1973	0.80	17.24	([4])	4.42	38.46	7.21	0.60	NA	0.15	0.45	69.34
1974	0.74	16.84	([4])	4.14	39.47	8.41	0.66	NA	0.09	0.48	70.83
1975	0.57	16.30	([4])	4.15	40.93	9.17	0.85	NA	0.08	0.47	72.52
1976	0.48	16.45	([4])	4.24	41.22	10.15	0.91	NA	0.09	0.46	74.01
1977	0.45	15.62	0.44	4.18	41.54	11.15	1.24	NA	0.15	0.51	75.28
1978	0.40	15.65	0.42	4.13	42.52	12.26	1.07	NA	0.12	0.60	77.17
1979	0.36	15.30	0.41	4.13	43.32	13.24	1.14	NA	0.10	0.57	78.57
1980	0.33	14.50	0.37	4.17	44.40	14.21	1.38	NA	0.11	0.61	80.07
1981	0.36	14.13	0.37	4.17	46.08	15.49	1.89	NA	0.10	0.59	83.18
1983 [5]	0.43	12.59	0.45	3.87	46.70	15.68	4.09	NA	0.16	0.68	84.64
1985	0.45	12.44	1.06	3.58	45.33	18.36	6.25	0.05	0.37	0.53	88.43
1987	0.41	12.74	1.08	3.66	45.96	20.61	5.45	0.05	0.28	0.66	90.89
1989	0.34	12.47	1.07	3.66	47.40	23.06	4.59	0.04	0.40	0.66	93.68
1991	0.32	11.47	0.99	3.88	47.02	23.71	4.44	0.03	0.41	0.86	93.15
1993	0.30	11.17	1.02	3.92	47.67	25.11	4.10	0.03	0.50	0.91	94.73
1995	0.21	10.98	1.06	4.25	49.20	26.77	3.53	0.02	0.64	1.04	97.69
1997	0.18	10.10	0.75	5.40	51.05	29.20	1.79	0.03	0.36	0.62	99.49
1999	0.17	10.03	0.72	5.91	52.37	31.14	1.70	0.02	0.21	0.54	102.80
2001 [6]	0.13	[R]9.81	0.65	[R]6.04	[R]54.13	[R]32.41	[R]1.67	0.02	0.19	[R]0.39	[R]105.44
2003	0.13	9.50	0.64	6.13	54.93	32.34	1.56	0.02	0.16	0.44	105.84
					Percent						
1950	33.8	22.1	([4])	2.3	26.0	0.6	9.7	NA	1.8	3.7	100.0
1960	12.2	32.4	([4])	5.1	43.1	1.8	4.2	NA	0.4	0.9	100.0
1970	2.9	26.0	([4])	6.0	55.2	7.7	1.3	NA	0.4	0.6	100.0
1973	1.2	24.9	([4])	6.4	55.5	10.4	0.9	NA	0.2	0.7	100.0
1974	1.0	23.8	([4])	5.8	55.7	11.9	0.9	NA	0.1	0.7	100.0
1975	0.8	22.5	([4])	5.7	56.4	12.6	1.2	NA	0.1	0.6	100.0
1976	0.7	22.2	([4])	5.7	55.7	13.7	1.2	NA	0.1	0.6	100.0
1977	0.6	20.7	0.6	5.6	55.2	14.8	1.6	NA	0.2	0.7	100.0
1978	0.5	20.3	0.5	5.4	55.1	15.9	1.4	NA	0.2	0.8	100.0
1979	0.5	19.5	0.5	5.3	55.1	16.9	1.4	NA	0.1	0.7	100.0
1980	0.4	18.1	0.5	5.2	55.4	17.7	1.7	NA	0.1	0.8	100.0
1981	0.4	17.0	0.4	5.0	55.4	18.6	2.3	NA	0.1	0.7	100.0
1983 [5]	0.5	14.9	0.5	4.6	55.2	18.5	4.8	NA	0.2	0.8	100.0
1985	0.5	14.1	1.2	4.1	51.3	20.8	7.1	0.1	0.4	0.6	100.0
1987	0.4	14.0	1.2	4.0	50.6	22.7	6.0	0.1	0.3	0.7	100.0
1989	0.4	13.3	1.1	3.9	50.6	24.6	4.9	(s)	0.4	0.7	100.0
1991	0.3	12.3	1.1	4.2	50.5	25.5	4.8	(s)	0.4	0.9	100.0
1993	0.3	11.8	1.1	4.1	50.3	26.5	4.3	(s)	0.5	1.0	100.0
1995	0.2	11.2	1.1	4.4	50.4	27.4	3.6	(s)	0.7	1.1	100.0
1997	0.2	10.2	0.8	5.4	51.3	29.4	1.8	(s)	0.4	0.6	100.0
1999	0.2	9.8	0.7	5.7	50.9	30.3	1.7	(s)	0.2	0.5	100.0
2001 [6]	0.1	[R]9.3	0.6	5.7	[R]51.3	30.7	1.6	(s)	0.2	0.4	100.0
2003	0.1	9.0	0.6	5.8	51.9	30.6	1.5	(s)	0.1	0.4	100.0

[1] Includes coal coke.
[2] Includes briquettes (made of pitch and sawdust), coal dust, waste material (such as corncobs), purchased steam, and other fuels not separately displayed.
[3] In 1950 and 1960, also includes nonreporting units, which totaled 997 and 2,000 units, respectively.
[4] Included in "Distillate Fuel Oil."
[5] Since 1983, the *American Housing Survey for the United States* has been a biennial survey.
[6] Beginning in 2001, data are consistent with the 2000 Census. For 2001 data consistent with the 1990 Census, see *American Housing Survey for the United States: 2001.*

