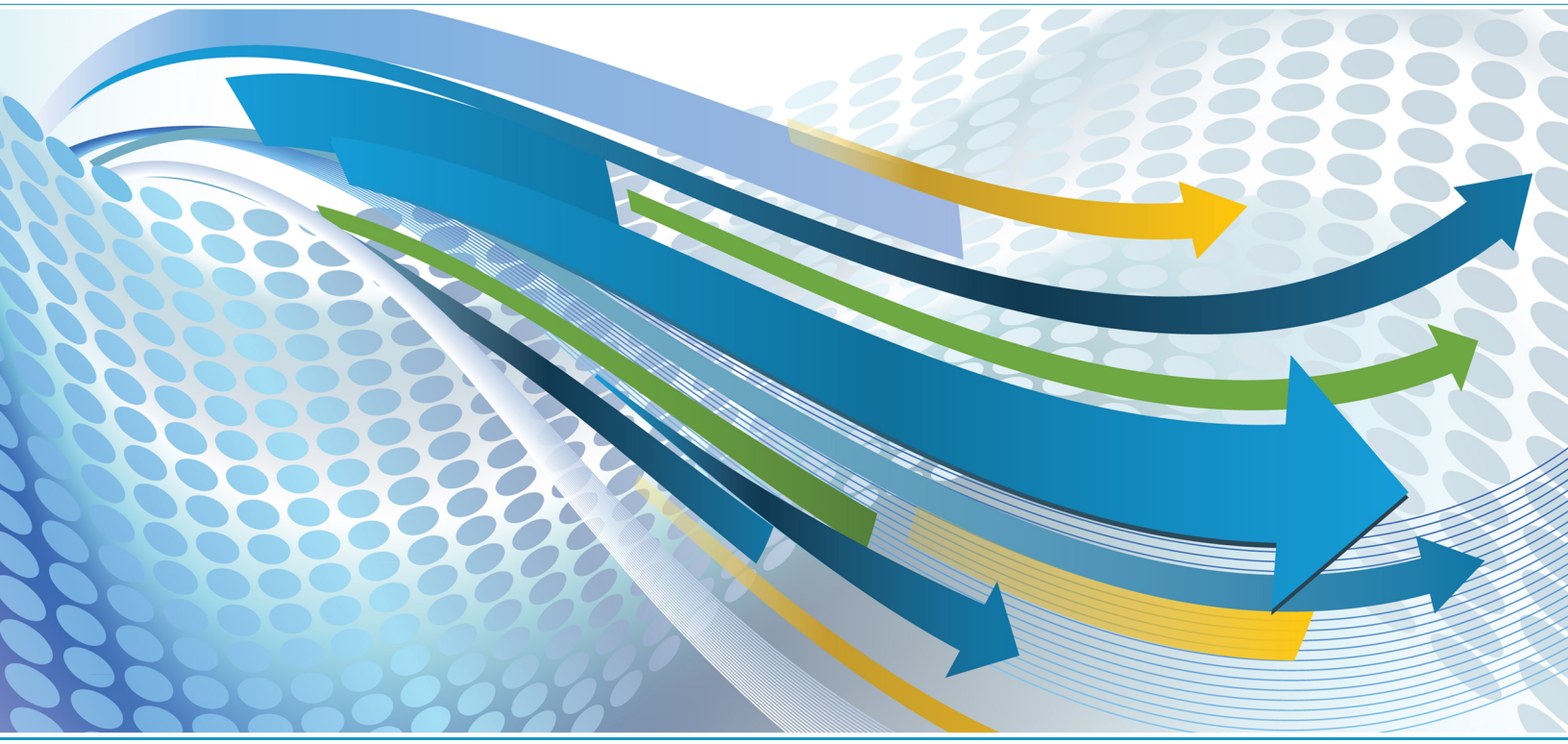
DOE/EIA-0035(2017/11)

# November 2017

# Monthly Energy Review



*Independent Statistics & Analysis*
U.S. Energy Information Administration

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# Monthly Energy Review

The *Monthly Energy Review* (*MER*) is the U.S. Energy Information Administration's (EIA) primary report of recent and historical energy statistics. Included are statistics on total energy production, consumption, stocks, trade, and energy prices; overviews of petroleum, natural gas, coal, electricity, nuclear energy, renewable energy, and international petroleum; carbon dioxide emissions; and data unit conversions.

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> *"The Administrator shall be responsible for carrying out a central, comprehensive, and unified energy data and information program which will collect, evaluate, assemble, analyze, and disseminate data and information…"*

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## Important notes about the data

**Data displayed:** For tables beginning in 1949, annual data are usually displayed only in 5-year increments between 1950 and 2000 in the tables in Portable Document Format (PDF) files; however, all annual data are shown in the Excel files, comma-separated values (CSV) files, application programming interface (API) files, and in the data browser. Also, only two to three years of monthly data are displayed in the PDF files; however, for many series, monthly data beginning with January 1973 are available in the Excel files, CSV files, API files, and in the data browser.

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**Annual data from 1949:** In 2013, EIA expanded the MER to incorporate annual data as far back as 1949 in those data tables that were previously published in both the *Annual Energy Review (AER*) and MER. The last edition of the AER was released in September 2012 with 2011 data. Annual data beginning in 1949 for many related supplemental data series that are not found in the MER are available at http://www.eia.gov/totalenergy/data/annual.

## Electronic access

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**Released:** November 21, 2017

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# Monthly Energy Review

# November 2017

**U.S. Energy Information Administration**
Office of Energy Statistics
U.S. Department of Energy
Washington, DC 20585

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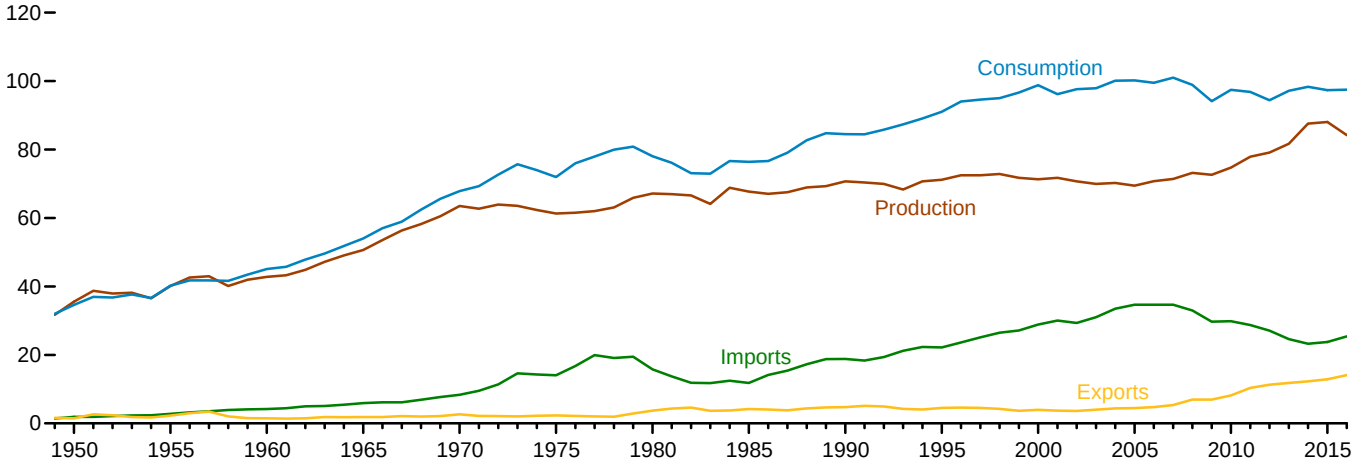
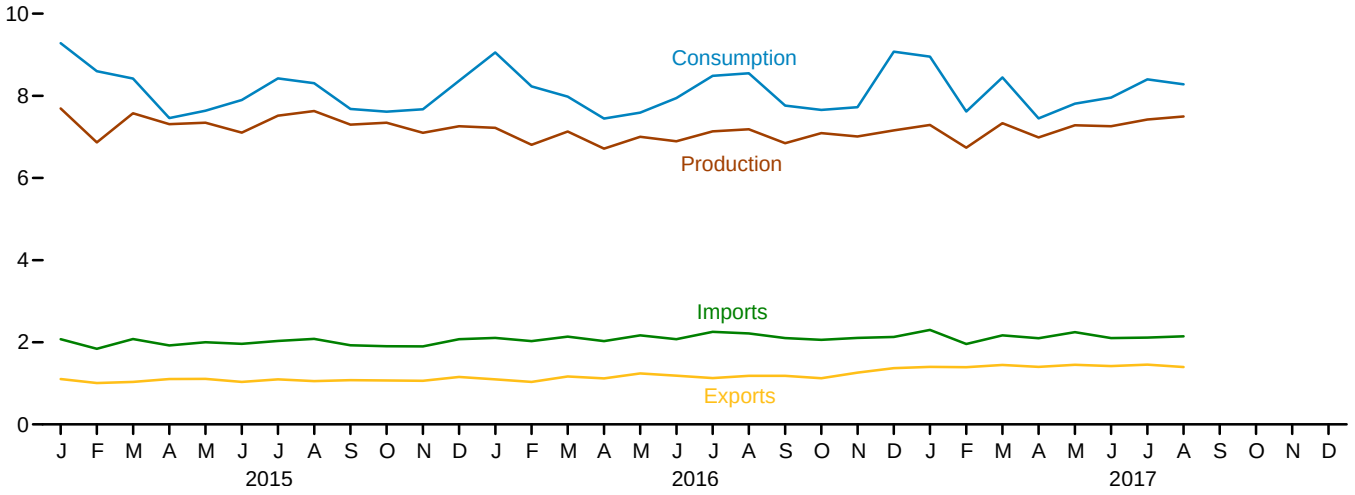
# 1. Energy Overview

## Figure 1.1 Primary Energy Overview
(Quadrillion Btu)

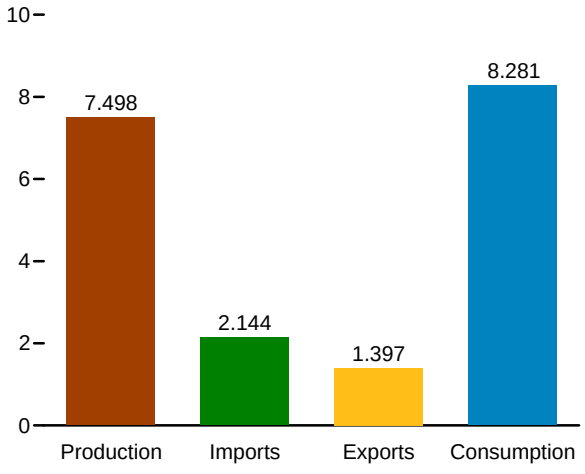
Overview, 1949–2016



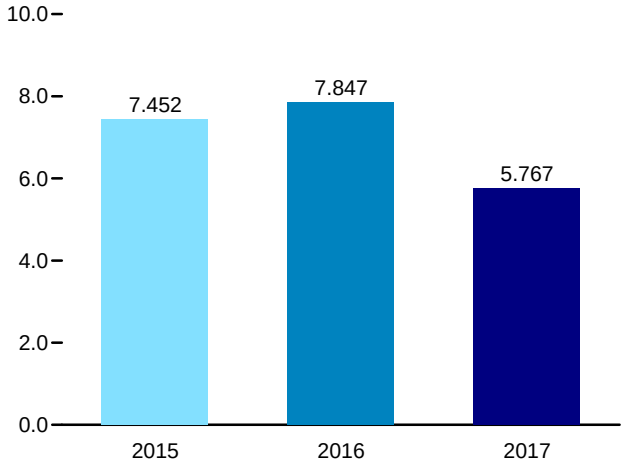

Overview, Monthly




Overview, August 2017




Net Imports, January–August




Web Page: http://www.eia.gov/totalenergy/data/monthly/#summary.
Source: Table 1.1.

# Table 1.1 Primary Energy Overview

(Quadrillion Btu)

| | Production | | | | Trade | | | Stock Change and Other[d] | Consumption | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Fossil Fuels[a] | Nuclear Electric Power | Renewable Energy[b] | Total | Imports | Exports | Net Imports[c] | | Fossil Fuels[e] | Nuclear Electric Power | Renewable Energy[b] | Total[f] |
| **1950 Total** | **32.563** | **0.000** | **2.978** | **35.540** | **1.913** | **1.465** | **0.448** | **-1.372** | **31.632** | **0.000** | **2.978** | **34.616** |
| **1955 Total** | **37.364** | **.000** | **2.784** | **40.148** | **2.790** | **2.286** | **.504** | **-.444** | **37.410** | **.000** | **2.784** | **40.208** |
| **1960 Total** | **39.869** | **.006** | **2.928** | **42.803** | **4.188** | **1.477** | **2.710** | **-.427** | **42.137** | **.006** | **2.928** | **45.086** |
| **1965 Total** | **47.235** | **.043** | **3.396** | **50.674** | **5.892** | **1.829** | **4.063** | **-.722** | **50.577** | **.043** | **3.396** | **54.015** |
| **1970 Total** | **59.186** | **.239** | **4.070** | **63.495** | **8.342** | **2.632** | **5.709** | **-1.367** | **63.522** | **.239** | **4.070** | **67.838** |
| **1975 Total** | **54.733** | **1.900** | **4.687** | **61.320** | **14.032** | **2.323** | **11.709** | **-1.065** | **65.357** | **1.900** | **4.687** | **71.965** |
| **1980 Total** | **59.008** | **2.739** | **5.428** | **67.175** | **15.796** | **3.695** | **12.101** | **-1.210** | **69.828** | **2.739** | **5.428** | **78.067** |
| **1985 Total** | **57.539** | **4.076** | **6.084** | **67.698** | **11.781** | **4.196** | **7.584** | **1.110** | **66.093** | **4.076** | **6.084** | **76.392** |
| **1990 Total** | **58.560** | **6.104** | **6.040** | **70.704** | **18.817** | **4.752** | **14.065** | **-.284** | **72.332** | **6.104** | **6.040** | **84.484** |
| **1995 Total** | **57.540** | **7.075** | **6.557** | **71.173** | **22.180** | **4.496** | **17.684** | **2.174** | **77.262** | **7.075** | **6.559** | **91.031** |
| **2000 Total** | **57.366** | **7.862** | **6.102** | **71.330** | **28.865** | **3.962** | **24.904** | **2.583** | **84.735** | **7.862** | **6.104** | **98.817** |
| **2001 Total** | **58.541** | **8.029** | **5.162** | **71.732** | **30.052** | **3.731** | **26.321** | **-1.883** | **82.906** | **8.029** | **5.160** | **96.170** |
| **2002 Total** | **56.834** | **8.145** | **5.731** | **70.710** | **29.331** | **3.608** | **25.722** | **1.211** | **83.700** | **8.145** | **5.726** | **97.643** |
| **2003 Total** | **56.033** | **7.960** | **5.942** | **69.935** | **31.007** | **4.013** | **26.994** | **.989** | **83.992** | **7.960** | **5.944** | **97.918** |
| **2004 Total** | **55.942** | **8.223** | **6.063** | **70.228** | **33.492** | **4.351** | **29.141** | **.721** | **85.754** | **8.223** | **6.075** | **100.090** |
| **2005 Total** | **55.049** | **8.161** | **6.221** | **69.431** | **34.659** | **4.462** | **30.197** | **.560** | **85.709** | **8.161** | **6.233** | **100.188** |
| **2006 Total** | **55.934** | **8.215** | **6.586** | **70.735** | **34.649** | **4.727** | **29.921** | **-1.171** | **84.570** | **8.215** | **6.637** | **99.485** |
| **2007 Total** | **56.429** | **8.459** | **6.510** | **71.398** | **34.679** | **5.338** | **29.341** | **.276** | **85.927** | **8.459** | **6.523** | **101.015** |
| **2008 Total** | **57.583** | **8.426** | **7.191** | **73.200** | **32.970** | **6.949** | **26.021** | **-.331** | **83.178** | **8.426** | **7.174** | **98.891** |
| **2009 Total** | **56.660** | **8.355** | **7.620** | **72.636** | **29.690** | **6.920** | **22.770** | **-1.288** | **78.042** | **8.355** | **7.604** | **94.118** |
| **2010 Total** | **58.216** | **8.434** | **8.077** | **74.728** | **29.866** | **8.176** | **21.690** | **1.027** | **80.891** | **8.434** | **8.030** | **97.444** |
| **2011 Total** | **60.543** | **8.269** | **9.095** | **77.907** | **28.748** | **10.373** | **18.375** | **.564** | **79.452** | **8.269** | **8.999** | **96.847** |
| **2012 Total** | **62.324** | **8.062** | **8.743** | **79.129** | **27.068** | **11.267** | **15.801** | **-.518** | **77.482** | **8.062** | **8.706** | **94.412** |
| **2013 Total** | **64.199** | **8.244** | **9.250** | **81.693** | **24.623** | **11.788** | **12.835** | **2.636** | **79.446** | **8.244** | **9.276** | **97.164** |
| **2014 Total** | **69.631** | **8.338** | **9.607** | **87.575** | **23.241** | **12.270** | **10.971** | **-.224** | **80.233** | **8.338** | **9.570** | **98.323** |
| **2015** January | 6.108 | .777 | .808 | 7.693 | 2.075 | 1.103 | .972 | .614 | 7.692 | .777 | .793 | 9.280 |
| February | 5.449 | .664 | .753 | 6.866 | 1.840 | 1.006 | .834 | .901 | 7.174 | .664 | .748 | 8.601 |
| March | 6.082 | .675 | .817 | 7.574 | 2.079 | 1.035 | 1.044 | -.195 | 6.915 | .675 | .813 | 8.422 |
| April | 5.872 | .625 | .814 | 7.311 | 1.922 | 1.105 | .816 | -.669 | 6.001 | .625 | .812 | 7.458 |
| May | 5.849 | .688 | .807 | 7.345 | 2.000 | 1.110 | .890 | -.595 | 6.122 | .688 | .808 | 7.639 |
| June | 5.614 | .717 | .773 | 7.103 | 1.963 | 1.032 | .930 | -.137 | 6.385 | .717 | .775 | 7.897 |
| July | 5.971 | .747 | .798 | 7.516 | 2.032 | 1.095 | .937 | -.027 | 6.858 | .747 | .799 | 8.425 |
| August | 6.100 | .757 | .772 | 7.629 | 2.082 | 1.054 | 1.028 | -.348 | 6.754 | .757 | .776 | 8.309 |
| September | 5.882 | .695 | .723 | 7.300 | 1.925 | 1.076 | .849 | -.467 | 6.237 | .695 | .730 | 7.682 |
| October | 5.956 | .633 | .755 | 7.344 | 1.901 | 1.070 | .832 | -.563 | 6.208 | .633 | .755 | 7.612 |
| November | 5.661 | .630 | .807 | 7.098 | 1.899 | 1.060 | .839 | -.265 | 6.220 | .630 | .804 | 7.672 |
| December | 5.670 | .728 | .862 | 7.260 | 2.076 | 1.156 | .920 | .186 | 6.763 | .728 | .857 | 8.366 |
| **Total** | **70.213** | **8.337** | **9.487** | **88.037** | **23.794** | **12.902** | **10.892** | **-1.566** | **79.328** | **8.337** | **9.471** | **97.363** |
| **2016** January | 5.600 | .758 | .862 | 7.220 | 2.105 | 1.097 | 1.008 | .828 | 7.433 | .758 | .843 | 9.056 |
| February | 5.269 | .686 | .852 | 6.808 | 2.029 | 1.036 | .993 | .428 | 6.682 | .686 | .843 | 8.229 |
| March | 5.514 | .692 | .925 | 7.130 | 2.137 | 1.165 | .972 | -.122 | 6.355 | .692 | .916 | 7.981 |
| April | 5.187 | .652 | .876 | 6.715 | 2.028 | 1.122 | .907 | -.174 | 5.911 | .652 | .870 | 7.448 |
| May | 5.418 | .696 | .888 | 7.002 | 2.168 | 1.241 | .927 | -.337 | 5.991 | .696 | .885 | 7.591 |
| June | 5.346 | .703 | .846 | 6.895 | 2.073 | 1.187 | .886 | .165 | 6.380 | .703 | .840 | 7.946 |
| July | 5.543 | .736 | .858 | 7.137 | 2.256 | 1.129 | 1.126 | .222 | 6.866 | .736 | .858 | 8.485 |
| August | 5.631 | .748 | .805 | 7.184 | 2.213 | 1.184 | 1.029 | .336 | 6.973 | .748 | .804 | 8.549 |
| September | 5.388 | .684 | .774 | 6.847 | 2.103 | 1.183 | .920 | -.006 | 6.284 | .684 | .774 | 7.761 |
| October | 5.638 | .635 | .820 | 7.093 | 2.059 | 1.123 | .937 | -.374 | 6.188 | .635 | .815 | 7.655 |
| November | 5.511 | .682 | .818 | 7.010 | 2.107 | 1.260 | .847 | -.136 | 6.203 | .682 | .816 | 7.722 |
| December | 5.501 | .749 | .910 | 7.160 | 2.130 | 1.367 | .763 | 1.151 | 7.401 | .749 | .901 | 9.074 |
| **Total** | **65.546** | **8.422** | **10.233** | **84.201** | **25.408** | **14.094** | **11.314** | **1.982** | **78.668** | **8.422** | **10.164** | **97.496** |
| **2017** January | R 5.605 | .765 | .922 | R 7.292 | 2.301 | 1.399 | .902 | R .762 | 7.277 | .765 | .897 | 8.955 |
| February | 5.200 | .670 | .868 | R 6.738 | 1.957 | 1.392 | .565 | R .316 | 6.085 | .670 | .852 | 7.619 |
| March | 5.631 | .681 | 1.023 | R 7.335 | 2.169 | 1.447 | .722 | .391 | 6.745 | .681 | 1.010 | 8.448 |
| April | 5.405 | .593 | .988 | 6.987 | 2.099 | 1.402 | .697 | -.233 | 5.859 | .593 | .983 | 7.450 |
| May | 5.626 | .641 | 1.014 | 7.281 | 2.247 | 1.451 | .795 | -.268 | 6.141 | .641 | 1.013 | 7.809 |
| June | R 5.583 | .701 | .974 | R 7.258 | 2.103 | 1.421 | .681 | R .019 | R 6.266 | .701 | .975 | 7.958 |
| July | 5.772 | .746 | .905 | R 7.423 | 2.114 | 1.457 | .657 | R .320 | R 6.733 | .746 | .902 | R 8.400 |
| August | 5.899 | .757 | .842 | 7.498 | 2.144 | 1.397 | .747 | .036 | 6.669 | .757 | .836 | 8.281 |
| **8-Month Total** | **44.722** | **5.553** | **7.536** | **57.811** | **17.133** | **11.367** | **5.767** | **1.343** | **51.776** | **5.553** | **7.467** | **64.921** |
| **2016 8-Month Total** | **43.508** | **5.671** | **6.911** | **56.091** | **17.009** | **9.162** | **7.847** | **1.346** | **52.592** | **5.671** | **6.859** | **65.284** |
| **2015 8-Month Total** | **47.045** | **5.650** | **6.340** | **59.035** | **15.992** | **8.540** | **7.452** | **-.456** | **53.900** | **5.650** | **6.325** | **66.031** |

[a] Coal, natural gas (dry), crude oil, and natural gas plant liquids.
[b] See Tables 10.1–10.2c for notes on series components and estimation; and see Note, "Renewable Energy Production and Consumption," at end of Section 10.
[c] Net imports equal imports minus exports.
[d] Includes petroleum stock change and adjustments; natural gas net storage withdrawals and balancing item; coal stock change, losses, and unaccounted for; fuel ethanol stock change; and biodiesel stock change and balancing item.
[e] Coal, coal coke net imports, natural gas, and petroleum.
[f] Also includes electricity net imports.
R=Revised.

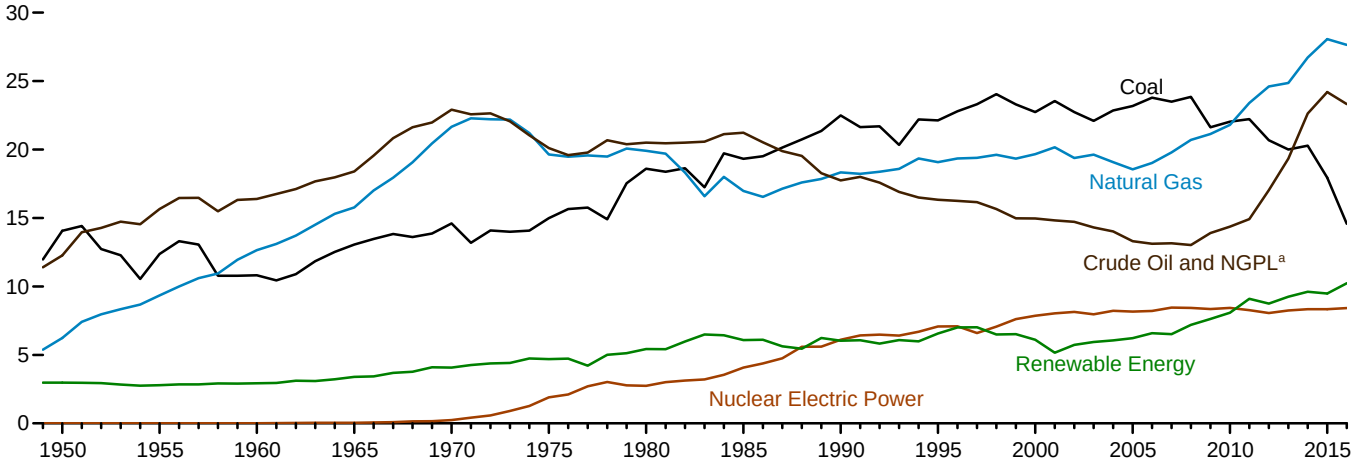
Notes: • See "Primary Energy," "Primary Energy Production," and "Primary Energy Consumption," in Glossary. • Totals may not equal sum of components due to independent rounding. • Geographic coverage is the 50 states and the District of Columbia.

Web Page: See http://www.eia.gov/totalenergy/data/monthly/#summary (Excel and CSV files) for all available annual data beginning in 1949 and monthly data beginning in 1973.

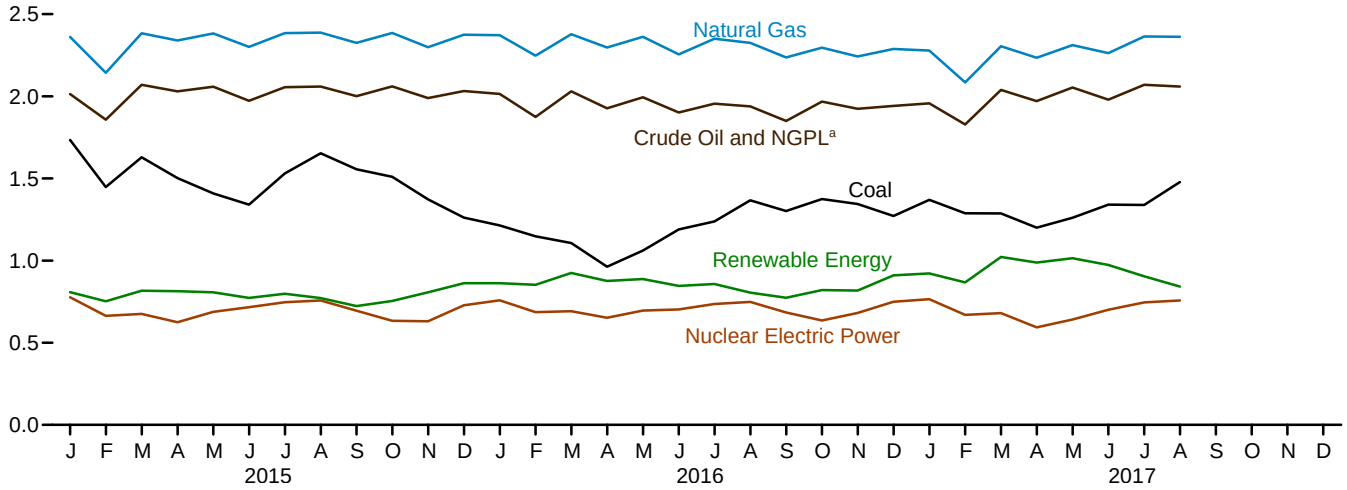
Sources: • **Production:** Table 1.2. • **Trade:** Tables 1.4a and 1.4b. • **Stock Change and Other:** Calculated as consumption minus production and net imports. • **Consumption:** Table 1.3.

## Figure 1.2 Primary Energy Production
(Quadrillion Btu)

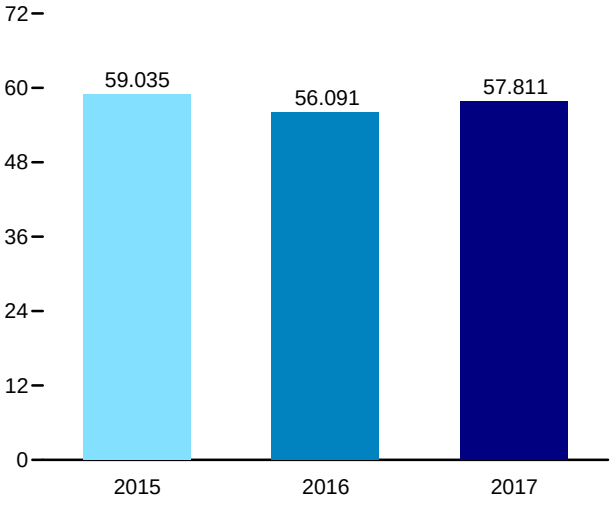
By Source, 1949–2016



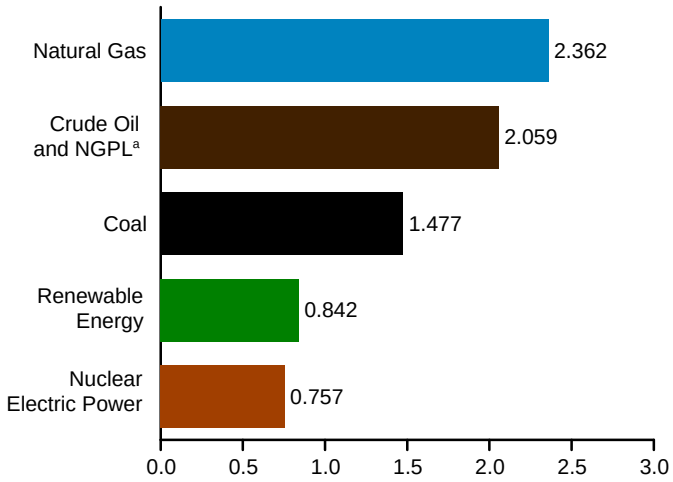

By Source, Monthly




Total, January–August




By Source, August 2017




[a] Natural gas plant liquids.
Web Page: http://www.eia.gov/totalenergy/data/monthly/#summary.
Source: Table 1.2.

## Table 1.2 Primary Energy Production by Source

(Quadrillion Btu)

| | Fossil Fuels | | | | | Nuclear Electric Power | Renewable Energy[a] | | | | | | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Coal[b] | Natural Gas (Dry) | Crude Oil[c] | NGPL[d] | Total | | Hydro-electric Power[e] | Geo-thermal | Solar | Wind | Bio-mass | Total | |
| **1950 Total** | **14.060** | **6.233** | **11.447** | **0.823** | **32.563** | **0.000** | **1.415** | **NA** | **NA** | **NA** | **1.562** | **2.978** | **35.540** |
| **1955 Total** | **12.370** | **9.345** | **14.410** | **1.240** | **37.364** | **.000** | **1.360** | **NA** | **NA** | **NA** | **1.424** | **2.784** | **40.148** |
| **1960 Total** | **10.817** | **12.656** | **14.935** | **1.461** | **39.869** | **.006** | **1.608** | **(s)** | **NA** | **NA** | **1.320** | **2.928** | **42.803** |
| **1965 Total** | **13.055** | **15.775** | **16.521** | **1.883** | **47.235** | **.043** | **2.059** | **.002** | **NA** | **NA** | **1.335** | **3.396** | **50.674** |
| **1970 Total** | **14.607** | **21.666** | **20.401** | **2.512** | **59.186** | **.239** | **2.634** | **.006** | **NA** | **NA** | **1.431** | **4.070** | **63.495** |
| **1975 Total** | **14.989** | **19.640** | **17.729** | **2.374** | **54.733** | **1.900** | **3.155** | **.034** | **NA** | **NA** | **1.499** | **4.687** | **61.320** |
| **1980 Total** | **18.598** | **19.908** | **18.249** | **2.254** | **59.008** | **2.739** | **2.900** | **.053** | **NA** | **NA** | **2.475** | **5.428** | **67.175** |
| **1985 Total** | **19.325** | **16.980** | **18.992** | **2.241** | **57.539** | **4.076** | **2.970** | **.097** | **(s)** | **(s)** | **3.016** | **6.084** | **67.698** |
| **1990 Total** | **22.488** | **18.326** | **15.571** | **2.175** | **58.560** | **6.104** | **3.046** | **.171** | **.059** | **.029** | **2.735** | **6.040** | **70.704** |
| **1995 Total** | **22.130** | **19.082** | **13.887** | **2.442** | **57.540** | **7.075** | **3.205** | **.152** | **.068** | **.033** | **3.099** | **6.557** | **71.173** |
| **2000 Total** | **22.735** | **19.662** | **12.358** | **2.611** | **57.366** | **7.862** | **2.811** | **.164** | **.063** | **.057** | **3.006** | **6.102** | **71.330** |
| **2001 Total** | **23.547** | **20.166** | **12.282** | **2.547** | **58.541** | **8.029** | **2.242** | **.164** | **.062** | **.070** | **2.624** | **5.162** | **71.732** |
| **2002 Total** | **22.732** | **19.382** | **12.160** | **2.559** | **56.834** | **8.145** | **2.689** | **.171** | **.060** | **.105** | **2.705** | **5.731** | **70.710** |
| **2003 Total** | **22.094** | **19.633** | **11.960** | **2.346** | **56.033** | **7.960** | **2.793** | **.173** | **.058** | **.113** | **2.805** | **5.942** | **69.935** |
| **2004 Total** | **22.852** | **19.074** | **11.550** | **2.466** | **55.942** | **8.223** | **2.688** | **.178** | **.058** | **.142** | **2.996** | **6.063** | **70.228** |
| **2005 Total** | **23.185** | **18.556** | **10.974** | **2.334** | **55.049** | **8.161** | **2.703** | **.181** | **.058** | **.178** | **3.101** | **6.221** | **69.431** |
| **2006 Total** | **23.790** | **19.022** | **10.767** | **2.356** | **55.934** | **8.215** | **2.869** | **.181** | **.061** | **.264** | **3.212** | **6.586** | **70.735** |
| **2007 Total** | **23.493** | **19.786** | **10.741** | **2.409** | **56.429** | **8.459** | **2.446** | **.186** | **.065** | **.341** | **3.472** | **6.510** | **71.398** |
| **2008 Total** | **23.851** | **20.703** | **10.609** | **2.419** | **57.583** | **8.426** | **2.511** | **.192** | **.074** | **.546** | **3.868** | **7.191** | **73.200** |
| **2009 Total** | **21.624** | **21.139** | **11.323** | **2.574** | **56.660** | **8.355** | **2.669** | **.200** | **.078** | **.721** | **3.953** | **7.620** | **72.636** |
| **2010 Total** | **22.038** | **21.806** | **11.591** | **2.781** | **58.216** | **8.434** | **2.539** | **.208** | **.090** | **.923** | **4.316** | **8.077** | **74.728** |
| **2011 Total** | **22.221** | **23.406** | **11.946** | **2.970** | **60.543** | **8.269** | **3.103** | **.212** | **.111** | **1.168** | **4.501** | **9.095** | **77.907** |
| **2012 Total** | **20.677** | **24.610** | **13.791** | **3.246** | **62.324** | **8.062** | **2.629** | **.212** | **.157** | **1.340** | **4.406** | **8.743** | **79.129** |
| **2013 Total** | **20.001** | **24.859** | **15.806** | **3.532** | **64.199** | **8.244** | **2.562** | **.214** | **.225** | **1.601** | **4.647** | **9.250** | **81.693** |
| **2014 Total** | **20.286** | **26.718** | **18.531** | **4.096** | **69.631** | **8.338** | **2.467** | **.214** | **.337** | **1.728** | **4.861** | **9.607** | **87.575** |
| **2015** January | 1.734 | 2.361 | 1.659 | .355 | 6.108 | .777 | .225 | .018 | .021 | .141 | .403 | .808 | 7.693 |
| February | 1.448 | 2.143 | 1.527 | .331 | 5.449 | .664 | .208 | .017 | .025 | .139 | .364 | .753 | 6.866 |
| March | 1.628 | 2.383 | 1.694 | .376 | 6.082 | .675 | .226 | .018 | .035 | .143 | .395 | .817 | 7.574 |
| April | 1.502 | 2.340 | 1.651 | .379 | 5.872 | .625 | .209 | .017 | .040 | .167 | .381 | .814 | 7.311 |
| May | 1.409 | 2.383 | 1.671 | .387 | 5.849 | .688 | .188 | .018 | .043 | .160 | .398 | .807 | 7.345 |
| June | 1.341 | 2.301 | 1.600 | .373 | 5.614 | .717 | .190 | .017 | .043 | .125 | .397 | .773 | 7.103 |
| July | 1.531 | 2.385 | 1.666 | .389 | 5.971 | .747 | .196 | .018 | .045 | .127 | .411 | .798 | 7.516 |
| August | 1.654 | 2.388 | 1.662 | .397 | 6.100 | .757 | .178 | .018 | .045 | .122 | .408 | .772 | 7.629 |
| September | 1.555 | 2.325 | 1.615 | .386 | 5.882 | .695 | .150 | .016 | .039 | .130 | .387 | .723 | 7.300 |
| October | 1.510 | 2.385 | 1.655 | .405 | 5.956 | .633 | .155 | .018 | .034 | .153 | .395 | .755 | 7.344 |
| November | 1.373 | 2.298 | 1.596 | .393 | 5.661 | .630 | .180 | .018 | .030 | .183 | .396 | .807 | 7.098 |
| December | 1.262 | 2.375 | 1.636 | .397 | 5.670 | .728 | .216 | .018 | .027 | .187 | .414 | .862 | 7.260 |
| **Total** | **17.946** | **28.067** | **19.632** | **4.567** | **70.213** | **8.337** | **2.321** | **.212** | **.426** | **1.777** | **4.751** | **9.487** | **88.037** |
| **2016** January | 1.214 | E 2.372 | E 1.630 | .385 | 5.600 | .758 | .237 | .019 | .027 | .173 | .406 | .862 | 7.220 |
| February | 1.148 | E 2.247 | E 1.511 | .363 | 5.269 | .686 | .225 | .018 | .038 | .188 | .384 | .852 | 6.808 |
| March | 1.107 | E 2.377 | E 1.620 | .409 | 5.514 | .692 | .252 | .019 | .045 | .205 | .404 | .925 | 7.130 |
| April | .963 | E 2.297 | E 1.529 | .398 | 5.187 | .652 | .237 | .018 | .050 | .193 | .378 | .876 | 6.715 |
| May | 1.061 | E 2.363 | E 1.571 | .423 | 5.418 | .696 | .236 | .019 | .058 | .175 | .399 | .888 | 7.002 |
| June | 1.189 | E 2.255 | E 1.494 | .408 | 5.346 | .703 | .213 | .018 | .059 | .152 | .404 | .846 | 6.895 |
| July | 1.238 | E 2.350 | E 1.540 | .415 | 5.543 | .736 | .198 | .019 | .064 | .164 | .413 | .858 | 7.137 |
| August | 1.367 | E 2.325 | E 1.546 | .393 | 5.631 | .748 | .180 | .019 | .062 | .126 | .417 | .805 | 7.184 |
| September | 1.302 | E 2.237 | E 1.468 | .382 | 5.388 | .684 | .152 | .019 | .057 | .153 | .394 | .774 | 6.847 |
| October | 1.374 | E 2.296 | E 1.559 | .408 | 5.638 | .635 | .161 | .019 | .050 | .190 | .400 | .820 | 7.093 |
| November | 1.344 | E 2.242 | E 1.524 | .401 | 5.511 | .682 | .175 | .019 | .042 | .180 | .402 | .818 | 7.010 |
| December | 1.271 | E 2.288 | E 1.556 | .386 | 5.501 | .749 | .210 | .020 | .037 | .214 | .428 | .910 | 7.160 |
| **Total** | **14.578** | **E 27.649** | **E** 18.548 | **4.770** | **65.546** | **8.422** | **2.477** | **.226** | **.587** | **2.114** | **4.829** | **10.233** | **84.201** |
| **2017** January | 1.369 | E 2.278 | E 1.570 | .387 | R 5.605 | .765 | .258 | .020 | .036 | .190 | .418 | .922 | R 7.292 |
| February | 1.288 | E 2.084 | E 1.453 | .375 | 5.200 | .670 | .229 | .018 | .041 | .202 | .377 | .868 | R 6.738 |
| March | 1.287 | E 2.305 | E 1.620 | .420 | 5.631 | .681 | .281 | .020 | .066 | .239 | .417 | 1.023 | R 7.335 |
| April | 1.200 | E 2.235 | E 1.566 | .405 | 5.405 | .593 | .272 | .019 | .072 | .237 | .388 | .988 | 6.987 |
| May | 1.260 | E 2.312 | E 1.625 | .428 | 5.626 | .641 | .299 | .019 | .084 | .208 | .405 | 1.014 | 7.281 |
| June | 1.341 | RE 2.263 | RE 1.561 | .418 | R 5.583 | .701 | .286 | .018 | .088 | .181 | .400 | .974 | R 7.258 |
| July | 1.338 | RE 2.364 | RE 1.638 | .432 | 5.772 | .746 | .244 | .019 | .083 | .146 | .412 | .905 | R 7.423 |
| August | 1.477 | E 2.362 | E 1.632 | .426 | 5.899 | .757 | .199 | .019 | .081 | .122 | .421 | .842 | 7.498 |
| **8-Month Total** | **10.561** | **E 18.204** | **E 12.665** | **3.292** | **44.722** | **5.553** | **2.070** | **.152** | **.550** | **1.525** | **3.239** | **7.536** | **57.811** |
| **2016 8-Month Total** | **9.287** | **E 18.587** | **E 12.441** | **3.194** | **43.508** | **5.671** | **1.779** | **.148** | **.402** | **1.377** | **3.205** | **6.911** | **56.091** |
| **2015 8-Month Total** | **12.245** | **18.683** | **13.130** | **2.987** | **47.045** | **5.650** | **1.620** | **.142** | **.296** | **1.124** | **3.158** | **6.340** | **59.035** |

[a] Most data are estimates. See Tables 10.1–10.2c for notes on series components and estimation; and see Note, "Renewable Energy Production and Consumption," at end of Section 10.

