

**Table A3. Approximate Heat Content of Petroleum Consumption and Fuel Ethanol**  
(Million Btu per Barrel)

	Total Petroleum <sup>a</sup> Consumption by Sector						Distillate Fuel Oil Consumption <sup>i</sup>	Hydrocarbon Gas Liquids Consumption <sup>g</sup>	Motor Gasoline (Finished) Consumption <sup>h</sup>	Petroleum Coke Consumption <sup>j</sup>	Fuel Ethanol <sup>k</sup>	Fuel Ethanol Feedstock Factor <sup>k</sup>
	Residential	Commercial <sup>b</sup>	Industrial <sup>b</sup>	Transportation <sup>b,c</sup>	Electric Power <sup>d,e</sup>	Total <sup>b,c</sup>						
1950 .....	5.473	5.817	5.927	5.461	6.254	5.642	5.825	3.810	5.253	6.024	NA	NA
1955 .....	5.470	5.781	5.847	5.407	6.254	5.581	5.825	3.810	5.253	6.024	NA	NA
1960 .....	5.418	5.781	5.772	5.387	6.267	5.542	5.825	3.810	5.253	6.024	NA	NA
1965 .....	5.365	5.761	5.695	5.386	6.267	5.517	5.825	3.810	5.253	6.024	NA	NA
1970 .....	5.262	5.709	5.579	5.393	6.252	5.499	5.825	3.731	5.253	6.024	NA	NA
1975 .....	5.255	5.649	5.490	5.392	6.250	5.489	5.825	3.671	5.253	6.024	NA	NA
1980 .....	5.322	5.752	5.340	5.441	6.254	5.472	5.825	3.669	5.253	6.024	3.564	6.586
1981 .....	5.284	5.693	5.268	5.433	6.258	5.440	5.825	3.632	5.253	6.024	3.564	6.562
1982 .....	5.267	5.699	5.211	5.423	6.258	5.406	5.825	3.588	5.253	6.024	3.564	6.539
1983 .....	5.141	5.592	5.214	5.416	6.255	5.396	5.825	3.535	5.253	6.024	3.564	6.515
1984 .....	5.308	5.658	5.167	5.418	6.251	5.385	5.825	3.580	5.253	6.024	3.564	6.492
1985 .....	5.264	5.598	5.159	5.423	6.247	5.377	5.825	3.584	5.253	6.024	3.564	6.469
1986 .....	5.269	5.632	5.237	5.426	6.257	5.410	5.825	3.631	5.253	6.024	3.564	6.446
1987 .....	5.241	5.594	5.203	5.429	6.249	5.395	5.825	3.663	5.253	6.024	3.564	6.423
1988 .....	5.259	5.598	5.196	5.433	6.250	5.402	5.825	3.643	5.253	6.024	3.564	6.400
1989 .....	5.195	5.549	5.190	5.438	6.240	5.403	5.825	3.679	5.253	6.024	3.564	6.377
1990 .....	5.146	5.554	5.219	5.442	6.244	5.403	5.825	3.630	5.253	6.024	3.564	6.355
1991 .....	5.096	5.529	5.130	5.441	6.246	5.375	5.825	3.626	5.253	6.024	3.564	6.332
1992 .....	5.126	5.514	5.133	5.443	6.238	5.369	5.825	3.643	5.253	6.024	3.564	6.309
1993 .....	5.103	5.505	5.140	5.413	6.230	5.354	5.825	3.628	5.217	6.024	3.564	6.287
1994 .....	5.097	5.513	5.115	5.413	6.213	5.344	5.820	3.657	5.214	6.024	3.564	6.264
1995 .....	5.062	5.476	5.084	5.409	6.187	5.326	5.820	3.641	5.204	6.024	3.564	6.242
1996 .....	4.997	5.431	5.076	5.416	6.194	5.323	5.820	3.629	5.211	6.024	3.564	6.220
1997 .....	4.988	5.389	5.083	5.410	6.198	5.322	5.820	3.627	5.205	6.024	3.564	6.198
1998 .....	4.974	5.363	5.101	5.406	6.210	5.335	5.819	3.619	5.203	6.024	3.564	6.176
1999 .....	4.902	5.289	5.052	5.406	6.204	5.313	5.819	3.628	5.202	6.024	3.564	6.167
2000 .....	4.908	5.313	5.015	5.415	6.188	5.311	5.819	3.610	5.201	6.024	3.564	6.159
2001 .....	4.936	5.323	5.104	5.405	6.199	5.331	5.819	3.604	5.201	6.024	3.564	6.151
2002 .....	4.885	5.291	5.053	5.404	6.172	5.309	5.819	3.588	5.199	6.024	3.564	6.143
2003 .....	4.920	5.313	5.108	5.400	6.182	5.326	5.819	3.610	5.197	6.024	3.564	6.106
2004 .....	4.952	5.324	5.106	5.407	6.134	5.330	5.818	3.591	5.196	5.982	3.564	6.069
2005 .....	4.915	5.360	5.143	5.408	6.126	5.342	5.818	3.589	5.192	5.982	3.564	6.032
2006 .....	4.886	5.296	5.120	5.405	6.038	5.323	5.803	3.551	5.185	5.987	3.564	5.995
2007 .....	4.833	5.270	5.079	5.376	6.064	5.293	5.784	3.544	5.142	5.996	3.564	5.959
2008 .....	4.772	5.156	5.103	5.342	6.013	5.268	5.780	3.549	5.106	5.992	3.564	5.922
2009 .....	4.664	5.217	4.959	5.320	5.987	5.218	5.781	3.487	5.090	6.017	3.564	5.901
2010 .....	4.664	5.195	4.920	5.316	5.956	5.204	5.778	3.489	5.067	6.059	3.562	5.880
2011 .....	4.657	5.176	4.887	5.315	5.900	5.193	5.776	3.423	5.063	6.077	3.561	5.859
2012 .....	4.714	5.126	4.843	5.306	5.925	5.176	5.774	3.440	5.062	6.084	3.560	5.838
2013 .....	4.648	5.053	4.801	5.302	5.892	5.157	5.774	3.468	5.060	6.089	3.560	5.831
2014 .....	4.664	5.016	4.804	5.300	5.906	5.161	5.773	3.439	5.059	6.100	3.559	5.825
2015 .....	4.721	5.050	4.767	5.302	5.915	5.154	5.773	3.461	5.057	6.085	3.558	5.818
2016 .....	4.631	5.022	4.799	5.303	5.885	5.161	5.773	3.424	5.055	6.104	3.558	5.811
2017 .....	4.623	5.006	4.769	5.305	5.893	5.153	5.772	3.400	5.053	6.132	3.556	5.804
2018 .....	4.620	4.971	4.664	5.309	5.896	5.122	5.772	3.381	5.054	6.122	3.553	5.797
2019 .....	4.540	4.962	4.646	5.307	5.900	5.111	5.771	3.401	5.052	6.132	3.555	5.790
2020 .....	4.536	4.889	4.534	5.301	5.883	5.054	5.770	3.349	5.052	6.130	3.557	5.784
2021 .....	4.611	4.909	4.524	5.306	5.883	5.067	5.770	3.369	5.050	6.135	3.555	5.777
2022 .....	4.596	4.942	4.441	5.314	5.902	5.058	5.770	3.229	5.049	6.164	3.553	5.777
2023 .....	E 4.623	E 4.956	E 4.388	E 5.309	E 5.931	E 5.039	E 5.770	E 3.224	E 5.049	E 6.153	E 3.554	E 5.777
2024 .....	E 4.623	E 4.956	E 4.388	E 5.309	E 5.931	E 5.039	E 5.770	E 3.224	E 5.049	E 6.153	E 3.554	E 5.777