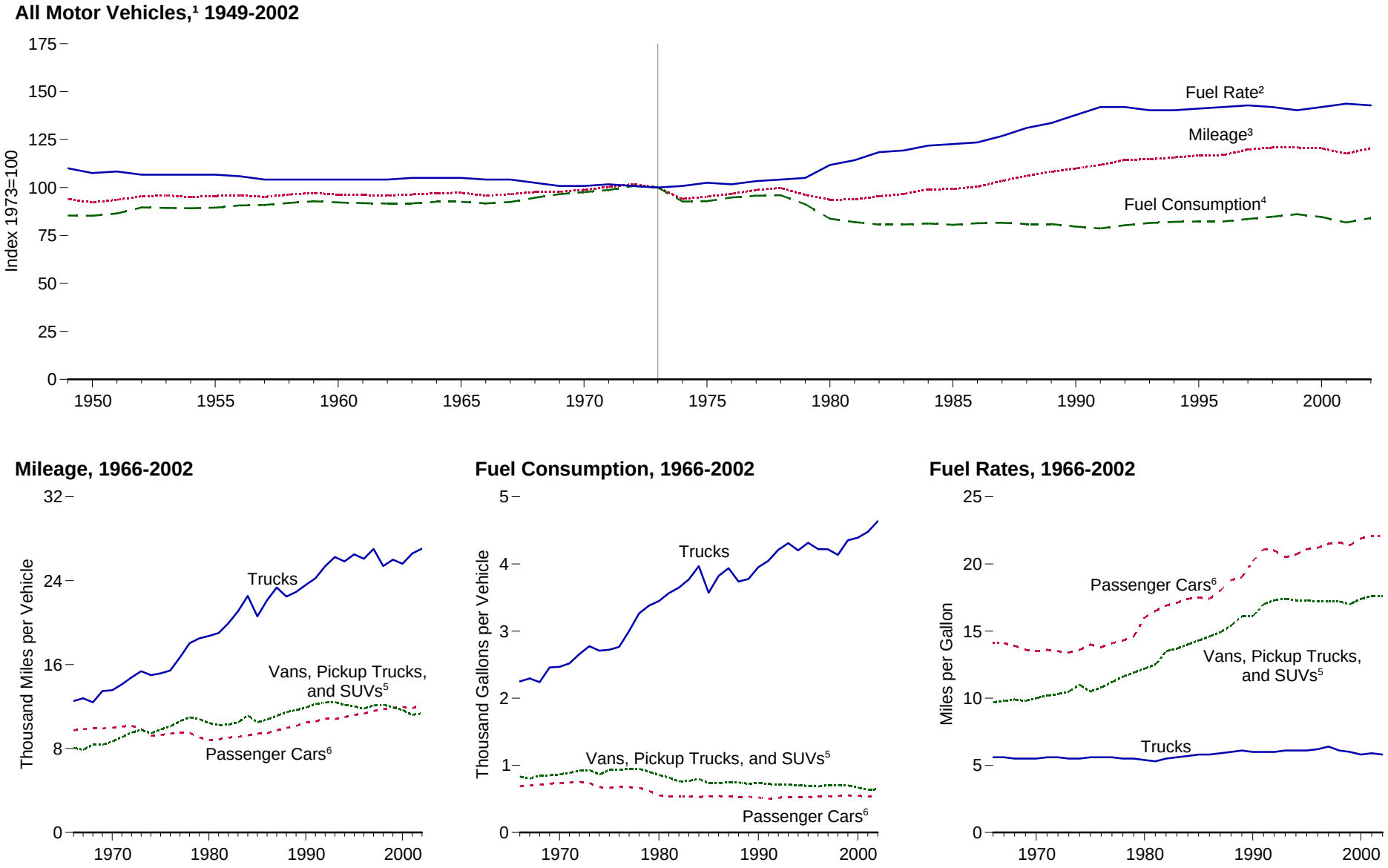
R=Revised data. NA=Not available. (s)=Less than 0.05 percent.

Notes: • Includes mobile homes and individual housing units in apartment buildings. Housing units with more than one type of heating system are classified according to the principal type of heating system. • Totals may not equal sum of components due to independent rounding.

Web Page: For related information, see http://www.census.gov/hhes/www/ahs.html.

Sources: • 1950, 1960, and 1970—Bureau of the Census, *Census of Population and Housing.* • 1973 forward—Bureau of the Census, *American Housing Survey for the United States,* biennial surveys, Table 2-5.

Figure 2.8 Motor Vehicle Mileage, Fuel Consumption, and Fuel Rates



[1] Passenger cars, motorcycles, vans, pickup trucks, sport utility vehicles, trucks, and buses.
[2] Miles per gallon.
[3] Miles per vehicle.
[4] Gallons per vehicle.
[5] Sport utility vehicle.
[6] Motorcycles are included with passenger cars through 1989.
Source: Table 2.8.

Table 2.8 Motor Vehicle Mileage, Fuel Consumption, and Fuel Rates, Selected Years, 1949-2002