[b] Beginning in 1989, includes waste coal supplied. Beginning in 2001, also includes a small amount of refuse recovery. See Table 6.1.

[c] Includes lease condensate.

[d] Natural gas plant liquids.

[e] Conventional hydroelectric power.

R=Revised. E=Estimate. NA=Not available. (s)=Less than 0.5 trillion Btu.

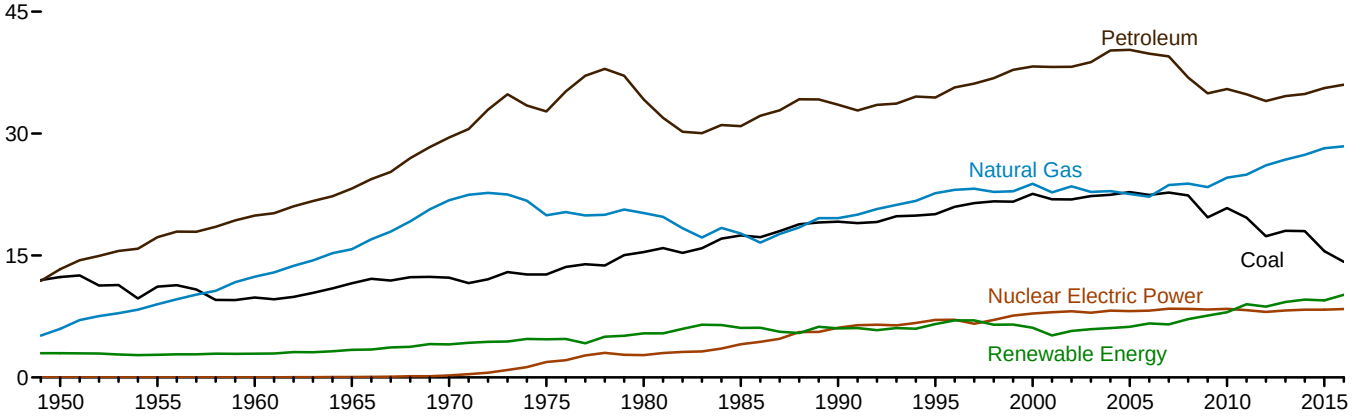
Notes: • See "Primary Energy Production" in Glossary. • Totals may not equal sum of components due to independent rounding. • Geographic coverage is the 50 states and the District of Columbia.

Web Page: See http://www.eia.gov/totalenergy/data/monthly/#summary (Excel and CSV files) for all available annual data beginning in 1949 and monthly data beginning in 1973.

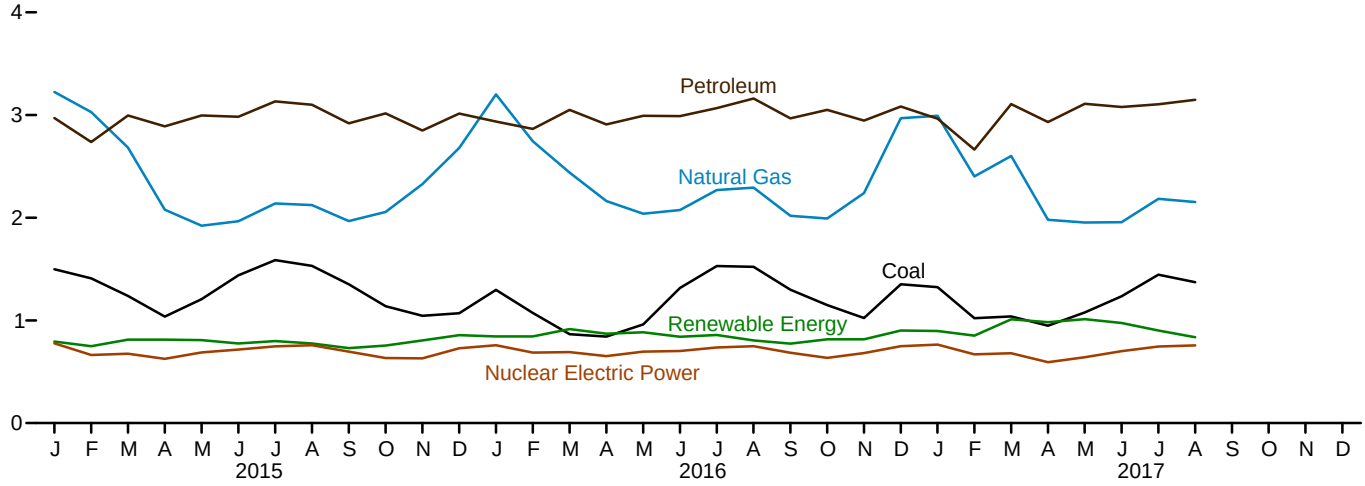
Sources: See end of section.

## Figure 1.3 Primary Energy Consumption
(Quadrillion Btu)

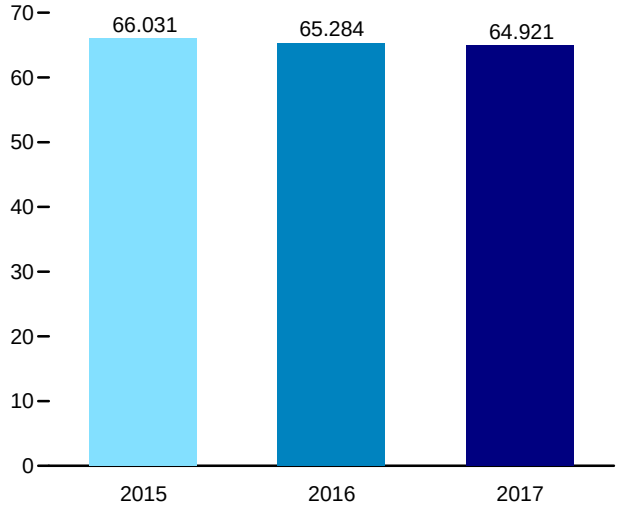
By Source,[a] 1949–2016



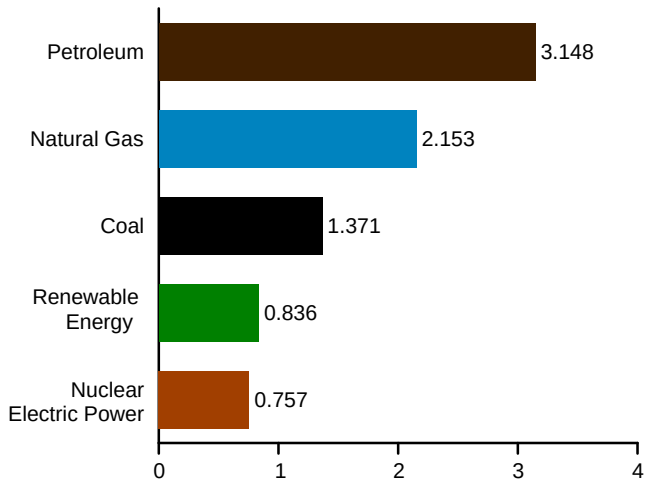

By Source,[a] Monthly




Total, January–August




By Source,[a] August 2017




[a] Small quantities of net imports of coal coke and electricity are not shown.
Web Page: http://www.eia.gov/totalenergy/data/monthly/#summary.
Source: Table 1.3.

# Table 1.3 Primary Energy Consumption by Source

(Quadrillion Btu)

| | Fossil Fuels[a] | | | | | Renewable Energy[b] | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Coal | Natural Gas[c] | Petroleum[d] | Total[e] | Nuclear Electric Power | Hydroelectric Power[f] | Geothermal | Solar | Wind | Biomass | Total | Total[g] |
| **1950 Total** | **12.347** | **5.968** | **13.315** | **31.632** | **0.000** | **1.415** | **NA** | **NA** | **NA** | **1.562** | **2.978** | **34.616** |
| **1955 Total** | **11.167** | **8.998** | **17.255** | **37.410** | **.000** | **1.360** | **NA** | **NA** | **NA** | **1.424** | **2.784** | **40.208** |
| **1960 Total** | **9.838** | **12.385** | **19.919** | **42.137** | **.006** | **1.608** | **(s)** | **NA** | **NA** | **1.320** | **2.928** | **45.086** |
| **1965 Total** | **11.581** | **15.769** | **23.246** | **50.577** | **.043** | **2.059** | **.002** | **NA** | **NA** | **1.335** | **3.396** | **54.015** |
| **1970 Total** | **12.265** | **21.795** | **29.521** | **63.522** | **.239** | **2.634** | **.006** | **NA** | **NA** | **1.431** | **4.070** | **67.838** |
| **1975 Total** | **12.663** | **19.948** | **32.732** | **65.357** | **1.900** | **3.155** | **.034** | **NA** | **NA** | **1.499** | **4.687** | **71.965** |
| **1980 Total** | **15.423** | **20.235** | **34.205** | **69.828** | **2.739** | **2.900** | **.053** | **NA** | **NA** | **2.475** | **5.428** | **78.067** |
| **1985 Total** | **17.478** | **17.703** | **30.925** | **66.093** | **4.076** | **2.970** | **.097** | **(s)** | **(s)** | **3.016** | **6.084** | **76.392** |
| **1990 Total** | **19.173** | **19.603** | **33.552** | **72.332** | **6.104** | **3.046** | **.171** | **.059** | **.029** | **2.735** | **6.040** | **84.484** |
| **1995 Total** | **20.089** | **22.671** | **34.441** | **77.262** | **7.075** | **3.205** | **.152** | **.068** | **.033** | **3.101** | **6.559** | **91.031** |
| **2000 Total** | **22.580** | **23.824** | **38.266** | **84.735** | **7.862** | **2.811** | **.164** | **.063** | **.057** | **3.008** | **6.104** | **98.817** |
| **2001 Total** | **21.914** | **22.773** | **38.190** | **82.906** | **8.029** | **2.242** | **.164** | **.062** | **.070** | **2.622** | **5.160** | **96.170** |
| **2002 Total** | **21.904** | **23.510** | **38.226** | **83.700** | **8.145** | **2.689** | **.171** | **.060** | **.105** | **2.701** | **5.726** | **97.643** |
| **2003 Total** | **22.321** | **22.831** | **38.790** | **83.992** | **7.960** | **2.793** | **.173** | **.058** | **.113** | **2.806** | **5.944** | **97.918** |
| **2004 Total** | **22.466** | **22.923** | **40.227** | **85.754** | **8.223** | **2.688** | **.178** | **.058** | **.142** | **3.008** | **6.075** | **100.090** |
| **2005 Total** | **22.797** | **22.565** | **40.303** | **85.709** | **8.161** | **2.703** | **.181** | **.058** | **.178** | **3.114** | **6.233** | **100.188** |
| **2006 Total** | **22.447** | **22.239** | **39.824** | **84.570** | **8.215** | **2.869** | **.181** | **.061** | **.264** | **3.262** | **6.637** | **99.485** |
| **2007 Total** | **22.749** | **23.663** | **39.489** | **85.927** | **8.459** | **2.446** | **.186** | **.065** | **.341** | **3.485** | **6.523** | **101.015** |
| **2008 Total** | **22.387** | **23.843** | **36.907** | **83.178** | **8.426** | **2.511** | **.192** | **.074** | **.546** | **3.851** | **7.174** | **98.891** |
| **2009 Total** | **19.691** | **23.416** | **34.959** | **78.042** | **8.355** | **2.669** | **.200** | **.078** | **.721** | **3.936** | **7.604** | **94.118** |
| **2010 Total** | **20.834** | **24.575** | **35.488** | **80.891** | **8.434** | **2.539** | **.208** | **.090** | **.923** | **4.270** | **8.030** | **97.444** |
| **2011 Total** | **19.658** | **24.955** | **34.828** | **79.452** | **8.269** | **3.103** | **.212** | **.111** | **1.168** | **4.405** | **8.999** | **96.847** |
| **2012 Total** | **17.378** | **26.089** | **34.012** | **77.482** | **8.062** | **2.629** | **.212** | **.157** | **1.340** | **4.369** | **8.706** | **94.412** |
| **2013 Total** | **18.039** | **26.805** | **34.619** | **79.446** | **8.244** | **2.562** | **.214** | **.225** | **1.601** | **4.673** | **9.276** | **97.164** |
| **2014 Total** | **17.998** | **27.383** | **34.874** | **80.233** | **8.338** | **2.467** | **.214** | **.337** | **1.728** | **4.825** | **9.570** | **98.323** |
| **2015** January | 1.498 | 3.225 | 2.971 | 7.692 | .777 | .225 | .018 | .021 | .141 | .388 | .793 | 9.280 |
| February | 1.409 | 3.029 | 2.738 | 7.174 | .664 | .208 | .017 | .025 | .139 | .360 | .748 | 8.601 |
| March | 1.238 | 2.682 | 2.995 | 6.915 | .675 | .226 | .018 | .035 | .143 | .391 | .813 | 8.422 |
| April | 1.037 | 2.077 | 2.889 | 6.001 | .625 | .209 | .017 | .040 | .167 | .380 | .812 | 7.458 |
| May | 1.206 | 1.922 | 2.996 | 6.122 | .688 | .188 | .018 | .043 | .160 | .400 | .808 | 7.639 |
| June | 1.439 | 1.965 | 2.984 | 6.385 | .717 | .190 | .017 | .043 | .125 | .399 | .775 | 7.897 |
| July | 1.587 | 2.139 | 3.133 | 6.858 | .747 | .196 | .018 | .045 | .127 | .413 | .799 | 8.425 |
| August | 1.531 | 2.124 | 3.100 | 6.754 | .757 | .178 | .018 | .045 | .122 | .413 | .776 | 8.309 |
| September | 1.351 | 1.967 | 2.919 | 6.237 | .695 | .150 | .016 | .039 | .130 | .394 | .730 | 7.682 |
| October | 1.138 | 2.056 | 3.016 | 6.208 | .633 | .155 | .018 | .034 | .153 | .396 | .755 | 7.612 |
| November | 1.045 | 2.327 | 2.850 | 6.220 | .630 | .180 | .018 | .030 | .183 | .393 | .804 | 7.672 |
| December | 1.070 | 2.679 | 3.015 | 6.763 | .728 | .216 | .018 | .027 | .187 | .408 | .857 | 8.366 |
| **Total** | **15.549** | **28.191** | **35.605** | **79.328** | **8.337** | **2.321** | **.212** | **.426** | **1.777** | **4.734** | **9.471** | **97.363** |
| **2016** January | 1.297 | 3.201 | 2.936 | 7.433 | .758 | .237 | .019 | .027 | .173 | .388 | .843 | 9.056 |
| February | 1.073 | 2.745 | 2.864 | 6.682 | .686 | .225 | .018 | .038 | .188 | .374 | .843 | 8.229 |
| March | .866 | 2.439 | 3.051 | 6.355 | .692 | .252 | .019 | .045 | .205 | .395 | .916 | 7.981 |
| April | .842 | 2.162 | 2.908 | 5.911 | .652 | .237 | .018 | .050 | .193 | .372 | .870 | 7.448 |
| May | .960 | 2.039 | 2.993 | 5.991 | .696 | .236 | .019 | .058 | .175 | .396 | .885 | 7.591 |
| June | 1.317 | 2.075 | 2.989 | 6.380 | .703 | .213 | .018 | .059 | .152 | .398 | .840 | 7.946 |
| July | 1.530 | 2.269 | 3.068 | 6.866 | .736 | .198 | .019 | .064 | .164 | .413 | .858 | 8.485 |
| August | 1.521 | 2.293 | 3.161 | 6.973 | .748 | .180 | .019 | .062 | .126 | .417 | .804 | 8.549 |
| September | 1.298 | 2.019 | 2.968 | 6.284 | .684 | .152 | .019 | .057 | .153 | .393 | .774 | 7.761 |
| October | 1.149 | 1.993 | 3.050 | 6.188 | .635 | .161 | .019 | .050 | .190 | .395 | .815 | 7.655 |
| November | 1.022 | 2.240 | 2.946 | 6.203 | .682 | .175 | .019 | .042 | .180 | .399 | .816 | 7.722 |
| December | 1.352 | 2.968 | 3.083 | 7.401 | .749 | .210 | .020 | .037 | .214 | .420 | .901 | 9.074 |
| **Total** | **14.227** | **28.443** | **36.017** | **78.668** | **8.422** | **2.477** | **.226** | **.587** | **2.114** | **4.760** | **10.164** | **97.496** |
| **2017** January | 1.323 | 2.993 | 2.964 | 7.277 | .765 | .258 | .020 | .036 | .190 | .394 | .897 | 8.955 |
| February | 1.022 | 2.401 | 2.663 | 6.085 | .670 | .229 | .018 | .041 | .202 | .362 | .852 | 7.619 |
| March | 1.039 | 2.602 | 3.106 | 6.745 | .681 | .281 | .020 | .066 | .239 | .404 | 1.010 | 8.448 |
| April | .949 | 1.980 | 2.932 | 5.859 | .593 | .272 | .019 | .072 | .237 | .383 | .983 | 7.450 |
| May | 1.078 | 1.953 | 3.110 | 6.141 | .641 | .299 | .019 | .084 | .208 | .403 | 1.013 | 7.809 |
| June | 1.234 | 1.956 | 3.079 | [R] 6.266 | .701 | .286 | .018 | .088 | .181 | .401 | .975 | 7.958 |
| July | 1.446 | [R] 2.183 | 3.106 | [R] 6.733 | .746 | .244 | .019 | .083 | .146 | .409 | .902 | [R] 8.400 |
| August | 1.371 | 2.153 | 3.148 | 6.669 | .757 | .199 | .019 | .081 | .122 | .414 | .836 | 8.281 |
| **8-Month Total** | **9.462** | **18.222** | **24.108** | **51.776** | **5.553** | **2.070** | **.152** | **.550** | **1.525** | **3.170** | **7.467** | **64.921** |
| **2016 8-Month Total** | **9.406** | **19.224** | **23.970** | **52.592** | **5.671** | **1.779** | **.148** | **.402** | **1.377** | **3.153** | **6.859** | **65.284** |
| **2015 8-Month Total** | **10.944** | **19.163** | **23.806** | **53.900** | **5.650** | **1.620** | **.142** | **.296** | **1.124** | **3.143** | **6.325** | **66.031** |

[a] Includes non-combustion use of fossil fuels.

[b] Most data are estimates. See Tables 10.1–10.2c for notes on series components and estimation; and see Note, "Renewable Energy Production and Consumption," at end of Section 10.

[c] Natural gas only; excludes supplemental gaseous fuels. See Note 3, "Supplemental Gaseous Fuels," at end of Section 4.

[d] Petroleum products supplied; excludes biofuels that have been blended with petroleum—biofuels are included in "Biomass."

[e] Includes coal coke net imports. See Tables 1.4a and 1.4b.

[f] Conventional hydroelectric power.

[g] Includes coal coke net imports and electricity net imports, which are not separately displayed. See Tables 1.4a and 1.4b.

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

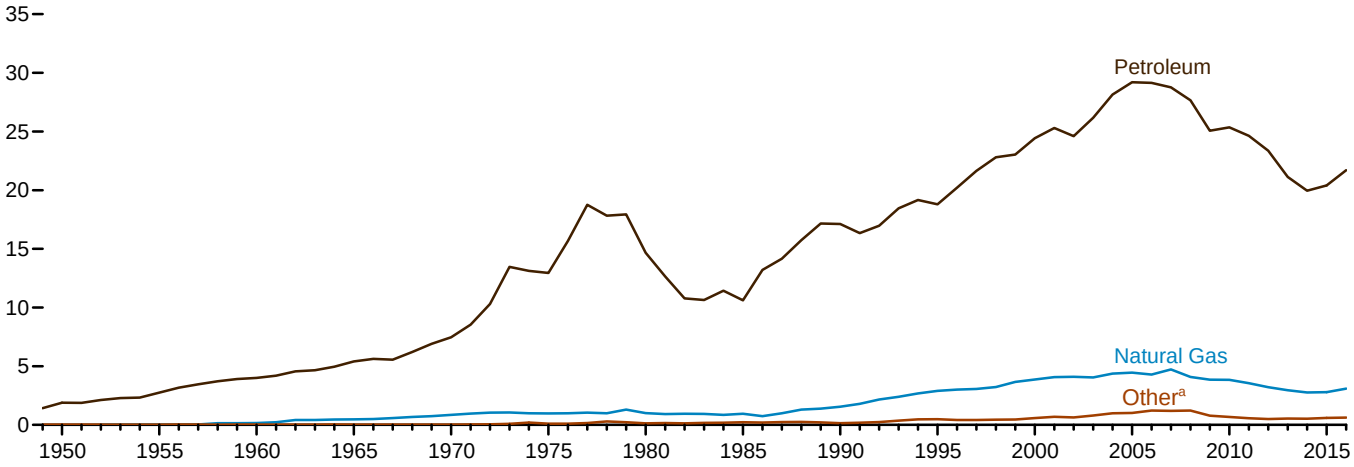
Notes: • See "Primary Energy Consumption" in Glossary. • See Table D1 for estimated energy consumption for 1635–1945. • Totals may not equal sum of components due to independent rounding. • Geographic coverage is the 50 states and the District of Columbia.

Web Page: See http://www.eia.gov/totalenergy/data/monthly/#summary (Excel and CSV files) for all available annual data beginning in 1949 and monthly data beginning in 1973.

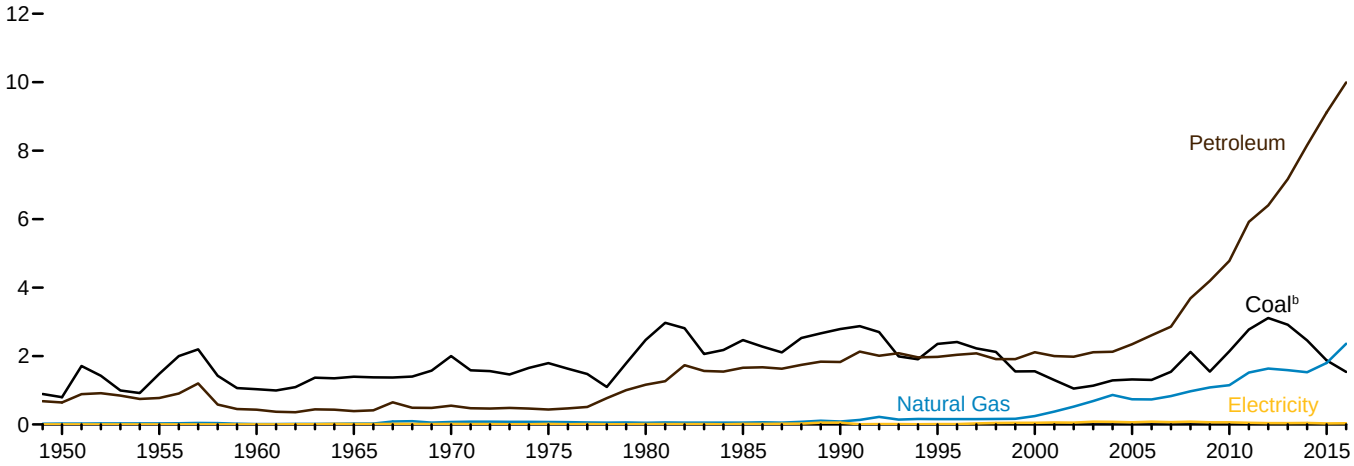
Sources: See end of section.

## Figure 1.4a Primary Energy Imports and Exports
(Quadrillion Btu)

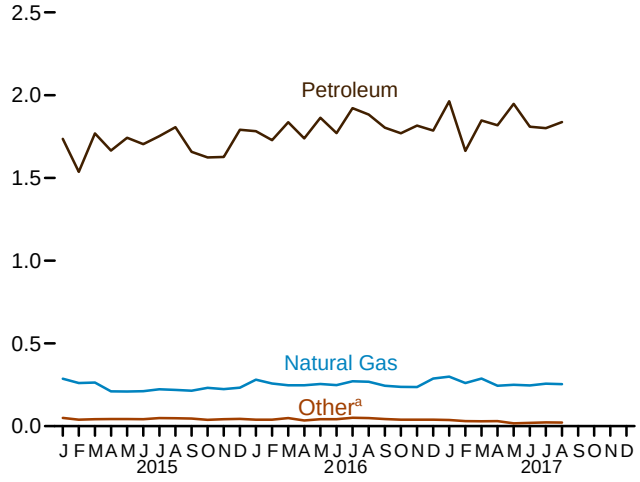
Imports by Source, 1949–2016



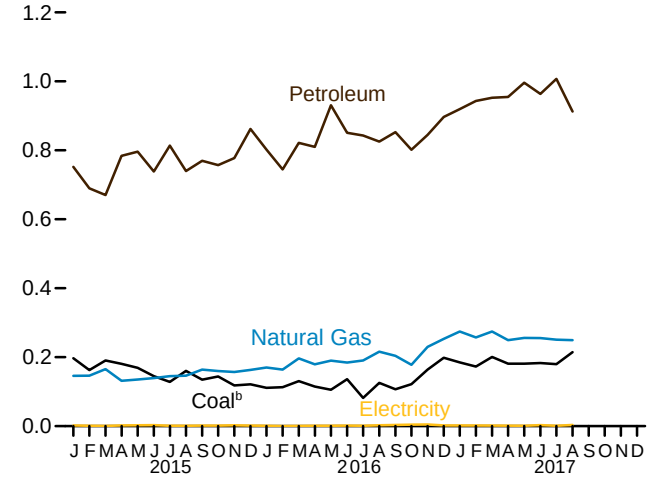

Exports by Source, 1949–2016




Imports by Source, Monthly




Exports by Major Source, Monthly



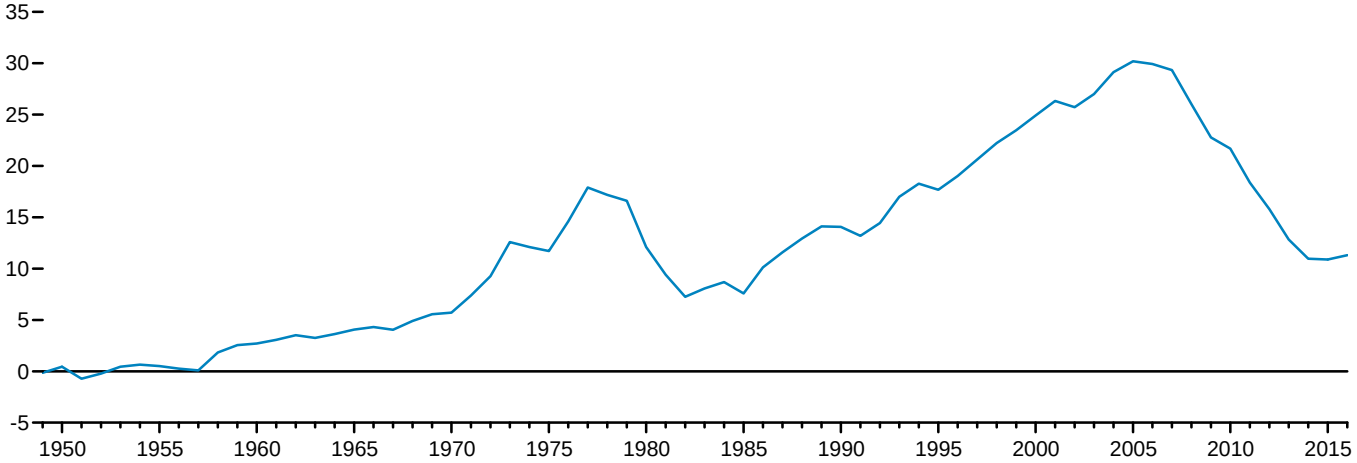

[a] Coal, coal coke, biomass, and electricity.
[b] Includes coal coke.

Web Page: http://www.eia.gov/totalenergy/data/monthly/#summary.
Sources: Tables 1.4a and 1.4b.

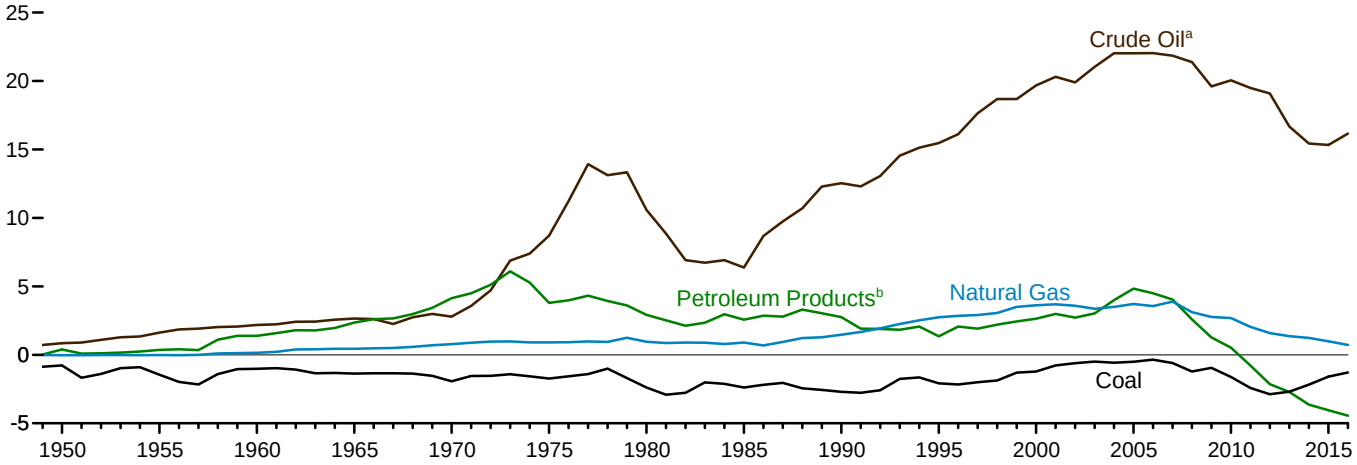
## Figure 1.4b Primary Energy Net Imports

(Quadrillion Btu)

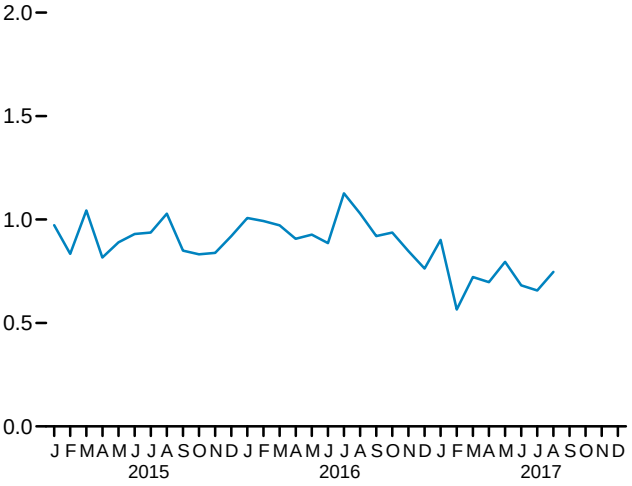
Total, 1949–2016



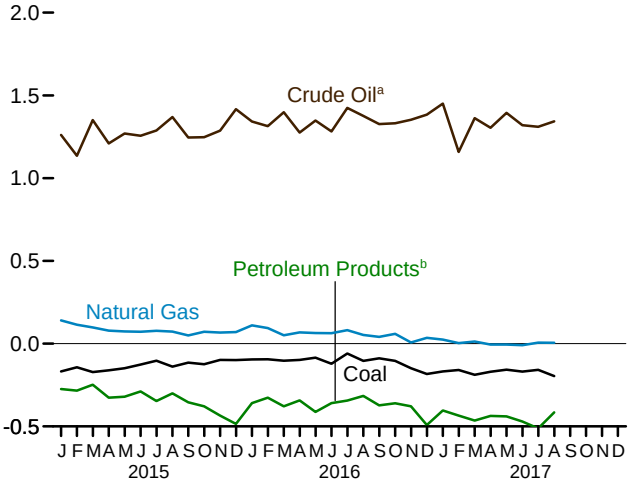

By Major Source, 1949–2016




Total, Monthly




By Major Source, Monthly




[a] Crude oil and lease condensate. Includes imports into the Strategic Petroleum Reserve, which began in 1977.

[b] Petroleum products, unfinished oils, natural gasoline, and gasoline blending components. Does not include biofuels.

Web Page: http://www.eia.gov/totalenergy/data/monthly/#summary.

Sources: Tables 1.4a and 1.4b.

## Table 1.4a Primary Energy Imports by Source

(Quadrillion Btu)

| | Imports | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Petroleum | | | | | |
| | Coal | Coal Coke | Natural Gas | Crude Oil[a] | Petroleum Products[b] | Total | Biomass[c] | Electricity | Total |
| **1950 Total** | **0.009** | **0.011** | **0.000** | **1.056** | **0.830** | **1.886** | **NA** | **0.007** | **1.913** |
| **1955 Total** | **.008** | **.003** | **.011** | **1.691** | **1.061** | **2.752** | **NA** | **.016** | **2.790** |
| **1960 Total** | **.007** | **.003** | **.161** | **2.196** | **1.802** | **3.999** | **NA** | **.018** | **4.188** |
| **1965 Total** | **.005** | **.002** | **.471** | **2.654** | **2.748** | **5.402** | **NA** | **.012** | **5.892** |
| **1970 Total** | **.001** | **.004** | **.846** | **2.814** | **4.656** | **7.470** | **NA** | **.021** | **8.342** |
| **1975 Total** | **.024** | **.045** | **.978** | **8.721** | **4.227** | **12.948** | **NA** | **.038** | **14.032** |
| **1980 Total** | **.030** | **.016** | **1.006** | **11.195** | **3.463** | **14.658** | **NA** | **.085** | **15.796** |
| **1985 Total** | **.049** | **.014** | **.952** | **6.814** | **3.796** | **10.609** | **NA** | **.157** | **11.781** |
| **1990 Total** | **.067** | **.019** | **1.551** | **12.766** | **4.351** | **17.117** | **NA** | **.063** | **18.817** |
| **1995 Total** | **.237** | **.095** | **2.901** | **15.669** | **3.131** | **18.800** | **.001** | **.146** | **22.180** |
| **2000 Total** | **.313** | **.094** | **3.869** | **19.783** | **4.641** | **24.424** | **(s)** | **.166** | **28.865** |
| **2001 Total** | **.495** | **.063** | **4.068** | **20.348** | **4.946** | **25.294** | **.002** | **.131** | **30.052** |
| **2002 Total** | **.422** | **.080** | **4.104** | **19.920** | **4.677** | **24.597** | **.002** | **.125** | **29.331** |
| **2003 Total** | **.626** | **.068** | **4.042** | **21.060** | **5.105** | **26.165** | **.002** | **.104** | **31.007** |
| **2004 Total** | **.682** | **.170** | **4.365** | **22.082** | **6.063** | **28.145** | **.013** | **.117** | **33.492** |
| **2005 Total** | **.762** | **.088** | **4.450** | **22.091** | **7.108** | **29.198** | **.012** | **.150** | **34.659** |
| **2006 Total** | **.906** | **.101** | **4.291** | **22.085** | **7.054** | **29.139** | **.066** | **.146** | **34.649** |
| **2007 Total** | **.909** | **.061** | **4.723** | **21.914** | **6.842** | **28.756** | **.055** | **.175** | **34.679** |
| **2008 Total** | **.855** | **.089** | **4.084** | **21.448** | **6.214** | **27.662** | **.085** | **.195** | **32.970** |
| **2009 Total** | **.566** | **.009** | **3.845** | **19.699** | **5.367** | **25.066** | **.027** | **.178** | **29.690** |
| **2010 Total** | **.484** | **.030** | **3.834** | **20.140** | **5.219** | **25.359** | **.004** | **.154** | **29.866** |
| **2011 Total** | **.327** | **.035** | **3.555** | **19.595** | **5.038** | **24.633** | **.019** | **.178** | **28.748** |
| **2012 Total** | **.212** | **.028** | **3.216** | **19.239** | **4.122** | **23.361** | **.049** | **.202** | **27.068** |
| **2013 Total** | **.199** | **.003** | **2.955** | **16.957** | **4.169** | **21.126** | **.102** | **.236** | **24.623** |
| **2014 Total** | **.252** | **.002** | **2.763** | **16.178** | **3.773** | **19.951** | **.046** | **.227** | **23.241** |
| **2015** January | .029 | (s) | .286 | 1.348 | .388 | 1.736 | .003 | .021 | 2.075 |
| February | .020 | (s) | .261 | 1.206 | .331 | 1.536 | .004 | .019 | 1.840 |
| March | .019 | (s) | .264 | 1.427 | .342 | 1.769 | .004 | .023 | 2.079 |
| April | .020 | (s) | .210 | 1.311 | .354 | 1.665 | .004 | .022 | 1.922 |
| May | .021 | (s) | .209 | 1.362 | .380 | 1.743 | .005 | .023 | 2.000 |
| June | .019 | (s) | .211 | 1.332 | .372 | 1.704 | .006 | .023 | 1.963 |
| July | .025 | (s) | .222 | 1.384 | .368 | 1.752 | .009 | .024 | 2.032 |
| August | .022 | (s) | .219 | 1.451 | .356 | 1.807 | .010 | .024 | 2.082 |
| September | .020 | .002 | .214 | 1.315 | .343 | 1.658 | .009 | .023 | 1.925 |
| October | .019 | (s) | .232 | 1.335 | .288 | 1.623 | .009 | .018 | 1.901 |
| November | .020 | (s) | .224 | 1.341 | .286 | 1.627 | .008 | .020 | 1.899 |
| December | .022 | .001 | .233 | 1.486 | .305 | 1.790 | .009 | .020 | 2.076 |
| **Total** | **.256** | **.003** | **2.786** | **16.299** | **4.111** | **20.410** | **.079** | **.259** | **23.794** |
| **2016** January | .016 | (s) | .280 | 1.429 | .353 | 1.782 | .003 | .024 | 2.105 |
| February | .019 | (s) | .258 | 1.389 | .339 | 1.728 | .003 | .021 | 2.029 |
| March | .027 | (s) | .247 | 1.503 | .333 | 1.837 | .005 | .022 | 2.137 |
| April | .017 | (s) | .247 | 1.382 | .357 | 1.739 | .008 | .018 | 2.028 |
| May | .021 | .001 | .255 | 1.488 | .376 | 1.864 | .008 | .021 | 2.168 |
| June | .015 | .002 | .248 | 1.373 | .398 | 1.771 | .013 | .025 | 2.073 |
| July | .022 | (s) | .272 | 1.519 | .402 | 1.921 | .012 | .028 | 2.256 |
| August | .021 | (s) | .269 | 1.504 | .379 | 1.883 | .014 | .027 | 2.213 |
| September | .018 | .002 | .244 | 1.460 | .343 | 1.804 | .012 | .023 | 2.103 |
| October | .017 | .001 | .237 | 1.420 | .350 | 1.770 | .013 | .021 | 2.059 |
| November | .016 | (s) | .237 | 1.457 | .359 | 1.816 | .015 | .023 | 2.107 |
| December | .015 | (s) | .288 | 1.467 | .319 | 1.786 | .017 | .024 | 2.130 |
| **Total** | **.223** | **.006** | **3.082** | **17.392** | **4.309** | **21.700** | **.123** | **.275** | **25.408** |
| **2017** January | .017 | (s) | .299 | 1.583 | .380 | 1.963 | .003 | .019 | 2.301 |
| February | .014 | (s) | .261 | 1.337 | .326 | 1.663 | .004 | .015 | 1.957 |
| March | .013 | (s) | .288 | 1.510 | .336 | 1.847 | .006 | .016 | 2.169 |
| April | .011 | (s) | .244 | 1.476 | .342 | 1.818 | .006 | .019 | 2.099 |
| May | .024 | (s) | .250 | 1.576 | .372 | 1.948 | .008 | .017 | 2.247 |
| June | .015 | .001 | .246 | 1.455 | .355 | 1.809 | .013 | .020 | 2.103 |
| July | .022 | (s) | .257 | 1.468 | .333 | 1.801 | .012 | .023 | 2.114 |
| August | .019 | (s) | .254 | 1.481 | .357 | 1.838 | .011 | .022 | 2.144 |
| **8-Month Total** | **.134** | **.001** | **2.099** | **11.886** | **2.800** | **14.686** | **.064** | **.151** | **17.133** |
| **2016 8-Month Total** | **.157** | **.002** | **2.075** | **11.587** | **2.937** | **14.525** | **.066** | **.184** | **17.009** |
| **2015 8-Month Total** | **.174** | **.001** | **1.883** | **10.822** | **2.890** | **13.712** | **.044** | **.178** | **15.992** |

[a] Crude oil and lease condensate. Includes imports into the Strategic Petroleum Reserve, which began in 1977.

