Table A3. Approximate Heat Content of Petroleum Consumption and Fuel Ethanol

(Million Btu per Barrel)

	Total Petroleum[a] Consumption by Sector						Distillate Fuel Oil Consumption[f]	Hydrocarbon Gas Liquids Consumption[g]	Motor Gasoline (Finished) Consumption[h]	Petroleum Coke Consumption[i]	Fuel Ethanol[j]	*Fuel Ethanol Feedstock Factor*[k]
	Residential	Commercial[b]	Industrial[b]	Transportation[b,c]	Electric Power[d,e]	Total[b,c]						
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	[g] 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	[d] 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	[b] 5.505	[b] 5.140	[b] 5.413	6.230	[b] 5.354	5.825	3.628	[h] 5.217	6.024	3.564	*6.287*
1994	5.097	5.513	5.115	5.413	6.213	5.344	[f] 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	[i] 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	[c] 5.320	5.987	[c] 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	[E] 4.612	[RE] 4.919	[RE] 4.442	[RE] 5.314	5.902	5.058	5.770	3.229	5.049	6.164	3.553	*5.777*
2023	[RE] 4.663	[RE] 4.950	[RE] 4.406	[RE] 5.323	[RP] 5.965	[RP] 5.056	[RP] 5.836	[RP] 3.220	[P] 5.049	[RP] 6.151	[RP] 3.554	*5.777*
2024	[E] 4.663	[E] 4.950	[E] 4.406	[E] 5.323	[E] 5.965	[E] 5.056	[E] 5.836	[E] 3.220	[E] 5.049	[E] 6.151	[E] 3.554	*5.777*

[a] 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.

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

[c] Beginning in 2009, includes biodiesel and renewable diesel fuel blended into distillate fuel oil.

[d] 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.

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

[f] 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.

[g] 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.

[h] 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.

[i] 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.

[j] 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.

[k] 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.

R=Revised. P=Preliminary. 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.