Year	Passenger Cars [1]			Vans, Pickup Trucks, and Sport Utility Vehicles [2]			Trucks [3]			All Motor Vehicles [4]		
	Mileage (miles per vehicle)	Fuel Consumption (gallons per vehicle)	Fuel Rate (miles per gallon)	Mileage (miles per vehicle)	Fuel Consumption (gallons per vehicle)	Fuel Rate (miles per gallon)	Mileage (miles per vehicle)	Fuel Consumption (gallons per vehicle)	Fuel Rate (miles per gallon)	Mileage (miles per vehicle)	Fuel Consumption (gallons per vehicle)	Fuel Rate (miles per gallon)
1949	9,388	627	15.0	([5])	([5])	([5])	9,712	1,080	9.0	9,498	726	13.1
1950	9,060	603	15.0	([5])	([5])	([5])	10,316	1,229	8.4	9,321	725	12.8
1955	9,447	645	14.6	([5])	([5])	([5])	10,576	1,293	8.2	9,661	761	12.7
1960	9,518	668	14.3	([5])	([5])	([5])	10,693	1,333	8.0	9,732	784	12.4
1965	9,603	661	14.5	([5])	([5])	([5])	10,851	1,387	7.8	9,826	787	12.5
1970	9,989	737	13.5	8,676	866	10.0	13,565	2,467	5.5	9,976	830	12.0
1971	10,097	743	13.6	9,082	888	10.2	14,117	2,519	5.6	10,133	839	12.1
1972	10,171	754	13.5	9,534	922	10.3	14,780	2,657	5.6	10,279	857	12.0
1973	9,884	737	13.4	9,779	931	10.5	15,370	2,775	5.5	10,099	850	11.9
1974	9,221	677	13.6	9,452	862	11.0	14,995	2,708	5.5	9,493	788	12.0
1975	9,309	665	14.0	9,829	934	10.5	15,167	2,722	5.6	9,627	790	12.2
1976	9,418	681	13.8	10,127	934	10.8	15,438	2,764	5.6	9,774	806	12.1
1977	9,517	676	14.1	10,607	947	11.2	16,700	3,002	5.6	9,978	814	12.3
1978	9,500	665	14.3	10,968	948	11.6	18,045	3,263	5.5	10,077	816	12.4
1979	9,062	620	14.6	10,802	905	11.9	18,502	3,380	5.5	9,722	776	12.5
1980	8,813	551	16.0	10,437	854	12.2	18,736	3,447	5.4	9,458	712	13.3
1981	8,873	538	16.5	10,244	819	12.5	19,016	3,565	5.3	9,477	697	13.6
1982	9,050	535	16.9	10,276	762	13.5	19,931	3,647	5.5	9,644	686	14.1
1983	9,118	534	17.1	10,497	767	13.7	21,083	3,769	5.6	9,760	686	14.2
1984	9,248	530	17.4	11,151	797	14.0	22,550	3,967	5.7	10,017	691	14.5
1985	9,419	538	17.5	10,506	735	14.3	20,597	3,570	5.8	10,020	685	14.6
1986	9,464	543	17.4	10,764	738	14.6	22,143	3,821	5.8	10,143	692	14.7
1987	9,720	539	18.0	11,114	744	14.9	23,349	3,937	5.9	10,453	694	15.1
1988	9,972	531	18.8	11,465	745	15.4	22,485	3,736	6.0	10,721	688	15.6
1989	[1]10,157	[1]533	[1]19.0	11,676	724	16.1	22,926	3,776	6.1	10,932	688	15.9
1990	10,504	520	20.2	11,902	738	16.1	23,603	3,953	6.0	11,107	677	16.4
1991	10,571	501	21.1	12,245	721	17.0	24,229	4,047	6.0	11,294	669	16.9
1992	10,857	517	21.0	12,381	717	17.3	25,373	4,210	6.0	11,558	683	16.9
1993	10,804	527	20.5	12,430	714	17.4	26,262	4,309	6.1	11,595	693	16.7
1994	10,992	531	20.7	12,156	701	17.3	25,838	4,202	6.1	11,683	698	16.7
1995	11,203	530	21.1	12,018	694	17.3	26,514	4,315	6.1	11,793	700	16.8
1996	11,330	534	21.2	11,811	685	17.2	26,092	4,221	6.2	11,813	700	16.9
1997	11,581	539	21.5	12,115	703	17.2	27,032	4,218	6.4	12,107	711	17.0
1998	11,754	544	21.6	12,173	707	17.2	25,397	4,135	6.1	12,211	721	16.9
1999	11,848	553	21.4	11,957	701	17.0	26,014	4,352	6.0	12,206	732	16.7
2000	11,976	547	21.9	11,672	669	17.4	25,617	4,391	5.8	12,164	720	16.9
2001	[R]11,831	[R]534	22.1	[R]11,204	[R]636	17.6	[R]26,602	[R]4,477	5.9	[R]11,887	[R]695	17.1
2002[P]	12,203	551	22.1	11,365	645	17.6	27,062	4,637	5.8	12,172	715	17.0

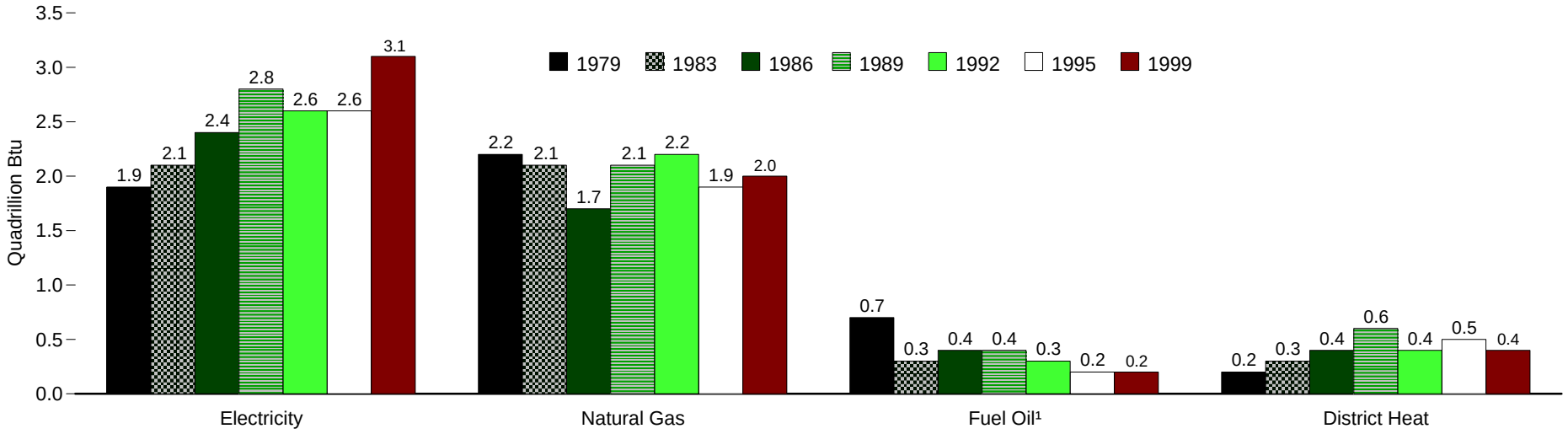
[1] Through 1989, includes motorcycles.
[2] Includes a small number of trucks with 2 axles and 4 tires, such as step vans.
[3] Single-unit trucks with 2 axles and 6 or more tires, and combination trucks.
[4] Includes buses and motorcycles, which are not separately displayed.
[5] Included in "Trucks."
R=Revised. P=Preliminary.