[b] Petroleum products, unfinished oils, natural gasoline, and gasoline blending components. Does not include biofuels.

[c] Fuel ethanol (minus denaturant) and biodiesel.

NA=Not available. (s)=Less than 0.5 trillion Btu.

Notes: • See "Primary Energy" in Glossary. • Totals may not equal sum of components due to independent rounding. • Geographic coverage is the 50 states and the District of Columbia.

Web Page: See http://www.eia.gov/totalenergy/data/monthly/#summary (Excel and CSV files) for all available annual data beginning in 1949 and monthly data beginning in 1973.

Sources: See end of section.

## Table 1.4b Primary Energy Exports by Source and Total Net Imports

(Quadrillion Btu)

| | Exports | | | | | | | | | Net Imports[a] |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Petroleum | | | | | | |
| | Coal | Coal Coke | Natural Gas | Crude Oil[b] | Petroleum Products[c] | Total | Biomass[d] | Electricity | Total | Total |
| **1950 Total** | **0.786** | **0.010** | **0.027** | **0.202** | **0.440** | **0.642** | **NA** | **0.001** | **1.465** | **0.448** |
| **1955 Total** | **1.465** | **.013** | **.032** | **.067** | **.707** | **.774** | **NA** | **.002** | **2.286** | **.504** |
| **1960 Total** | **1.023** | **.009** | **.012** | **.018** | **.413** | **.431** | **NA** | **.003** | **1.477** | **2.710** |
| **1965 Total** | **1.376** | **.021** | **.027** | **.006** | **.386** | **.392** | **NA** | **.013** | **1.829** | **4.063** |
| **1970 Total** | **1.936** | **.061** | **.072** | **.029** | **.520** | **.549** | **NA** | **.014** | **2.632** | **5.709** |
| **1975 Total** | **1.761** | **.032** | **.074** | **.012** | **.427** | **.439** | **NA** | **.017** | **2.323** | **11.709** |
| **1980 Total** | **2.421** | **.051** | **.049** | **.609** | **.551** | **1.160** | **NA** | **.014** | **3.695** | **12.101** |
| **1985 Total** | **2.438** | **.028** | **.056** | **.432** | **1.225** | **1.657** | **NA** | **.017** | **4.196** | **7.584** |
| **1990 Total** | **2.772** | **.014** | **.087** | **.230** | **1.594** | **1.824** | **NA** | **.055** | **4.752** | **14.065** |
| **1995 Total** | **2.318** | **.034** | **.156** | **.200** | **1.776** | **1.976** | **NA** | **.012** | **4.496** | **17.684** |
| **2000 Total** | **1.528** | **.028** | **.245** | **.106** | **2.003** | **2.110** | **NA** | **.051** | **3.962** | **24.904** |
| **2001 Total** | **1.265** | **.033** | **.377** | **.043** | **1.956** | **1.999** | **(s)** | **.056** | **3.731** | **26.321** |
| **2002 Total** | **1.032** | **.020** | **.520** | **.019** | **1.963** | **1.982** | **(s)** | **.054** | **3.608** | **25.722** |
| **2003 Total** | **1.117** | **.018** | **.686** | **.026** | **2.083** | **2.110** | **.001** | **.082** | **4.013** | **26.994** |
| **2004 Total** | **1.253** | **.033** | **.862** | **.057** | **2.068** | **2.125** | **.001** | **.078** | **4.351** | **29.141** |
| **2005 Total** | **1.273** | **.043** | **.735** | **.067** | **2.276** | **2.344** | **.001** | **.065** | **4.462** | **30.197** |
| **2006 Total** | **1.264** | **.040** | **.730** | **.052** | **2.554** | **2.606** | **.005** | **.083** | **4.727** | **29.921** |
| **2007 Total** | **1.507** | **.036** | **.830** | **.058** | **2.803** | **2.861** | **.036** | **.069** | **5.338** | **29.341** |
| **2008 Total** | **2.071** | **.049** | **.972** | **.061** | **3.626** | **3.686** | **.089** | **.083** | **6.949** | **26.021** |
| **2009 Total** | **1.515** | **.032** | **1.082** | **.093** | **4.101** | **4.194** | **.035** | **.062** | **6.920** | **22.770** |
| **2010 Total** | **2.101** | **.036** | **1.147** | **.088** | **4.691** | **4.780** | **.047** | **.065** | **8.176** | **21.690** |
| **2011 Total** | **2.751** | **.024** | **1.519** | **.100** | **5.820** | **5.919** | **.108** | **.051** | **10.373** | **18.375** |
| **2012 Total** | **3.087** | **.024** | **1.633** | **.143** | **6.261** | **6.404** | **.078** | **.041** | **11.267** | **15.801** |
| **2013 Total** | **2.895** | **.021** | **1.587** | **.284** | **6.886** | **7.170** | **.076** | **.039** | **11.788** | **12.835** |
| **2014 Total** | **2.435** | **.023** | **1.528** | **.744** | **7.414** | **8.158** | **.081** | **.045** | **12.270** | **10.971** |
| **2015** January | .197 | .002 | .146 | .087 | .662 | .749 | .006 | .003 | 1.103 | .972 |
| February | .163 | .001 | .146 | .070 | .615 | .685 | .006 | .005 | 1.006 | .834 |
| March | .191 | .001 | .165 | .077 | .590 | .667 | .008 | .003 | 1.035 | 1.044 |
| April | .181 | .002 | .132 | .102 | .680 | .782 | .007 | .002 | 1.105 | .816 |
| May | .169 | .003 | .135 | .093 | .701 | .794 | .007 | .002 | 1.110 | .890 |
| June | .145 | .003 | .139 | .076 | .660 | .736 | .007 | .002 | 1.032 | .930 |
| July | .128 | .001 | .145 | .096 | .715 | .811 | .007 | .002 | 1.095 | .937 |
| August | .161 | .001 | .146 | .081 | .656 | .737 | .006 | .002 | 1.054 | 1.028 |
| September | .135 | .002 | .164 | .070 | .697 | .767 | .006 | .002 | 1.076 | .849 |
| October | .144 | .002 | .160 | .088 | .667 | .755 | .007 | .002 | 1.070 | .832 |
| November | .118 | .002 | .157 | .055 | .721 | .775 | .005 | .002 | 1.060 | .839 |
| December | .121 | .002 | .163 | .069 | .790 | .859 | .008 | .003 | 1.156 | .920 |
| **Total** | **1.852** | **.021** | **1.800** | **.964** | **8.153** | **9.118** | **.080** | **.031** | **12.902** | **10.892** |
| **2016** January | .111 | .001 | .170 | .087 | .713 | .800 | .013 | .002 | 1.097 | 1.008 |
| February | .113 | (s) | .164 | .075 | .666 | .742 | .014 | .003 | 1.036 | .993 |
| March | .130 | .001 | .197 | .106 | .712 | .818 | .016 | .004 | 1.165 | .972 |
| April | .115 | .001 | .179 | .107 | .699 | .807 | .016 | .003 | 1.122 | .907 |
| May | .105 | .001 | .190 | .140 | .788 | .928 | .014 | .003 | 1.241 | .927 |
| June | .136 | .002 | .185 | .091 | .757 | .848 | .014 | .002 | 1.187 | .886 |
| July | .082 | .001 | .190 | .095 | .746 | .841 | .012 | .002 | 1.129 | 1.126 |
| August | .125 | .003 | .216 | .128 | .694 | .822 | .015 | .003 | 1.184 | 1.029 |
| September | .107 | .003 | .204 | .133 | .716 | .850 | .016 | .003 | 1.183 | .920 |
| October | .122 | .004 | .178 | .089 | .710 | .799 | .017 | .003 | 1.123 | .937 |
| November | .164 | .005 | .230 | .104 | .738 | .842 | .016 | .002 | 1.260 | .847 |
| December | .199 | .002 | .253 | .083 | .811 | .894 | .017 | .002 | 1.367 | .763 |
| **Total** | **1.510** | **.025** | **2.356** | **1.238** | **8.752** | **9.990** | **.181** | **.033** | **14.094** | **11.314** |
| **2017** January | .185 | .003 | .274 | .132 | .784 | .917 | .017 | .003 | 1.399 | .902 |
| February | .173 | .001 | .257 | .179 | .761 | .940 | .017 | .003 | 1.392 | .565 |
| March | .201 | .002 | .274 | .148 | .801 | .949 | .018 | .004 | 1.447 | .722 |
| April | .181 | .001 | .249 | .172 | .779 | .950 | .015 | .004 | 1.402 | .697 |
| May | .181 | .001 | .256 | .182 | .811 | .993 | .017 | .003 | 1.451 | .795 |
| June | .183 | .003 | .256 | .135 | .825 | .960 | .016 | .004 | 1.421 | .681 |
| July | .180 | .001 | .251 | .159 | .846 | 1.004 | .018 | .003 | 1.457 | .657 |
| August | .215 | .004 | .249 | .137 | .773 | .910 | .017 | .003 | 1.397 | .747 |
| **8-Month Total** | **1.499** | **.017** | **2.067** | **1.243** | **6.380** | **7.623** | **.134** | **.026** | **11.367** | **5.767** |
| **2016 8-Month Total** | **.918** | **.010** | **1.492** | **.829** | **5.777** | **6.605** | **.115** | **.022** | **9.162** | **7.847** |
| **2015 8-Month Total** | **1.334** | **.014** | **1.155** | **.683** | **5.279** | **5.962** | **.054** | **.021** | **8.540** | **7.452** |

[a] Net imports equal imports minus exports.
[b] Crude oil and lease condensate.
[c] Petroleum products, unfinished oils, natural gasoline, and gasoline blending components. Does not include biofuels.
[d] Beginning in 2001, includes biodiesel. Beginning in 2010, also includes fuel ethanol (minus denaturant). Beginning in 2016, also includes wood and wood-derived fuels.

NA=Not available. (s)=Less than 0.5 trillion Btu.

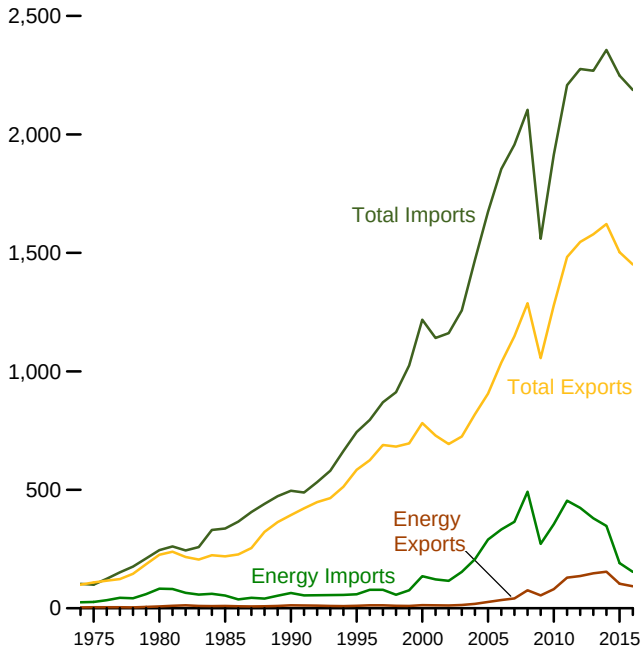
Notes: • See "Primary Energy" in Glossary. • Totals may not equal sum of components due to independent rounding. • Geographic coverage is the 50 states and the District of Columbia.

Web Page: See http://www.eia.gov/totalenergy/data/monthly/#summary (Excel and CSV files) for all available annual data beginning in 1949 and monthly data beginning in 1973.

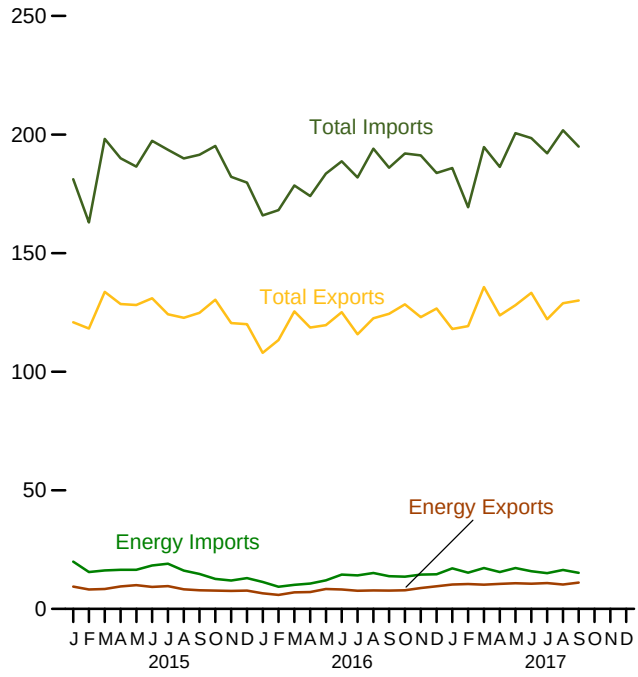
Sources: See end of section.

## Figure 1.5 Merchandise Trade Value
(Billion Dollars[a])

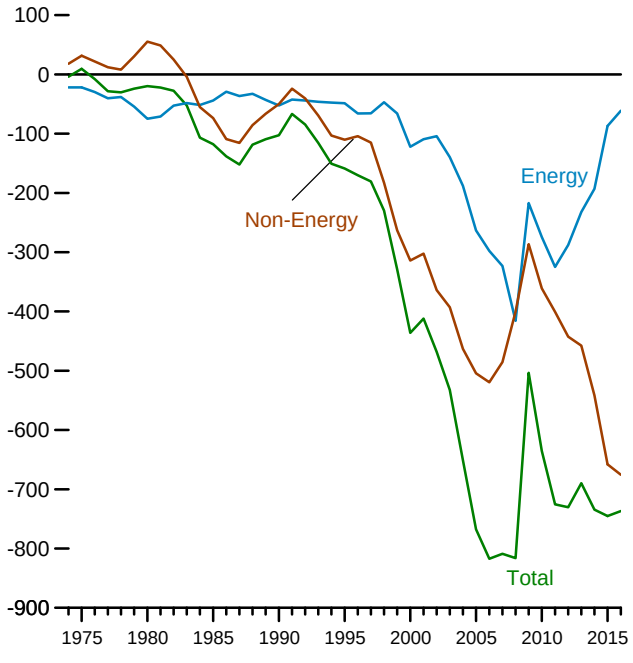
Imports and Exports, 1974–2016



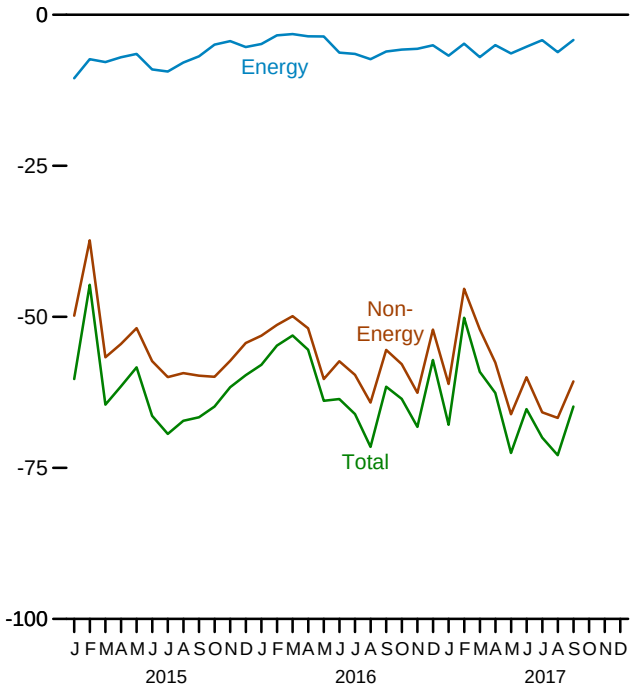

Imports and Exports, Monthly




Trade Balance, 1974–2016




Trade Balance, Monthly




[a] Prices are not adjusted for inflation. See "Nominal Dollars" in Glossary.
Web Page: See http://www.eia.gov/totalenergy/data/monthly/#summary.
Source: Table 1.5.

## Table 1.5 Merchandise Trade Value

(Million Dollars[a])

| | Petroleum[b] | | | Energy[c] | | | Non-Energy Balance | Total Merchandise | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Exports | Imports | Balance | Exports | Imports | Balance | | Exports | Imports | Balance |
| **1974 Total** | **792** | **24,668** | **-23,876** | **3,444** | **25,454** | **-22,010** | **18,126** | **99,437** | **103,321** | **-3,884** |
| **1975 Total** | **907** | **25,197** | **-24,289** | **4,470** | **26,476** | **-22,006** | **31,557** | **108,856** | **99,305** | **9,551** |
| **1980 Total** | **2,833** | **78,637** | **-75,803** | **7,982** | **82,924** | **-74,942** | **55,246** | **225,566** | **245,262** | **-19,696** |
| **1985 Total** | **4,707** | **50,475** | **-45,768** | **9,971** | **53,917** | **-43,946** | **-73,765** | **218,815** | **336,526** | **-117,712** |
| **1990 Total** | **6,901** | **61,583** | **-54,682** | **12,233** | **64,661** | **-52,428** | **-50,068** | **393,592** | **496,088** | **-102,496** |
| **1995 Total** | **6,321** | **54,368** | **-48,047** | **10,358** | **59,109** | **-48,751** | **-110,050** | **584,742** | **743,543** | **-158,801** |
| **2000 Total** | **10,192** | **119,251** | **-109,059** | **13,179** | **135,367** | **-122,188** | **-313,916** | **781,918** | **1,218,022** | **-436,104** |
| **2001 Total** | **8,868** | **102,747** | **-93,879** | **12,494** | **121,923** | **-109,429** | **-302,470** | **729,100** | **1,140,999** | **-411,899** |
| **2002 Total** | **8,569** | **102,663** | **-94,094** | **11,541** | **115,748** | **-104,207** | **-364,056** | **693,103** | **1,161,366** | **-468,263** |
| **2003 Total** | **10,209** | **132,433** | **-122,224** | **13,768** | **153,298** | **-139,530** | **-392,820** | **724,771** | **1,257,121** | **-532,350** |
| **2004 Total** | **13,130** | **179,266** | **-166,136** | **18,642** | **206,660** | **-188,018** | **-462,912** | **818,775** | **1,469,704** | **-650,930** |
| **2005 Total** | **19,155** | **250,068** | **-230,913** | **26,488** | **289,723** | **-263,235** | **-504,242** | **905,978** | **1,673,455** | **-767,477** |
| **2006 Total** | **28,171** | **299,714** | **-271,543** | **34,711** | **332,500** | **-297,789** | **-519,515** | **1,036,635** | **1,853,938** | **-817,304** |
| **2007 Total** | **33,293** | **327,620** | **-294,327** | **41,725** | **364,987** | **-323,262** | **-485,501** | **1,148,199** | **1,956,962** | **-808,763** |
| **2008 Total** | **61,695** | **449,847** | **-388,152** | **76,075** | **491,885** | **-415,810** | **-400,389** | **1,287,442** | **2,103,641** | **-816,199** |
| **2009 Total** | **44,509** | **251,833** | **-207,324** | **54,536** | **271,739** | **-217,203** | **-286,379** | **1,056,043** | **1,559,625** | **-503,582** |
| **2010 Total** | **64,753** | **333,472** | **-268,719** | **80,625** | **354,982** | **-274,357** | **-361,005** | **1,278,495** | **1,913,857** | **-635,362** |
| **2011 Total** | **[b]102,180** | **[b]431,866** | **[b]-329,686** | **128,989** | **453,839** | **-324,850** | **-400,597** | **1,482,508** | **2,207,954** | **-725,447** |
| **2012 Total** | **111,951** | **408,509** | **-296,558** | **136,054** | **423,862** | **-287,808** | **-442,638** | **1,545,821** | **2,276,267** | **-730,446** |
| **2013 Total** | **123,218** | **363,141** | **-239,923** | **147,539** | **379,758** | **-232,219** | **-457,712** | **1,578,439** | **2,268,370** | **-689,931** |
| **2014 Total** | **127,818** | **326,709** | **-198,891** | **154,498** | **347,474** | **-192,976** | **-541,506** | **1,621,874** | **2,356,356** | **-734,482** |
| **2015** January | 7,754 | 18,216 | -10,462 | 9,418 | 19,909 | -10,491 | -49,802 | 120,880 | 181,173 | -60,293 |
| February | 6,685 | 13,815 | -7,130 | 8,189 | 15,545 | -7,356 | -37,324 | 118,237 | 162,916 | -44,680 |
| March | 6,646 | 14,826 | -8,180 | 8,390 | 16,228 | -7,838 | -56,685 | 133,664 | 198,187 | -64,523 |
| April | 7,762 | 15,567 | -7,805 | 9,448 | 16,469 | -7,021 | -54,495 | 128,510 | 190,026 | -61,516 |
| May | 8,359 | 15,578 | -7,219 | 9,989 | 16,472 | -6,483 | -51,865 | 128,161 | 186,509 | -58,348 |
| June | 7,838 | 17,434 | -9,596 | 9,260 | 18,309 | -9,049 | -57,326 | 130,949 | 197,324 | -66,375 |
| July | 8,298 | 18,075 | -9,777 | 9,639 | 19,039 | -9,400 | -59,978 | 124,201 | 193,579 | -69,378 |
| August | 6,809 | 15,203 | -8,394 | 8,241 | 16,147 | -7,906 | -59,304 | 122,722 | 189,932 | -67,210 |
| September | 6,532 | 13,811 | -7,279 | 7,879 | 14,753 | -6,874 | -59,744 | 124,853 | 191,470 | -66,618 |
| October | 6,345 | 11,657 | -5,312 | 7,703 | 12,644 | -4,941 | -59,907 | 130,333 | 195,181 | -64,848 |
| November | 6,323 | 11,148 | -4,825 | 7,609 | 11,965 | -4,356 | -57,274 | 120,522 | 182,152 | -61,630 |
| December | 6,380 | 12,126 | -5,746 | 7,692 | 13,018 | -5,326 | -54,338 | 120,070 | 179,735 | -59,664 |
| **Total** | **85,733** | **177,455** | **-91,722** | **103,458** | **190,501** | **-87,043** | **-658,039** | **1,503,101** | **2,248,183** | **-745,082** |
| **2016** January | 5,342 | 10,256 | -4,914 | 6,549 | 11,380 | -4,831 | -53,100 | 107,968 | 165,899 | -57,931 |
| February | 4,775 | 8,416 | -3,641 | 5,921 | 9,327 | -3,406 | -51,348 | 113,363 | 168,117 | -54,754 |
| March | 5,712 | 9,395 | -3,683 | 6,970 | 10,164 | -3,194 | -49,888 | 125,425 | 178,508 | -53,082 |
| April | 5,865 | 10,041 | -4,176 | 7,119 | 10,668 | -3,549 | -51,902 | 118,645 | 174,096 | -55,451 |
| May | 6,961 | 11,349 | -4,388 | 8,412 | 12,013 | -3,601 | -60,287 | 119,625 | 183,512 | -63,888 |
| June | 6,728 | 13,733 | -7,005 | 8,203 | 14,474 | -6,271 | -57,339 | 125,098 | 188,708 | -63,610 |
| July | 6,313 | 13,173 | -6,860 | 7,665 | 14,151 | -6,486 | -59,594 | 115,810 | 181,890 | -66,080 |
| August | 6,381 | 14,184 | -7,803 | 7,815 | 15,159 | -7,344 | -64,173 | 122,529 | 194,046 | -71,517 |
| September | 6,418 | 12,917 | -6,499 | 7,740 | 13,827 | -6,087 | -55,477 | 124,431 | 185,995 | -61,564 |
| October | 6,187 | 12,705 | -6,518 | 7,857 | 13,625 | -5,768 | -57,815 | 128,440 | 192,023 | -63,583 |
| November | 6,850 | 13,503 | -6,653 | 8,818 | 14,445 | -5,627 | -62,577 | 123,034 | 191,239 | -68,204 |
| December | 7,102 | 13,260 | -6,158 | 9,552 | 14,589 | -5,037 | -52,093 | 126,642 | 183,772 | -57,130 |
| **Total** | **74,636** | **142,933** | **-68,297** | **92,623** | **153,822** | **-61,199** | **-675,595** | **1,451,011** | **2,187,805** | **-736,794** |
| **2017** January | 7,552 | 15,713 | -8,161 | 10,321 | 17,077 | -6,756 | -61,104 | 118,004 | 185,863 | -67,860 |
| February | 7,779 | 14,167 | -6,388 | 10,522 | 15,293 | -4,771 | -45,365 | 119,238 | 169,375 | -50,136 |
| March | 7,415 | 15,917 | -8,502 | 10,215 | 17,215 | -7,000 | -52,086 | 135,663 | 194,750 | -59,086 |
| April | 7,953 | 14,412 | -6,459 | 10,537 | 15,558 | -5,021 | -57,561 | 123,765 | 186,347 | -62,582 |
| May | 8,297 | 16,220 | -7,923 | 10,826 | 17,234 | -6,408 | -66,118 | 128,052 | 200,577 | -72,526 |
| June | 8,325 | 14,930 | -6,605 | 10,593 | 15,866 | -5,273 | -59,989 | 133,267 | 198,529 | -65,262 |
| July | 8,664 | 14,024 | -5,360 | 10,892 | 15,090 | -4,198 | -65,792 | 122,120 | 192,110 | -69,990 |
| August | 7,781 | 15,420 | -7,639 | 10,272 | 16,457 | -6,185 | [R] -66,711 | [R] 128,892 | [R] 201,788 | [R] -72,896 |
| September | 8,376 | 14,184 | -5,808 | 11,070 | 15,235 | -4,165 | -60,689 | 130,043 | 194,897 | -64,854 |
| **9-Month Total** | **72,141** | **134,988** | **-62,845** | **95,250** | **145,026** | **-49,777** | **-535,415** | **1,139,043** | **1,724,236** | **-585,193** |
| **2016 9-Month Total** | **54,496** | **103,465** | **-48,969** | **66,395** | **111,163** | **-44,769** | **-503,108** | **1,072,894** | **1,620,770** | **-547,876** |
| **2015 9-Month Total** | **66,389** | **142,525** | **-75,842** | **80,147** | **152,874** | **-72,418** | **-486,523** | **1,132,176** | **1,691,116** | **-558,939** |

[a] Prices are not adjusted for inflation. See "Nominal Dollars" in Glossary.

[b] Through 2010, data are for crude oil, petroleum preparations, liquefied propane and butane, and other mineral fuels. Beginning in 2011, data are for petroleum products and preparations.

[c] Petroleum, coal, natural gas, and electricity.

R=Revised.

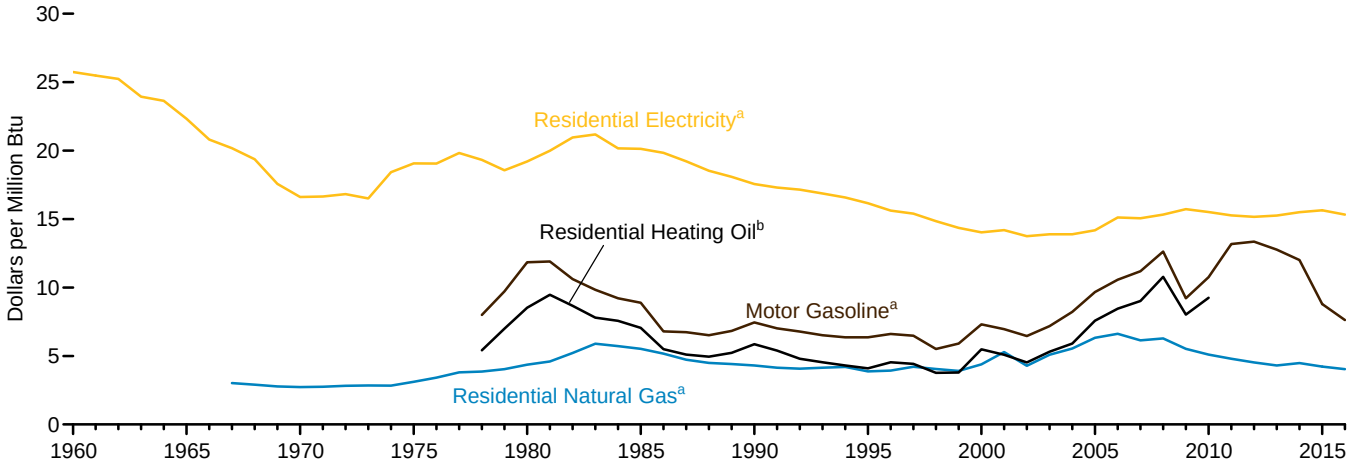
Notes: • Monthly data are not adjusted for seasonal variations. • See Note 1, "Merchandise Trade Value," at end of section. • Totals may not equal sum of components due to independent rounding. • The U.S. import statistics reflect both government and nongovernment imports of merchandise from foreign countries into the U.S. customs territory, which comprises the 50 states, the District of Columbia, Puerto Rico, and the Virgin Islands.

Web Page: See http://www.eia.gov/totalenergy/data/monthly/#summary (Excel and CSV files) for all available annual and monthly data beginning in 1974.

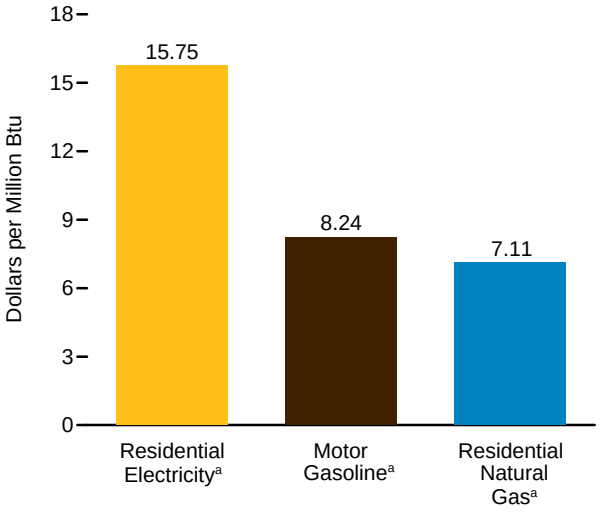
Sources: See end of section.

## Figure 1.6 Cost of Fuels to End Users in Real (1982–1984) Dollars

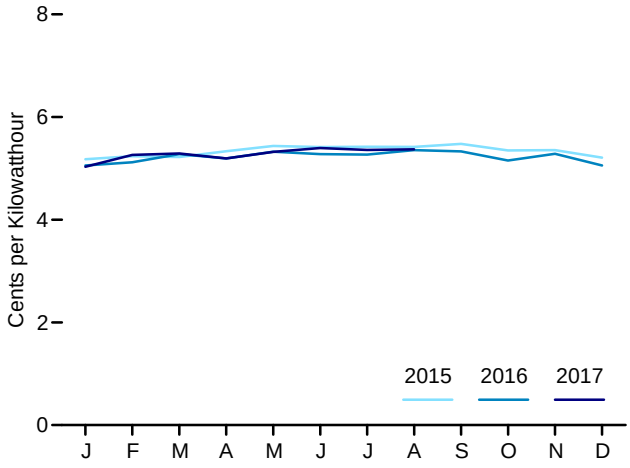
Costs, 1960–2016



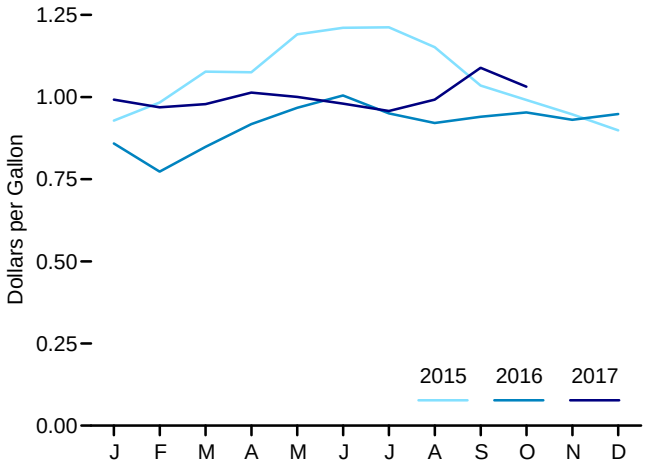

Costs, August 2017



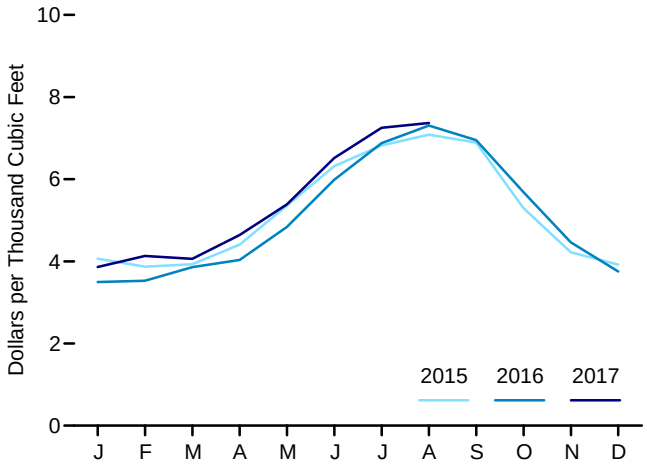

Residential Electricity,[a] Monthly




Motor Gasoline,[a] Monthly




Residential Natural Gas,[a] Monthly




[a] Includes taxes.
[b] Excludes taxes.
Note: See "Real Dollars" in Glossary.

Web Page: http://www.eia.gov/totalenergy/data/monthly/#summary.
Source: Table 1.6.

