

Table A3. Approximate Heat Content of Petroleum Consumption and Biofuels Production, Selected Years, 1949-2008
(Million Btu per Barrel)

| Year | Total Petroleum ¹ Consumption by Sector | | | | | | Liquefied Petroleum Gases Consumption ⁵ | Motor Gasoline Consumption ⁶ | Fuel Ethanol | Fuel Ethanol Feedstock Factor ⁷ | Biodiesel | Biodiesel Feedstock Factor ⁸ |
|------|--|-------------------------|-------------------------|-----------------------------|-------------------------------|--------------------|--|---|--------------|--|-----------|---|
| | Residential | Commercial ² | Industrial ² | Transportation ² | Electric Power ^{3,4} | Total ² | | | | | | |
| 1949 | 5.493 | 5.858 | 5.946 | 5.465 | 6.254 | 5.649 | 4.011 | 5.253 | NA | NA | NA | NA |
| 1950 | 5.482 | 5.865 | 5.940 | 5.461 | 6.254 | 5.649 | 4.011 | 5.253 | NA | NA | NA | NA |
| 1955 | 5.480 | 5.832 | 5.867 | 5.408 | 6.254 | 5.591 | 4.011 | 5.253 | NA | NA | NA | NA |
| 1960 | 5.430 | 5.849 | 5.800 | 5.388 | 6.267 | 5.555 | 4.011 | 5.253 | NA | NA | NA | NA |
| 1965 | 5.380 | 5.837 | 5.728 | 5.387 | 6.267 | 5.532 | 4.011 | 5.253 | NA | NA | NA | NA |
| 1970 | 5.216 | 5.773 | 5.603 | 5.393 | 6.252 | 5.503 | ⁵ 3.779 | 5.253 | NA | NA | NA | NA |
| 1971 | 5.212 | 5.758 | 5.598 | 5.389 | 6.245 | 5.504 | 3.772 | 5.253 | NA | NA | NA | NA |
| 1972 | 5.193 | 5.733 | 5.563 | 5.388 | 6.233 | 5.500 | 3.760 | 5.253 | NA | NA | NA | NA |
| 1973 | 5.205 | 5.749 | 5.569 | 5.395 | 6.245 | 5.515 | 3.746 | 5.253 | NA | NA | NA | NA |
| 1974 | 5.196 | 5.740 | 5.538 | 5.394 | 6.238 | 5.504 | 3.730 | 5.253 | NA | NA | NA | NA |
| 1975 | 5.192 | 5.704 | 5.527 | 5.392 | 6.250 | 5.494 | 3.715 | 5.253 | NA | NA | NA | NA |
| 1976 | 5.215 | 5.726 | 5.536 | 5.395 | 6.251 | 5.504 | 3.711 | 5.253 | NA | NA | NA | NA |
| 1977 | 5.213 | 5.733 | 5.554 | 5.400 | 6.249 | 5.518 | 3.677 | 5.253 | NA | NA | NA | NA |
| 1978 | 5.213 | 5.716 | 5.554 | 5.404 | 6.251 | 5.519 | 3.669 | 5.253 | NA | NA | NA | NA |
| 1979 | 5.298 | 5.769 | 5.419 | 5.428 | 6.258 | 5.494 | 3.680 | 5.253 | NA | NA | NA | NA |
| 1980 | 5.245 | 5.803 | 5.374 | 5.440 | 6.254 | 5.479 | 3.674 | 5.253 | 3.539 | ^R 6.586 | NA | NA |
| 1981 | 5.191 | 5.751 | 5.312 | 5.432 | 6.258 | 5.448 | 3.643 | 5.253 | 3.539 | ^R 6.562 | NA | NA |
| 1982 | 5.167 | 5.751 | 5.263 | 5.422 | 6.258 | 5.415 | 3.615 | 5.253 | 3.539 | ^R 6.539 | NA | NA |
| 1983 | 5.022 | 5.642 | 5.275 | 5.415 | 6.255 | 5.406 | 3.614 | 5.253 | 3.539 | ^R 6.515 | NA | NA |
| 1984 | ^R 5.205 | ^R 5.707 | ^R 5.222 | 5.418 | 6.251 | 5.395 | 3.599 | 5.253 | 3.539 | ^R 6.492 | NA | NA |
| 1985 | 5.153 | 5.661 | 5.215 | 5.422 | 6.247 | 5.387 | 3.603 | 5.253 | 3.539 | ^R 6.469 | NA | NA |
| 1986 | 5.169 | 5.694 | 5.283 | 5.425 | 6.257 | 5.418 | 3.640 | 5.253 | 3.539 | ^R 6.446 | NA | NA |
| 1987 | 5.144 | 5.661 | 5.248 | 5.429 | 6.249 | 5.403 | 3.659 | 5.253 | 3.539 | ^R 6.423 | NA | NA |
| 1988 | 5.165 | 5.661 | 5.241 | 5.433 | 6.250 | 5.410 | 3.652 | 5.253 | 3.539 | ^R 6.400 | NA | NA |
| 1989 | 5.105 | 5.621 | 5.234 | 5.437 | ³ 6.240 | 5.410 | 3.683 | 5.253 | 3.539 | ^R 6.377 | NA | NA |
| 1990 | 5.027 | 5.621 | 5.270 | 5.442 | 6.244 | 5.411 | 3.625 | 5.253 | 3.539 | ^R 6.355 | NA | NA |
| 1991 | 4.968 | 5.599 | 5.186 | 5.440 | 6.246 | 5.384 | 3.614 | 5.253 | 3.539 | ^R 6.332 | NA | NA |
| 1992 | 5.004 | 5.589 | 5.185 | 5.442 | 6.238 | 5.378 | 3.624 | 5.253 | 3.539 | ^R 6.309 | NA | NA |
| 1993 | 4.975 | ² 5.580 | ² 5.196 | ² 5.436 | 6.230 | ² 5.379 | 3.606 | 5.253 | 3.539 | ^R 6.287 | NA | NA |
| 1994 | 4.983 | 5.592 | 5.166 | 5.424 | 6.213 | 5.361 | 3.635 | ⁶ 5.230 | 3.539 | ^R 6.264 | NA | NA |
| 1995 | 4.940 | 5.554 | 5.137 | 5.417 | 6.188 | 5.341 | 3.623 | 5.215 | 3.539 | ^R 6.242 | NA | NA |
| 1996 | 4.869 | 5.498 | 5.133 | 5.420 | 6.195 | 5.336 | 3.613 | 5.216 | 3.539 | ^R 6.220 | NA | NA |
| 1997 | 4.859 | 5.459 | 5.138 | 5.416 | 6.199 | 5.336 | 3.616 | 5.213 | 3.539 | ^R 6.198 | NA | NA |
| 1998 | 4.837 | 5.446 | 5.155 | 5.413 | 6.210 | 5.349 | 3.614 | 5.212 | 3.539 | ^R 6.176 | NA | NA |
| 1999 | 4.761 | 5.369 | 5.113 | 5.413 | 6.205 | 5.328 | 3.616 | 5.211 | 3.539 | ^R 6.167 | NA | NA |
| 2000 | 4.761 | 5.394 | 5.082 | 5.421 | 6.189 | 5.326 | 3.607 | 5.210 | 3.539 | ^R 6.159 | NA | NA |
| 2001 | 4.796 | 5.403 | 5.164 | 5.412 | 6.199 | 5.345 | 3.614 | 5.210 | 3.539 | ^R 6.151 | 5.359 | 5.433 |
| 2002 | 4.742 | 5.364 | 5.116 | 5.410 | 6.173 | 5.324 | 3.613 | 5.208 | 3.539 | ^R 6.143 | 5.359 | 5.433 |
| 2003 | 4.763 | 5.407 | 5.161 | 5.408 | 6.182 | 5.340 | 3.629 | 5.207 | 3.539 | ^R 6.135 | 5.359 | 5.433 |
| 2004 | 4.807 | 5.434 | 5.164 | 5.420 | 6.192 | 5.350 | 3.618 | 5.215 | 3.539 | ^R 6.127 | 5.359 | 5.433 |
| 2005 | 4.783 | 5.427 | 5.200 | 5.426 | 6.188 | 5.365 | 3.620 | 5.218 | 3.539 | ^R 6.119 | 5.359 | 5.433 |
| 2006 | ^R 4.742 | ^R 5.392 | ^R 5.179 | ^R 5.431 | 6.143 | 5.353 | 3.605 | 5.218 | 3.539 | ^R 6.111 | 5.359 | 5.433 |
| 2007 | ^R 4.696 | ^R 5.350 | ^R 5.146 | ^R 5.433 | ^R 6.151 | ^R 5.346 | ^R 3.591 | 5.219 | 3.539 | ^R 6.103 | 5.359 | 5.433 |
| 2008 | ^E 4.705 | ^E 5.353 | ^E 5.129 | ^E 5.429 | ^P 6.124 | ^P 5.339 | ^P 3.597 | ^P 5.218 | 3.539 | 6.095 | 5.359 | 5.433 |