Web Pages: • For data not shown for 1951-1969, see http://www.eia.doe.gov/emeu/aer/enduse.html. • For related information, see http://www.fhwa.dot.gov/policy/ohpi/hss/index.htm.

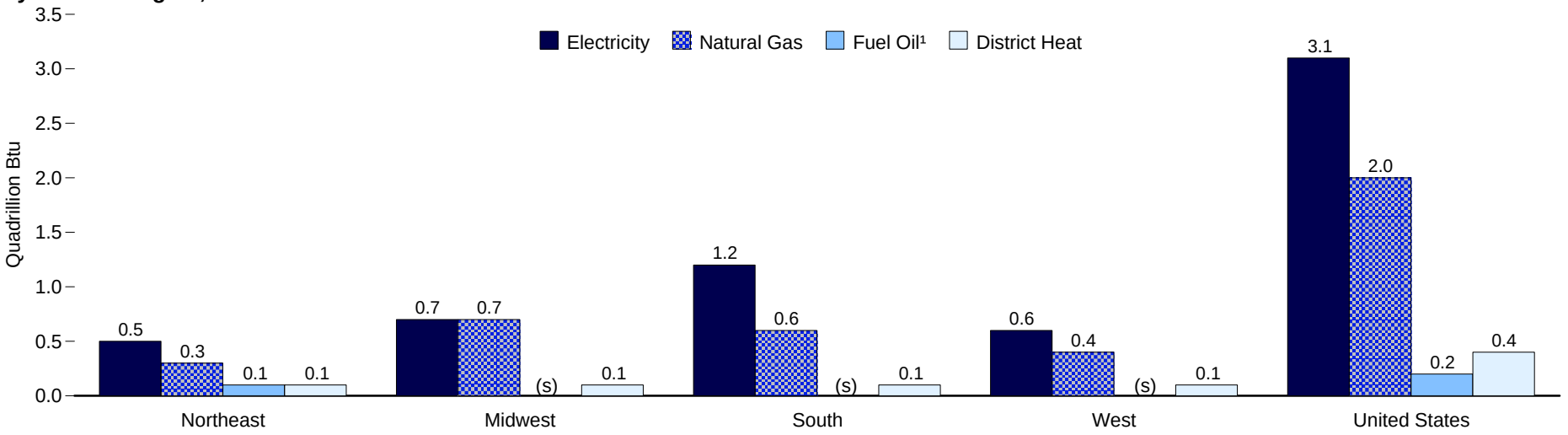
Sources: **Passenger Cars, 1990-1994:** U.S. Department of Transportation, Bureau of Transportation Statistics, *National Transportation Statistics 1998,* Table 4-13. **All Other Data:** • 1949-1994—Federal Highway Administration (FHWA), *Highway Statistics Summary to 1995,* Table VM-201A. • 1995 forward—FHWA, *Highway Statistics,* annual reports, Table VM-1.

Figure 2.9 Commercial Buildings Consumption by Energy Source

By Survey Year



By Census Region, 1999



[1] Distillate fuel oil, residual fuel oil, and kerosene.
(s)=Less than 0.05 quadrillion Btu.

Note: See Appendix C for Census regions.
Source: Table 2.9.

Table 2.9 Commercial Buildings Consumption by Energy Source, Selected Years, 1979-1999

(Trillion Btu)

Energy Source and Year	Square Footage Category			Principal Building Activity								Census Region [1]				All Buildings
	1,001 to 10,000	10,001 to 100,000	Over 100,000	Education	Food Sales	Food Service	Health Care	Lodging	Mercantile and Service	Office	All Other	Northeast	Midwest	South	West	
Major Sources [2]																
1979	1,255	2,202	1,508	511	([3])	336	469	278	894	861	1,616	1,217	1,826	1,395	526	4,965
1983	1,242	1,935	1,646	480	([3])	414	463	362	812	1,018	1,274	858	1,821	1,462	682	4,823
1986	1,273	2,008	1,696	633	147	247	456	299	985	1,008	1,202	1,037	1,585	1,459	896	4,977
1989	1,259	2,402	2,127	704	139	255	449	425	1,048	1,230	1,538	1,354	1,659	1,648	1,126	5,788
1992	1,258	2,301	1,932	637	137	307	403	463	892	1,247	1,404	1,090	1,578	1,825	998	5,490
1995 [4]	1,332	2,152	1,838	614	137	332	561	461	973	1,019	1,225	1,035	1,497	1,684	1,106	5,321
1999	1,381	2,300	2,053	649	201	447	515	450	1,145	1,089	1,237	1,116	1,509	1,961	1,147	5,733
Electricity																
1979	429	872	608	163	([3])	171	129	119	361	424	543	425	593	662	227	1,908
1983	469	903	758	152	([3])	212	147	151	426	509	532	324	673	801	331	2,129
1986	654	927	809	179	99	121	132	120	536	641	563	430	584	867	510	2,390
1989	572	1,145	1,056	217	105	113	154	138	550	781	715	586	609	975	604	2,773
1992	586	991	1,033	235	113	138	138	189	444	704	649	419	622	1,002	566	2,609
1995 [4]	618	1,064	926	221	119	166	211	187	508	676	521	436	558	1,027	587	2,608
1999	698	1,235	1,164	257	165	216	232	196	659	767	606	543	662	1,247	645	3,098
Natural Gas																
1979	646	996	532	214	([3])	145	221	115	422	272	784	443	1,007	470	255	2,174
1983	684	809	597	246	([3])	188	218	170	327	365	576	278	978	523	311	2,091
1986	485	715	523	254	45	114	205	105	332	258	409	244	742	426	311	1,723
1989	568	836	670	323	27	128	186	187	417	238	566	353	831	498	391	2,073
1992	572	1,017	586	291	24	157	189	193	381	388	552	354	747	697	376	2,174
1995 [4]	535	830	580	245	18	158	258	213	395	239	420	297	750	528	371	1,946
1999	604	803	616	227	31	216	217	181	446	219	486	299	709	618	396	2,023
Fuel Oil [5]																
1979	177	272	231	107	([3])	15	97	20	103	107	232	285	133	237	26	681
1983	85	140	90	61	([3])	Q	28	18	43	75	79	172	28	104	Q	314
1986	114	206	121	103	Q	Q	Q	20	105	39	130	270	63	86	23	442
1989	101	170	86	71	Q	Q	17	10	76	43	122	237	61	50	Q	357
1992	86	111	75	62	Q	Q	21	16	55	47	67	194	26	48	Q	272
1995 [4]	71	104	60	57	Q	Q	21	Q	49	28	70	168	16	45	7	235
1999	29	73	60	48	Q	Q	19	Q	18	29	65	138	5	29	8	179
District Heat [6]																
1979	Q	61	136	27	([3])	Q	22	24	Q	58	57	64	93	Q	Q	201
1983	Q	83	202	21	([3])	Q	70	22	Q	68	87	84	141	34	30	289
1986	Q	159	243	97	Q	Q	80	Q	12	71	99	94	196	81	51	422
1989	19	252	315	Q	Q	Q	92	Q	Q	167	134	179	159	126	121	585
1992	Q	182	238	49	NC	Q	55	65	Q	109	135	123	183	78	51	435
1995 [4]	Q	154	271	91	Q	Q	70	57	Q	75	214	135	173	83	Q	533
1999	Q	158	213	117	2	Q	46	68	Q	74	126	136	132	67	98	433
Propane																
1979	23	15	5	2	([3])	8	Q	Q	10	Q	18	Q	16	15	10	43
1983	20	12	2	2	([3])	8	Q	Q	6	Q	14	Q	7	21	Q	34
1986	44	18	1	3	Q	12	Q	12	17	Q	13	9	19	26	Q	63