## Table 1.6 Cost of Fuels to End Users in Real (1982–1984) Dollars

| | Consumer Price Index, All Urban Consumers[a] | Motor Gasoline[b] | | Residential Heating Oil[c] | | Residential Natural Gas[b] | | Residential Electricity[b] | |
|---|---|---|---|---|---|---|---|---|---|
| | Index 1982–1984=100 | Dollars per Gallon | Dollars per Million Btu | Dollars per Gallon | Dollars per Million Btu | Dollars per Thousand Cubic Feet | Dollars per Million Btu | Cents per Kilowatthour | Dollars per Million Btu |
| **1960 Average** | **29.6** | **NA** | **NA** | **NA** | **NA** | **NA** | **NA** | **8.8** | **25.74** |
| **1965 Average** | **31.5** | **NA** | **NA** | **NA** | **NA** | **NA** | **NA** | **7.6** | **22.33** |
| **1970 Average** | **38.8** | **NA** | **NA** | **NA** | **NA** | **2.81** | **2.72** | **5.7** | **16.62** |
| **1975 Average** | **53.8** | **NA** | **NA** | **NA** | **NA** | **3.18** | **3.12** | **6.5** | **19.07** |
| **1980 Average** | **82.4** | **1.482** | **11.85** | **1.182** | **8.52** | **4.47** | **4.36** | **6.6** | **19.21** |
| **1985 Average** | **107.6** | **1.112** | **8.89** | **0.979** | **7.06** | **5.69** | **5.52** | **6.87** | **20.13** |
| **1990 Average** | **130.7** | **0.931** | **7.44** | **0.813** | **5.86** | **4.44** | **4.31** | **5.99** | **17.56** |
| **1995 Average** | **152.4** | **0.791** | **6.36** | **0.569** | **4.10** | **3.98** | **3.87** | **5.51** | **16.15** |
| **2000 Average** | **172.2** | **0.908** | **7.31** | **0.761** | **5.49** | **4.51** | **4.39** | **4.79** | **14.02** |
| **2001 Average** | **177.1** | **0.864** | **6.96** | **0.706** | **5.09** | **5.44** | **5.28** | **4.84** | **14.20** |
| **2002 Average** | **179.9** | **0.801** | **6.46** | **0.628** | **4.52** | **4.39** | **4.28** | **4.69** | **13.75** |
| **2003 Average** | **184.0** | **0.890** | **7.19** | **0.736** | **5.31** | **5.23** | **5.09** | **4.74** | **13.89** |
| **2004 Average** | **188.9** | **1.018** | **8.22** | **0.819** | **5.91** | **5.69** | **5.55** | **4.74** | **13.89** |
| **2005 Average** | **195.3** | **1.197** | **9.67** | **1.051** | **7.58** | **6.50** | **6.33** | **4.84** | **14.18** |
| **2006 Average** | **201.6** | **1.307** | **10.58** | **1.173** | **8.46** | **6.81** | **6.63** | **5.16** | **15.12** |
| **2007 Average** | **207.342** | **1.374** | **11.20** | **1.250** | **9.01** | **6.31** | **6.14** | **5.14** | **15.05** |
| **2008 Average** | **215.303** | **1.541** | **12.62** | **1.495** | **10.78** | **6.45** | **6.28** | **5.23** | **15.33** |
| **2009 Average** | **214.537** | **1.119** | **9.21** | **1.112** | **8.02** | **5.66** | **5.52** | **5.37** | **15.72** |
| **2010 Average** | **218.056** | **1.301** | **10.76** | **1.283** | **9.25** | **5.22** | **5.11** | **5.29** | **15.51** |
| **2011 Average** | **224.939** | **1.590** | **13.18** | **NA** | **NA** | **4.90** | **4.80** | **5.21** | **15.27** |
| **2012 Average** | **229.594** | **1.609** | **13.35** | **NA** | **NA** | **4.64** | **4.53** | **5.17** | **15.17** |
| **2013 Average** | **232.957** | **1.538** | **12.76** | **NA** | **NA** | **4.43** | **4.31** | **5.21** | **15.26** |
| **2014 Average** | **236.736** | **1.447** | **12.01** | **NA** | **NA** | **4.63** | **4.49** | **5.29** | **15.50** |
| **2015** January | 233.707 | 0.929 | 7.71 | NA | NA | 4.07 | 3.92 | 5.18 | 15.17 |
| February | 234.722 | 0.983 | 8.16 | NA | NA | 3.87 | 3.73 | 5.24 | 15.35 |
| March | 236.119 | 1.077 | 8.94 | NA | NA | 3.93 | 3.79 | 5.22 | 15.30 |
| April | 236.599 | 1.076 | 8.93 | NA | NA | 4.41 | 4.25 | 5.33 | 15.63 |
| May | 237.805 | 1.191 | 9.88 | NA | NA | 5.35 | 5.16 | 5.44 | 15.94 |
| June | 238.638 | 1.211 | 10.05 | NA | NA | 6.32 | 6.08 | 5.41 | 15.87 |
| July | 238.654 | 1.212 | 10.06 | NA | NA | 6.82 | 6.57 | 5.42 | 15.89 |
| August | 238.316 | 1.152 | 9.56 | NA | NA | 7.08 | 6.82 | 5.42 | 15.88 |
| September | 237.945 | 1.035 | 8.59 | NA | NA | 6.89 | 6.64 | 5.48 | 16.05 |
| October | 237.838 | 0.991 | 8.23 | NA | NA | 5.30 | 5.10 | 5.35 | 15.67 |
| November | 237.336 | 0.948 | 7.87 | NA | NA | 4.22 | 4.07 | 5.36 | 15.70 |
| December | 236.525 | 0.898 | 7.46 | NA | NA | 3.92 | 3.78 | 5.21 | 15.27 |
| **Average** | **237.017** | **1.059** | **8.79** | **NA** | **NA** | **4.38** | **4.22** | **5.34** | **15.64** |
| **2016** January | 236.916 | 0.859 | 7.13 | NA | NA | 3.50 | 3.37 | 5.06 | 14.82 |
| February | 237.111 | 0.773 | 6.42 | NA | NA | 3.53 | 3.40 | 5.12 | 15.01 |
| March | 238.132 | 0.849 | 7.05 | NA | NA | 3.86 | 3.72 | 5.28 | 15.47 |
| April | 239.261 | 0.918 | 7.62 | NA | NA | 4.03 | 3.89 | 5.20 | 15.23 |
| May | 240.229 | 0.967 | 8.03 | NA | NA | 4.84 | 4.66 | 5.32 | 15.60 |
| June | 241.018 | 1.005 | 8.34 | NA | NA | 5.99 | 5.77 | 5.28 | 15.47 |
| July | 240.628 | 0.950 | 7.89 | NA | NA | 6.88 | 6.63 | 5.27 | 15.44 |
| August | 240.849 | 0.921 | 7.65 | NA | NA | 7.31 | 7.05 | 5.36 | 15.70 |
| September | 241.428 | 0.940 | 7.80 | NA | NA | 6.95 | 6.70 | 5.33 | 15.62 |
| October | 241.729 | 0.953 | 7.91 | NA | NA | 5.68 | 5.48 | 5.15 | 15.11 |
| November | 241.353 | 0.931 | 7.73 | NA | NA | 4.46 | 4.30 | 5.28 | 15.48 |
| December | 241.432 | 0.948 | 7.87 | NA | NA | 3.75 | 3.62 | 5.06 | 14.82 |
| **Average** | **240.007** | **0.918** | **7.62** | **NA** | **NA** | **4.19** | **4.04** | **5.23** | **15.33** |
| **2017** January | 242.839 | 0.992 | 8.24 | NA | NA | 3.86 | 3.72 | 5.03 | 14.75 |
| February | 243.603 | 0.969 | 8.04 | NA | NA | 4.13 | 3.98 | 5.26 | 15.42 |
| March | 243.801 | 0.979 | 8.12 | NA | NA | 4.06 | 3.92 | 5.29 | 15.51 |
| April | 244.524 | 1.014 | 8.42 | NA | NA | R 4.64 | R 4.48 | 5.19 | 15.22 |
| May | 244.733 | 1.000 | 8.30 | NA | NA | 5.39 | 5.19 | 5.32 | 15.59 |
| June | 244.955 | 0.980 | 8.13 | NA | NA | 6.52 | 6.28 | 5.40 | 15.82 |
| July | 244.786 | 0.958 | 7.95 | NA | NA | 7.25 | 6.99 | 5.36 | 15.71 |
| August | 245.519 | 0.992 | 8.24 | NA | NA | R 7.37 | R 7.11 | R 5.37 | R 15.75 |
| September | 246.819 | 1.089 | 9.04 | NA | NA | NA | NA | NA | NA |
| October | 246.663 | 1.032 | 8.57 | NA | NA | NA | NA | NA | NA |

[a] Data are U.S. city averages for all items, and are not seasonally adjusted.
[b] Includes taxes.
[c] Excludes taxes.
R=Revised. NA=Not available.

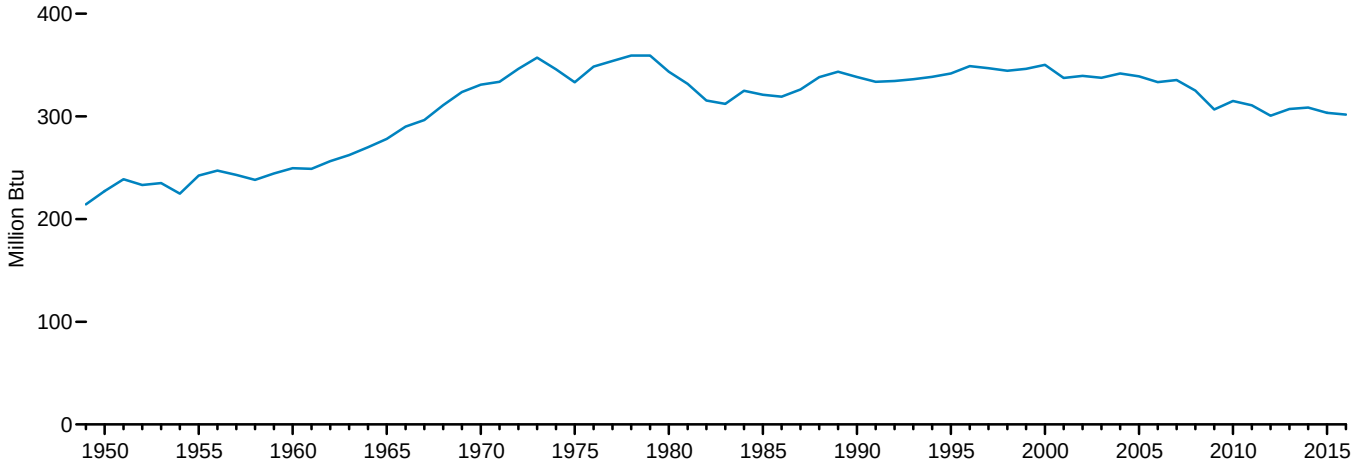
Notes: • See "Real Dollars" in Glossary. • Fuel costs are calculated by using the Urban Consumer Price Index (CPI) developed by the Bureau of Labor Statistics. • Annual averages may not equal average of months due to independent rounding. • Geographic coverage is the 50 states and the District of Columbia.

Web Page: See http://www.eia.gov/totalenergy/data/monthly/#summary (Excel and CSV files) for all available annual data beginning in 1960 and monthly data beginning in 1995.

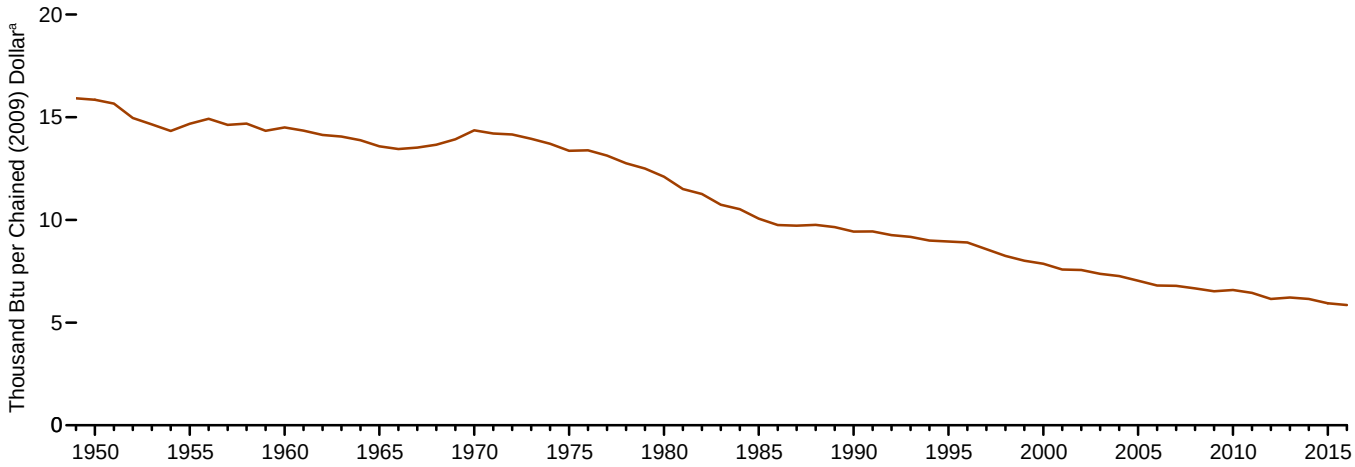
Sources: • **Fuel Prices:** Tables 9.4 (All Grades), 9.8, and 9.10, adjusted by the CPI; and *Monthy Energy Review,* September 2012, Table 9.8c. • **Consumer Price Index, All Urban Consumers:** U.S. Department of Labor, Bureau of Labor Statistics, series ID CUUR0000SA0. • **Conversion Factors:** Tables A1, A3, A4, and A6.

## Figure 1.7 Primary Energy Consumption and Energy Expenditures Indicators

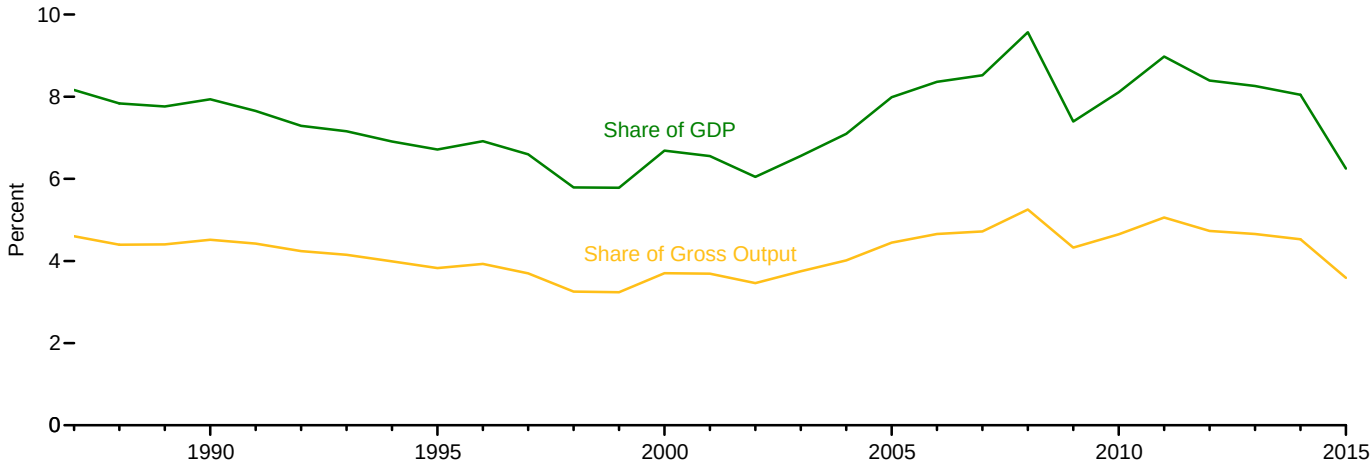
Energy Consumption per Capita, 1949–2016




Primary Energy Consumption per Real Dollar [a] of Gross Domestic Product, 1949–2016




Energy Expenditures as Share of Gross Domestic Product and Gross Output,[b] 1987–2015




[a] See "Chained Dollars" and "Real Dollars" in Glossary.
[b] Gross output is the value of gross domestic product (GDP) plus the value of intermediate inputs used to produce GDP.

Web Page: http://www.eia.gov/totalenergy/data/monthly/#summary.
Source: Table 1.7.

# Table 1.7 Primary Energy Consumption, Energy Expenditures, and Carbon Dioxide Emissions Indicators

| | Primary Energy Consumption[a] | | | Energy Expenditures[b] | | | | Carbon Dioxide Emissions[c] | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Consumption | Consumption per Capita | Consumption per Real Dollar[d] of GDP[e] | Expenditures | Expenditures per Capita | Expenditures as Share of GDP[e] | Expenditures as Share of Gross Output[f] | Emissions | Emissions per Capita | Emissions per Real Dollar[d] of GDP[e] |
| | Quadrillion Btu | Million Btu | Thousand Btu per Chained (2009) Dollar[d] | Million Nominal Dollars[g] | Nominal Dollars[g] | Percent | Percent | Million Metric Tons Carbon Dioxide | Metric Tons Carbon Dioxide | Metric Tons Carbon Dioxide per Million Chained (2009) Dollars[d] |
| 1950 | 34.616 | 227 | 15.85 | NA | NA | NA | NA | 2,382 | 15.6 | 1,091 |
| 1955 | 40.208 | 242 | 14.68 | NA | NA | NA | NA | 2,685 | 16.2 | 980 |
| 1960 | 45.086 | 250 | 14.50 | NA | NA | NA | NA | 2,914 | 16.1 | 937 |
| 1965 | 54.015 | 278 | 13.58 | NA | NA | NA | NA | 3,462 | 17.8 | 871 |
| 1970 | 67.838 | 331 | 14.37 | 82,875 | 404 | 7.7 | NA | 4,261 | 20.8 | 902 |
| 1975 | 71.965 | 333 | 13.36 | 171,851 | 796 | 10.2 | NA | R 4,430 | R 20.5 | R 823 |
| 1980 | 78.067 | 344 | 12.10 | 374,347 | 1,647 | 13.1 | NA | R 4,756 | R 20.9 | R 737 |
| 1981 | 76.106 | 332 | 11.50 | 427,898 | 1,865 | 13.3 | NA | R 4,631 | 20.2 | R 700 |
| 1982 | 73.099 | 316 | 11.26 | 426,479 | 1,841 | 12.7 | NA | R 4,399 | 19.0 | R 678 |
| 1983 | 72.971 | 312 | 10.74 | 417,617 | 1,786 | 11.5 | NA | R 4,380 | 18.7 | R 645 |
| 1984 | 76.632 | 325 | 10.52 | 435,309 | 1,846 | 10.8 | NA | R 4,607 | R 19.5 | R 632 |
| 1985 | 76.392 | 321 | 10.06 | 438,339 | 1,842 | 10.1 | NA | 4,600 | 19.3 | 606 |
| 1986 | 76.647 | 319 | 9.75 | 384,088 | 1,599 | 8.4 | NA | R 4,605 | 19.2 | 586 |
| 1987 | 79.054 | 326 | 9.72 | 397,623 | 1,641 | 8.2 | 4.6 | R 4,771 | 19.7 | R 587 |
| 1988 | 82.709 | 338 | 9.76 | 411,565 | 1,683 | 7.8 | 4.4 | R 4,993 | 20.4 | R 589 |
| 1989 | 84.785 | 344 | 9.65 | 439,046 | 1,779 | 7.8 | 4.4 | R 5,082 | R 20.6 | R 578 |
| 1990 | 84.484 | 338 | 9.43 | 474,647 | 1,901 | 7.9 | 4.5 | R 5,057 | R 20.3 | R 565 |
| 1991 | 84.437 | 334 | 9.44 | 472,434 | 1,867 | 7.7 | 4.4 | R 5,014 | R 19.8 | R 560 |
| 1992 | 85.782 | 334 | 9.26 | 476,840 | 1,859 | 7.3 | 4.2 | R 5,112 | R 19.9 | R 552 |
| 1993 | 87.365 | 336 | 9.18 | 492,267 | 1,894 | 7.2 | 4.2 | R 5,205 | R 20.0 | R 547 |
| 1994 | 89.087 | 339 | 8.99 | 504,854 | 1,919 | 6.9 | 4.0 | R 5,287 | R 20.1 | R 534 |
| 1995 | 91.031 | 342 | 8.95 | 514,622 | 1,933 | 6.7 | 3.8 | R 5,346 | R 20.1 | R 525 |
| 1996 | 94.021 | 349 | 8.90 | 560,292 | 2,080 | 6.9 | 3.9 | R 5,533 | 20.5 | R 524 |
| 1997 | 94.600 | 347 | 8.57 | 567,960 | 2,083 | 6.6 | 3.7 | R 5,606 | R 20.6 | R 508 |
| 1998 | 95.018 | 344 | 8.24 | 526,280 | 1,908 | 5.8 | 3.3 | R 5,658 | R 20.5 | R 491 |
| 1999 | 96.648 | 346 | 8.01 | 558,624 | 2,002 | 5.8 | 3.2 | R 5,716 | R 20.5 | R 474 |
| 2000 | 98.817 | 350 | 7.87 | 687,708 | 2,437 | 6.7 | 3.7 | R 5,888 | R 20.9 | R 469 |
| 2001 | 96.170 | 337 | 7.58 | 696,240 | 2,443 | 6.6 | 3.7 | R 5,781 | R 20.3 | R 456 |
| 2002 | 97.643 | 339 | 7.56 | 663,962 | 2,308 | 6.0 | 3.5 | R 5,828 | R 20.3 | R 452 |
| 2003 | 97.918 | 338 | 7.38 | 755,068 | 2,603 | 6.6 | 3.8 | R 5,877 | R 20.3 | R 443 |
| 2004 | 100.090 | 342 | 7.27 | 871,209 | 2,975 | 7.1 | 4.0 | R 5,994 | R 20.5 | R 435 |
| 2005 | 100.188 | 339 | 7.04 | 1,045,729 | 3,539 | 8.0 | 4.4 | R 6,014 | R 20.4 | R 423 |
| 2006 | 99.485 | 333 | 6.81 | 1,158,819 | 3,884 | 8.4 | 4.7 | R 5,936 | R 19.9 | R 406 |
| 2007 | 101.015 | 335 | 6.79 | 1,233,864 | 4,096 | 8.5 | 4.7 | R 6,028 | R 20.0 | R 405 |
| 2008 | 98.891 | 325 | 6.67 | 1,408,750 | 4,633 | 9.6 | 5.3 | R 5,835 | R 19.2 | R 393 |
| 2009 | 94.118 | 307 | 6.53 | 1,066,275 | 3,476 | 7.4 | 4.3 | R 5,415 | R 17.7 | R 376 |
| 2010 | 97.444 | 315 | 6.59 | 1,213,336 | 3,922 | 8.1 | 4.6 | R 5,608 | R 18.1 | R 379 |
| 2011 | 96.847 | 311 | 6.45 | 1,392,945 | 4,469 | 9.0 | 5.1 | R 5,472 | R 17.6 | R 364 |
| 2012 | 94.412 | 301 | 6.15 | 1,356,215 | 4,319 | 8.4 | 4.7 | R 5,261 | R 16.8 | R 343 |
| 2013 | 97.164 | 307 | 6.22 | 1,378,885 | 4,361 | 8.3 | 4.7 | R 5,393 | R 17.1 | R 345 |
| 2014 | 98.323 | 309 | 6.15 | 1,399,486 | 4,393 | 8.0 | 4.5 | R 5,438 | R 17.1 | R 340 |
| 2015 | 97.363 | 303 | 5.94 | 1,127,132 | 3,512 | 6.2 | 3.6 | R 5,293 | R 16.5 | R 323 |
| 2016 | 97.496 | 302 | 5.85 | NA | NA | NA | NA | R 5,205 | R 16.1 | R 312 |

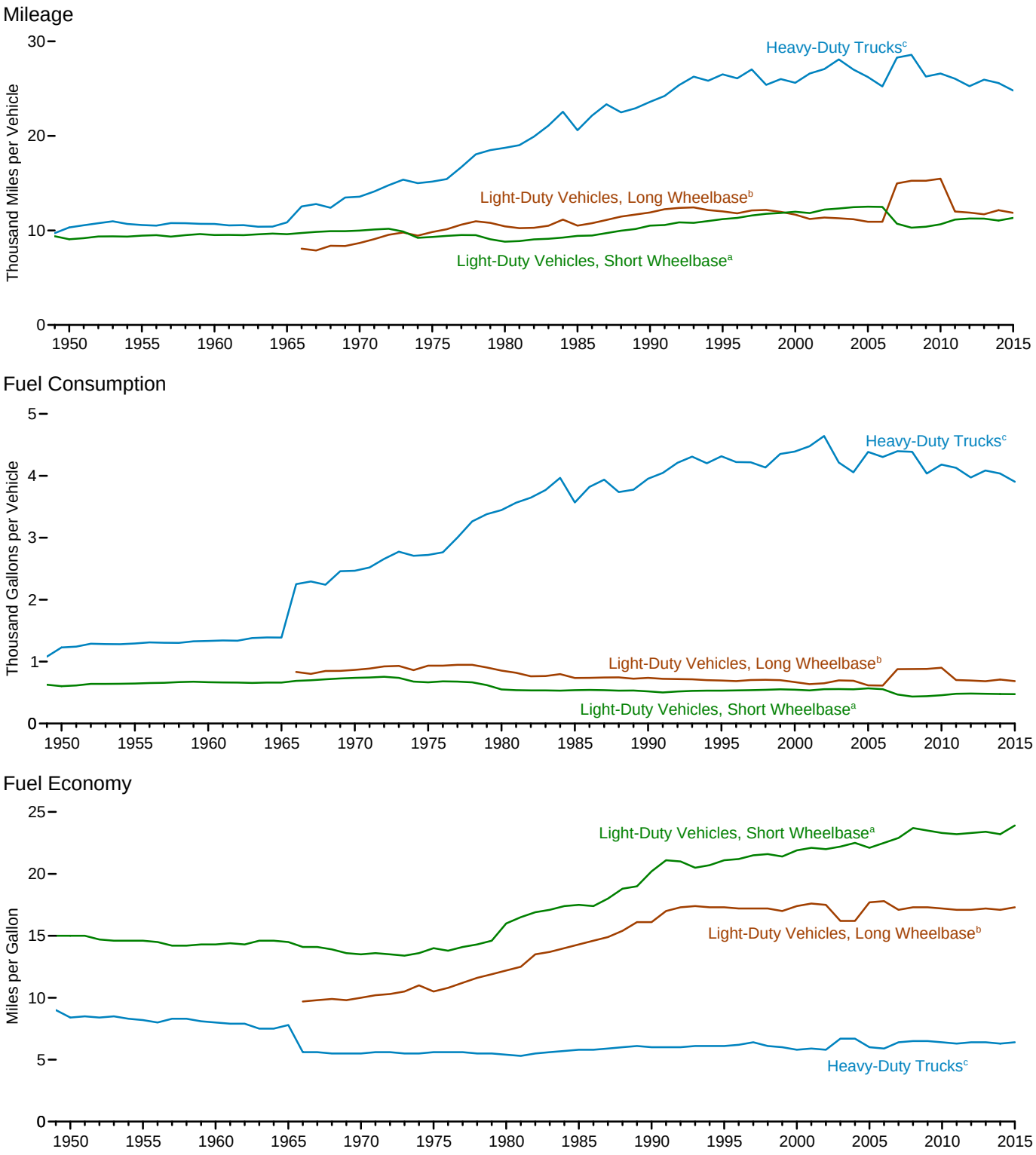
[a] See "Primary Energy Consumption" in Glossary.
[b] Expenditures include taxes where data are available.
[c] Carbon dioxide emissions from energy consumption. See Table 12.1.
[d] See "Chained Dollars" and "Real Dollars" in Glossary.
[e] See "Gross Domestic Product (GDP)" in Glossary.
[f] Gross output is the value of GDP plus the value of intermediate inputs used to produce GDP.
[g] See "Nominal Dollars" in Glossary.
R=Revised. NA=Not available.

Notes: • Data are estimates. • Geographic coverage is the 50 states and the District of Columbia.

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

Sources: • **Consumption:** Table 1.3. • **Consumption per Capita:** Calculated as energy consumption divided by U.S. population (see Table C1). • **Consumption per Real Dollar of GDP:** Calculated as energy consumption divided by U.S. gross domestic product in chained (2009) dollars (see Table C1). • **Expenditures:** U.S. Energy Information Administration, "State Energy Price and Expenditure Estimates, 1970 Through 2014" (June 2016), U.S. Table ET1. • **Expenditures per Capita:** Calculated as energy expenditures divided by U.S. population (see Table C1). • **Expenditures as Share of GDP:** Calculated as energy expenditures divided by U.S. gross domestic product in nominal dollars (see Table C1). • **Expenditures as Share of Gross Output:** Calculated as energy expenditures divided by U.S. gross output (see Table C1). • **Emissions: 1949–1972—**U.S. Energy Information Administration, *Annual Energy Review 2011*, Table 11.1. **1973 forward—**Table 12.1. • **Emissions per Capita:** Calculated as carbon dioxide emissions divided by U.S. population (see Table C1). • **Emissions per Real Dollar of GDP:** Calculated as carbon dioxide emissions divided by U.S. gross domestic product in chained (2009) dollars (see Table C1).

## Figure 1.8 Motor Vehicle Mileage, Fuel Consumption, and Fuel Economy, 1949–2015




[a] Through 1989, data are for passenger cars and motorcycles. For 1990–2006, data are for passenger cars only. Beginning in 2007, data are for light-duty vehicles (passenger cars, light trucks, vans, and sport utility vehicles) with a wheelbase less than or equal to 121 inches.

[b] For 1966–2000, data are for vans, pickup trucks, and sport utility vehicles. Beginning in 2007, data are for light-duty vehicles (passenger cars, light trucks, vans, and sport utility vehicles) with a wheelbase greater than 121 inches.

[c] For 1949–1965, data are for single-unit trucks with 2 axles and 6 or more tires, combination trucks, and other vehicles with 2 axles and 4 tires that are not passenger cars. For 1966–2006 data are for single-unit trucks with 2 axles and 6 or more tires, and combination trucks. Beginning in 2007, data are for single-unit trucks with 2 axles and 6 or more tires (or a gross vehicle weight rating exceeding 10,000 pounds), and combination trucks.

Note: Through 1965, "Light-Duty Vehicles, Long Wheelbase" data are included in "Heavy-Duty Trucks."

Web Page: http://www.eia.gov/totalenergy/data/monthly/#summary.

Source: Table 1.8.

# Table 1.8 Motor Vehicle Mileage, Fuel Consumption, and Fuel Economy

| | Light-Duty Vehicles, Short Wheelbase[a] | | | Light-Duty Vehicles, Long Wheelbase[b] | | | Heavy-Duty Trucks[c] | | | All Motor Vehicles[d] | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Mileage | Fuel Consumption | Fuel Economy | Mileage | Fuel Consumption | Fuel Economy | Mileage | Fuel Consumption | Fuel Economy | Mileage | Fuel Consumption | Fuel Economy |
| | Miles per Vehicle | Gallons per Vehicle | Miles per Gallon | Miles per Vehicle | Gallons per Vehicle | Miles per Gallon | Miles per Vehicle | Gallons per Vehicle | Miles per Gallon | Miles per Vehicle | Gallons per Vehicle | Miles per Gallon |
| 1950 | 9,060 | 603 | 15.0 | ([e]) | ([e]) | ([e]) | 10,316 | 1,229 | 8.4 | 9,321 | 725 | 12.8 |
| 1955 | 9,447 | 645 | 14.6 | ([e]) | ([e]) | ([e]) | 10,576 | 1,293 | 8.2 | 9,661 | 761 | 12.7 |
| 1960 | 9,518 | 668 | 14.3 | ([e]) | ([e]) | ([e]) | 10,693 | 1,333 | 8.0 | 9,732 | 784 | 12.4 |
| 1965 | 9,603 | 661 | 14.5 | ([e]) | ([e]) | ([e]) | 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 |
| 1975 | 9,309 | 665 | 14.0 | 9,829 | 934 | 10.5 | 15,167 | 2,722 | 5.6 | 9,627 | 790 | 12.2 |
| 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 | 10,157 | 533 | 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 | 11,831 | 534 | 22.1 | 11,204 | 636 | 17.6 | 26,602 | 4,477 | 5.9 | 11,887 | 695 | 17.1 |
| 2002 | 12,202 | 555 | 22.0 | 11,364 | 650 | 17.5 | 27,071 | 4,642 | 5.8 | 12,171 | 719 | 16.9 |
| 2003 | 12,325 | 556 | 22.2 | 11,287 | 697 | 16.2 | 28,093 | 4,215 | 6.7 | 12,208 | 718 | 17.0 |
| 2004 | 12,460 | 553 | 22.5 | 11,184 | 690 | 16.2 | 27,023 | 4,057 | 6.7 | 12,200 | 714 | 17.1 |
| 2005 | 12,510 | 567 | 22.1 | 10,920 | 617 | 17.7 | 26,235 | 4,385 | 6.0 | 12,082 | 706 | 17.1 |
| 2006 | 12,485 | 554 | 22.5 | 10,920 | 612 | 17.8 | 25,231 | 4,304 | 5.9 | 12,017 | 698 | 17.2 |
| 2007 | [a] 10,710 | [a] 468 | [a] 22.9 | [b] 14,970 | [b] 877 | [b] 17.1 | [c] 28,290 | [c] 4,398 | 6.4 | 11,915 | 693 | 17.2 |
| 2008 | 10,290 | 435 | 23.7 | 15,256 | 880 | 17.3 | 28,573 | 4,387 | 6.5 | 11,631 | 667 | 17.4 |
| 2009 | 10,391 | 442 | 23.5 | 15,252 | 882 | 17.3 | 26,274 | 4,037 | 6.5 | 11,631 | 661 | 17.6 |
| 2010 | 10,650 | 456 | 23.3 | 15,474 | 901 | 17.2 | 26,604 | 4,180 | 6.4 | 11,866 | 681 | 17.4 |
| 2011 | 11,150 | 481 | 23.2 | 12,007 | 702 | 17.1 | 26,054 | 4,128 | 6.3 | 11,652 | 665 | 17.5 |
| 2012 | 11,262 | 484 | 23.3 | 11,885 | 694 | 17.1 | 25,255 | 3,973 | 6.4 | 11,707 | 665 | 17.6 |
| 2013 | 11,244 | 480 | 23.4 | 11,712 | 683 | 17.2 | 25,951 | 4,086 | 6.4 | 11,679 | 663 | 17.6 |
| 2014 | 11,048 | 476 | 23.2 | 12,138 | 710 | 17.1 | 25,594 | 4,036 | 6.3 | 11,621 | 666 | 17.5 |
| 2015[P] | 11,327 | 475 | 23.9 | 11,855 | 684 | 17.3 | 24,797 | 3,904 | 6.4 | 11,742 | 656 | 17.9 |

[a] Through 1989, data are for passenger cars and motorcycles. For 1990–2006, data are for passenger cars only. Beginning in 2007, data are for light-duty vehicles (passenger cars, light trucks, vans, and sport utility vehicles) with a wheelbase less than or equal to 121 inches.

[b] For 1966–2006, data are for vans, pickup trucks, and sport utility vehicles. Beginning in 2007, data are for light-duty vehicles (passenger cars, light trucks, vans, and sport utility vehicles) with a wheelbase greater than 121 inches.

[c] For 1949–1965, data are for single-unit trucks with 2 axles and 6 or more tires, combination trucks, and other vehicles with 2 axles and 4 tires that are not passenger cars. For 1966–2006, data are for single-unit trucks with 2 axles and 6 or more tires, and combination trucks. Beginning in 2007, data are for single-unit trucks with 2 axles and 6 or more tires (or a gross vehicle weight rating exceeding 10,000 pounds), and combination trucks.

[d] Includes buses and motorcycles, which are not separately displayed.

[e] Included in "Heavy-Duty Trucks."

P=Preliminary.

Note: Geographic coverage is the 50 states and the District of Columbia.

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

Sources: • **Light-Duty Vehicles, Short Wheelbase: 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.

## Table 1.9 Heating Degree Days by Census Division

| | New England[a] | Middle Atlantic[b] | East North Central[c] | West North Central[d] | South Atlantic[e] | East South Central[f] | West South Central[g] | Mountain[h] | Pacific[i] | United States |
|---|---|---|---|---|---|---|---|---|---|---|
| **1950 Total** | **6,794** | **6,324** | **7,027** | **7,455** | **3,521** | **3,547** | **2,277** | **6,341** | **3,906** | **5,367** |
| **1955 Total** | **6,872** | **6,231** | **6,486** | **6,912** | **3,508** | **3,513** | **2,294** | **6,704** | **4,320** | **5,246** |
| **1960 Total** | **6,828** | **6,391** | **6,908** | **7,184** | **3,780** | **4,134** | **2,767** | **6,281** | **3,799** | **5,404** |
| **1965 Total** | **7,029** | **6,393** | **6,587** | **6,932** | **3,372** | **3,501** | **2,237** | **6,086** | **3,819** | **5,146** |
| **1970 Total** | **7,022** | **6,388** | **6,721** | **7,090** | **3,452** | **3,823** | **2,558** | **6,119** | **3,726** | **5,218** |
| **1975 Total** | **6,547** | **5,892** | **6,406** | **6,880** | **2,970** | **3,437** | **2,312** | **6,260** | **4,117** | **4,905** |
| **1980 Total** | **7,071** | **6,477** | **6,975** | **6,836** | **3,378** | **3,964** | **2,494** | **5,554** | **3,539** | **5,080** |
| **1985 Total** | **6,749** | **5,971** | **6,668** | **7,262** | **2,899** | **3,660** | **2,535** | **6,059** | **3,935** | **4,889** |
| **1990 Total** | **5,987** | **5,252** | **5,780** | **6,137** | **2,307** | **2,942** | **1,968** | **5,391** | **3,603** | **4,180** |
| **1995 Total** | **6,684** | **6,093** | **6,740** | **6,911** | **2,988** | **3,648** | **2,147** | **5,101** | **3,269** | **4,640** |
| **2000 Total** | **6,625** | **5,999** | **6,315** | **6,500** | **2,905** | **3,551** | **2,153** | **4,971** | **3,460** | **4,494** |
| **2001 Total** | **6,202** | **5,541** | **5,844** | **6,221** | **2,604** | **3,327** | **2,162** | **5,004** | **3,545** | **4,257** |
| **2002 Total** | **6,234** | **5,550** | **6,128** | **6,485** | **2,664** | **3,443** | **2,292** | **5,197** | **3,510** | **4,356** |
| **2003 Total** | **6,975** | **6,258** | **6,536** | **6,593** | **2,884** | **3,559** | **2,205** | **4,817** | **3,355** | **4,544** |
| **2004 Total** | **6,709** | **5,892** | **6,178** | **6,329** | **2,715** | **3,291** | **2,041** | **5,010** | **3,346** | **4,344** |
| **2005 Total** | **6,644** | **5,950** | **6,222** | **6,213** | **2,775** | **3,380** | **1,985** | **4,896** | **3,377** | **4,348** |
| **2006 Total** | **5,885** | **5,211** | **5,703** | **5,821** | **2,475** | **3,211** | **1,802** | **4,915** | **3,557** | **4,040** |
| **2007 Total** | **6,537** | **5,756** | **6,074** | **6,384** | **2,525** | **3,187** | **2,105** | **4,939** | **3,506** | **4,268** |
| **2008 Total** | **6,434** | **5,782** | **6,677** | **7,118** | **2,712** | **3,600** | **2,125** | **5,233** | **3,566** | **4,494** |
| **2009 Total** | **6,644** | **5,922** | **6,512** | **6,841** | **2,812** | **3,536** | **2,152** | **5,139** | **3,538** | **4,481** |
| **2010 Total** | **5,934** | **5,553** | **6,185** | **6,565** | **3,167** | **3,948** | **2,449** | **5,082** | **3,624** | **4,463** |
| **2011 Total** | **6,114** | **5,483** | **6,172** | **6,565** | **2,565** | **3,343** | **2,114** | **5,322** | **3,818** | **4,312** |
| **2012 Total** | **5,561** | **4,970** | **5,356** | **5,515** | **2,306** | **2,876** | **1,650** | **4,574** | **3,411** | **3,769** |
| **2013 Total** | **6,426** | **5,838** | **6,621** | **7,135** | **2,736** | **3,648** | **2,326** | **5,273** | **3,362** | **4,465** |
| **2014 Total** | **6,675** | **6,203** | **7,194** | **7,304** | **2,951** | **3,932** | **2,422** | **4,744** | **2,774** | **4,550** |
| **2015** January | 1,336 | 1,260 | 1,334 | 1,267 | 643 | 836 | 623 | 818 | 470 | 890 |
| February | 1,412 | 1,318 | 1,405 | 1,306 | 666 | 864 | 498 | 601 | 334 | 867 |
| March | 1,101 | 1,002 | 951 | 802 | 357 | 445 | 278 | 484 | 285 | 584 |
| April | 588 | 481 | 454 | 399 | 131 | 147 | 55 | 396 | 295 | 300 |
| May | 148 | 100 | 159 | 215 | 22 | 37 | 14 | 268 | 208 | 119 |
| June | 84 | 30 | 45 | 40 | 1 | 1 | 0 | 42 | 26 | 24 |
| July | 7 | 4 | 12 | 12 | 0 | 0 | 0 | 24 | 8 | 6 |
| August | 8 | 9 | 24 | 33 | 0 | 1 | 0 | 21 | 13 | 11 |
| September | 43 | 27 | 39 | 50 | 8 | 13 | 1 | 78 | 58 | 32 |
| October | 458 | 391 | 365 | 355 | 143 | 164 | 42 | 247 | 112 | 227 |
| November | 610 | 529 | 603 | 650 | 237 | 313 | 218 | 687 | 471 | 445 |
| December | 726 | 626 | 775 | 960 | 279 | 402 | 358 | 937 | 619 | 581 |
| **Total** | **6,521** | **5,777** | **6,166** | **6,088** | **2,488** | **3,222** | **2,087** | **4,602** | **2,899** | **4,087** |
| **2016** January | R 1,127 | R 1,120 | R 1,241 | R 1,303 | 659 | 857 | R 563 | R 916 | 569 | R 870 |
| February | 957 | 901 | R 958 | 936 | R 483 | 573 | R 310 | 619 | R 342 | 628 |
| March | R 755 | 645 | 670 | R 653 | R 239 | 324 | 178 | R 542 | R 395 | 450 |
| April | R 605 | 515 | 506 | R 424 | 151 | 162 | R 62 | R 381 | R 243 | R 310 |
| May | R 253 | R 214 | 222 | 208 | 58 | 71 | 17 | 254 | R 182 | 151 |
| June | 45 | 22 | R 26 | 27 | 1 | 0 | 0 | R 43 | 44 | 21 |
| July | 4 | 1 | 3 | 11 | 0 | 0 | 0 | 15 | 20 | 6 |
| August | 5 | 1 | 5 | 17 | 0 | 0 | 0 | 31 | 12 | 6 |
| September | 68 | R 38 | 40 | 75 | 2 | 5 | R 1 | R 114 | R 66 | 39 |
| October | 389 | 318 | R 285 | R 305 | 91 | R 89 | 22 | R 264 | R 201 | 198 |
| November | 672 | 610 | 582 | 570 | R 289 | R 340 | 154 | R 511 | R 332 | 418 |
| December | R 1,055 | R 977 | 1,166 | 1,257 | R 478 | R 672 | 444 | R 926 | R 628 | 783 |
| **Total** | **R 5,934** | **R 5,363** | **R 5,703** | **R 5,787** | **2,452** | **3,093** | **R 1,752** | **R 4,615** | **R 3,033** | **R 3,880** |
| **2017** January | R 1,040 | R 973 | 1,081 | 1,211 | 477 | 579 | R 419 | R 960 | R 668 | 767 |
| February | R 908 | R 779 | 775 | R 817 | 323 | 408 | R 208 | R 626 | R 499 | R 547 |
| March | 1,040 | 910 | R 835 | R 783 | 347 | R 386 | 147 | R 467 | R 395 | 544 |
| April | R 454 | R 343 | 350 | 401 | R 75 | R 94 | 52 | R 403 | 311 | R 249 |
| May | R 309 | R 239 | 250 | 225 | 47 | R 56 | 14 | R 234 | 172 | 155 |
| June | 46 | 25 | 28 | 37 | 2 | R 3 | 0 | R 58 | 51 | 25 |
| July | 9 | 3 | 7 | 10 | 0 | 0 | 0 | 7 | R 15 | 5 |
| August | 27 | 18 | 34 | 49 | 1 | 1 | 0 | 26 | 8 | 15 |
| **8-Month Total** | **3,831** | **3,290** | **3,361** | **3,533** | **1,272** | **1,527** | **841** | **2,782** | **2,118** | **2,307** |
| **2016 8-Month Total** | **3,750** | **3,420** | **3,630** | **3,580** | **1,591** | **1,988** | **1,130** | **2,799** | **1,807** | **2,442** |
| **2015 8-Month Total** | **4,684** | **4,204** | **4,384** | **4,073** | **1,822** | **2,330** | **1,469** | **2,653** | **1,639** | **2,801** |

[a] Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, and Vermont.
[b] New Jersey, New York, and Pennsylvania.
[c] Illinois, Indiana, Michigan, Ohio, and Wisconsin.
[d] Iowa, Kansas, Minnesota, Missouri, Nebraska, North Dakota, and South Dakota.
[e] Delaware, Florida, Georgia, Maryland (and the District of Columbia), North Carolina, South Carolina, Virginia, and West Virginia.
[f] Alabama, Kentucky, Mississippi, and Tennessee.
[g] Arkansas, Louisiana, Oklahoma, and Texas.
[h] Arizona, Colorado, Idaho, Montana, Nevada, New Mexico, Utah, and Wyoming.
[i] Alaska, California, Hawaii, Oregon, and Washington.
R=Revised.