¹ 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 shown in Table A1.

² Beginning in 1993, includes ethanol blended into motor gasoline.

³ 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.

⁴ Electric power sector factors are weighted average heat contents for distillate fuel oil, petroleum coke, and residual fuel oil; they exclude other liquids.

⁵ There is a discontinuity in this time series between 1966 and 1967; beginning in 1967, the single constant factor is replaced by a quantity-weighted factor—quantity-weighted averages of the major components of liquefied petroleum gases are calculated by using heat content values shown in Table A1.

⁶ 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 major components of motor gasoline, including fuel ethanol, are calculated by using heat content values shown in Table A1.

⁷ Corn input to the production of fuel ethanol (million Btu corn per barrel denatured ethanol), used as the factor to estimate total biomass inputs to the production of fuel ethanol. Observed fuel ethanol yields (gallons denatured ethanol per bushel of corn) were 2.5 in 1980, 2.666 in 1998, and 2.68 in 2002; yields in other years are estimated. Corn is assumed to have a gross heat content of 0.392 million Btu per bushel. Fuel ethanol is assumed to have a gross heat content of 3.539 million Btu per barrel.

⁸ Soybean oil input to the production of biodiesel (million Btu soybean oil per barrel biodiesel), used as the factor to estimate total biomass inputs to the production of biodiesel. It is assumed that 7.65 pounds of soybean oil are needed to produce one gallon of biodiesel, and 5.433 million Btu of soybean oil are needed to produce one barrel of biodiesel. Soybean oil is assumed to have a gross heat content of 16,909 Btu per pound, or 5.483 million Btu per barrel. Biodiesel is assumed to have a gross heat content of 17,253 Btu per pound, or 5.359 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: For all data beginning in 1949, see http://www.eia.doe.gov/emeu/aer/append_a.html.

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