[1] See Appendix C for Census regions.

[2] Includes electricity, natural gas, distillate fuel oil, residual fuel oil, kerosene, and district heat; excludes propane, for which consumption statistics were collected through 1986.

[3] Included in "Food Service."

[4] Beginning in 1995, excludes commercial buildings at multi-building manufacturing facilities, and parking garages.

[5] Distillate fuel oil, residual fuel oil, and kerosene.

[6] Through 1983, includes purchased steam only. Beginning in 1986, includes purchased and nonpurchased steam, and purchased and nonpurchased hot water.

Q=Data withheld because either the relative standard error was greater than 50 percent or fewer than 20 buildings were sampled. NC=No cases in the sample.

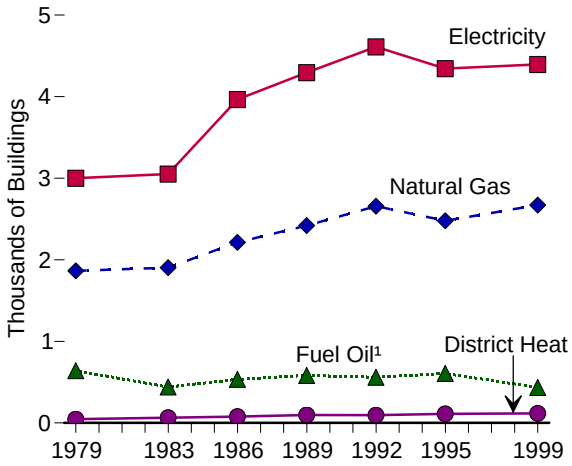
Note: Statistics for individual fuels are for all buildings using each fuel. Statistics for "Major Sources" are for the sum of "Electricity," "Natural Gas," "Fuel Oil," and "District Heat," across all buildings using any of those fuels.

Web Page: For related information, see http://www.eia.doe.gov/emeu/cbecs.

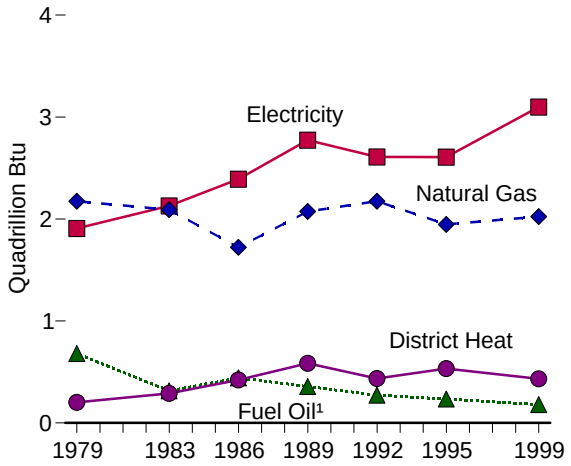
Sources: • 1979—Energy Information Administration (EIA), Form EIA-143, "Nonresidential Buildings Energy Consumption Survey." • 1983—EIA, Form EIA-788, "Nonresidential Buildings Energy Consumption Survey." • 1986—EIA, Form EIA-871, "Nonresidential Buildings Energy Consumption Survey." • 1989, 1992, 1995, and 1999—EIA, Form EIA-871A-F, "Commercial Buildings Energy Consumption Survey."

Figure 2.10 Commercial Buildings Energy Consumption and Expenditure Indicators, Selected Years, 1979-1999