Notes: • Degree days are relative measurements of outdoor air temperature used as an index for heating and cooling energy requirements. Heating degree days are the number of degrees that the daily average temperature falls below 65 degrees Fahrenheit (°F). Cooling degree days are the number of degrees that the daily average temperature rises above 65°F. The daily average temperature is the mean of the maximum and minimum temperatures in a 24-hour period. For example, a weather station recording an average daily temperature of 40°F would report 25 heating degree days for that day (and 0 cooling degree days). If a weather station recorded an average daily temperature of 78°F, cooling degree days for that station would be 13 (and 0 heating degree days). • Totals may not equal sum of components due to independent rounding. • Geographic coverage is the 50 states and the District of Columbia.

Web Page: See http://www.eia.gov/totalenergy/data/monthly/#summary (Excel and CSV files) for all available annual data beginning in 1949 and monthly data beginning in 1973.

Source: State-level degree day data are from U.S. Department of Commerce, National Oceanic and Atmospheric Administration, National Centers for Environmental Information. Using these state-level data, the U.S. Energy Information Administration calculates population-weighted census-division and U.S. degree day averages using state populations from the same year the degree days are measured. See methodology at http://www.eia.gov/forecasts/steo/special/pdf/2012_sp_04.pdf.

## Table 1.10 Cooling Degree Days by Census Division

| | New England[a] | Middle Atlantic[b] | East North Central[c] | West North Central[d] | South Atlantic[e] | East South Central[f] | West South Central[g] | Mountain[h] | Pacific[i] | United States |
|---|---|---|---|---|---|---|---|---|---|---|
| **1950 Total** | **295** | **401** | **505** | **647** | **1,414** | **1,420** | **2,282** | **682** | **629** | **871** |
| **1955 Total** | **532** | **761** | **922** | **1,139** | **1,636** | **1,674** | **2,508** | **780** | **558** | **1,144** |
| **1960 Total** | **318** | **487** | **626** | **871** | **1,583** | **1,532** | **2,367** | **974** | **796** | **1,000** |
| **1965 Total** | **310** | **498** | **618** | **832** | **1,613** | **1,552** | **2,461** | **780** | **577** | **979** |
| **1970 Total** | **423** | **615** | **747** | **980** | **1,744** | **1,571** | **2,282** | **971** | **734** | **1,079** |
| **1975 Total** | **422** | **584** | **721** | **937** | **1,791** | **1,440** | **2,162** | **903** | **597** | **1,049** |
| **1980 Total** | **438** | **680** | **769** | **1,158** | **1,911** | **1,754** | **2,651** | **1,071** | **653** | **1,214** |
| **1985 Total** | **324** | **509** | **602** | **780** | **1,878** | **1,522** | **2,519** | **1,095** | **761** | **1,121** |
| **1990 Total** | **429** | **562** | **602** | **913** | **2,054** | **1,563** | **2,526** | **1,212** | **838** | **1,200** |
| **1995 Total** | **471** | **704** | **877** | **928** | **2,028** | **1,613** | **2,398** | **1,213** | **794** | **1,261** |
| **2000 Total** | **279** | **458** | **632** | **983** | **1,925** | **1,674** | **2,775** | **1,480** | **772** | **1,232** |
| **2001 Total** | **464** | **623** | **722** | **994** | **1,897** | **1,478** | **2,543** | **1,508** | **861** | **1,255** |
| **2002 Total** | **508** | **772** | **899** | **1,045** | **2,182** | **1,757** | **2,515** | **1,467** | **783** | **1,363** |
| **2003 Total** | **475** | **615** | **619** | **907** | **1,980** | **1,452** | **2,496** | **1,553** | **978** | **1,268** |
| **2004 Total** | **368** | **591** | **585** | **722** | **2,038** | **1,517** | **2,482** | **1,290** | **828** | **1,217** |
| **2005 Total** | **598** | **892** | **944** | **1,063** | **2,098** | **1,676** | **2,647** | **1,372** | **777** | **1,388** |
| **2006 Total** | **485** | **693** | **734** | **1,034** | **2,053** | **1,648** | **2,786** | **1,466** | **922** | **1,360** |
| **2007 Total** | **447** | **694** | **881** | **1,102** | **2,219** | **1,892** | **2,475** | **1,564** | **828** | **1,392** |
| **2008 Total** | **462** | **667** | **683** | **818** | **1,993** | **1,537** | **2,501** | **1,385** | **918** | **1,282** |
| **2009 Total** | **350** | **524** | **534** | **698** | **2,029** | **1,479** | **2,590** | **1,393** | **894** | **1,241** |
| **2010 Total** | **635** | **908** | **964** | **1,096** | **2,269** | **1,977** | **2,757** | **1,358** | **674** | **1,456** |
| **2011 Total** | **554** | **836** | **859** | **1,074** | **2,259** | **1,727** | **3,112** | **1,450** | **736** | **1,470** |
| **2012 Total** | **565** | **815** | **974** | **1,221** | **2,162** | **1,762** | **2,915** | **1,573** | **917** | **1,495** |
| **2013 Total** | **540** | **683** | **690** | **892** | **2,000** | **1,441** | **2,536** | **1,462** | **892** | **1,306** |
| **2014 Total** | **420** | **596** | **610** | **814** | **2,009** | **1,493** | **2,474** | **1,431** | **1,068** | **1,299** |
| **2015** January | 0 | 0 | 0 | 0 | 34 | 3 | 5 | 2 | 10 | 9 |
| February | 0 | 0 | 0 | 0 | 19 | 0 | 6 | 11 | 13 | 7 |
| March | 0 | 0 | 0 | 3 | 84 | 21 | 39 | 32 | 27 | 29 |
| April | 0 | 0 | 1 | 8 | 131 | 52 | 141 | 40 | 23 | 53 |
| May | 31 | 72 | 82 | 55 | 242 | 175 | 260 | 75 | 28 | 126 |
| June | 39 | 114 | 139 | 203 | 394 | 353 | 453 | 313 | 176 | 255 |
| July | 193 | 250 | 202 | 289 | 456 | 442 | 586 | 325 | 218 | 336 |
| August | 205 | 230 | 169 | 202 | 411 | 339 | 561 | 362 | 261 | 315 |
| September | 87 | 136 | 127 | 168 | 296 | 235 | 424 | 231 | 193 | 223 |
| October | 0 | 1 | 7 | 13 | 135 | 59 | 188 | 84 | 97 | 77 |
| November | 0 | 0 | 0 | 0 | 103 | 16 | 52 | 3 | 12 | 30 |
| December | 0 | 1 | 2 | 0 | 100 | 24 | 25 | 0 | 10 | 26 |
| **Total** | **555** | **804** | **729** | **941** | **2,404** | **1,718** | **2,740** | **1,478** | **1,067** | **1,488** |
| **2016** January | 0 | 0 | 0 | 0 | 25 | 2 | R 9 | 0 | 8 | 8 |
| February | 0 | 0 | 0 | 0 | 24 | 3 | 26 | 10 | 14 | 11 |
| March | 0 | 0 | 4 | 10 | R 90 | 36 | 87 | 24 | 13 | R 36 |
| April | 0 | 0 | 1 | 8 | R 88 | 38 | 123 | 42 | R 26 | R 42 |
| May | 7 | 17 | 42 | 48 | 185 | R 125 | R 238 | 90 | 37 | 97 |
| June | R 74 | R 128 | 187 | 263 | 380 | 371 | 476 | R 332 | 166 | 271 |
| July | R 240 | R 307 | 277 | 306 | 509 | 473 | 620 | R 408 | R 234 | 383 |
| August | R 239 | R 310 | 296 | R 268 | R 485 | R 460 | R 547 | 305 | R 231 | R 361 |
| September | 61 | R 114 | 131 | 138 | R 352 | R 320 | R 429 | 173 | R 121 | R 219 |
| October | 0 | 6 | 19 | 28 | R 158 | 113 | 233 | 99 | R 46 | 87 |
| November | 0 | 0 | 0 | 2 | 56 | 12 | 80 | 14 | R 17 | 26 |
| December | 0 | 0 | 0 | 0 | R 66 | 4 | 17 | 0 | 8 | 17 |
| **Total** | R **620** | R **882** | **957** | R **1,071** | R **2,418** | R **1,957** | R **2,883** | R **1,498** | R **922** | R **1,557** |
| **2017** January | 0 | 0 | 0 | 0 | R 50 | 20 | 35 | 0 | 7 | 16 |
| February | 0 | 0 | 0 | 3 | R 54 | 18 | 67 | 5 | 7 | R 22 |
| March | 0 | 0 | 1 | 6 | R 55 | 28 | R 112 | 31 | 17 | 32 |
| April | 0 | 2 | R 6 | 9 | R 123 | R 74 | R 140 | 50 | 25 | 56 |
| May | 3 | 13 | 37 | 50 | R 210 | 136 | R 238 | 109 | 46 | 105 |
| June | R 70 | 121 | 166 | 205 | R 336 | 271 | R 444 | R 307 | 149 | R 241 |
| July | R 169 | 249 | 241 | R 331 | 468 | R 430 | R 581 | R 414 | R 284 | 363 |
| August | 127 | 161 | 147 | 166 | 406 | 340 | 504 | 329 | 279 | 291 |
| **8-Month Total** | **369** | **548** | **598** | **770** | **1,703** | **1,317** | **2,122** | **1,245** | **813** | **1,124** |
| **2016 8-Month Total** | **559** | **763** | **807** | **903** | **1,785** | **1,508** | **2,125** | **1,211** | **730** | **1,209** |
| **2015 8-Month Total** | **469** | **666** | **593** | **761** | **1,770** | **1,384** | **2,052** | **1,160** | **755** | **1,131** |

[a] Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, and Vermont.
[b] New Jersey, New York, and Pennsylvania.
[c] Illinois, Indiana, Michigan, Ohio, and Wisconsin.
[d] Iowa, Kansas, Minnesota, Missouri, Nebraska, North Dakota, and South Dakota.
[e] Delaware, Florida, Georgia, Maryland (and the District of Columbia), North Carolina, South Carolina, Virginia, and West Virginia.
[f] Alabama, Kentucky, Mississippi, and Tennessee.
[g] Arkansas, Louisiana, Oklahoma, and Texas.
[h] Arizona, Colorado, Idaho, Montana, Nevada, New Mexico, Utah, and Wyoming.
[i] Alaska, California, Hawaii, Oregon, and Washington.
R=Revised.

Notes: • Degree days are relative measurements of outdoor air temperature used as an index for heating and cooling energy requirements. Cooling degree days are the number of degrees that the daily average temperature rises above 65 degrees Fahrenheit (°F). Heating degree days are the number of degrees that the daily average temperature falls below 65°F. The daily average temperature is the mean of the maximum and minimum temperatures in a 24-hour period. For example, if a weather station recorded an average daily temperature of 78°F, cooling degree days for that station would be 13 (and 0 heating degree days). A weather station recording an average daily temperature of 40°F would report 25 heating degree days for that day (and 0 cooling degree days).
• Totals may not equal sum of components due to independent rounding.
• Geographic coverage is the 50 states and the District of Columbia.

Web Page: See http://www.eia.gov/totalenergy/data/monthly/#summary (Excel and CSV files) for all available annual data beginning in 1949 and monthly data beginning in 1973.

Source: State-level degree day data are from U.S. Department of Commerce, National Oceanic and Atmospheric Administration, National Centers for Environmental Information. Using these state-level data, the U.S. Energy Information Administration calculates population-weighted census-division and U.S. degree day averages using state populations from the same year the degree days are measured. See methodology at http://www.eia.gov/forecasts/steo/special/pdf/2012_sp_04.pdf.

## Table 1.11a Non-Combustion Use of Fossil Fuels in Physical Units

| | Coal | Natural Gas | Petroleum | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | Asphalt and Road Oil | Hydrocarbon Gas Liquids[a] | Lubricants | Petro-chemical Feedstocks[b] | Petroleum Coke | Special Naphthas | Other[c] | Total |
| | Thousand Short Tons | Billion Cubic Feet | Thousand Barrels per Day | | | | | | | |
| **1973 Total** | **3,345** | **792** | **522** | **736** | **162** | **375** | **42** | **88** | **134** | **2,059** |
| **1975 Total** | **2,972** | **674** | **419** | **702** | **137** | **330** | **41** | **75** | **159** | **1,863** |
| **1980 Total** | **2,370** | **674** | **396** | **871** | **159** | **709** | **39** | **100** | **176** | **2,451** |
| **1985 Total** | **1,050** | **572** | **425** | **980** | **145** | **364** | **43** | **83** | **114** | **2,154** |
| **1990 Total** | **641** | **712** | **483** | **1,067** | **164** | **553** | **56** | **56** | **94** | **2,473** |
| **1995 Total** | **921** | **868** | **486** | **1,347** | **156** | **593** | **55** | **37** | **87** | **2,762** |
| **1996 Total** | **884** | **896** | **484** | **1,420** | **151** | **593** | **54** | **39** | **87** | **2,828** |
| **1997 Total** | **842** | **909** | **505** | **1,452** | **160** | **691** | **40** | **38** | **86** | **2,972** |
| **1998 Total** | **786** | **938** | **521** | **1,375** | **168** | **693** | **69** | **56** | **107** | **2,988** |
| **1999 Total** | **784** | **906** | **547** | **1,605** | **169** | **654** | **98** | **76** | **99** | **3,248** |
| **2000 Total** | **807** | **918** | **525** | **1,586** | **166** | **666** | **45** | **51** | **103** | **3,142** |
| **2001 Total** | **727** | **839** | **519** | **1,422** | **153** | **592** | **79** | **41** | **104** | **2,911** |
| **2002 Total** | **660** | **836** | **512** | **1,504** | **151** | **630** | **66** | **53** | **103** | **3,020** |
| **2003 Total** | **676** | **808** | **503** | **1,436** | **140** | **676** | **56** | **42** | **101** | **2,954** |
| **2004 Total** | **660** | **818** | **537** | **1,481** | **141** | **784** | **99** | **27** | **98** | **3,167** |
| **2005 Total** | **654** | **761** | **546** | **1,399** | **141** | **729** | **85** | **33** | **102** | **3,034** |
| **2006 Total** | **640** | **584** | **521** | **1,454** | **137** | **726** | **97** | **37** | **112** | **3,084** |
| **2007 Total** | **634** | **598** | **494** | **1,461** | **142** | **664** | **91** | **41** | **104** | **2,997** |
| **2008 Total** | **616** | **608** | **417** | **1,340** | **131** | **574** | **102** | **44** | **107** | **2,714** |
| **2009 Total** | **427** | **524** | **360** | **1,456** | **118** | **507** | **82** | **24** | **99** | **2,648** |
| **2010 Total** | **588** | **654** | **362** | **1,586** | **131** | **539** | **28** | **14** | **100** | **2,760** |
| **2011 Total** | **598** | **680** | **355** | **1,624** | **125** | **520** | **28** | **12** | **103** | **2,767** |
| **2012 Total** | **579** | **706** | **340** | **1,641** | **114** | **444** | **31** | **8** | **94** | **2,673** |
| **2013 Total** | **599** | **721** | **323** | **1,781** | **121** | **448** | **28** | **52** | **97** | **2,852** |
| **2014 Total** | **594** | **725** | **327** | **1,780** | **126** | **410** | **28** | **55** | **101** | **2,828** |
| **2015** January | 53 | 69 | 200 | 2,033 | 153 | 407 | 33 | 67 | 101 | 2,994 |
| February | 45 | 63 | 215 | 2,009 | 123 | 387 | 14 | 64 | 104 | 2,915 |
| March | 46 | 63 | 222 | 1,810 | 152 | 354 | 32 | 48 | 103 | 2,721 |
| April | 43 | 57 | 303 | 1,770 | 148 | 366 | 32 | 52 | 103 | 2,774 |
| May | 47 | 57 | 343 | 1,780 | 159 | 372 | 32 | 47 | 96 | 2,827 |
| June | 49 | 53 | 472 | 1,798 | 132 | 340 | 34 | 52 | 102 | 2,930 |
| July | 50 | 54 | 480 | 1,847 | 156 | 364 | 32 | 48 | 107 | 3,034 |
| August | 48 | 55 | 510 | 1,796 | 121 | 409 | 34 | 48 | 95 | 3,014 |
| September | 42 | 53 | 469 | 1,715 | 127 | 377 | 21 | 58 | 105 | 2,873 |
| October | 44 | 57 | 400 | 1,870 | 145 | 381 | 27 | 41 | 96 | 2,960 |
| November | 41 | 60 | 287 | 1,922 | 104 | 382 | 25 | 58 | 104 | 2,881 |
| December | 41 | 63 | 212 | 2,030 | 130 | 398 | 23 | 41 | 109 | 2,943 |
| **Total** | **550** | **703** | **343** | **1,865** | **138** | **378** | **28** | **52** | **102** | **2,906** |
| **2016** January | 56 | 69 | 195 | 2,075 | 136 | 377 | 31 | 47 | 106 | 2,967 |
| February | 58 | 63 | 230 | 1,970 | 148 | 373 | 29 | 53 | 94 | 2,898 |
| March | 61 | 62 | 254 | 1,932 | 143 | 368 | 29 | 58 | 107 | 2,891 |
| April | 56 | 58 | 301 | 1,840 | 131 | 370 | 22 | 46 | 108 | 2,818 |
| May | 58 | 57 | 394 | 1,828 | 132 | 359 | 21 | 59 | 100 | 2,893 |
| June | 59 | 54 | 482 | 1,751 | 146 | 363 | 18 | 40 | 106 | 2,906 |
| July | 61 | 57 | 472 | 1,853 | 115 | 384 | 25 | 47 | 111 | 3,006 |
| August | 59 | 58 | 524 | 1,760 | 124 | 371 | 36 | 43 | 110 | 2,967 |
| September | 56 | 56 | 439 | 1,817 | 125 | 364 | 21 | 56 | 106 | 2,928 |
| October | 56 | 58 | 417 | 1,920 | 131 | 365 | 26 | 41 | 89 | 2,990 |
| November | 56 | 61 | 310 | 1,865 | 121 | 373 | 42 | 49 | 108 | 2,867 |
| December | 61 | 69 | 195 | 1,969 | 115 | 390 | 32 | 45 | 106 | 2,852 |
| **Total** | **697** | **723** | **351** | **1,882** | **130** | **371** | **28** | **49** | **104** | **2,916** |
| **2017** January | 60 | 69 | 192 | 2,106 | 105 | 368 | 34 | 49 | 103 | 2,957 |
| February | 58 | 61 | 241 | 1,938 | 123 | 409 | 21 | 58 | 105 | 2,896 |
| March | 61 | 65 | 265 | 1,952 | 133 | 435 | 13 | 50 | 110 | 2,958 |
| April | 61 | 58 | 318 | 1,878 | 105 | 429 | 29 | 43 | 104 | 2,906 |
| May | 63 | 58 | 365 | 1,878 | 108 | 438 | 28 | 51 | 111 | 2,980 |
| June | 59 | 57 | 477 | 1,948 | 108 | 442 | 21 | 56 | 113 | 3,164 |
| July | 62 | 57 | 441 | 1,956 | 98 | 403 | 39 | 49 | 109 | 3,096 |
| August | 73 | 59 | 542 | 1,644 | 91 | 383 | 25 | 55 | 107 | 2,847 |
| **8-Month Total** | **497** | **485** | **2,841** | **15,300** | **872** | **3,306** | **209** | **413** | **863** | **23,803** |
| **2016 8-Month Total** | **467** | **478** | **2,852** | **15,010** | **1,073** | **2,965** | **212** | **393** | **842** | **23,347** |
| **2015 8-Month Total** | **381** | **470** | **2,745** | **14,843** | **1,144** | **2,998** | **243** | **426** | **809** | **23,209** |

[a] Ethane, propane, normal butane, isobutane, natural gasoline, and refinery olefins (ethylene, propylene, butylene, and isobutylene).
[b] Includes still gas not burned as refinery fuel.
[c] Distillate fuel oil, residual fuel oil, waxes, and miscellaneous products.

Notes: • Data are estimates. • Non-combustion use estimates are included in total energy consumption. See Table 1.3. • See Note 2, "Non-Combustion Use of Fossil Fuels," at end of section. • Non-combustion estimates are all for industrial sector consumption, except for some lubricants consumed by the transportation sector. • Totals may not equal sum of components due to independent rounding. • Geographic coverage is the 50 states and the District of Columbia. • See Note 2, "Non-Combustion Use of Fossil Fuels," at end of section.

Web Page: See http://www.eia.gov/totalenergy/data/monthly/#summary for all available annual and monthly data beginning in 1973.

Sources: • See Note 2, "Non-Combustion Use of Fossil Fuels," at end of section.

## Table 1.11b Heat Content of Non-Combustion Use of Fossil Fuels

(Quadrillion Btu)

| | Coal | Natural Gas | Petroleum | | | | | | | | Total | Percent of Total Energy Consumption |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Asphalt and Road Oil | Hydrocarbon Gas Liquids[a] | Lubricants | Petrochemical Feedstocks[b] | Petroleum Coke | Special Naphthas | Other[c] | Total | | |
| **1973 Total** | **0.107** | **0.808** | **1.264** | **0.977** | **0.359** | **0.767** | **0.092** | **0.169** | **0.290** | **3.918** | **4.833** | **6.4** |
| **1975 Total** | **.095** | **.688** | **1.014** | **.921** | **.304** | **.675** | **.089** | **.144** | **.341** | **3.489** | **4.272** | **5.9** |
| **1980 Total** | **.076** | **.690** | **.962** | **1.147** | **.354** | **1.464** | **.085** | **.193** | **.379** | **4.584** | **5.350** | **6.9** |
| **1985 Total** | **.034** | **.590** | **1.029** | **1.251** | **.322** | **.747** | **.095** | **.159** | **.242** | **3.846** | **4.469** | **5.9** |
| **1990 Total** | **.021** | **.733** | **1.170** | **1.393** | **.362** | **1.138** | **.123** | **.107** | **.198** | **4.492** | **5.246** | **6.2** |
| **1995 Total** | **.029** | **.892** | **1.178** | **1.764** | **.346** | **1.222** | **.121** | **.071** | **.185** | **4.885** | **5.806** | **6.4** |
| **1996 Total** | **.028** | **.921** | **1.176** | **1.856** | **.335** | **1.211** | **.119** | **.075** | **.185** | **4.957** | **5.906** | **6.3** |
| **1997 Total** | **.027** | **.933** | **1.224** | **1.894** | **.354** | **1.410** | **.087** | **.072** | **.183** | **5.225** | **6.185** | **6.5** |
| **1998 Total** | **.025** | **.969** | **1.263** | **1.789** | **.371** | **1.409** | **.151** | **.107** | **.229** | **5.318** | **6.312** | **6.6** |
| **1999 Total** | **.025** | **.932** | **1.324** | **2.098** | **.375** | **1.336** | **.216** | **.145** | **.211** | **5.706** | **6.663** | **6.9** |
| **2000 Total** | **.026** | **.942** | **1.276** | **2.065** | **.369** | **1.353** | **.099** | **.097** | **.222** | **5.481** | **6.448** | **6.5** |
| **2001 Total** | **.023** | **.863** | **1.257** | **1.844** | **.338** | **1.205** | **.174** | **.078** | **.223** | **5.121** | **6.007** | **6.2** |
| **2002 Total** | **.021** | **.856** | **1.240** | **1.945** | **.334** | **1.276** | **.146** | **.102** | **.220** | **5.264** | **6.142** | **6.3** |
| **2003 Total** | **.022** | **.832** | **1.220** | **1.869** | **.309** | **1.371** | **.123** | **.080** | **.217** | **5.189** | **6.043** | **6.2** |
| **2004 Total** | **.021** | **.840** | **1.304** | **1.924** | **.313** | **1.592** | **.217** | **.051** | **.211** | **5.612** | **6.473** | **6.5** |
| **2005 Total** | **.021** | **.782** | **1.323** | **1.812** | **.312** | **1.474** | **.186** | **.063** | **.218** | **5.388** | **6.191** | **6.2** |
| **2006 Total** | **.020** | **.600** | **1.261** | **1.871** | **.303** | **1.477** | **.212** | **.070** | **.242** | **5.437** | **6.057** | **6.1** |
| **2007 Total** | **.020** | **.614** | **1.197** | **1.872** | **.313** | **1.351** | **.200** | **.078** | **.223** | **5.234** | **5.868** | **5.8** |
| **2008 Total** | **.020** | **.625** | **1.012** | **1.722** | **.291** | **1.172** | **.224** | **.085** | **.230** | **4.736** | **5.380** | **5.4** |
| **2009 Total** | **.014** | **.537** | **.873** | **1.839** | **.262** | **1.031** | **.180** | **.046** | **.212** | **4.443** | **4.994** | **5.3** |
| **2010 Total** | **.019** | **.669** | **.878** | **2.010** | **.291** | **1.096** | **.061** | **.026** | **.213** | **4.574** | **5.261** | **5.4** |
| **2011 Total** | **.019** | **.695** | **.859** | **2.027** | **.276** | **1.057** | **.063** | **.023** | **.221** | **4.526** | **5.240** | **5.4** |
| **2012 Total** | **.019** | **.724** | **.827** | **2.062** | **.254** | **.901** | **.068** | **.015** | **.201** | **4.328** | **5.070** | **5.4** |
| **2013 Total** | **.019** | **.741** | **.783** | **2.248** | **.268** | **.901** | **.063** | **.100** | **.206** | **4.570** | **5.330** | **5.5** |
| **2014 Total** | **.019** | **.749** | **.793** | **2.233** | **.280** | **.827** | **.062** | **.106** | **.214** | **4.516** | **5.284** | **5.4** |
| **2015** January | .002 | .071 | .041 | .220 | .029 | .069 | .006 | .011 | .018 | .394 | .467 | 5.0 |
| February | .001 | .066 | .040 | .194 | .021 | .059 | .002 | .009 | .017 | .343 | .410 | 4.8 |
| March | .001 | .065 | .046 | .195 | .029 | .060 | .006 | .008 | .018 | .362 | .429 | 5.1 |
| April | .001 | .060 | .060 | .183 | .027 | .060 | .006 | .008 | .018 | .363 | .424 | 5.7 |
| May | .001 | .059 | .070 | .190 | .030 | .064 | .006 | .008 | .017 | .385 | .446 | 5.8 |
| June | .002 | .055 | .094 | .187 | .024 | .057 | .006 | .008 | .018 | .393 | .450 | 5.7 |
| July | .002 | .056 | .099 | .199 | .029 | .063 | .006 | .008 | .019 | .422 | .480 | 5.7 |
| August | .002 | .057 | .105 | .194 | .023 | .070 | .006 | .008 | .017 | .423 | .481 | 5.8 |
| September | .001 | .055 | .093 | .175 | .023 | .062 | .004 | .009 | .018 | .385 | .442 | 5.7 |
| October | .001 | .059 | .082 | .201 | .027 | .065 | .005 | .007 | .017 | .404 | .465 | 6.1 |
| November | .001 | .062 | .057 | .197 | .019 | .063 | .005 | .009 | .018 | .367 | .431 | 5.6 |
| December | .001 | .065 | .044 | .217 | .024 | .068 | .004 | .007 | .020 | .383 | .450 | 5.4 |
| **Total** | **.018** | **.730** | **.832** | **2.351** | **.305** | **.760** | **.063** | **.099** | **.215** | **4.626** | **5.373** | **5.5** |
| **2016** January | .002 | .071 | .040 | .223 | .026 | .065 | .006 | .008 | .019 | .386 | .459 | 5.1 |
| February | .002 | .065 | .044 | .196 | .026 | .060 | .005 | .008 | .016 | .355 | .422 | 5.1 |
| March | .002 | .065 | .052 | .204 | .027 | .063 | .006 | .010 | .019 | .381 | .447 | 5.6 |
| April | .002 | .060 | .060 | .189 | .024 | .061 | .004 | .007 | .019 | .364 | .426 | 5.7 |
| May | .002 | .059 | .081 | .193 | .025 | .062 | .004 | .010 | .018 | .392 | .453 | 6.0 |
| June | .002 | .056 | .096 | .180 | .027 | .060 | .003 | .006 | .019 | .391 | .449 | 5.7 |
| July | .002 | .059 | .097 | .195 | .022 | .066 | .005 | .008 | .020 | .413 | .473 | 5.6 |
| August | .002 | .060 | .108 | .185 | .023 | .064 | .007 | .007 | .020 | .414 | .476 | 5.6 |
| September | .002 | .058 | .087 | .188 | .023 | .061 | .004 | .009 | .018 | .390 | .450 | 5.8 |
| October | .002 | .060 | .086 | .205 | .025 | .063 | .005 | .007 | .016 | .406 | .468 | 6.1 |
| November | .002 | .064 | .062 | .190 | .022 | .062 | .008 | .008 | .019 | .370 | .435 | 5.6 |
| December | .002 | .072 | .040 | .210 | .022 | .067 | .006 | .007 | .019 | .371 | .445 | 4.9 |
| **Total** | **.022** | **.749** | **.853** | **2.358** | **.289** | **.754** | **.062** | **.094** | **.222** | **4.632** | **5.403** | **5.5** |
| **2017** January | .002 | .072 | .039 | .225 | .020 | .063 | .006 | .008 | .019 | .380 | .453 | 5.1 |
| February | .002 | .063 | .045 | .183 | .021 | .063 | .004 | .009 | .017 | .341 | .406 | 5.3 |
| March | .002 | .068 | .054 | .207 | .025 | .075 | .002 | .008 | .020 | .392 | .461 | 5.5 |
| April | .002 | .061 | .063 | .193 | .019 | .072 | .005 | .007 | .018 | .377 | .439 | 5.9 |
| May | .002 | .060 | .075 | .197 | .020 | .076 | .005 | .008 | .020 | .402 | .464 | 5.9 |
| June | .002 | .059 | .095 | .197 | .020 | .074 | .004 | .009 | .020 | .417 | .478 | 6.0 |
| July | .002 | .060 | .091 | .207 | .019 | .070 | .007 | .008 | .020 | .421 | .482 | 5.7 |
| August | .002 | .061 | .112 | .172 | .017 | .066 | .005 | .009 | .019 | .399 | .463 | 5.6 |
| **8-Month Total** | **.016** | **.503** | **.574** | **1.580** | **.160** | **.557** | **.039** | **.066** | **.152** | **3.129** | **3.647** | **5.6** |
| **2016 8-Month Total** | **.015** | **.496** | **.578** | **1.565** | **.198** | **.501** | **.040** | **.063** | **.149** | **3.095** | **3.605** | **5.5** |
| **2015 8-Month Total** | **.012** | **.488** | **.555** | **1.561** | **.211** | **.502** | **.045** | **.068** | **.143** | **3.086** | **3.586** | **5.4** |

[a] Ethane, propane, normal butane, isobutane, natural gasoline, and refinery olefins (ethylene, propylene, butylene, and isobutylene).

[b] Includes still gas not burned as refinery fuel.

[c] Distillate fuel oil, residual fuel oil, waxes, and miscellaneous products.

Notes: • Data are estimates. • Non-combustion use estimates are included in total energy consumption. See Table 1.3. • Non-combustion estimates are all for industrialsector consumption, except for some lubricants consumed by the transportation sector. • Totals may not equal sum of components due to independent rounding. • Geographic coverage is the 50 states and the District of Columbia.• See Note 2, "Non-Combustion Use of Fossil Fuels," at end of section.

Web Page: See http://www.eia.gov/totalenergy/data/monthly/#summary for all available annual and monthly data beginning in 1973.

Sources: • See Note 2, "Non-Combustion Use of Fossil Fuels," at end of section. • **Percent of Total Energy Consumption:** Calculated as total non-combustion use of fossil fuels divided by total primary energy consumption (see Table 1.3).

# Energy Overview

**Note 1. Merchandise Trade Value**. Imports data presented are based on the customs values. Those values do not include insurance and freight and are consequently lower than the cost, insurance, and freight (CIF) values, which are also reported by the Bureau of the Census. All exports data, and imports data through 1980, are on a free alongside ship (f.a.s.) basis.

"Balance" is exports minus imports; a positive balance indicates a surplus trade value and a negative balance indicates a deficit trade value. "Energy" includes mineral fuels, lubricants, and related material. "Non-Energy Balance" and "Total Merchandise" include foreign exports (i.e., re-exports) and nonmonetary gold and U.S. Department of Defense Grant-Aid shipments. The "Non-Energy Balance" is calculated by subtracting the "Energy" from the "Total Merchandise Balance."

"Imports" consist of government and nongovernment shipments of merchandise into the 50 states, the District of Columbia, Puerto Rico, the U.S. Virgin Islands, and the U.S. Foreign Trade Zones. They reflect the total arrival from foreign countries of merchandise that immediately entered consumption channels, warehouses, the Foreign Trade Zones, or the Strategic Petroleum Reserve. They exclude shipments between the United States, Puerto Rico, and U.S. possessions, shipments to U.S. Armed Forces and diplomatic missions abroad for their own use, U.S. goods returned to the United States by its Armed Forces, and in-transit shipments.

**Note 2. Non-Combustion Use of Fossil Fuels.** Most fossil-fuels consumed in the United States and elsewhere are combusted to produce heat and power. However, some are used directly for non-combustion use as construction materials, chemical feedstocks, lubricants, solvents, and waxes. For example, coal tars from coal coke manufacturing are used as feedstock in the chemical industry, for metallurgical work, and in anti-dandruff shampoos; natural gas is used to make nitrogenous fertilizers and as chemical feedstocks; asphalt and road oil are used for roofing and paving; hydrocarbon gas liquids are used to create intermediate products that are used in making plastics; lubricants, including motor oil and greases, are used in vehicles and various industrial processes; petrochemical feedstocks are used to make plastics, synthetic fabrics, and related products.

**Coal**
The U.S. Energy Information Administration (EIA) assumes all non-combustion use of coal comes from the process of manufacturing coal coke. Among the byproducts of the process are "coal tars" or "coal liquids," which typically are rich in aromatic hydrocarbons, such as benzene, and are used as chemical feedstock. EIA's Office of Energy Analysis (OEA) estimates non-combustion use ratios of coal tar. Prior to 1995, estimate ratios are based on coal tar production data from the United States International Trade Commission's Synthetic Organic Chemicals. From 1995 forward, coal tar production is estimated using the ratio of EIA's estimate of 1994 coke production, reported in EIA's Quarterly Coal Report. Coal tar ratios prior to 1980 are assumed to be equal to the 1980 ratio. For Table 1.11b, coal tar values in Table 1.11a are multiplied by 32.0067 million Btu/barrel, which is the product of 4.95 (the conversion from barrels to short tons) and 6.466 (the approximate heat content of one barrel of coal tar).

**Natural Gas**
EIA assumes that all non-combustion use of natural gas takes place in the industrial sector. OEA estimates non-combustion ratios of natural gas using Form EIA-864A "Manufacturers Energy Consumption Survey" (MECS) and natural gas used as feedstock for hydrogen production using Form EIA-820 "Annual Refinery Report" data. For years when MECS data are unavailable, estimates are interpolated or extrapolated using chemical indices as scaling factors. Non-combustion ratios prior to 1980 are assumed to be equal to the 1980 ratio. For Table 1.11b, natural gas values in Table 1.11a are multiplied by the heat content factor for natural gas total consumption shown in Table A4.

**Asphalt & Road Oil**
EIA assumes all asphalt and road oil consumption is for non-combustion use. For Table 1.11b, asphalt and road oil values in Table 1.11a are multiplied by 6.636 million Btu/barrel (the approximate heat content of asphalt and road oil) and the number of days in the period.

**Distillate & Residual Fuels**
OEA estimates non-combustion ratios of distillate and residual fuels using chemical industry fuel product data reported in MECS. Values for years after the most recent MECS are assumed to be equal to the most recent MECS values. Non-combustion ratios prior to 1980 are assumed to be equal to the 1980 ratio. Distillate and residual fuel oils are included in "other" petroleum products. For Table 1.11b, distillate fuel values in Table 1.11a are multiplied by the appropriate values in Table A3 and the number of days in the period. Residual fuel values in Table 1.11a are multiplied by 6.287 million Btu/barrel (the approximate heat content of residual fuel oil) and the number of days in the period.

**Hydrocarbon Gas Liquids (HGL)**
OEA estimates non-combustion ratios of liquefied petroleum gas (LPG) components, including ethane, propane, and butane, using chemical industry fuel product data reported in MECS. Values for years after the most recent MECS are assumed to be equal to the most recent MECS values. OEA estimates non-combustion ratios of natural gasoline (pentanes plus) with annual surveys of natural gas liquids and refinery gases sold to the chemical industry published in EIA's Petroleum Supply Annual (PSA). All non-combustion ratios prior to 1980 are assumed to be equal to the 1980 ratio. For Table 1.11b, HGL values in Table 1.11a are multiplied by the appropriate heat content factors in Table A1 and the number of days in the period.

**Lubricants**
EIA assumes all lubricants consumption are for non-combustion use. For Table 1.11b, lubricants values U.S. Energy Information Administration / Monthly Energy Review September 2017 in Table 1.11a are multiplied by 6.065 million Btu/barrel (the approximate heat rate for lubricants) and the number of days in the period.

**Petrochemical Feedstocks**
EIA assumes all naphthas and other oils for petrochemical feedstock use are for non-combustion use. OEA estimates non-combustion ratios of still gas by deducting all known fuel uses (refinery fuel use from PSA and pipeline gas supplies from EIA's Natural Gas Annual) from the products supplied value from the PSA. The remainder is assumed to be dispatched to chemical plants as a feedstock. Non-combustion ratios prior to 1980 are assumed to be equal to the 1980 ratio. For Table 1.11b, petrochemical feedstock values in 1.11a are multiplied by the appropriate values in Table A1 and the number of days in the period.

**Petroleum Coke**
EIA assumes all petroleum coke consumption is for non-combustion use. For Table 1.11b, petroleum coke values in 1.11a are multiplied by the appropriate values in Table A3 and the number of days in the period.

**Special Naphthas**
EIA assumes all special naphthas consumption is for non-combustion use. For Table 1.11b, special naphthas values in Table 1.11a are multiplied by 5.248 million Btu/barrel (the approximate heat content of special naphthas) and the number of days in the period.