<sup>a</sup> Petroleum products supplied, including natural gas plant liquids and crude oil burned directly as fuel. Quantity-weighted averages of the petroleum products included in each category are calculated by using heat content values for individual products shown in Tables A1 and A3.

<sup>b</sup> Beginning in 1993, includes fuel ethanol blended into motor gasoline.

<sup>c</sup> Beginning in 2009, includes biodiesel and renewable diesel fuel blended into distillate fuel oil.

<sup>d</sup> Electricity-only and combined-heat-and-power (CHP) plants within the NAICS 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.

<sup>e</sup> Electric power sector factors are weighted average heat contents for distillate fuel oil, petroleum coke, and residual fuel oil; they exclude other liquids.

<sup>f</sup> There is a discontinuity in this time series between 1993 and 1994; beginning in 1994, the single constant factor is replaced by a quantity-weighted factor.

Quantity-weighted averages of the sulfur-content categories of distillate fuel oil are calculated by using heat content values shown in Table A1. Excludes biodiesel and renewable diesel fuel blended into distillate fuel oil.

<sup>g</sup> Quantity-weighted averages of the major components of hydrocarbon gas liquids are calculated by using heat content values shown in Table A1. The factor for 1967 is used as the estimated factor for 1949–1966.

<sup>h</sup> Through 1992, excludes oxygenates. Beginning in 1993, includes fuel ethanol blended into motor gasoline; and for 1993–2006, also includes methyl tertiary butyl ether (MTBE) and other oxygenates blended into motor gasoline.

<sup>i</sup> There is a discontinuity in this time series between 2003 and 2004; beginning in 2004, the single constant factor is replaced by a quantity-weighted factor.

Quantity-weighted averages of the two categories of petroleum coke are calculated by using heat content values shown in Table A1.

<sup>j</sup> Includes denaturant (petroleum added to ethanol to make it undrinkable). Fuel ethanol factors are weighted average heat contents for undenatured ethanol (3.539 million Btu per barrel) and products used as denaturant (natural gasoline, finished motor gasoline, and motor gasoline blending components—see Tables A1 and A3 for factors). The factor for 2009 is used as the estimated factor for 1980–2008.

<sup>k</sup> Corn input to the production of undenatured ethanol (million Btu corn per barrel undenatured ethanol), used as the factor to estimate total biomass inputs to the production of undenatured ethanol. Observed ethanol yields (gallons undenatured ethanol per bushel of corn) are 2.5 in 1980, 2.666 in 1998, 2.68 in 2002, 2.78 in 2008, and 2.82 in 2012; yields in other years are estimated. Corn is assumed to have a gross heat content of 0.392 million Btu per bushel. Undenatured ethanol is assumed to have a gross heat content of 3.539 million Btu per barrel.

E=Estimate. NA=Not available.

Note: The heat content values in this table are for gross heat contents. See "Heat Content" in Glossary.

Web Page: See <http://www.eia.gov/totalenergy/data/monthly/#appendices> (Excel and CSV files) for all available annual data beginning in 1949.

Sources: See "Thermal Conversion Factor Source Documentation," which follows Table A6.