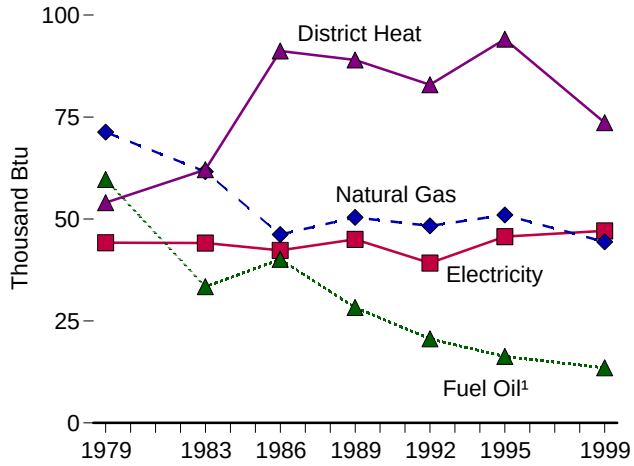
Buildings by Energy Source Used



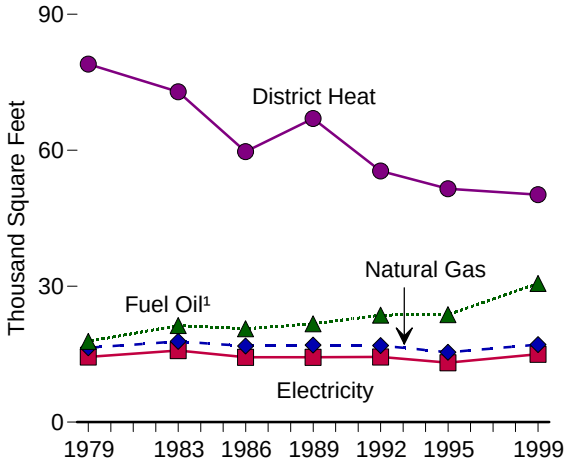
Consumption



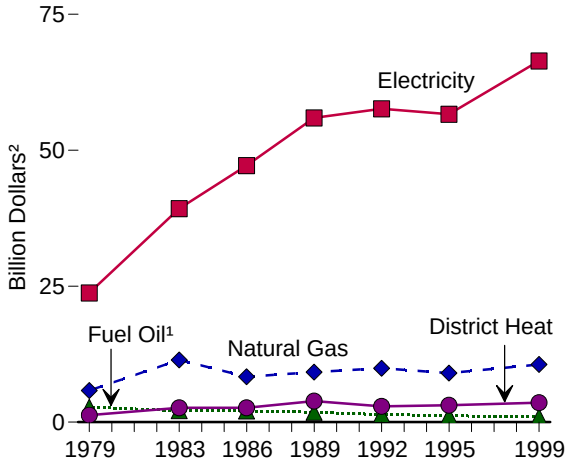
Consumption per Square Foot



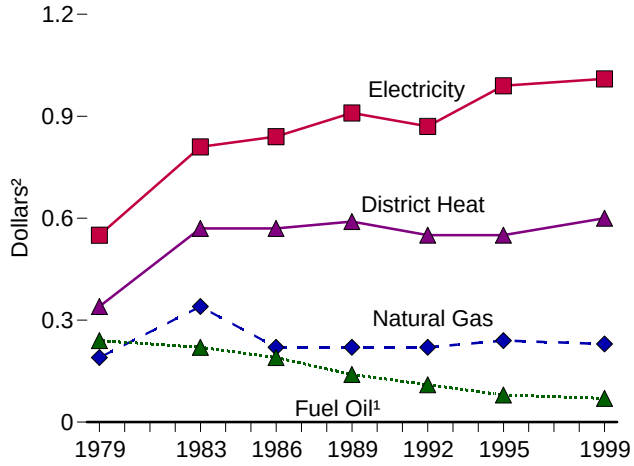
Square Footage per Building by Energy Source Used



Expenditures



Expenditures Per Square Foot



[1] Distillate fuel oil, residual fuel oil, and kerosene.
[2] Nominal dollars.

Notes: • For years not shown, there are no data available. • Because vertical scales differ, graphs should not be compared.
Source: Table 2.10.

Table 2.10 Commercial Buildings Energy Consumption and Expenditure Indicators, Selected Years, 1979-1999