**Waxes**
EIA assumes all waxes consumption is for non-combustion use. Waxes are included in "other" petroleum products. For Table 1.11b, waxes values in Table 1.11a are multiplied by 5.537 million Btu/barrel (the approximate heat content of waxes) and the number of days in the period.

**Miscellaneous Petroleum Products**
Miscellaneous products include all finished petroleum products not classified elsewhere. EIA assumes all miscellaneous petroleum products consumption are for non-combustion use and are included in "other" petroleum products. For Table 1.11b, miscellaneous petroleum values in Table 1.11a are multiplied by 5.796 million Btu/barrel (the approximate heat content of miscellaneous petroleum products) and the number of days in the period.

## Table 1.2 Sources

**Coal**
1949–1988: Coal production data from Table 6.1 are converted to Btu by multiplying by the coal production heat content factors in Table A5.
1989 forward: Coal production data from Table 6.1 are converted to Btu by multiplying by the coal production heat content factors in Table A5. Waste coal supplied data from Table 6.1 are converted to Btu by multiplying by the waste coal supplied heat content factors in Table A5. Coal production (including waste coal supplied) is equal to coal production plus waste coal supplied.

**Natural Gas (Dry)**
1949 forward: Natural gas (dry) production data from Table 4.1 are converted to Btu by multiplying by the natural gas (dry) production heat content factors in Table A4.

**Crude Oil**
1949 forward: Crude oil (including lease condensate) production data from Table 3.1 are converted to Btu by multiplying by the crude oil (including lease condensate) production heat content factors in Table A2.

**NGPL**
1949 forward: Natural gas plant liquids (NGPL) production data from Table 3.1 are converted to Btu by multiplying by the NGPL production heat content factors in Table A2.

**Fossil Fuels Total**
1949 forward: Total fossil fuels production is the sum of the production values for coal, natural gas (dry), crude oil, and NGPL.

**Nuclear Electric Power**
1949 forward: Nuclear electricity net generation data from Table 7.2a are converted to Btu by multiplying by the nuclear heat rate factors in Table A6.

**Renewable Energy**
1949 forward: Table 10.1.

**Total Primary Energy Production**
1949 forward: Total primary energy production is the sum of the production values for fossil fuels, nuclear electric power, and renewable energy.

## Table 1.3 Sources

**Coal**
1949 forward: Coal consumption data from Table 6.1 are converted to Btu by multiplying by the total coal consumption heat content factors in Table A5.

**Natural Gas**
1949–1979: Natural gas (including supplemental gaseous fuels) consumption data from Table 4.1 are converted to Btu by multiplying by the total natural gas consumption heat content factors in Table A4.
1980 forward: Natural gas (including supplemental gaseous fuels) consumption data from Table 4.1 are converted to Btu by multiplying by the total natural gas consumption heat content factors in Table A4. Supplemental gaseous fuels data in Btu are estimated using the method described in Note 3, "Supplemental Gaseous Fuels," at the end of Section 4. Natural gas (excluding supplemental gaseous fuels) consumption is equal to natural gas

(including supplemental gaseous fuels) consumption minus supplemental gaseous fuels.

**Petroleum**
1949–1992: Petroleum (excluding biofuels) consumption is equal to total petroleum products supplied from Table 3.6.
1993–2008: Petroleum (excluding biofuels) consumption is equal to total petroleum products supplied from Table 3.6 minus fuel ethanol consumption from Table 10.3.
2009 forward: Petroleum (excluding biofuels) consumption is equal to: total petroleum products supplied from Table 3.6; minus fuel ethanol (minus denaturant) consumption from Table 10.3; minus refinery and blender net inputs of renewable fuels (excluding fuel ethanol) from U.S. Energy Information Administration (EIA), *Petroleum Supply Annual*/*Petroleum Supply Monthly*, Table 1 (for biomass-based diesel fuel, the data are converted to Btu by multiplying by the biodiesel heat content factor in Table A1; for other renewable diesel fuel, the data are converted to Btu by multiplying by the other renewable diesel fuel heat content factor in Table A1).

**Coal Coke Net Imports**
1949 forward: Coal coke net imports are equal to coal coke imports from Table 1.4a minus coal coke exports from Table 1.4b.

**Fossil Fuels Total**
1949 forward: Total fossil fuels consumption is the sum of the consumption values for coal, natural gas, and petroleum, plus coal coke net imports.

**Nuclear Electric Power**
1949 forward: Nuclear electricity net generation data from Table 7.2a are converted to Btu by multiplying by the nuclear heat rate factors in Table A6.

**Renewable Energy**
1949 forward: Table 10.1.

**Electricity Net Imports**
1949 forward: Electricity net imports are equal to electricity imports from Table 1.4a minus electricity exports from Table 1.4b.

**Total Primary Energy Consumption**
1949 forward: Total primary energy consumption is the sum of the consumption values for fossil fuels, nuclear electric power, and renewable energy, plus electricity net imports.

## Table 1.4a Sources

**Coal**
1949 forward: Coal imports data from Table 6.1 are converted to Btu by multiplying by the coal imports heat content factors in Table A5.

**Coal Coke**
1949 forward: Coal coke imports data from U.S. Department of Commerce, Bureau of the Census, Monthly Report IM 145, are converted to Btu by multiplying by the coal coke imports heat content factor in Table A5.

**Natural Gas**
1949 forward: Natural gas imports data from Table 4.1 are converted to Btu by multiplying by the natural gas imports heat content factors in Table A4.

**Crude Oil**
1949 forward: Crude oil imports data from Table 3.3b are converted to Btu by multiplying by the crude oil imports heat content factors in Table A2.

**Petroleum Products**
1949–1992: Petroleum products (excluding biofuels) imports are equal to total petroleum imports from Table 3.3b minus crude oil imports from Table 3.3b; petroleum products (excluding biofuels) imports data are converted to Btu by multiplying by the total petroleum products imports heat content factors in Table A2.
1993–2008: Petroleum products (excluding biofuels) imports are equal to petroleum products (including biofuels) imports (see 1949–1992 sources above) minus fuel ethanol (minus denaturant) imports (see "Biomass—Fuel Ethanol (Minus Denaturant)" sources below).
2009 forward: Renewable fuels (excluding fuel ethanol) imports data are from U.S. Energy Information Administration, *Petroleum Supply Annual (PSA)*, Tables 1 and 25, and *Petroleum Supply Monthly (PSM)*, Tables 1 and 37 (for biomass-based diesel fuel and other renewable fuels, the data are converted to Btu by multiplying by the biodiesel heat content factor in Table A1; for other renewable diesel fuel, the data are converted to Btu by multiplying by the other renewable diesel fuel heat content factor in Table A1). Petroleum products (excluding biofuels) imports are equal to petroleum products (including biofuels) imports (see 1949–1992 sources above) minus fuel ethanol (minus denaturant) imports (see "Biomass—Fuel Ethanol (Minus Denaturant)" sources below) minus renewable fuels (excluding fuel ethanol) imports.

**Total Petroleum**
1949 forward: Total petroleum imports are equal to crude oil imports plus petroleum products imports.

**Biomass—Fuel Ethanol (Minus Denaturant)**
1993 forward: Fuel ethanol (including denaturant) imports data are from PSA/PSM Table 1. Fuel ethanol (minus denaturant) production is equal to fuel ethanol (including denaturant) production from Table 10.3 minus denaturant from Table 10.3. Fuel ethanol (minus denaturant) imports are equal to fuel ethanol (including denaturant) imports multiplied by the ratio of fuel ethanol (minus denaturant) production to fuel ethanol (including denaturant) production. Fuel ethanol (minus denaturant) imports data are converted to Btu by multiplying by 3.539 million Btu per barrel, the undenatured ethanol heat content factor in Table A3.

**Biomass—Biodiesel**
2001 forward: Biodiesel imports data are from Table 10.4, and are converted to Btu by multiplying by the biodiesel heat content factor in Table A1.

**Biomass—Other Renewable Fuels**
2009 forward: Other renewable fuels imports data are from PSA Table 25 and PSM Table 37. For other renewable diesel fuel, the data are converted to Btu by multiplying by the other renewable diesel fuel heat content factor in Table A1; for other renewable fuels, the data are converted to Btu by multiplying by the biodiesel heat content factor in Table A1.

**Total Biomass**
1993–2000: Total biomass imports are equal to fuel ethanol (minus denaturant) imports.
2001–2008: Total biomass imports are equal to fuel ethanol (minus denaturant) imports plus biodiesel imports.
2009 forward: Total biomass imports are the sum of imports values for fuel ethanol (minus denaturant), biodiesel, and other renewable fuels.

**Electricity**
1949 forward: Electricity imports data from Table 7.1 are converted to Btu by multiplying by the electricity heat content factor in Table A6.

**Total Primary Energy Imports**
1949 forward: Total primary energy imports are the sum of the imports values for coal, coal coke, natural gas, total petroleum, total biomass, and electricity.

## Table 1.4b Sources

**Coal**
1949 forward: Coal exports data from Table 6.1 are converted to Btu by multiplying by the coal exports heat content factors in Table A5.

**Coal Coke**
1949 forward: Coal coke exports data from U.S. Department of Commerce, Bureau of the Census, Monthly Report EM 545, are converted to Btu by multiplying by the coal coke exports heat content factor in Table A5.

**Natural Gas**
1949 forward: Natural gas exports data from Table 4.1 are converted to Btu by multiplying by the natural gas exports heat content factors in Table A4.

**Crude Oil**
1949 forward: Crude oil exports data from Table 3.3b are converted to Btu by multiplying by the crude oil exports heat content factor in Table A2.

**Petroleum Products**
1949–2009: Petroleum products (excluding biofuels) exports are equal to total petroleum exports from Table 3.3b minus crude oil exports from Table 3.3b; petroleum products (excluding biofuels) exports data are converted to Btu by multiplying by the total petroleum products exports heat content factors in Table A2.
2010: Petroleum products (including biofuels) exports are equal to total petroleum exports from Table 3.3b minus crude oil exports from Table 3.3b; petroleum products (including biofuels) exports data are converted to Btu by multiplying by the total petroleum products exports heat content factors in Table A2. Petroleum products (excluding biofuels) exports are equal to petroleum products (including biofuels) exports minus fuel ethanol (minus denaturant) exports (see "Biomass—Fuel Ethanol (Minus Denaturant)" sources below).
2011 forward: Biomass-based diesel fuel exports data are from U.S. Energy Information Administration (EIA), *Petroleum Supply Annual (PSA)*, Table 31, and *Petroleum Supply Monthly (PSM)*, Table 49, and are converted to Btu by multiplying by the biodiesel heat content factor in Table A1. Petroleum products (excluding biofuels) exports are equal to petroleum products (including biofuels) exports (see 2010 sources above) minus fuel ethanol (minus denaturant) exports (see "Biomass—Fuel Ethanol (Minus Denaturant)" sources below) minus biomass-based diesel fuel exports.

**Total Petroleum**
1949 forward: Total petroleum exports are equal to crude oil exports plus petroleum products exports.

**Biomass—Fuel Ethanol (Minus Denaturant)**
2010 forward: Fuel ethanol (including denaturant) exports data are from PSA/PSM Table 1. Fuel ethanol (minus denaturant) production is equal to fuel ethanol (including denaturant) production from Table 10.3 minus denaturant from Table 10.3. Fuel ethanol (minus denaturant) exports are equal to fuel ethanol (including denaturant) exports multiplied by the ratio of fuel ethanol (minus denaturant) production to fuel ethanol (including denaturant) production. Fuel ethanol (minus denaturant) exports are converted to Btu by multiplying by 3.539 million Btu per barrel, the undenatured ethanol heat content factor in Table A3.

**Biomass—Biodiesel**
2001 forward: Biodiesel exports data are from Table 10.4, and are converted to Btu by multiplying by the biodiesel heat content factor in Table A1.

**Biomass—Densified Biomass**
2016 forward: Densified biomass exports data are from EIA, Form EIA-63C, "Densified Biomass Fuel Report."

**Total Biomass**
2001–2009: Total biomass exports are equal to biodiesel exports.
2010 forward: Total biomass exports are equal to fuel ethanol (minus denaturant) exports plus biodiesel exports.
2016 forward: Total biomass exports are the sum of the exports values for fuel ethanol (minus denaturant), biodiesel, and densified biomass.

**Electricity**
1949 forward: Electricity exports data from Table 7.1 are converted to Btu by multiplying by the electricity heat content factor in Table A6.

**Total Primary Energy Exports**
1949 forward: Total primary energy exports are the sum of the exports values for coal, coal coke, natural gas, total petroleum, total biomass, and electricity.

**Total Primary Energy Net Imports**
1949 forward: Total primary energy net imports are equal to total primary energy imports from Table 1.4a minus total primary energy exports.

## Table 1.5 Sources

U.S. Department of Commerce, U.S. Census Bureau, Foreign Trade Division:

**Petroleum Exports**
1974–1987: "U.S. Exports," FT-410, December issues.
1988 and 1989: "Report on U.S. Merchandise Trade," Final Revisions.
1990–1992: "U.S. Merchandise Trade," Final Report.
1993–2009: "U.S. International Trade in Goods and Services," Annual Revisions.
2010–2011: "U.S. International Trade in Goods and Services," 2012 Annual Revisions.
2012–2014: "U.S. International Trade in Goods and Services," 2014 Annual Revisions.
2015 forward: "U.S. International Trade in Goods and Services," FT-900, monthly.

**Petroleum Imports**
1974–1987: "U.S. Merchandise Trade," FT-900, December issues, 1975–1988.
1988 and 1989: "Report on U.S. Merchandise Trade," Final Revisions.
1990–1993: "U.S. Merchandise Trade," Final Report.
1994–2009: "U.S. International Trade in Goods and Services," Annual Revisions.
2010–2011: "U.S. International Trade in Goods and Services," 2012 Annual Revisions.
2012–2014: "U.S. International Trade in Goods and Services," 2014 Annual Revisions.
2015 forward: "U.S. International Trade in Goods and Services," FT-900, monthly.

**Energy Exports and Imports**
1974–1987: U.S. merchandise trade press releases and database printouts for adjustments.
1988: January–July, monthly FT-900 supplement, 1989 issues. August–December, monthly FT-900, 1989 issues.
1989: Monthly FT-900, 1990 issues.
1990–1992: "U.S. Merchandise Trade," Final Report.
1993–2009: "U.S. International Trade in Goods and Services," Annual Revisions.
2010–2011: "U.S. International Trade in Goods and Services," 2012 Annual Revisions.
2012–2014: "U.S. International Trade in Goods and Services," 2014 Annual Revisions.
2015 forward: "U.S. International Trade in Goods and Services," FT-900, monthly.

**Petroleum Balance**
1974 forward: The petroleum balance is calculated by the U.S. Energy Information Administration (EIA) as petroleum imports minus petroleum exports.

**Energy Balance**
1974 forward: The energy balance is calculated by EIA as energy imports minus energy exports.

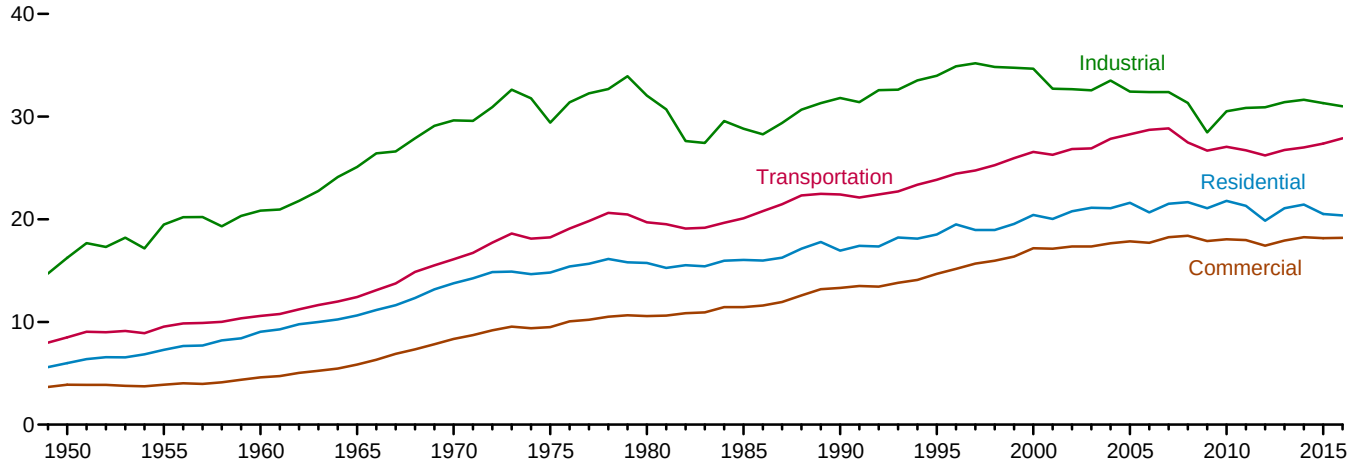
**Non-Energy Balance**
1974 forward: The non-energy balance is calculated by EIA as the total merchandise balance minus the energy balance.

**Total Merchandise**
1974–1987: U.S. merchandise trade press releases and database printouts for adjustments.
1988: "Report on U.S. Merchandise Trade, 1988 Final Revisions," August 18, 1989.
1989: "Report on U.S. Merchandise Trade, 1989 Revisions," July 10, 1990.
1990: "U.S. Merchandise Trade, 1990 Final Report," May 10, 1991, and "U.S. Merchandise Trade, December 1992," February 18, 1993, page 3.
1991: "U.S. Merchandise Trade, 1992 Final Report," May 12, 1993.
1992–2009: "U.S. International Trade in Goods and Services," Annual Revisions.
2010–2011: "U.S. International Trade in Goods and Services," 2012 Annual Revisions.
2012–2014: "U.S. International Trade in Goods and Services," 2014 Annual Revisions.
2015 forward: "U.S. International Trade in Goods and Services," FT-900, monthly.

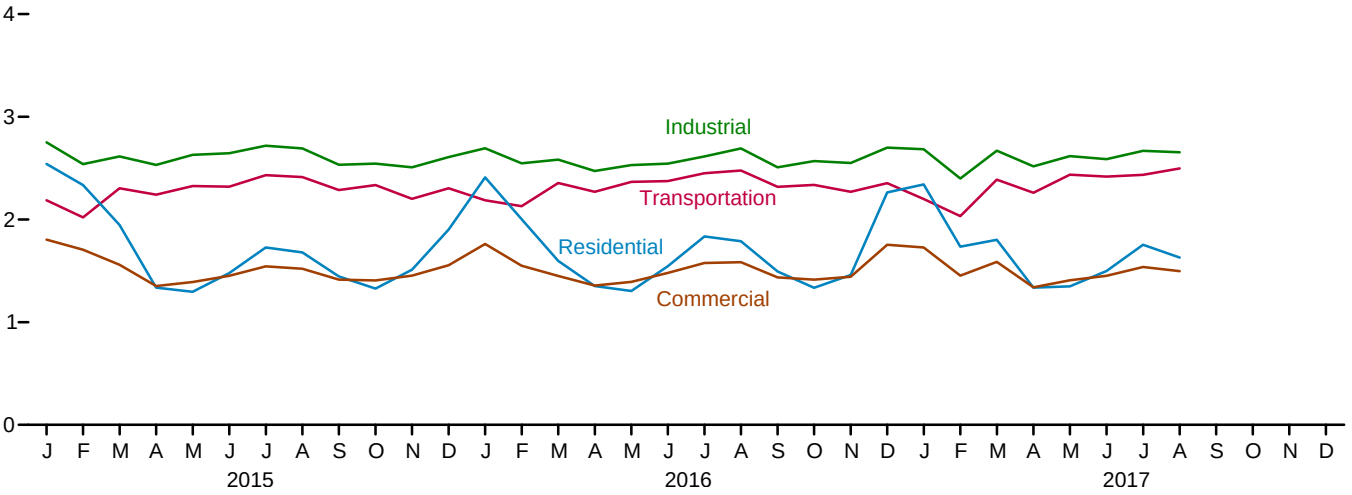
# 2. Energy Consumption by Sector

## Figure 2.1 Energy Consumption by Sector
(Quadrillion Btu)

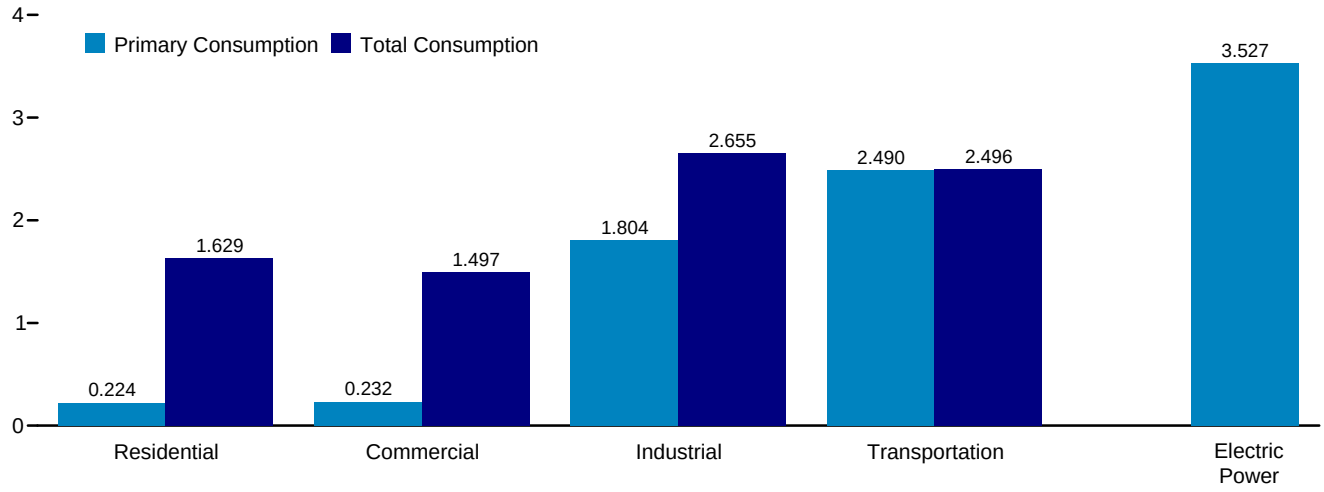
Total Consumption by End-Use Sector, 1949–2016




Total Consumption by End-Use Sector, Monthly




By Sector, August 2017




Web Page: http://www.eia.gov/totalenergy/data/monthly/#consumption.
Source: Table 2.1.

## Table 2.1 Energy Consumption by Sector

(Trillion Btu)

| | End-Use Sectors | | | | | | | | Electric Power Sector[c,d] | Balancing Item[g] | Primary Total[h] |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Residential | | Commercial[a] | | Industrial[b] | | Transportation | | | | |
| | Primary[e] | Total[f] | Primary[e] | Total[f] | Primary[e] | Total[f] | Primary[e] | Total[f] | Primary[e] | | |
| **1950 Total** | **4,829** | **5,989** | **2,834** | **3,893** | **13,890** | **16,241** | **8,383** | **8,492** | **4,679** | **(s)** | **34,616** |
| **1955 Total** | **5,608** | **7,278** | **2,561** | **3,895** | **16,103** | **19,485** | **9,474** | **9,550** | **6,461** | **(s)** | **40,208** |
| **1960 Total** | **6,651** | **9,039** | **2,723** | **4,609** | **16,996** | **20,842** | **10,560** | **10,596** | **8,158** | **(s)** | **45,086** |
| **1965 Total** | **7,279** | **10,639** | **3,177** | **5,845** | **20,148** | **25,098** | **12,399** | **12,432** | **11,012** | **(s)** | **54,015** |
| **1970 Total** | **8,322** | **13,766** | **4,237** | **8,346** | **22,964** | **29,628** | **16,062** | **16,098** | **16,253** | **(s)** | **67,838** |
| **1975 Total** | **7,990** | **14,813** | **4,059** | **9,492** | **21,434** | **29,413** | **18,210** | **18,245** | **20,270** | **1** | **71,965** |
| **1980 Total** | **7,439** | **15,753** | **4,105** | **10,578** | **22,595** | **32,039** | **19,659** | **19,697** | **24,269** | **-1** | **78,067** |
| **1985 Total** | **7,148** | **16,041** | **3,732** | **11,451** | **19,443** | **28,816** | **20,041** | **20,088** | **26,032** | **-4** | **76,392** |
| **1990 Total** | **6,556** | **16,944** | **3,896** | **13,320** | **21,180** | **31,810** | **22,366** | **22,420** | **[d] 30,495** | **-9** | **84,484** |
| **1995 Total** | **6,934** | **18,517** | **4,100** | **14,690** | **22,718** | **33,970** | **23,796** | **23,851** | **33,479** | **3** | **91,031** |
| **2000 Total** | **7,156** | **20,421** | **4,278** | **17,175** | **22,823** | **34,662** | **26,495** | **26,555** | **38,062** | **2** | **98,817** |
| **2001 Total** | **6,864** | **20,038** | **4,085** | **17,137** | **21,793** | **32,719** | **26,219** | **26,282** | **37,215** | **-6** | **96,170** |
| **2002 Total** | **6,907** | **20,786** | **4,132** | **17,346** | **21,798** | **32,661** | **26,785** | **26,846** | **38,016** | **5** | **97,643** |
| **2003 Total** | **7,232** | **21,119** | **4,298** | **17,346** | **21,534** | **32,553** | **26,826** | **26,900** | **38,028** | **-1** | **97,918** |
| **2004 Total** | **6,987** | **21,081** | **4,232** | **17,655** | **22,411** | **33,516** | **27,764** | **27,843** | **38,701** | **-6** | **100,090** |
| **2005 Total** | **6,901** | **21,613** | **4,052** | **17,853** | **21,410** | **32,442** | **28,199** | **28,280** | **39,626** | **(s)** | **100,188** |
| **2006 Total** | **6,154** | **20,670** | **3,747** | **17,707** | **21,529** | **32,391** | **28,638** | **28,717** | **39,417** | **(s)** | **99,485** |
| **2007 Total** | **6,589** | **21,519** | **3,922** | **18,253** | **21,363** | **32,385** | **28,771** | **28,858** | **40,371** | **-1** | **101,015** |
| **2008 Total** | **6,889** | **21,668** | **4,100** | **18,402** | **20,528** | **31,334** | **27,404** | **27,486** | **39,969** | **1** | **98,891** |
| **2009 Total** | **6,633** | **21,077** | **4,055** | **17,887** | **18,756** | **28,466** | **26,605** | **26,687** | **38,069** | **(s)** | **94,118** |
| **2010 Total** | **6,540** | **21,795** | **4,023** | **18,058** | **20,277** | **30,525** | **26,978** | **27,059** | **39,619** | **7** | **97,444** |
| **2011 Total** | **6,393** | **21,302** | **4,063** | **17,979** | **20,459** | **30,847** | **26,632** | **26,712** | **39,293** | **8** | **96,847** |
| **2012 Total** | **5,672** | **19,857** | **3,725** | **17,422** | **20,738** | **30,911** | **26,144** | **26,219** | **38,131** | **2** | **94,412** |
| **2013 Total** | **6,706** | **21,069** | **4,164** | **17,932** | **21,267** | **31,414** | **26,671** | **26,750** | **38,357** | **-1** | **97,164** |
| **2014 Total** | **6,989** | **21,428** | **4,380** | **18,254** | **21,402** | **31,638** | **26,917** | **26,996** | **38,629** | **6** | **98,323** |
| **2015** January | 1,137 | 2,540 | 667 | 1,803 | 1,940 | 2,751 | 2,180 | 2,186 | 3,357 | -1 | 9,280 |
| February | 1,083 | 2,335 | 639 | 1,706 | 1,763 | 2,539 | 2,012 | 2,020 | 3,103 | 1 | 8,601 |
| March | 795 | 1,947 | 499 | 1,559 | 1,830 | 2,614 | 2,298 | 2,304 | 3,002 | -2 | 8,422 |
| April | 444 | 1,336 | 323 | 1,353 | 1,736 | 2,532 | 2,235 | 2,242 | 2,723 | -3 | 7,458 |
| May | 304 | 1,295 | 251 | 1,391 | 1,765 | 2,629 | 2,319 | 2,325 | 3,002 | -1 | 7,639 |
| June | 232 | 1,479 | 216 | 1,452 | 1,751 | 2,645 | 2,313 | 2,319 | 3,383 | 2 | 7,897 |
| July | 222 | 1,728 | 219 | 1,543 | 1,814 | 2,718 | 2,425 | 2,431 | 3,741 | 5 | 8,425 |
| August | 221 | 1,680 | 223 | 1,520 | 1,800 | 2,692 | 2,406 | 2,413 | 3,655 | 5 | 8,309 |
| September | 220 | 1,445 | 221 | 1,414 | 1,705 | 2,533 | 2,281 | 2,287 | 3,251 | 3 | 7,682 |
| October | 359 | 1,327 | 307 | 1,407 | 1,732 | 2,544 | 2,330 | 2,336 | 2,886 | -2 | 7,612 |
| November | 573 | 1,511 | 400 | 1,453 | 1,714 | 2,509 | 2,195 | 2,201 | 2,792 | -3 | 7,672 |
| December | 778 | 1,902 | 479 | 1,554 | 1,821 | 2,608 | 2,298 | 2,304 | 2,993 | -2 | 8,366 |
| **Total** | **6,367** | **20,520** | **4,442** | **18,158** | **21,371** | **31,315** | **27,291** | **27,368** | **37,890** | **1** | **97,363** |
| **2016** January | 1,063 | 2,410 | 630 | 1,762 | 1,911 | 2,693 | 2,180 | 2,186 | 3,269 | 4 | 9,056 |
| February | 861 | 2,003 | 534 | 1,549 | 1,819 | 2,548 | 2,123 | 2,129 | 2,892 | (s) | 8,229 |
| March | 604 | 1,596 | 408 | 1,450 | 1,831 | 2,583 | 2,349 | 2,355 | 2,794 | -4 | 7,981 |
| April | 462 | 1,352 | 331 | 1,356 | 1,707 | 2,473 | 2,264 | 2,270 | 2,686 | -3 | 7,448 |
| May | 324 | 1,303 | 268 | 1,392 | 1,715 | 2,530 | 2,361 | 2,367 | 2,924 | -1 | 7,591 |
| June | 235 | 1,544 | 224 | 1,479 | 1,702 | 2,543 | 2,367 | 2,374 | 3,413 | 5 | 7,946 |
| July | 225 | 1,836 | 224 | 1,576 | 1,741 | 2,613 | 2,444 | 2,451 | 3,842 | 9 | 8,485 |
| August | 210 | 1,788 | 226 | 1,584 | 1,831 | 2,693 | 2,470 | 2,476 | 3,803 | 9 | 8,549 |
| September | 229 | 1,494 | 232 | 1,436 | 1,727 | 2,508 | 2,312 | 2,318 | 3,257 | 5 | 7,761 |
| October | 325 | 1,334 | 293 | 1,413 | 1,791 | 2,569 | 2,331 | 2,337 | 2,913 | 2 | 7,655 |
| November | 521 | 1,460 | 385 | 1,442 | 1,791 | 2,550 | 2,264 | 2,270 | 2,761 | (s) | 7,722 |
| December | 987 | 2,263 | 597 | 1,753 | 1,907 | 2,699 | 2,347 | 2,354 | 3,231 | 4 | 9,074 |
| **Total** | **6,045** | **20,375** | **4,352** | **18,196** | **21,473** | **31,007** | **27,811** | **27,888** | **37,784** | **30** | **97,496** |
| **2017** January | 1,027 | 2,342 | 614 | 1,727 | 1,913 | 2,683 | 2,193 | 2,200 | 3,205 | 4 | 8,955 |
| February | 736 | 1,735 | 471 | 1,453 | 1,690 | 2,399 | 2,027 | 2,033 | 2,696 | -1 | 7,619 |
| March | [R] 743 | 1,803 | 489 | 1,587 | 1,879 | 2,670 | 2,382 | 2,389 | 2,955 | -1 | 8,448 |
| April | 420 | 1,336 | 313 | 1,339 | 1,753 | 2,517 | 2,255 | 2,261 | 2,712 | -2 | 7,450 |
| May | 327 | 1,348 | 273 | 1,408 | 1,791 | 2,616 | 2,430 | 2,436 | 2,987 | (s) | 7,809 |
| June | [R] 254 | 1,499 | 235 | 1,452 | 1,748 | 2,587 | 2,411 | 2,417 | 3,308 | 3 | 7,958 |
| July | [R] 226 | [R] 1,754 | [R] 223 | [R] 1,537 | [R] 1,806 | [R] 2,668 | [R] 2,428 | [R] 2,434 | 3,710 | 7 | [R] 8,400 |
| August | 224 | 1,629 | 232 | 1,497 | 1,804 | 2,655 | 2,490 | 2,496 | 3,527 | 3 | 8,281 |
| **8-Month Total** | **3,958** | **13,446** | **2,850** | **12,000** | **14,384** | **20,795** | **18,615** | **18,666** | **25,099** | **14** | **64,921** |
| **2016 8-Month Total** | **3,982** | **13,832** | **2,845** | **12,148** | **14,257** | **20,676** | **18,558** | **18,609** | **25,622** | **19** | **65,284** |
| **2015 8-Month Total** | **4,438** | **14,340** | **3,036** | **12,327** | **14,398** | **21,119** | **18,188** | **18,240** | **25,966** | **5** | **66,031** |

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

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

[c] 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.

[d] Through 1988, data are for electric utilities only. Beginning in 1989, data are for electric utilities and independent power producers.

[e] See "Primary Energy Consumption" in Glossary.

[f] Total energy consumption in the end-use sectors consists of primary energy consumption, electricity retail sales, and electrical system energy losses. See Note 1, "Electrical System Energy Losses," at end of section.

[g] 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 coal and natural gas.

[h] Primary energy consumption total. See Table 1.3.

R=Revised. (s)=Less than 0.5 trillion Btu and greater than -0.5 trillion Btu.

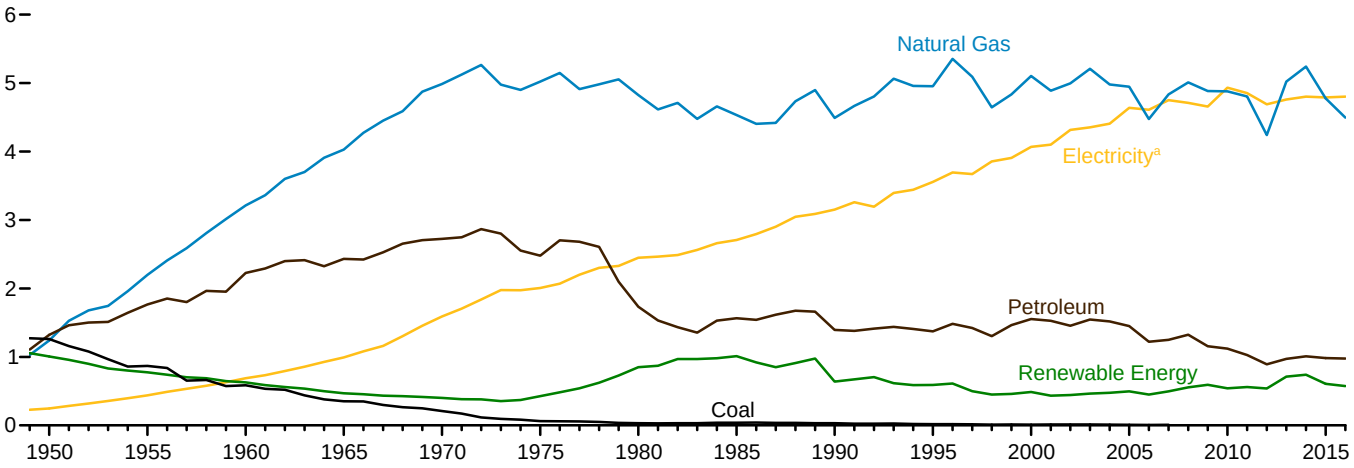
Notes: • Data are estimates, except for the electric power sector. • See Note 2, "Classification of Power Plants Into Energy-Use Sectors," at end of Section 7. • See Note 2, "Energy Consumption Data and Surveys," at end of section. • Totals may not equal sum of components due to independent rounding. • Geographic coverage is the 50 states and the District of Columbia.

Web Page: See http://www.eia.gov/totalenergy/data/monthly/#consumption (Excel and CSV files) for all available annual data beginning in 1949 and monthly data beginning in 1973.

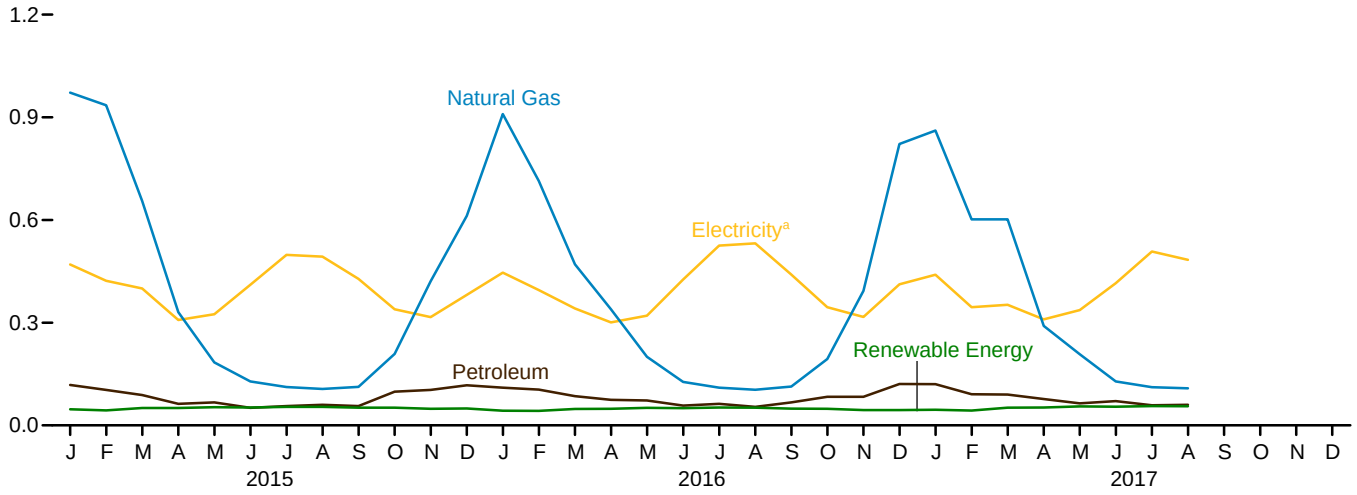
Sources: • **End-Use Sectors:** Tables 2.2–2.5. • **Electric Power Sector:** Table 2.6. • **Balancing Item:** Calculated as primary energy total consumption minus the sum of total energy consumption in the four end-use sectors. • **Primary Total:** Table 1.3.

## Figure 2.2 Residential Sector Energy Consumption
(Quadrillion Btu)

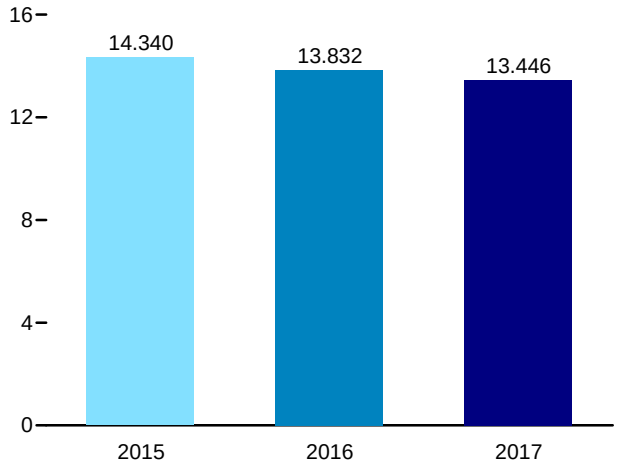
By Major Source, 1949–2016



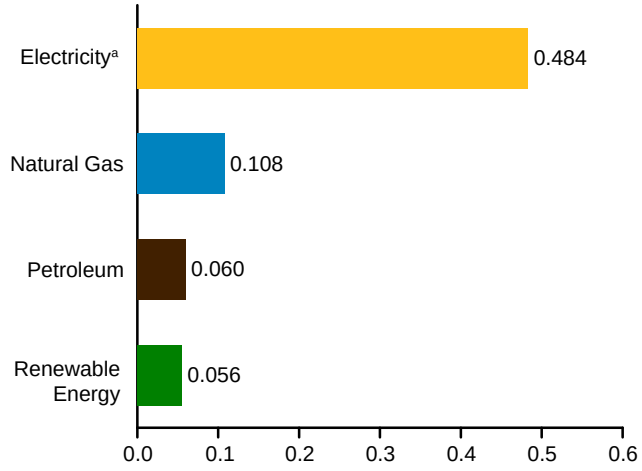

By Major Source, Monthly




Total, January–August




By Major Source, August 2017




[a] Electricity retail sales.
Web Page: http://www.eia.gov/totalenergy/data/monthly/#consumption.
Source: Table 2.2.

## Table 2.2 Residential Sector Energy Consumption

(Trillion Btu)

| | Primary Consumption[a] | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Fossil Fuels | | | | Renewable Energy[b] | | | | | | | |
| | Coal | Natural Gas[c] | Petro-leum | Total | Geo-thermal | Solar[d] | Bio-mass | Total | Total Primary | Electricity Retail Sales[e] | Electrical System Energy Losses[f] | Total |
| **1950 Total** | **1,261** | **1,240** | **1,322** | **3,824** | **NA** | **NA** | **1,006** | **1,006** | **4,829** | **246** | **913** | **5,989** |
| **1955 Total** | **867** | **2,198** | **1,767** | **4,833** | **NA** | **NA** | **775** | **775** | **5,608** | **438** | **1,232** | **7,278** |
| **1960 Total** | **585** | **3,212** | **2,227** | **6,024** | **NA** | **NA** | **627** | **627** | **6,651** | **687** | **1,701** | **9,039** |
| **1965 Total** | **352** | **4,028** | **2,432** | **6,811** | **NA** | **NA** | **468** | **468** | **7,279** | **993** | **2,367** | **10,639** |
| **1970 Total** | **209** | **4,987** | **2,725** | **7,922** | **NA** | **NA** | **401** | **401** | **8,322** | **1,591** | **3,852** | **13,766** |
| **1975 Total** | **63** | **5,023** | **2,479** | **7,564** | **NA** | **NA** | **425** | **425** | **7,990** | **2,007** | **4,817** | **14,813** |
| **1980 Total** | **31** | **4,825** | **1,734** | **6,589** | **NA** | **NA** | **850** | **850** | **7,439** | **2,448** | **5,866** | **15,753** |
| **1985 Total** | **39** | **4,534** | **1,565** | **6,138** | **NA** | **NA** | **1,010** | **1,010** | **7,148** | **2,709** | **6,184** | **16,041** |
| **1990 Total** | **31** | **4,491** | **1,394** | **5,916** | **6** | **55** | **580** | **640** | **6,556** | **3,153** | **7,235** | **16,944** |
| **1995 Total** | **17** | **4,954** | **1,373** | **6,345** | **7** | **63** | **520** | **589** | **6,934** | **3,557** | **8,026** | **18,517** |
| **2000 Total** | **11** | **5,105** | **1,553** | **6,669** | **9** | **58** | **420** | **486** | **7,156** | **4,069** | **9,197** | **20,421** |
| **2001 Total** | **12** | **4,889** | **1,528** | **6,429** | **9** | **55** | **370** | **435** | **6,864** | **4,100** | **9,074** | **20,038** |
| **2002 Total** | **12** | **4,995** | **1,456** | **6,463** | **10** | **53** | **380** | **444** | **6,907** | **4,317** | **9,562** | **20,786** |
| **2003 Total** | **12** | **5,209** | **1,546** | **6,768** | **13** | **52** | **400** | **465** | **7,232** | **4,353** | **9,534** | **21,119** |
| **2004 Total** | **11** | **4,981** | **1,519** | **6,511** | **14** | **51** | **410** | **475** | **6,987** | **4,408** | **9,687** | **21,081** |
| **2005 Total** | **8** | **4,946** | **1,450** | **6,405** | **16** | **50** | **430** | **496** | **6,901** | **4,638** | **10,074** | **21,613** |
| **2006 Total** | **6** | **4,476** | **1,221** | **5,704** | **18** | **53** | **380** | **451** | **6,154** | **4,611** | **9,905** | **20,670** |
| **2007 Total** | **8** | **4,835** | **1,249** | **6,092** | **22** | **55** | **420** | **497** | **6,589** | **4,750** | **10,180** | **21,519** |
| **2008 Total** | **NA** | **5,010** | **1,324** | **6,334** | **26** | **58** | **470** | **555** | **6,889** | **4,711** | **10,068** | **21,668** |
| **2009 Total** | **NA** | **4,883** | **1,157** | **6,040** | **33** | **60** | **500** | **593** | **6,633** | **4,657** | **9,788** | **21,077** |
| **2010 Total** | **NA** | **4,878** | **1,121** | **5,999** | **37** | **65** | **440** | **541** | **6,540** | **4,933** | **10,321** | **21,795** |
| **2011 Total** | **NA** | **4,805** | **1,028** | **5,833** | **40** | **71** | **450** | **560** | **6,393** | **4,855** | **10,054** | **21,302** |
| **2012 Total** | **NA** | **4,242** | **891** | **5,133** | **40** | **79** | **420** | **539** | **5,672** | **4,690** | **9,496** | **19,857** |
| **2013 Total** | **NA** | **5,023** | **971** | **5,994** | **40** | **92** | **580** | **711** | **6,706** | **4,759** | **9,604** | **21,069** |
| **2014 Total** | **NA** | **5,242** | **1,008** | **6,250** | **40** | **109** | **590** | **739** | **6,989** | **4,801** | **9,638** | **21,428** |
| **2015** January | NA | 972 | 118 | 1,090 | 3 | 6 | 37 | 47 | 1,137 | 470 | 933 | 2,540 |
| February | NA | 935 | 104 | 1,039 | 3 | 7 | 34 | 44 | 1,083 | 423 | 830 | 2,335 |
| March | NA | 656 | 89 | 744 | 3 | 10 | 37 | 51 | 795 | 400 | 752 | 1,947 |
| April | NA | 331 | 63 | 394 | 3 | 11 | 36 | 51 | 444 | 308 | 584 | 1,336 |
| May | NA | 184 | 67 | 251 | 3 | 12 | 37 | 53 | 304 | 325 | 667 | 1,295 |
| June | NA | 128 | 51 | 180 | 3 | 13 | 36 | 52 | 232 | 410 | 836 | 1,479 |
| July | NA | 112 | 56 | 168 | 3 | 13 | 37 | 54 | 222 | 498 | 1,007 | 1,728 |
| August | NA | 106 | 60 | 166 | 3 | 13 | 37 | 54 | 221 | 493 | 966 | 1,680 |
| September | NA | 112 | 56 | 169 | 3 | 12 | 36 | 52 | 220 | 428 | 797 | 1,445 |
| October | NA | 209 | 98 | 307 | 3 | 11 | 37 | 52 | 359 | 339 | 630 | 1,327 |
| November | NA | 421 | 104 | 525 | 3 | 9 | 36 | 49 | 573 | 316 | 622 | 1,511 |
| December | NA | 612 | 117 | 729 | 3 | 8 | 37 | 49 | 778 | 381 | 743 | 1,902 |
| **Total** | **NA** | **4,777** | **983** | **5,760** | **40** | **128** | **440** | **607** | **6,367** | **4,791** | **9,362** | **20,520** |
| **2016** January | NA | 910 | 110 | 1,020 | 3 | 8 | 32 | 43 | 1,063 | 446 | 901 | 2,410 |
| February | NA | 714 | 104 | 818 | 3 | 10 | 30 | 42 | 861 | 395 | 747 | 2,003 |
| March | NA | 471 | 85 | 556 | 3 | 13 | 32 | 48 | 604 | 342 | 651 | 1,596 |
| April | NA | 339 | 75 | 414 | 3 | 14 | 31 | 48 | 462 | 301 | 589 | 1,352 |
| May | NA | 200 | 73 | 273 | 3 | 16 | 32 | 51 | 324 | 321 | 658 | 1,303 |
| June | NA | 127 | 58 | 184 | 3 | 17 | 31 | 50 | 235 | 426 | 883 | 1,544 |
| July | NA | 110 | 63 | 173 | 3 | 17 | 32 | 52 | 225 | 525 | 1,085 | 1,836 |
| August | NA | 104 | 54 | 158 | 3 | 17 | 32 | 52 | 210 | 532 | 1,046 | 1,788 |
| September | NA | 113 | 67 | 181 | 3 | 15 | 31 | 49 | 229 | 441 | 824 | 1,494 |
| October | NA | 194 | 83 | 277 | 3 | 13 | 32 | 48 | 325 | 345 | 664 | 1,334 |
| November | NA | 393 | 84 | 476 | 3 | 11 | 31 | 45 | 521 | 317 | 622 | 1,460 |
| December | NA | 822 | 121 | 943 | 3 | 10 | 32 | 45 | 987 | 412 | 863 | 2,263 |
| **Total** | **NA** | **4,496** | **976** | **5,472** | **40** | **161** | **373** | **573** | **6,045** | **4,802** | **9,529** | **20,375** |
| **2017** January | NA | 861 | 121 | 982 | 3 | 10 | 32 | 46 | 1,027 | 440 | 874 | 2,342 |
| February | NA | 602 | 91 | 693 | 3 | 11 | 29 | 43 | 736 | 345 | 654 | 1,735 |
| March | NA | 602 | 90 | 692 | 3 | 16 | 32 | 51 | R 743 | 352 | 707 | 1,803 |
| April | NA | 290 | 77 | 367 | 3 | 18 | 31 | 52 | 420 | 310 | 607 | 1,336 |
| May | NA | 208 | 64 | 272 | 3 | 19 | 32 | 55 | 327 | 337 | 684 | 1,348 |
| June | NA | 128 | 71 | 199 | 3 | 20 | 31 | 54 | R 254 | 416 | 830 | 1,499 |
| July | NA | 111 | R 59 | R 170 | 3 | 20 | 32 | 56 | R 226 | 508 | 1,020 | R 1,754 |
| August | NA | 108 | 60 | 169 | 3 | 20 | 32 | 56 | 224 | 484 | 921 | 1,629 |
| **8-Month Total** | **NA** | **2,911** | **633** | **3,544** | **26** | **134** | **254** | **414** | **3,958** | **3,191** | **6,297** | **13,446** |
| **2016 8-Month Total** | **NA** | **2,975** | **621** | **3,596** | **26** | **112** | **248** | **386** | **3,982** | **3,287** | **6,562** | **13,832** |
| **2015 8-Month Total** | **NA** | **3,424** | **607** | **4,031** | **26** | **87** | **293** | **406** | **4,438** | **3,327** | **6,575** | **14,340** |

[a] See "Primary Energy Consumption" in Glossary.
[b] See Table 10.2a for notes on series components.
[c] Natural gas only; excludes the estimated portion of supplemental gaseous fuels. See Note 3, "Supplemental Gaseous Fuels," at end of Section 4.
[d] Distributed (small-scale) solar photovoltaic (PV) electricity generation in the residential sector and distributed solar thermal energy in the residential, commercial, and industrial sectors. See Tables 10.2a and 10.5.
[e] Electricity retail sales to ultimate customers reported by electric utilities and, beginning in 1996, other energy service providers.
[f] 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 1, "Electrical System Energy Losses," at end of section.

R=Revised. NA=Not available.

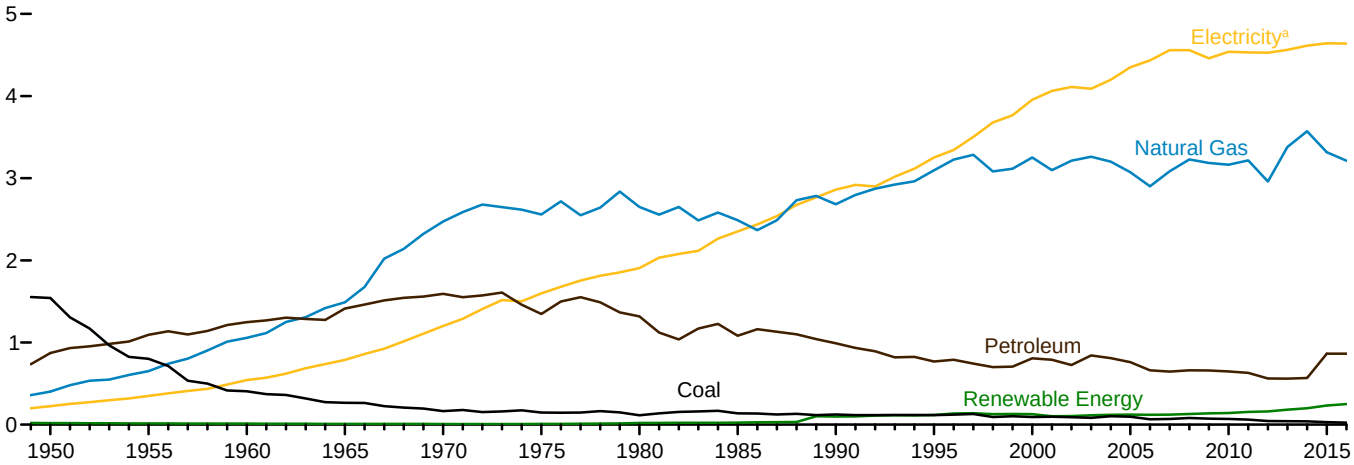
Notes: • Data are estimates, except for electricity retail sales. • See Note 2, "Energy Consumption Data and Surveys," at end of section. • Totals may not equal sum of components due to independent rounding. • Geographic coverage is the 50 states and the District of Columbia.

Web Page: See http://www.eia.gov/totalenergy/data/monthly/#consumption (Excel and CSV files) for all available annual data beginning in 1949 and monthly data beginning in 1973.

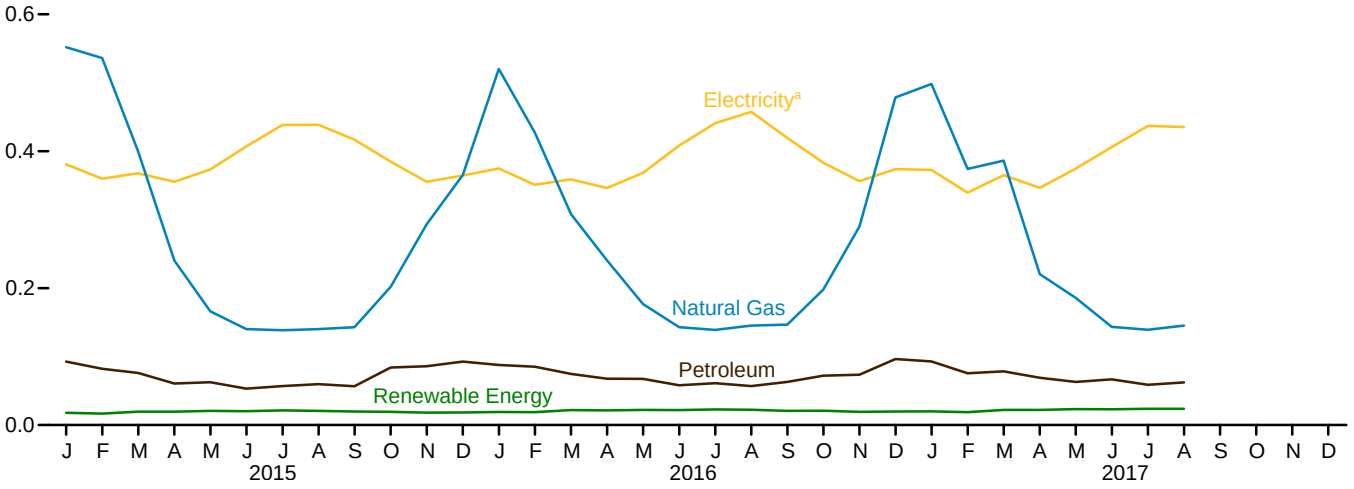
Sources: See end of section.

## Figure 2.3 Commercial Sector Energy Consumption
(Quadrillion Btu)

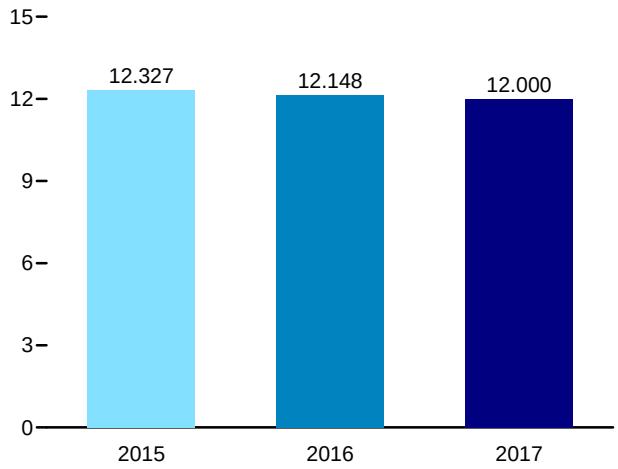
By Major Source, 1949–2016



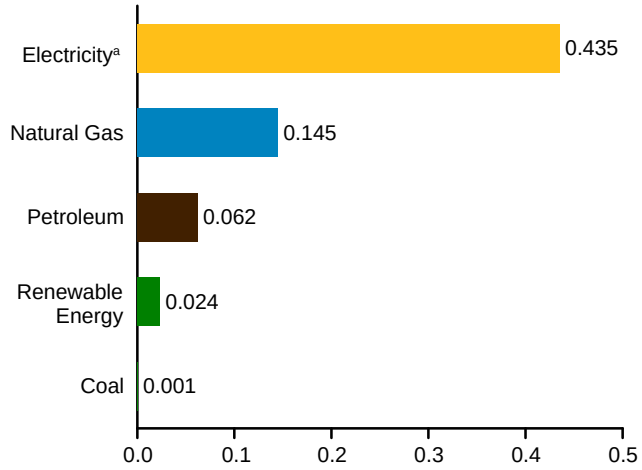

By Major Source, Monthly




Total, January–August




By Major Source, August 2017




[a] Electricity retail sales.
Web Page: http://www.eia.gov/totalenergy/data/monthly/#consumption.
Source: Table 2.3.

## Table 2.3 Commercial Sector Energy Consumption

(Trillion Btu)

| | Primary Consumption[a] | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Fossil Fuels | | | | Renewable Energy[b] | | | | | | | | | |
| | Coal | Natural Gas[c] | Petroleum[d] | Total | Hydroelectric Power[e] | Geothermal | Solar[f] | Wind | Biomass | Total | Total Primary | Electricity Retail Sales[g] | Electrical System Energy Losses[h] | Total |
| **1950 Total** | **1,542** | **401** | **872** | **2,815** | **NA** | **NA** | **NA** | **NA** | **19** | **19** | **2,834** | **225** | **834** | **3,893** |
| **1955 Total** | **801** | **651** | **1,095** | **2,547** | **NA** | **NA** | **NA** | **NA** | **15** | **15** | **2,561** | **350** | **984** | **3,895** |
| **1960 Total** | **407** | **1,056** | **1,248** | **2,711** | **NA** | **NA** | **NA** | **NA** | **12** | **12** | **2,723** | **543** | **1,344** | **4,609** |
| **1965 Total** | **265** | **1,490** | **1,413** | **3,168** | **NA** | **NA** | **NA** | **NA** | **9** | **9** | **3,177** | **789** | **1,880** | **5,845** |
| **1970 Total** | **165** | **2,473** | **1,592** | **4,229** | **NA** | **NA** | **NA** | **NA** | **8** | **8** | **4,237** | **1,201** | **2,908** | **8,346** |
| **1975 Total** | **147** | **2,558** | **1,346** | **4,051** | **NA** | **NA** | **NA** | **NA** | **8** | **8** | **4,059** | **1,598** | **3,835** | **9,492** |
| **1980 Total** | **115** | **2,651** | **1,318** | **4,084** | **NA** | **NA** | **NA** | **NA** | **21** | **21** | **4,105** | **1,906** | **4,567** | **10,578** |
| **1985 Total** | **137** | **2,488** | **1,083** | **3,708** | **NA** | **NA** | **NA** | **NA** | **24** | **24** | **3,732** | **2,351** | **5,368** | **11,451** |
| **1990 Total** | **124** | **2,682** | **991** | **3,798** | **1** | **3** | **(s)** | **–** | **94** | **98** | **3,896** | **2,860** | **6,564** | **13,320** |
| **1995 Total** | **117** | **3,096** | **769** | **3,982** | **1** | **5** | **(s)** | **–** | **113** | **119** | **4,100** | **3,252** | **7,337** | **14,690** |
| **2000 Total** | **92** | **3,252** | **806** | **4,150** | **1** | **8** | **1** | **–** | **119** | **128** | **4,278** | **3,956** | **8,942** | **17,175** |
| **2001 Total** | **97** | **3,097** | **789** | **3,983** | **1** | **8** | **1** | **–** | **92** | **101** | **4,085** | **4,062** | **8,990** | **17,137** |
| **2002 Total** | **90** | **3,212** | **725** | **4,027** | **(s)** | **9** | **1** | **–** | **95** | **105** | **4,132** | **4,110** | **9,104** | **17,346** |
| **2003 Total** | **82** | **3,261** | **841** | **4,184** | **1** | **11** | **1** | **–** | **101** | **114** | **4,298** | **4,090** | **8,958** | **17,346** |
| **2004 Total** | **103** | **3,201** | **809** | **4,113** | **1** | **12** | **1** | **–** | **105** | **120** | **4,232** | **4,198** | **9,225** | **17,655** |
| **2005 Total** | **97** | **3,073** | **761** | **3,931** | **1** | **14** | **2** | **–** | **105** | **121** | **4,052** | **4,351** | **9,451** | **17,853** |
| **2006 Total** | **65** | **2,902** | **661** | **3,627** | **1** | **14** | **2** | **–** | **103** | **120** | **3,747** | **4,435** | **9,525** | **17,707** |
| **2007 Total** | **70** | **3,085** | **646** | **3,801** | **1** | **14** | **4** | **–** | **103** | **121** | **3,922** | **4,560** | **9,771** | **18,253** |
| **2008 Total** | **81** | **3,228** | **660** | **3,970** | **1** | **15** | **6** | **–** | **109** | **130** | **4,100** | **4,559** | **9,743** | **18,402** |
| **2009 Total** | **73** | **3,187** | **659** | **3,919** | **1** | **17** | **7** | **(s)** | **112** | **137** | **4,055** | **4,459** | **9,373** | **17,887** |
| **2010 Total** | **70** | **3,165** | **647** | **3,881** | **1** | **19** | **11** | **(s)** | **111** | **142** | **4,023** | **4,539** | **9,497** | **18,058** |
| **2011 Total** | **62** | **3,216** | **631** | **3,908** | **(s)** | **20** | **19** | **(s)** | **115** | **154** | **4,063** | **4,531** | **9,385** | **17,979** |
| **2012 Total** | **44** | **2,960** | **562** | **3,565** | **(s)** | **20** | **32** | **1** | **108** | **161** | **3,725** | **4,528** | **9,168** | **17,422** |
| **2013 Total** | **41** | **3,380** | **561** | **3,982** | **(s)** | **20** | **41** | **1** | **120** | **182** | **4,164** | **4,562** | **9,206** | **17,932** |
| **2014 Total** | **40** | **3,572** | **568** | **4,180** | **(s)** | **20** | **52** | **1** | **126** | **199** | **4,380** | **4,614** | **9,261** | **18,254** |
| **2015** January | 4 | 552 | 93 | 649 | (s) | 2 | 3 | (s) | 13 | 18 | 667 | 381 | 756 | 1,803 |
| February | 4 | 536 | 82 | 622 | (s) | 2 | 4 | (s) | 12 | 17 | 639 | 360 | 707 | 1,706 |
| March | 4 | 400 | 76 | 479 | (s) | 2 | 5 | (s) | 13 | 20 | 499 | 368 | 692 | 1,559 |
| April | 2 | 240 | 61 | 303 | (s) | 2 | 5 | (s) | 13 | 20 | 323 | 355 | 674 | 1,353 |
| May | 2 | 166 | 63 | 231 | (s) | 2 | 6 | (s) | 13 | 21 | 251 | 373 | 767 | 1,391 |
| June | 2 | 140 | 53 | 196 | (s) | 2 | 6 | (s) | 13 | 20 | 216 | 407 | 829 | 1,452 |
| July | 2 | 138 | 57 | 197 | (s) | 2 | 6 | (s) | 14 | 21 | 219 | 438 | 886 | 1,543 |
| August | 2 | 140 | 60 | 202 | (s) | 2 | 6 | (s) | 13 | 21 | 223 | 439 | 859 | 1,520 |
| September | 2 | 143 | 57 | 201 | (s) | 2 | 5 | (s) | 13 | 20 | 221 | 417 | 776 | 1,414 |
| October | 2 | 202 | 84 | 288 | (s) | 2 | 5 | (s) | 13 | 19 | 307 | 385 | 715 | 1,407 |
| November | 2 | 293 | 86 | 382 | (s) | 2 | 4 | (s) | 13 | 18 | 400 | 355 | 698 | 1,453 |
| December | 3 | 365 | 93 | 461 | (s) | 2 | 3 | (s) | 13 | 18 | 479 | 365 | 711 | 1,554 |
| **Total** | **31** | **3,316** | **863** | **4,210** | **(s)** | **20** | **57** | **1** | **154** | **232** | **4,442** | **4,643** | **9,073** | **18,158** |
| **2016** January | 3 | 520 | 88 | 611 | (s) | 2 | 4 | (s) | 13 | 19 | 630 | 375 | 757 | 1,762 |
| February | 3 | 427 | 85 | 516 | (s) | 2 | 5 | (s) | 12 | 19 | 534 | 351 | 664 | 1,549 |
| March | 3 | 308 | 75 | 386 | (s) | 2 | 6 | (s) | 14 | 22 | 408 | 359 | 684 | 1,450 |
| April | 2 | 241 | 68 | 310 | (s) | 2 | 7 | (s) | 13 | 21 | 331 | 346 | 678 | 1,356 |
| May | 1 | 177 | 67 | 246 | (s) | 2 | 7 | (s) | 13 | 22 | 268 | 368 | 756 | 1,392 |
| June | 1 | 143 | 58 | 202 | (s) | 2 | 7 | (s) | 13 | 22 | 224 | 408 | 847 | 1,479 |
| July | 1 | 139 | 61 | 202 | (s) | 2 | 8 | (s) | 13 | 23 | 224 | 441 | 911 | 1,576 |
| August | 1 | 145 | 57 | 204 | (s) | 2 | 7 | (s) | 13 | 22 | 226 | 457 | 900 | 1,584 |
| September | 1 | 147 | 63 | 211 | (s) | 2 | 7 | (s) | 13 | 21 | 232 | 420 | 785 | 1,436 |
| October | 2 | 198 | 72 | 272 | (s) | 2 | 6 | (s) | 13 | 21 | 293 | 383 | 737 | 1,413 |
| November | 2 | 290 | 73 | 366 | (s) | 2 | 5 | (s) | 13 | 19 | 385 | 356 | 700 | 1,442 |
| December | 3 | 479 | 96 | 578 | (s) | 2 | 4 | (s) | 14 | 20 | 597 | 374 | 782 | 1,753 |
| **Total** | **24** | **3,213** | **864** | **4,101** | **1** | **20** | **72** | **1** | **157** | **251** | **4,352** | **4,639** | **9,205** | **18,196** |
| **2017** January | 3 | 498 | 93 | 594 | (s) | 2 | 5 | (s) | 14 | 20 | 614 | 373 | 740 | 1,727 |
| February | 2 | 374 | 76 | 452 | (s) | 2 | 5 | (s) | 12 | 19 | 471 | 339 | 643 | 1,453 |
| March | 3 | 386 | 78 | 467 | (s) | 2 | 7 | (s) | 13 | 22 | 489 | 365 | 733 | 1,587 |
| April | 1 | 221 | 69 | 291 | (s) | 2 | 8 | (s) | 13 | 22 | 313 | 347 | 679 | 1,339 |
| May | 1 | 186 | 63 | 250 | (s) | 2 | 8 | (s) | 13 | 23 | 273 | 374 | 760 | 1,408 |
| June | 1 | R 143 | 67 | 212 | (s) | 2 | 8 | (s) | 13 | 23 | 235 | 406 | 811 | 1,452 |
| July | 1 | 139 | R 59 | R 199 | (s) | 2 | 9 | (s) | 13 | 24 | R 223 | 437 | 877 | R 1,537 |
| August | 1 | 145 | 62 | 209 | (s) | 2 | 8 | (s) | 13 | 24 | 232 | 435 | 830 | 1,497 |
| **8-Month Total** | **14** | **2,092** | **567** | **2,673** | **1** | **13** | **58** | **1** | **104** | **177** | **2,850** | **3,077** | **6,073** | **12,000** |
| **2016 8-Month Total** | **16** | **2,100** | **559** | **2,675** | **(s)** | **13** | **51** | **1** | **105** | **170** | **2,845** | **3,106** | **6,197** | **12,148** |
| **2015 8-Month Total** | **22** | **2,313** | **544** | **2,879** | **(s)** | **13** | **40** | **1** | **103** | **157** | **3,036** | **3,121** | **6,170** | **12,327** |

[a] See "Primary Energy Consumption" in Glossary.
[b] See Table 10.2a for notes on series components and estimation.
[c] Natural gas only; excludes the estimated portion of supplemental gaseous fuels. See Note 3, "Supplemental Gaseous Fuels," at end of Section 4.
[d] Does not include biofuels that have been blended with petroleum—biofuels are included in "Biomass."
[e] Conventional hydroelectric power.
[f] Solar photovoltaic (PV) electricity net generation in the commercial sector, both utility-scale and distributed (small-scale). See Tables 10.2a and 10.5.
[g] Electricity retail sales to ultimate customers reported by electric utilities and, beginning in 1996, other energy service providers.
[h] 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 1, "Electrical System Energy Losses," at end of section.

R=Revised. NA=Not available. – =No data reported. (s)=Less than 0.5 trillion Btu.

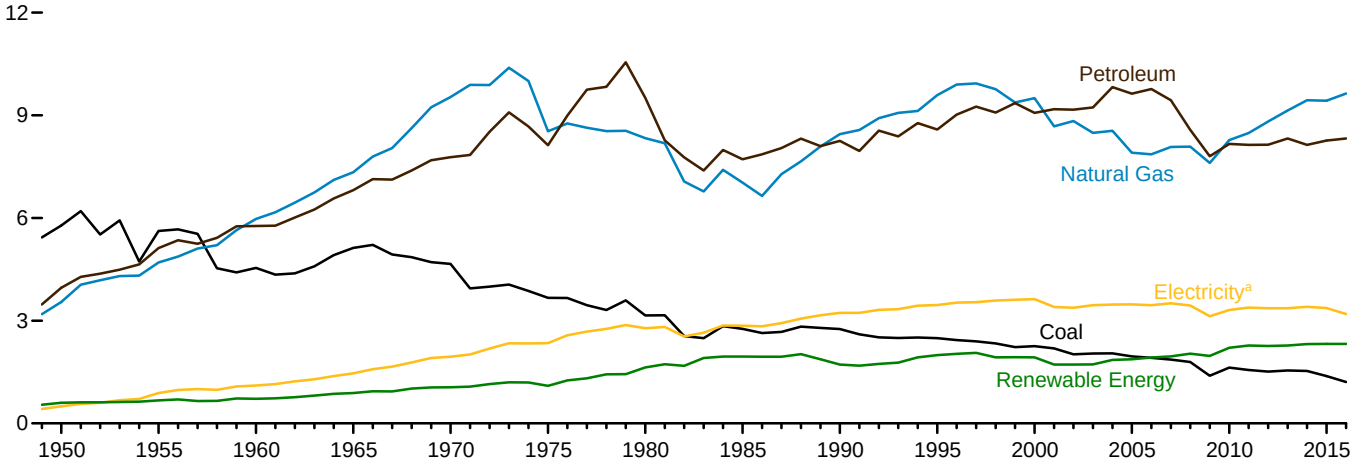
Notes: • Data are estimates, except for coal totals beginning in 2008; hydroelectric power; solar; wind; and electricity retail sales beginning in 1979. • The commercial sector includes commercial combined-heat-and-power (CHP) and commercial electricity-only plants. See Note 2, "Classification of Power Plants Into Energy-Use Sectors," at end of Section 7. • See Note 2, "Energy Consumption Data and Surveys," at end of section. • Totals may not equal sum of components due to independent rounding. • Geographic coverage is the 50 states and the District of Columbia.

Web Page: See http://www.eia.gov/totalenergy/data/monthly/#consumption (Excel and CSV files) for all available annual data beginning in 1949 and monthly data beginning in 1973.

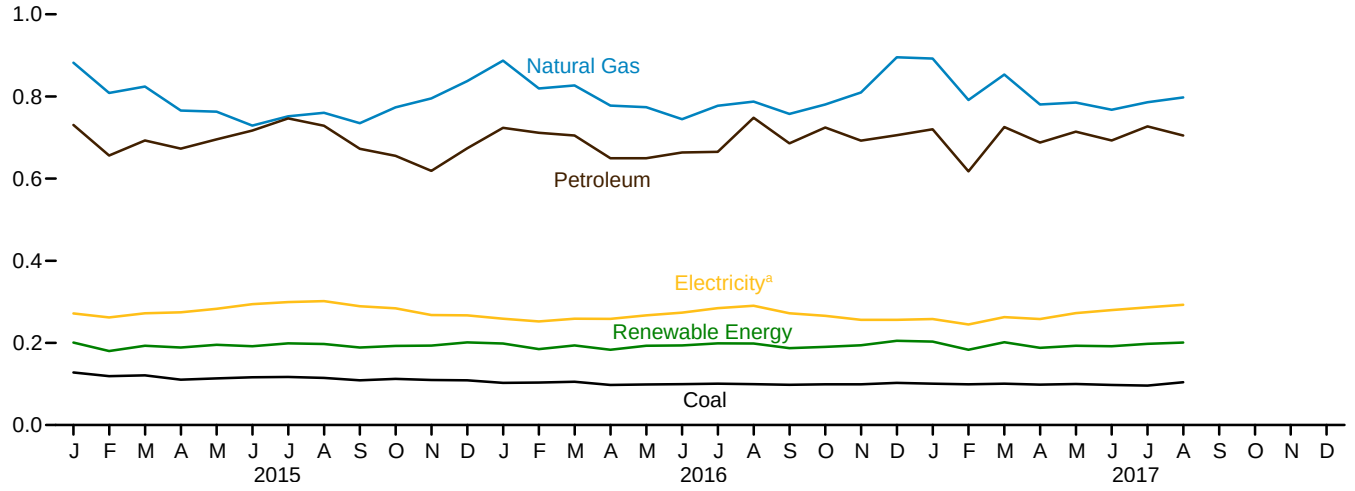
Sources: See end of section.

## Figure 2.4 Industrial Sector Energy Consumption
(Quadrillion Btu)

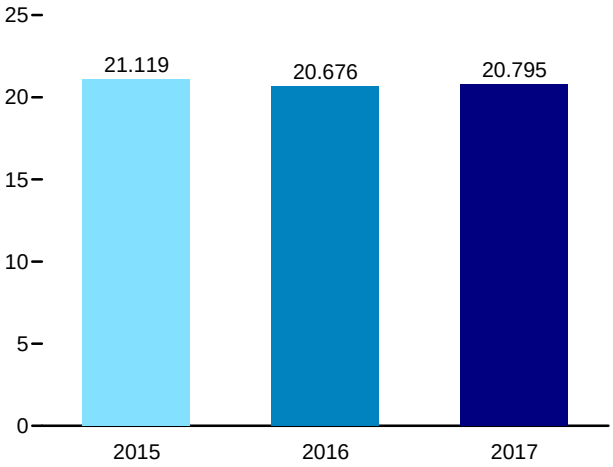
By Major Source, 1949–2016



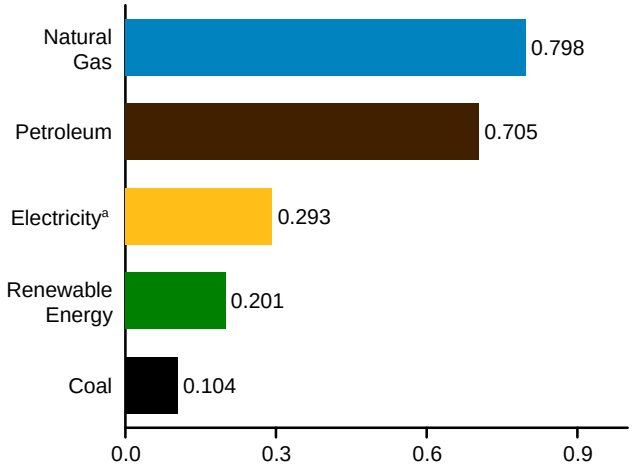

By Major Source, Monthly




Total, January–August




By Major Source, August 2017




[a] Electricity retail sales.
Web Page: http://www.eia.gov/totalenergy/data/monthly/#consumption.
Source: Table 2.4.