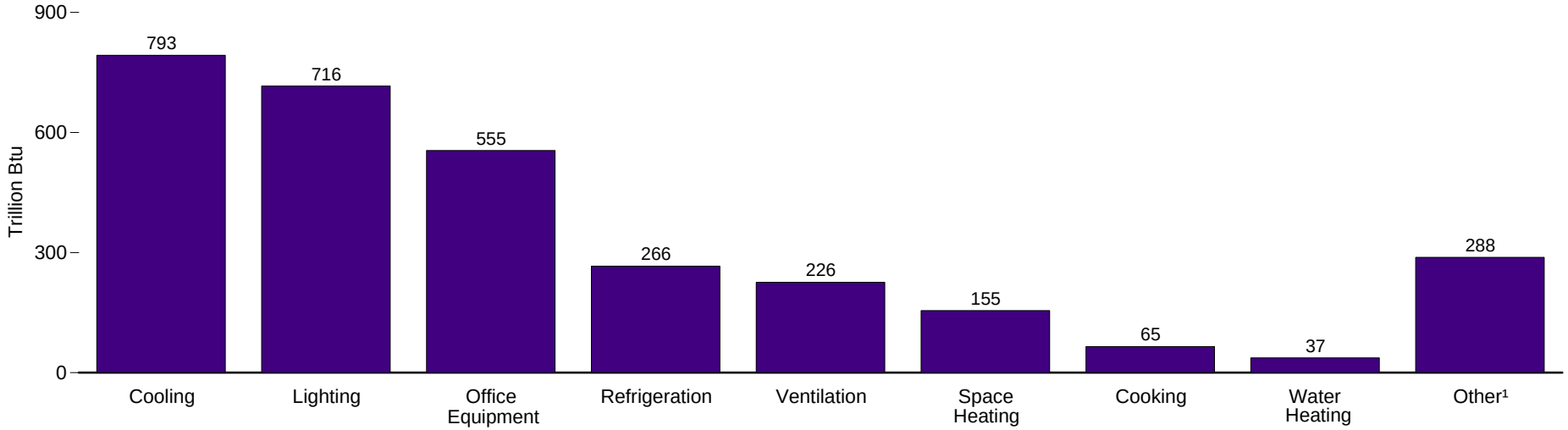
Energy Source and Year	Building Characteristics			Energy Consumption				Energy Expenditures			
	Number of Buildings (thousand)	Total Square Feet (million)	Square Feet per Building (thousand)	Total (trillion Btu)	Per Building (million Btu)	Per Square Foot (thousand Btu)	Per Employee (million Btu)	Total (million dollars[1])	Per Building (thousand dollars[1])	Per Square Foot (dollars[1])	Per Million Btu (dollars[1])
Major Sources [2]											
1979	3,073	43,546	14.2	5,008	1,630	115.0	85.0	33,821	11.0	0.78	6.75
1983	3,185	49,471	15.5	4,856	1,525	98.2	65.7	55,764	17.5	1.13	11.48
1986	4,154	58,199	14.0	5,040	1,213	86.6	68.6	60,762	14.6	1.04	12.06
1989	4,528	63,184	14.0	5,788	1,278	91.6	81.9	70,826	15.6	1.12	12.24
1992	4,806	67,876	14.1	5,490	1,142	80.9	77.1	71,821	14.9	1.06	13.08
1995 [3]	4,579	58,772	12.8	5,321	1,162	90.5	69.3	69,918	15.3	1.19	13.14
1999	4,657	67,338	14.5	5,733	1,231	85.1	70.0	81,552	17.5	1.21	14.22
Electricity											
1979	3,001	43,153	14.4	1,908	636	44.2	32.4	23,751	7.9	0.55	12.45
1983	3,052	48,327	15.8	2,129	697	44.1	28.9	39,279	12.9	0.81	18.45
1986	3,965	56,508	14.3	2,390	603	42.3	32.7	47,186	11.9	0.84	19.74
1989	4,294	61,563	14.3	2,773	646	45.0	39.3	55,943	13.0	0.91	20.17
1992	4,611	66,525	14.4	2,609	566	39.2	36.6	57,619	12.5	0.87	22.09
1995 [3]	4,343	57,076	13.1	2,608	600	45.7	34.1	56,621	13.0	0.99	21.71
1999	4,395	65,716	15.0	3,098	706	47.1	37.9	66,424	15.1	1.01	21.44
Natural Gas											
1979	1,864	30,477	16.4	2,174	1,167	71.3	52.5	5,814	3.1	0.19	2.67
1983	1,904	33,935	17.8	2,091	1,098	61.6	40.6	11,443	6.0	0.34	5.47
1986	2,214	37,263	16.8	1,723	778	46.2	35.2	8,355	3.8	0.22	4.85
1989	2,420	41,143	17.0	2,073	857	50.4	43.2	9,204	3.8	0.22	4.44
1992	2,657	44,994	16.9	2,174	818	48.3	42.5	9,901	3.7	0.22	4.55
1995 [3]	2,478	38,145	15.4	1,946	785	51.0	38.7	9,018	3.6	0.24	4.63
1999	2,670	45,525	17.1	2,023	758	44.4	36.0	10,609	4.0	0.23	5.24
Fuel Oil [4]											
1979	641	11,397	17.8	681	1,063	59.7	40.5	2,765	4.3	0.24	4.06
1983	441	9,409	21.3	314	714	33.4	19.8	2,102	4.8	0.22	6.68
1986	534	11,005	20.6	442	827	40.1	27.7	2,059	3.9	0.19	4.66
1989	581	12,600	21.7	357	614	28.3	21.0	1,822	3.1	0.14	5.11
1992	560	13,215	23.6	272	487	20.6	15.1	1,400	2.5	0.11	5.14
1995 [3]	607	14,421	23.7	235	387	16.3	10.2	1,175	1.9	0.08	5.00
1999	434	13,285	30.6	179	412	13.5	9.1	956	2.2	0.07	5.35
District Heat [5]											
1979	47	3,722	79.0	201	4,267	54.0	26.5	1,267	26.9	0.34	6.30
1983	64	4,643	72.9	289	4,530	62.1	34.4	2,627	41.2	0.57	9.10
1986	77	4,625	59.7	422	5,446	91.2	52.4	2,620	33.8	0.57	6.21
1989	98	6,578	67.0	585	5,964	89.0	56.5	3,857	39.3	0.59	6.59
1992	95	5,245	55.4	435	4,596	82.9	60.9	2,901	30.7	0.55	6.67
1995 [3]	110	5,658	51.5	533	4,849	94.1	51.2	3,103	28.3	0.55	5.83
1999	117	5,891	50.2	433	3,692	73.6	50.1	3,564	30.4	0.60	8.23
Propane											
1979	214	2,797	13.1	43	202	15.5	12.9	225	1.1	0.08	5.19
1983	191	2,562	13.4	34	176	13.1	8.5	313	1.6	0.12	9.29
1986	344	3,213	9.3	63	184	19.7	17.6	543	1.6	0.17	8.59
1989	348	4,695	13.5	NA	NA	NA	NA	NA	NA	NA	NA
1992	337	3,393	10.1	NA	NA	NA	NA	NA	NA	NA	NA
1995	589	5,344	9.1	NA	NA	NA	NA	NA	NA	NA	NA
1999	451	6,290	14.0	NA	NA	NA	NA	NA	NA	NA	NA

[1] Nominal dollars.
[2] Includes electricity, natural gas, fuel oil, and district heat. Propane consumption statistics were collected in 1979, 1983, and 1986, but are not included in the Major Sources.
[3] Beginning with the 1995 survey, commercial buildings on multibuilding manufacturing facilities and parking garages were excluded.
[4] Distillate fuel oil, residual fuel oil, and kerosene.
[5] For 1979 and 1983, includes only purchased steam. Beginning with the 1986 survey, includes purchased and nonpurchased steam and purchased and nonpurchased hot water.
NA=Not available.

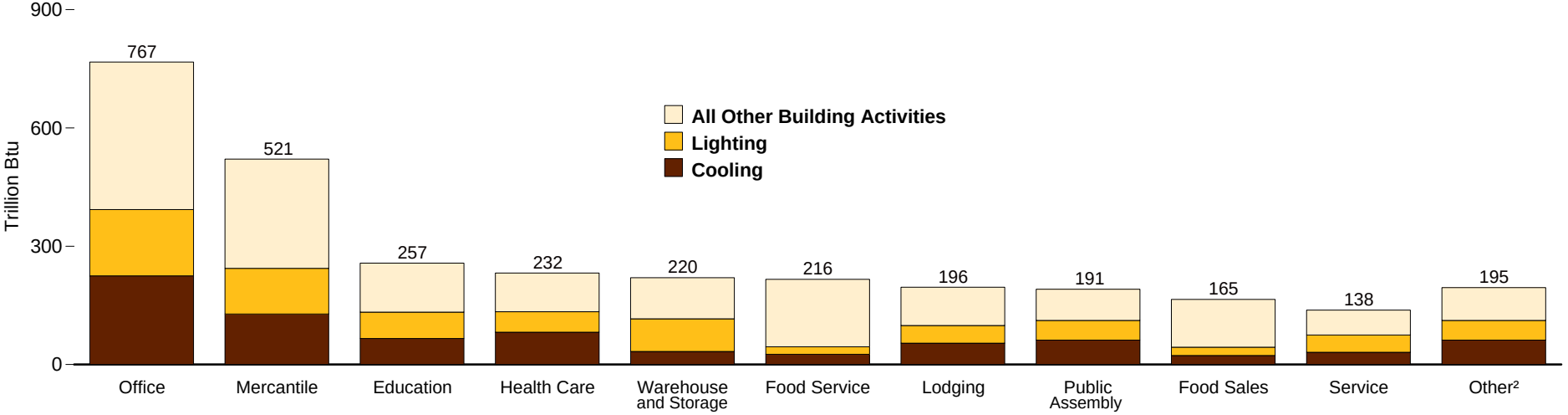
Note: Statistics for individual fuels are for all buildings using each fuel. Statistics for major sources are for all buildings, even buildings using no major fuel.
Web Page: For related information, see http://www.eia.doe.gov/emeu/cbecs.
Sources: • 1979—Energy Information Administration (EIA), Form EIA-143, "Nonresidential Buildings Energy Consumption Survey."• 1983—EIA, Form EIA-788, "Nonresidential Buildings Energy Consumption Survey." • 1986—EIA, Form EIA-871, "Nonresidential Buildings Energy Consumption Survey." • 1989, 1992, 1995, and 1999—EIA, Form EIA-871A-F, "Commercial Buildings Energy Consumption Survey."

Figure 2.11 Commercial Buildings Electricity Consumption by End Use, 1999

Electricity Consumption by End Use



Electricity Consumption by Principal Building Activity



[1] Examples of "other" include medical, electronic, and testing equipment; conveyors, wrappers, hoists, and compactors; washers, disposals, dryers and cleaning equipment; escalators, elevators, dumb waiters, and window washers; shop tools and electronic testing equipment; sign motors, time clocks, vending machines, phone equipment, and sprinkler controls; scoreboards, fire alarms, intercoms, television sets, radios, projectors, and door operators.

[2] Religious worship, public order and safety, vacant, and other, including buildings that do not fit into any of the other named categories.

Source: Table 2.11.

Table 2.11 Commercial Buildings Electricity Consumption by End Use, 1999

(Trillion Btu)

Building Characteristic	Space Heating	Cooling	Ventilation	Water Heating	Lighting	Cooking	Refrigeration	Office Equipment	Other [1]	All End Uses
All Buildings	155	793	226	37	716	65	266	555	288	3,098
Principal Building Activity										
Education	12	66	19	2	67	3	11	52	26	257
Food Sales	4	23	6	1	21	4	72	28	7	165
Food Service	5	26	7	1	19	38	82	30	7	216
Health Care	6	82	19	1	52	3	8	40	21	232
Lodging	21	54	14	10	45	2	12	14	25	196
Mercantile	35	128	35	6	116	6	52	104	40	521
Office	45	225	53	8	168	5	6	200	58	767
Public Assembly	8	62	15	2	50	3	9	21	21	191
Public Order and Safety	1	12	3	Q	11	Q	Q	5	5	40
Religious Worship	2	16	4	(s)	11	(s)	1	2	6	42
Service	6	31	12	2	44	Q	Q	20	21	138
Warehouse and Storage	6	33	29	2	83	Q	9	19	39	220
Other [2]	Q	31	9	1	27	Q	Q	18	11	101
Vacant	(s)	3	1	Q	1	Q	Q	2	3	10

[1] Examples of "other" include medical, electronic, and testing equipment; conveyors, wrappers, hoists, and compactors; washers, disposals, dryers and cleaning equipment; escalators, elevators, dumb waiters, and window washers; shop tools and electronic testing equipment; sign motors, time clocks, vending machines, phone equipment, and sprinkler controls; scoreboards, fire alarms, intercoms, television sets, radios, projectors, and door operators.

[2] Includes buildings that do not fit into any of the other named categories.

(s)=Less than 0.5 trillion Btu. Q=Data withheld because either the relative standard error was greater than 50 percent or fewer than 20 buildings were sampled.

Notes: • Data are preliminary estimates. • Data in this table cover only the end-use energy consumption for electricity.

Web Page: For related information, see http://www.eia.doe.gov/emeu/cbecs.

Source: Energy Information Administration, Form EIA-871A-F, "Commercial Buildings Energy Consumption Survey.

Note. Electrical System Energy Losses. Electrical system energy losses are calculated as the difference between total primary consumption by the electric power sector—see Table 2.1f—and the total energy content of electricity retail sales—see Tables 8.9 and A6. Most of these losses occur at steam-electric power plants (conventional and nuclear) in the conversion of heat energy into mechanical energy to turn electric generators. The loss is a thermodynamically necessary feature of the steam-electric cycle. Part of the energy input-to-output losses is a result of imputing fossil energy equivalent inputs for hydroelectric, solar, and wind energy sources, since there is no generally accepted practice for measuring those thermal conversion rates. In addition to conversion losses, other losses include power plant use of electricity, transmission and distribution of electricity from power plants to end-use consumers (also called "line losses"), and unaccounted for electricity. Total losses are allocated to the end-use sectors in proportion to each sector's share of total electricity sales. Overall, approximately 67 percent of total energy input is lost in conversion; of electricity generated, approximately 5 percent is lost in plant use and 9 percent is lost in transmission and distribution.