# Table 2.4 Industrial Sector Energy Consumption

(Trillion Btu)

| | Primary Consumption[a] | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Fossil Fuels[b] | | | | Renewable Energy[c] | | | | | | | | | |
| | Coal | Natural Gas[d] | Petroleum[e] | Total[f] | Hydroelectric Power[g] | Geothermal | Solar[h] | Wind | Biomass | Total | Total Primary | Electricity Retail Sales[i] | Electrical System Energy Losses[j] | Total[f] |
| **1950 Total** | **5,781** | **3,546** | **3,960** | **13,288** | **69** | **NA** | **NA** | **NA** | **532** | **602** | **13,890** | **500** | **1,852** | **16,241** |
| **1955 Total** | **5,620** | **4,701** | **5,123** | **15,434** | **38** | **NA** | **NA** | **NA** | **631** | **669** | **16,103** | **887** | **2,495** | **19,485** |
| **1960 Total** | **4,543** | **5,973** | **5,766** | **16,277** | **39** | **NA** | **NA** | **NA** | **680** | **719** | **16,996** | **1,107** | **2,739** | **20,842** |
| **1965 Total** | **5,127** | **7,339** | **6,813** | **19,260** | **33** | **NA** | **NA** | **NA** | **855** | **888** | **20,148** | **1,463** | **3,487** | **25,098** |
| **1970 Total** | **4,656** | **9,536** | **7,776** | **21,911** | **34** | **NA** | **NA** | **NA** | **1,019** | **1,053** | **22,964** | **1,948** | **4,716** | **29,628** |
| **1975 Total** | **3,667** | **8,532** | **8,127** | **20,339** | **32** | **NA** | **NA** | **NA** | **1,063** | **1,096** | **21,434** | **2,346** | **5,632** | **29,413** |
| **1980 Total** | **3,155** | **8,333** | **9,509** | **20,962** | **33** | **NA** | **NA** | **NA** | **1,600** | **1,633** | **22,595** | **2,781** | **6,664** | **32,039** |
| **1985 Total** | **2,760** | **7,032** | **7,714** | **17,492** | **33** | **NA** | **NA** | **NA** | **1,918** | **1,951** | **19,443** | **2,855** | **6,518** | **28,816** |
| **1990 Total** | **2,756** | **8,451** | **8,251** | **19,463** | **31** | **2** | **(s)** | **–** | **1,684** | **1,717** | **21,180** | **3,226** | **7,404** | **31,810** |
| **1995 Total** | **2,488** | **9,592** | **8,585** | **20,726** | **55** | **3** | **(s)** | **–** | **1,934** | **1,992** | **22,718** | **3,455** | **7,796** | **33,970** |
| **2000 Total** | **2,256** | **9,500** | **9,073** | **20,895** | **42** | **4** | **(s)** | **–** | **1,881** | **1,928** | **22,823** | **3,631** | **8,208** | **34,662** |
| **2001 Total** | **2,192** | **8,676** | **9,177** | **20,074** | **33** | **5** | **(s)** | **–** | **1,681** | **1,719** | **21,793** | **3,400** | **7,526** | **32,719** |
| **2002 Total** | **2,019** | **8,832** | **9,167** | **20,078** | **39** | **5** | **(s)** | **–** | **1,676** | **1,720** | **21,798** | **3,379** | **7,484** | **32,661** |
| **2003 Total** | **2,041** | **8,488** | **9,229** | **19,809** | **43** | **3** | **(s)** | **–** | **1,678** | **1,725** | **21,534** | **3,454** | **7,565** | **32,553** |
| **2004 Total** | **2,047** | **8,550** | **9,825** | **20,560** | **33** | **4** | **(s)** | **–** | **1,815** | **1,852** | **22,411** | **3,473** | **7,631** | **33,516** |
| **2005 Total** | **1,954** | **7,907** | **9,634** | **19,540** | **32** | **4** | **(s)** | **–** | **1,834** | **1,871** | **21,410** | **3,477** | **7,554** | **32,442** |
| **2006 Total** | **1,914** | **7,861** | **9,767** | **19,603** | **29** | **4** | **1** | **–** | **1,892** | **1,926** | **21,529** | **3,451** | **7,411** | **32,391** |
| **2007 Total** | **1,865** | **8,074** | **9,442** | **19,405** | **16** | **5** | **1** | **–** | **1,937** | **1,958** | **21,363** | **3,507** | **7,515** | **32,385** |
| **2008 Total** | **1,793** | **8,083** | **8,576** | **18,493** | **17** | **5** | **1** | **–** | **2,012** | **2,035** | **20,528** | **3,444** | **7,362** | **31,334** |
| **2009 Total** | **1,392** | **7,609** | **7,806** | **16,784** | **18** | **4** | **2** | **–** | **1,948** | **1,972** | **18,756** | **3,130** | **6,580** | **28,466** |
| **2010 Total** | **1,631** | **8,278** | **8,166** | **18,070** | **16** | **4** | **3** | **–** | **2,185** | **2,208** | **20,277** | **3,314** | **6,934** | **30,525** |
| **2011 Total** | **1,561** | **8,481** | **8,135** | **18,187** | **17** | **4** | **4** | **(s)** | **2,246** | **2,272** | **20,459** | **3,382** | **7,005** | **30,847** |
| **2012 Total** | **1,513** | **8,819** | **8,143** | **18,479** | **22** | **4** | **7** | **(s)** | **2,226** | **2,259** | **20,738** | **3,363** | **6,810** | **30,911** |
| **2013 Total** | **1,546** | **9,140** | **8,326** | **18,995** | **33** | **4** | **9** | **(s)** | **2,226** | **2,272** | **21,267** | **3,362** | **6,785** | **31,414** |
| **2014 Total** | **1,530** | **9,441** | **8,138** | **19,088** | **12** | **4** | **11** | **1** | **2,286** | **2,314** | **21,402** | **3,404** | **6,832** | **31,638** |
| **2015** January | 128 | 882 | 731 | 1,739 | 1 | (s) | 1 | (s) | 199 | 201 | 1,940 | 272 | 539 | 2,751 |
| February | 119 | 809 | 656 | 1,583 | 1 | (s) | 1 | (s) | 178 | 180 | 1,763 | 262 | 515 | 2,539 |
| March | 121 | 824 | 693 | 1,637 | 1 | (s) | 1 | (s) | 190 | 193 | 1,830 | 272 | 512 | 2,614 |
| April | 110 | 766 | 673 | 1,547 | 1 | (s) | 1 | (s) | 186 | 189 | 1,736 | 275 | 521 | 2,532 |
| May | 114 | 763 | 696 | 1,570 | 1 | (s) | 1 | (s) | 192 | 195 | 1,765 | 283 | 581 | 2,629 |
| June | 116 | 729 | 717 | 1,559 | 1 | (s) | 1 | (s) | 189 | 192 | 1,751 | 294 | 599 | 2,645 |
| July | 117 | 752 | 747 | 1,615 | 1 | (s) | 1 | (s) | 196 | 199 | 1,814 | 299 | 605 | 2,718 |
| August | 115 | 760 | 729 | 1,602 | 1 | (s) | 1 | (s) | 195 | 197 | 1,800 | 302 | 591 | 2,692 |
| September | 109 | 735 | 673 | 1,517 | 1 | (s) | 1 | (s) | 186 | 189 | 1,705 | 289 | 538 | 2,533 |
| October | 112 | 774 | 655 | 1,540 | 1 | (s) | 1 | (s) | 190 | 193 | 1,732 | 284 | 528 | 2,544 |
| November | 110 | 795 | 619 | 1,521 | 1 | (s) | 1 | (s) | 191 | 193 | 1,714 | 268 | 526 | 2,509 |
| December | 109 | 837 | 674 | 1,620 | 1 | (s) | 1 | (s) | 198 | 201 | 1,821 | 267 | 520 | 2,608 |
| **Total** | **1,380** | **9,426** | **8,262** | **19,050** | **13** | **4** | **14** | **(s)** | **2,290** | **2,321** | **21,371** | **3,366** | **6,578** | **31,315** |
| **2016** January | 103 | 887 | 724 | 1,712 | 1 | (s) | 1 | (s) | 196 | 198 | 1,911 | 259 | 523 | 2,693 |
| February | 103 | 819 | 712 | 1,634 | 1 | (s) | 1 | (s) | 182 | 185 | 1,819 | 252 | 477 | 2,548 |
| March | 106 | 827 | 705 | 1,637 | 1 | (s) | 1 | (s) | 191 | 194 | 1,831 | 259 | 494 | 2,583 |
| April | 98 | 778 | 649 | 1,524 | 1 | (s) | 2 | (s) | 180 | 183 | 1,707 | 259 | 507 | 2,473 |
| May | 99 | 774 | 650 | 1,522 | 1 | (s) | 2 | (s) | 190 | 193 | 1,715 | 267 | 548 | 2,530 |
| June | 100 | 745 | 664 | 1,508 | 1 | (s) | 2 | (s) | 191 | 194 | 1,702 | 274 | 568 | 2,543 |
| July | 101 | 777 | 665 | 1,542 | 1 | (s) | 2 | (s) | 196 | 199 | 1,741 | 284 | 588 | 2,613 |
| August | 99 | 788 | 748 | 1,633 | 1 | (s) | 2 | (s) | 195 | 198 | 1,831 | 290 | 571 | 2,693 |
| September | 98 | 758 | 686 | 1,540 | 1 | (s) | 2 | (s) | 185 | 187 | 1,727 | 272 | 509 | 2,508 |
| October | 99 | 780 | 724 | 1,601 | 1 | (s) | 1 | (s) | 188 | 190 | 1,791 | 266 | 512 | 2,569 |
| November | 99 | 810 | 692 | 1,597 | 1 | (s) | 1 | (s) | 192 | 194 | 1,791 | 256 | 503 | 2,550 |
| December | 103 | 896 | 706 | 1,702 | 1 | (s) | 1 | (s) | 202 | 205 | 1,907 | 256 | 536 | 2,699 |
| **Total** | **1,207** | **9,638** | **8,325** | **19,152** | **12** | **4** | **17** | **1** | **2,288** | **2,322** | **21,473** | **3,195** | **6,339** | **31,007** |
| **2017** January | 101 | 892 | 720 | 1,710 | 1 | (s) | 1 | (s) | 200 | 203 | 1,913 | 258 | 512 | 2,683 |
| February | 99 | 792 | 617 | 1,507 | 1 | (s) | 1 | (s) | 181 | 183 | 1,690 | 245 | 464 | 2,399 |
| March | 101 | 853 | 725 | 1,678 | 1 | (s) | 2 | (s) | 198 | 202 | 1,879 | 263 | 528 | 2,670 |
| April | 99 | 780 | 688 | 1,565 | 1 | (s) | 2 | (s) | 184 | 188 | 1,753 | 258 | 506 | 2,517 |
| May | 100 | 785 | 714 | 1,598 | 1 | (s) | 2 | (s) | 189 | 193 | 1,791 | 272 | 553 | 2,616 |
| June | 98 | 768 | 693 | 1,556 | 1 | (s) | 2 | (s) | 188 | 192 | 1,748 | 280 | 559 | 2,587 |
| July | 96 | R 786 | R 727 | R 1,608 | 1 | (s) | 3 | (s) | 194 | 198 | R 1,806 | 287 | 576 | R 2,668 |
| August | 104 | 798 | 705 | 1,604 | 1 | (s) | 2 | (s) | 197 | 201 | 1,804 | 293 | 558 | 2,655 |
| **8-Month Total** | **797** | **6,454** | **5,590** | **12,825** | **10** | **3** | **16** | **(s)** | **1,530** | **1,559** | **14,384** | **2,156** | **4,255** | **20,795** |
| **2016 8-Month Total** | **808** | **6,395** | **5,517** | **12,712** | **9** | **3** | **12** | **(s)** | **1,521** | **1,545** | **14,257** | **2,144** | **4,275** | **20,676** |
| **2015 8-Month Total** | **940** | **6,284** | **5,641** | **12,852** | **9** | **3** | **9** | **(s)** | **1,525** | **1,546** | **14,398** | **2,258** | **4,463** | **21,119** |

[a] See "Primary Energy Consumption" in Glossary.
[b] Includes non-combustion use of fossil fuels.
[c] See Table 10.2b for notes on series components and estimation.
[d] Natural gas only; excludes the estimated portion of supplemental gaseous fuels. See Note 3, "Supplemental Gaseous Fuels," at end of Section 4.
[e] Does not include biofuels that have been blended with petroleum—biofuels are included in "Biomass."
[f] Includes coal coke net imports, which are not separately displayed. See Tables 1.4a and 1.4b.
[g] Conventional hydroelectric power.
[h] Solar photovoltaic (PV) electricity net generation in the industrial sector, both utility-scale and distributed (small-scale). See Tables 10.2b and 10.5.
[i] Electricity retail sales to ultimate customers reported by electric utilities and, beginning in 1996, other energy service providers.
[j] 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 1, "Electrical System Energy Losses," at end of section.

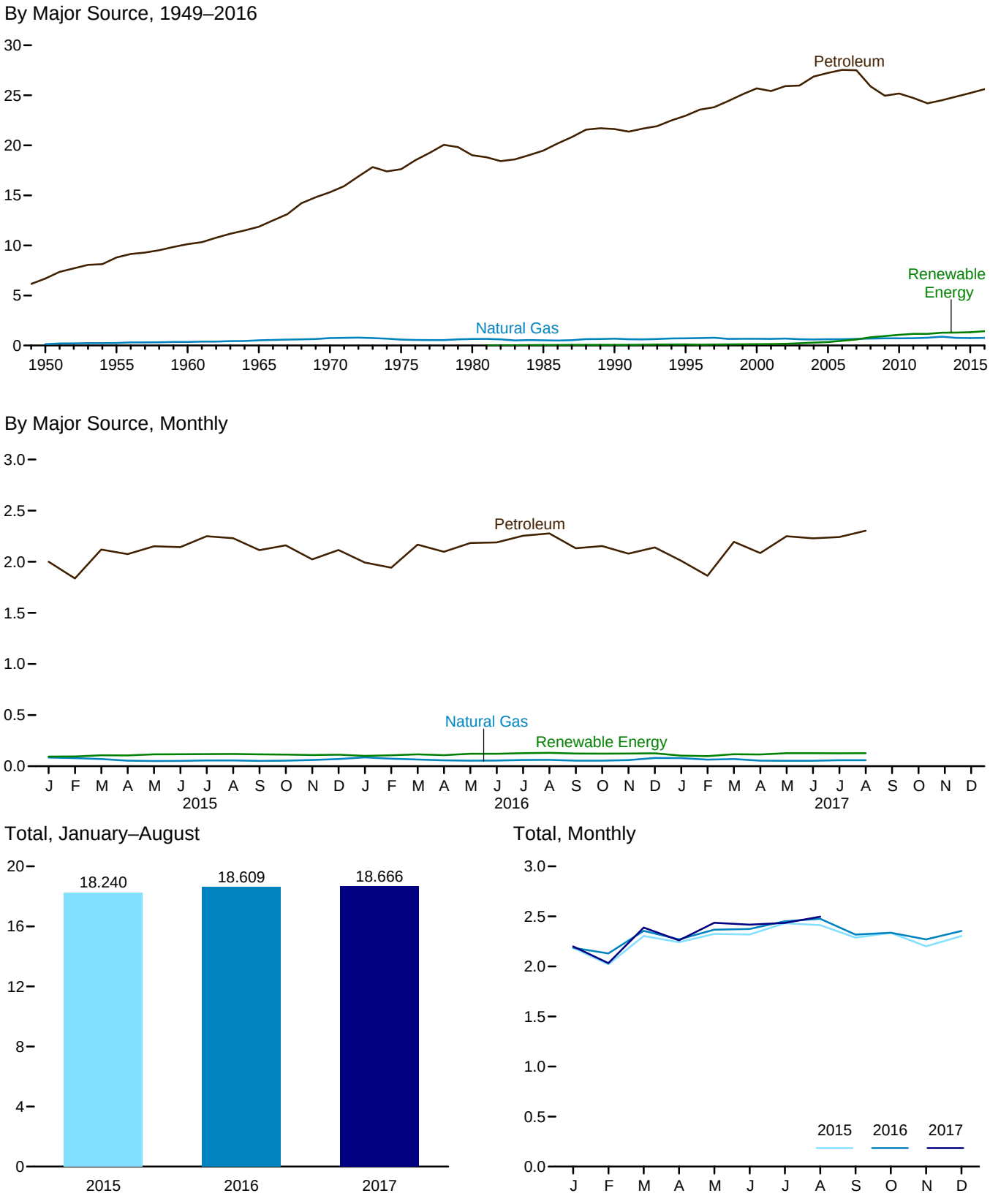
R=Revised. NA=Not available. – =No data reported. (s)=Less than 0.5 trillion Btu.

Notes: • Data are estimates, except for coal totals; hydroelectric power in 1949–1978 and 1989 forward; solar; wind; and electricity retail sales. • 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 Section 7. • See Note 2, "Energy Consumption Data and Surveys," at end of section. • Totals may not equal sum of components due to independent rounding. • Geographic coverage is the 50 states and the District of Columbia.

Web Page: See http://www.eia.gov/totalenergy/data/monthly/#consumption (Excel and CSV files) for all available annual data beginning in 1949 and monthly data beginning in 1973.

Sources: See end of section.

## Figure 2.5 Transportation Sector Energy Consumption
(Quadrillion Btu)




Web Page: http://www.eia.gov/totalenergy/data/monthly/#consumption.
Source: Table 2.5.

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# Table 2.5 Transportation Sector Energy Consumption

(Trillion Btu)

| | Primary Consumption[a] | | | | | | Electricity Retail Sales[e] | Electrical System Energy Losses[f] | Total |
|---|---|---|---|---|---|---|---|---|---|
| | Fossil Fuels | | | | Renewable Energy[b] | Total Primary | | | |
| | Coal | Natural Gas[c] | Petroleum[d] | Total | Biomass | | | | |
| **1950 Total** | **1,564** | **130** | **6,690** | **8,383** | **NA** | **8,383** | **23** | **86** | **8,492** |
| **1955 Total** | **421** | **254** | **8,799** | **9,474** | **NA** | **9,474** | **20** | **56** | **9,550** |
| **1960 Total** | **75** | **359** | **10,125** | **10,560** | **NA** | **10,560** | **10** | **26** | **10,596** |
| **1965 Total** | **16** | **517** | **11,866** | **12,399** | **NA** | **12,399** | **10** | **24** | **12,432** |
| **1970 Total** | **7** | **745** | **15,310** | **16,062** | **NA** | **16,062** | **11** | **26** | **16,098** |
| **1975 Total** | **1** | **595** | **17,615** | **18,210** | **NA** | **18,210** | **10** | **24** | **18,245** |
| **1980 Total** | **( g )** | **650** | **19,009** | **19,659** | **NA** | **19,659** | **11** | **27** | **19,697** |
| **1985 Total** | **( g )** | **519** | **19,472** | **19,992** | **50** | **20,041** | **14** | **32** | **20,088** |
| **1990 Total** | **( g )** | **680** | **21,626** | **22,306** | **60** | **22,366** | **16** | **37** | **22,420** |
| **1995 Total** | **( g )** | **724** | **22,959** | **23,683** | **112** | **23,796** | **17** | **38** | **23,851** |
| **2000 Total** | **( g )** | **672** | **25,689** | **26,361** | **135** | **26,495** | **18** | **42** | **26,555** |
| **2001 Total** | **( g )** | **658** | **25,419** | **26,077** | **142** | **26,219** | **20** | **43** | **26,282** |
| **2002 Total** | **( g )** | **699** | **25,917** | **26,616** | **170** | **26,785** | **19** | **42** | **26,846** |
| **2003 Total** | **( g )** | **627** | **25,969** | **26,596** | **230** | **26,826** | **23** | **51** | **26,900** |
| **2004 Total** | **( g )** | **602** | **26,872** | **27,474** | **290** | **27,764** | **25** | **54** | **27,843** |
| **2005 Total** | **( g )** | **624** | **27,236** | **27,860** | **339** | **28,199** | **26** | **56** | **28,280** |
| **2006 Total** | **( g )** | **625** | **27,538** | **28,163** | **475** | **28,638** | **25** | **54** | **28,717** |
| **2007 Total** | **( g )** | **663** | **27,505** | **28,169** | **602** | **28,771** | **28** | **60** | **28,858** |
| **2008 Total** | **( g )** | **692** | **25,888** | **26,580** | **825** | **27,404** | **26** | **56** | **27,486** |
| **2009 Total** | **( g )** | **715** | **24,955** | **25,670** | **935** | **26,605** | **27** | **56** | **26,687** |
| **2010 Total** | **( g )** | **719** | **25,184** | **25,903** | **1,075** | **26,978** | **26** | **55** | **27,059** |
| **2011 Total** | **( g )** | **734** | **24,740** | **25,474** | **1,158** | **26,632** | **26** | **54** | **26,712** |
| **2012 Total** | **( g )** | **780** | **24,202** | **24,982** | **1,162** | **26,144** | **25** | **51** | **26,219** |
| **2013 Total** | **( g )** | **887** | **24,506** | **25,394** | **1,278** | **26,671** | **26** | **53** | **26,750** |
| **2014 Total** | **( g )** | **760** | **24,865** | **25,625** | **1,292** | **26,917** | **26** | **53** | **26,996** |
| **2015** January | ( g ) | 85 | 2,000 | 2,085 | 94 | 2,180 | 2 | 5 | 2,186 |
| February | ( g ) | 80 | 1,837 | 1,917 | 95 | 2,012 | 2 | 5 | 2,020 |
| March | ( g ) | 71 | 2,120 | 2,191 | 107 | 2,298 | 2 | 4 | 2,304 |
| April | ( g ) | 55 | 2,075 | 2,130 | 105 | 2,235 | 2 | 4 | 2,242 |
| May | ( g ) | 51 | 2,152 | 2,203 | 116 | 2,319 | 2 | 4 | 2,325 |
| June | ( g ) | 52 | 2,144 | 2,196 | 117 | 2,313 | 2 | 4 | 2,319 |
| July | ( g ) | 57 | 2,250 | 2,307 | 118 | 2,425 | 2 | 4 | 2,431 |
| August | ( g ) | 56 | 2,231 | 2,287 | 120 | 2,406 | 2 | 4 | 2,413 |
| September | ( g ) | 52 | 2,113 | 2,165 | 116 | 2,281 | 2 | 4 | 2,287 |
| October | ( g ) | 54 | 2,161 | 2,215 | 114 | 2,330 | 2 | 4 | 2,336 |
| November | ( g ) | 62 | 2,024 | 2,085 | 110 | 2,195 | 2 | 4 | 2,201 |
| December | ( g ) | 71 | 2,115 | 2,185 | 113 | 2,298 | 2 | 4 | 2,304 |
| **Total** | **( g )** | **745** | **25,221** | **25,966** | **1,325** | **27,291** | **26** | **51** | **27,368** |
| **2016** January | ( g ) | 86 | 1,992 | 2,078 | 102 | 2,180 | 2 | 5 | 2,186 |
| February | ( g ) | 74 | 1,942 | 2,016 | 107 | 2,123 | 2 | 4 | 2,129 |
| March | ( g ) | 66 | 2,168 | 2,233 | 116 | 2,349 | 2 | 4 | 2,355 |
| April | ( g ) | 58 | 2,098 | 2,156 | 108 | 2,264 | 2 | 4 | 2,270 |
| May | ( g ) | 55 | 2,184 | 2,238 | 122 | 2,361 | 2 | 4 | 2,367 |
| June | ( g ) | 56 | 2,190 | 2,246 | 121 | 2,367 | 2 | 4 | 2,374 |
| July | ( g ) | 61 | 2,255 | 2,316 | 128 | 2,444 | 2 | 5 | 2,451 |
| August | ( g ) | 62 | 2,277 | 2,339 | 131 | 2,470 | 2 | 4 | 2,476 |
| September | ( g ) | 55 | 2,133 | 2,187 | 124 | 2,312 | 2 | 4 | 2,318 |
| October | ( g ) | 54 | 2,154 | 2,207 | 123 | 2,331 | 2 | 4 | 2,337 |
| November | ( g ) | 61 | 2,080 | 2,140 | 124 | 2,264 | 2 | 4 | 2,270 |
| December | ( g ) | 80 | 2,140 | 2,221 | 127 | 2,347 | 2 | 5 | 2,354 |
| **Total** | **( g )** | **767** | **25,612** | **26,378** | **1,433** | **27,811** | **26** | **51** | **27,888** |
| **2017** January | ( g ) | 80 | 2,009 | 2,089 | 104 | 2,193 | 2 | 5 | 2,200 |
| February | ( g ) | 64 | 1,863 | 1,927 | 100 | 2,027 | 2 | 4 | 2,033 |
| March | ( g ) | 70 | 2,195 | 2,265 | 117 | 2,382 | 2 | 4 | 2,389 |
| April | ( g ) | 54 | 2,085 | 2,139 | 115 | 2,255 | 2 | 4 | 2,261 |
| May | ( g ) | 53 | 2,250 | 2,303 | 127 | 2,430 | 2 | 4 | 2,436 |
| June | ( g ) | 53 | 2,229 | 2,283 | 128 | 2,411 | 2 | 4 | 2,417 |
| July | ( g ) | 59 | R 2,242 | R 2,302 | 126 | R 2,428 | 2 | 4 | R 2,434 |
| August | ( g ) | 59 | 2,303 | 2,362 | 128 | 2,490 | 2 | 4 | 2,496 |
| **8-Month Total** | **( g )** | **493** | **17,177** | **17,670** | **945** | **18,615** | **17** | **34** | **18,666** |
| **2016 8-Month Total** | **( g )** | **517** | **17,105** | **17,623** | **935** | **18,558** | **17** | **34** | **18,609** |
| **2015 8-Month Total** | **( g )** | **506** | **16,809** | **17,315** | **873** | **18,188** | **18** | **35** | **18,240** |

[a] See "Primary Energy Consumption" in Glossary.

[b] See Table 10.2b for notes on series components.

[c] Natural gas only; does not include supplemental gaseous fuels—see Note 3, "Supplemental Gaseous Fuels," at end of Section 4. Data are for natural gas consumed in the operation of pipelines (primarily in compressors) and small amounts consumed as vehicle fuel—see Table 4.3.

[d] Does not include biofuels that have been blended with petroleum—biofuels are included in "Biomass." Includes non-combustion use of lubricants.

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

[f] 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 1, "Electrical System Energy Losses," at end of section.

[g] Beginning in 1978, the small amounts of coal consumed for transportation are reported as industrial sector consumption.

R=Revised. NA=Not available.

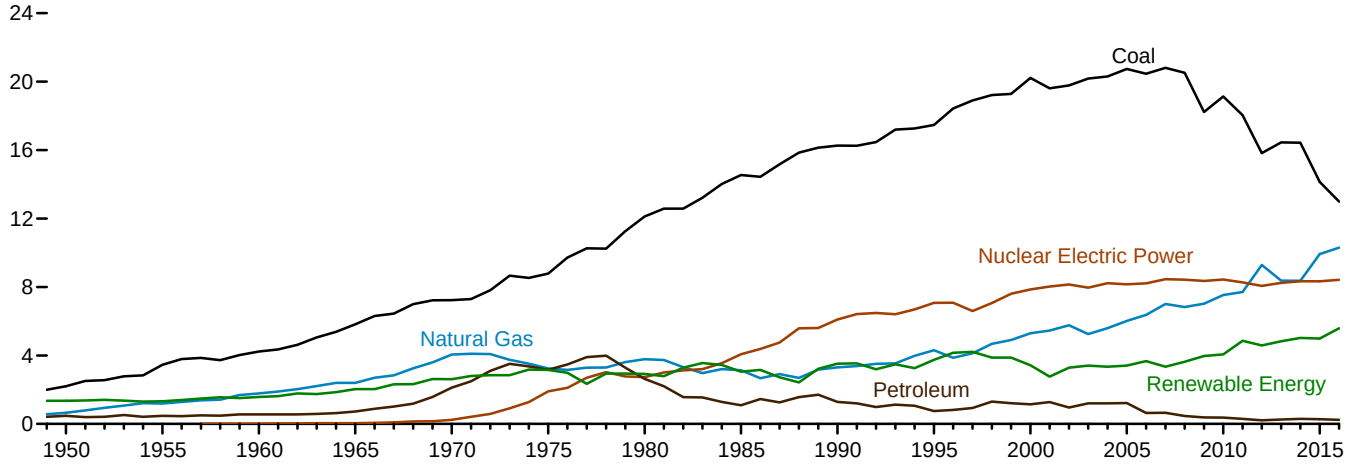
Notes: • Data are estimates, except for coal totals through 1977; and electricity retail sales beginning in 1979. • See Note 2, "Energy Consumption Data and Surveys," at end of section. • Totals may not equal sum of components due to independent rounding. • Geographic coverage is the 50 states and the District of Columbia.

Web Page: See http://www.eia.gov/totalenergy/data/monthly/#consumption (Excel and CSV files) for all available annual data beginning in 1949 and monthly data beginning in 1973.

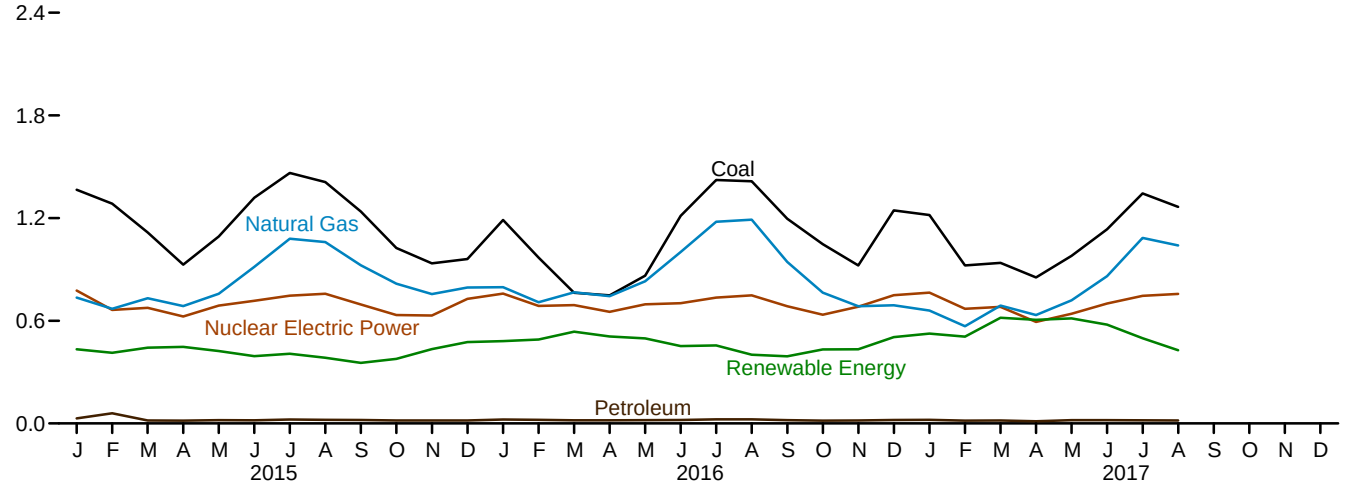
Sources: See end of section.

## Figure 2.6 Electric Power Sector Energy Consumption
(Quadrillion Btu)

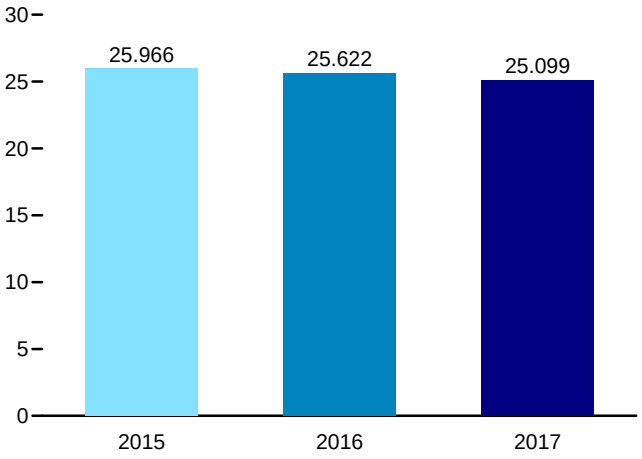
By Major Source, 1949–2016



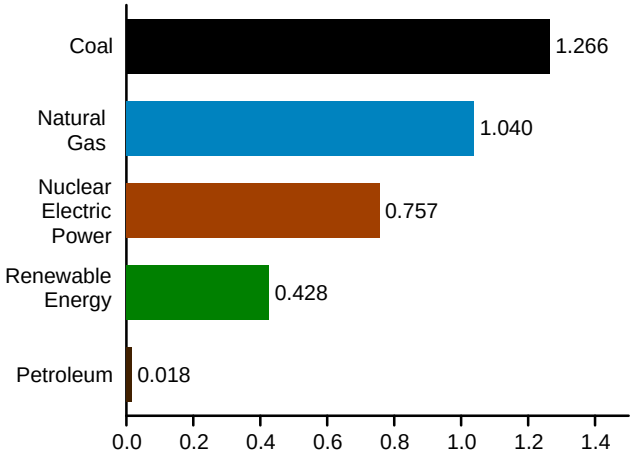

By Major Source, Monthly




Total, January–August




By Major Source, August 2017




Web Page: http://www.eia.gov/totalenergy/data/monthly/#consumption.
Source: Table 2.6.

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# Table 2.6 Electric Power Sector Energy Consumption

(Trillion Btu)

| | Primary Consumption[a] | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Fossil Fuels | | | | | Renewable Energy[b] | | | | | | | |
| | Coal | Natural Gas[c] | Petro-leum | Total | Nuclear Electric Power | Hydro-electric Power[d] | Geo-thermal | Solar[e] | Wind | Bio-mass | Total | Elec-tricity Net Imports[f] | Total Primary |
| **1950 Total** | **2,199** | **651** | **472** | **3,322** | **0** | **1,346** | **NA** | **NA** | **NA** | **5** | **1,351** | **6** | **4,679** |
| **1955 Total** | **3,458** | **1,194** | **471** | **5,123** | **0** | **1,322** | **NA** | **NA** | **NA** | **3** | **1,325** | **14** | **6,461** |
| **1960 Total** | **4,228** | **1,785** | **553** | **6,565** | **6** | **1,569** | **(s)** | **NA** | **NA** | **2** | **1,571** | **15** | **8,158** |
| **1965 Total** | **5,821** | **2,395** | **722** | **8,938** | **43** | **2,026** | **2** | **NA** | **NA** | **3** | **2,031** | **(s)** | **11,012** |
| **1970 Total** | **7,227** | **4,054** | **2,117** | **13,399** | **239** | **2,600** | **6** | **NA** | **NA** | **4** | **2,609** | **7** | **16,253** |
| **1975 Total** | **8,786** | **3,240** | **3,166** | **15,191** | **1,900** | **3,122** | **34** | **NA** | **NA** | **2** | **3,158** | **21** | **20,270** |
| **1980 Total** | **12,123** | **3,778** | **2,634** | **18,534** | **2,739** | **2,867** | **53** | **NA** | **NA** | **4** | **2,925** | **71** | **24,269** |
| **1985 Total** | **14,542** | **3,135** | **1,090** | **18,767** | **4,076** | **2,937** | **97** | **(s)** | **(s)** | **14** | **3,049** | **140** | **26,032** |
| **1990 Total**[g] | **16,261** | **3,309** | **1,289** | **20,859** | **6,104** | **3,014** | **161** | **4** | **29** | **317** | **3,524** | **8** | **30,495** |
| **1995 Total** | **17,466** | **4,302** | **755** | **22,523** | **7,075** | **3,149** | **138** | **5** | **33** | **422** | **3,747** | **134** | **33,479** |
| **2000 Total** | **20,220** | **5,293** | **1,144** | **26,658** | **7,862** | **2,768** | **144** | **5** | **57** | **453** | **3,427** | **115** | **38,062** |
| **2001 Total** | **19,614** | **5,458** | **1,276** | **26,348** | **8,029** | **2,209** | **142** | **6** | **70** | **337** | **2,763** | **75** | **37,215** |
| **2002 Total** | **19,783** | **5,767** | **961** | **26,511** | **8,145** | **2,650** | **147** | **6** | **105** | **380** | **3,288** | **72** | **38,016** |
| **2003 Total** | **20,185** | **5,246** | **1,205** | **26,636** | **7,960** | **2,749** | **146** | **5** | **113** | **397** | **3,411** | **22** | **38,028** |
| **2004 Total** | **20,305** | **5,595** | **1,201** | **27,101** | **8,223** | **2,655** | **148** | **6** | **142** | **388** | **3,339** | **39** | **38,701** |
| **2005 Total** | **20,737** | **6,015** | **1,222** | **27,974** | **8,161** | **2,670** | **147** | **6** | **178** | **406** | **3,406** | **85** | **39,626** |
| **2006 Total** | **20,462** | **6,375** | **637** | **27,474** | **8,215** | **2,839** | **145** | **5** | **264** | **412** | **3,665** | **63** | **39,417** |
| **2007 Total** | **20,808** | **7,005** | **648** | **28,461** | **8,459** | **2,430** | **145** | **6** | **341** | **423** | **3,345** | **107** | **40,371** |
| **2008 Total** | **20,513** | **6,829** | **459** | **27,801** | **8,426** | **2,494** | **146** | **9** | **546** | **435** | **3,630** | **112** | **39,969** |
| **2009 Total** | **18,225** | **7,022** | **382** | **25,630** | **8,355** | **2,650** | **146** | **9** | **721** | **441** | **3,967** | **116** | **38,069** |
| **2010 Total** | **19,133** | **7,528** | **370** | **27,031** | **8,434** | **2,521** | **148** | **12** | **923** | **459** | **4,064** | **89** | **39,619** |
| **2011 Total** | **18,035** | **7,712** | **295** | **26,042** | **8,269** | **3,085** | **149** | **17** | **1,167** | **437** | **4,855** | **127** | **39,293** |
| **2012 Total** | **15,821** | **9,287** | **214** | **25,322** | **8,062** | **2,606** | **148** | **40** | **1,339** | **453** | **4,586** | **161** | **38,131** |
| **2013 Total** | **16,451** | **8,376** | **255** | **25,082** | **8,244** | **2,529** | **151** | **83** | **1,600** | **470** | **4,833** | **197** | **38,357** |
| **2014 Total** | **16,427** | **8,362** | **295** | **25,085** | **8,338** | **2,454** | **151** | **165** | **1,726** | **530** | **5,026** | **182** | **38,629** |
| **2015** January | 1,366 | 735 | 29 | 2,130 | 777 | 224 | 13 | 11 | 141 | 45 | 433 | 18 | 3,357 |
| February | 1,284 | 670 | 59 | 2,013 | 664 | 207 | 12 | 14 | 139 | 41 | 412 | 14 | 3,103 |
| March | 1,116 | 732 | 18 | 1,865 | 675 | 225 | 13 | 19 | 143 | 43 | 443 | 19 | 3,002 |
| April | 928 | 686 | 17 | 1,630 | 625 | 208 | 12 | 22 | 166 | 40 | 448 | 20 | 2,723 |
| May | 1,092 | 758 | 19 | 1,869 | 688 | 186 | 13 | 23 | 160 | 41 | 423 | 20 | 3,002 |
| June | 1,319 | 915 | 19 | 2,252 | 717 | 189 | 12 | 23 | 125 | 44 | 393 | 21 | 3,383 |
| July | 1,464 | 1,079 | 23 | 2,566 | 747 | 195 | 13 | 24 | 127 | 48 | 407 | 21 | 3,741 |
| August | 1,411 | 1,060 | 21 | 2,492 | 757 | 177 | 13 | 25 | 122 | 48 | 384 | 22 | 3,655 |
| September | 1,238 | 924 | 20 | 2,182 | 695 | 149 | 11 | 20 | 130 | 43 | 354 | 20 | 3,251 |
| October | 1,025 | 817 | 17 | 1,860 | 633 | 154 | 12 | 17 | 152 | 41 | 378 | 16 | 2,886 |
| November | 936 | 756 | 18 | 1,710 | 630 | 179 | 12 | 16 | 183 | 44 | 434 | 18 | 2,792 |
| December | 960 | 794 | 17 | 1,771 | 728 | 214 | 13 | 14 | 187 | 47 | 476 | 17 | 2,993 |
| **Total** | **14,138** | **9,926** | **276** | **24,341** | **8,337** | **2,308** | **148** | **228** | **1,776** | **525** | **4,985** | **227** | **37,890** |
| **2016** January | 1,189 | 796 | 23 | 2,008 | 758 | 236 | 14 | 14 | 173 | 45 | 481 | 21 | 3,269 |
| February | 969 | 708 | 21 | 1,698 | 686 | 224 | 13 | 22 | 188 | 43 | 490 | 17 | 2,892 |
| March | 763 | 766 | 18 | 1,548 | 692 | 250 | 14 | 25 | 205 | 43 | 536 | 18 | 2,794 |
| April | 748 | 744 | 18 | 1,510 | 652 | 236 | 12 | 27 | 193 | 40 | 508 | 15 | 2,686 |
| May | 863 | 831 | 19 | 1,713 | 696 | 235 | 14 | 33 | 175 | 40 | 496 | 19 | 2,924 |
| June | 1,213 | 1,002 | 20 | 2,235 | 703 | 212 | 13 | 33 | 152 | 42 | 452 | 23 | 3,413 |
| July | 1,422 | 1,178 | 24 | 2,625 | 736 | 197 | 13 | 38 | 164 | 45 | 456 | 25 | 3,842 |
| August | 1,415 | 1,191 | 24 | 2,630 | 748 | 180 | 13 | 36 | 126 | 46 | 401 | 24 | 3,803 |
| September | 1,197 | 944 | 20 | 2,160 | 684 | 151 | 14 | 34 | 153 | 41 | 393 | 20 | 3,257 |
| October | 1,048 | 764 | 16 | 1,828 | 635 | 160 | 14 | 29 | 190 | 39 | 432 | 18 | 2,913 |
| November | 923 | 684 | 17 | 1,625 | 682 | 175 | 14 | 25 | 180 | 40 | 433 | 21 | 2,761 |
| December | 1,244 | 690 | 20 | 1,955 | 749 | 209 | 15 | 21 | 214 | 46 | 505 | 22 | 3,231 |
| **Total** | **12,995** | **10,299** | **240** | **23,535** | **8,422** | **2,465** | **162** | **337** | **2,112** | **509** | **5,585** | **242** | **37,784** |
| **2017** January | 1,218 | 660 | 21 | 1,899 | 765 | 257 | 14 | 20 | 189 | 44 | 525 | 16 | 3,205 |
| February | 923 | 568 | 16 | 1,507 | 670 | 228 | 13 | 24 | 202 | 41 | 507 | 12 | 2,696 |
| March | 938 | 688 | 17 | 1,644 | 681 | 280 | 14 | 41 | 238 | 44 | 618 | 12 | 2,955 |
| April | 853 | 633 | 13 | 1,499 | 593 | 271 | 14 | 44 | 237 | 39 | 605 | 15 | 2,712 |
| May | 979 | 720 | 19 | 1,718 | 641 | 298 | 13 | 54 | 208 | 42 | 614 | 14 | 2,987 |
| June | 1,134 | 860 | 19 | 2,014 | 701 | 284 | 13 | 58 | 181 | 41 | 577 | 16 | 3,308 |
| July | 1,344 | 1,084 | 18 | 2,447 | 746 | 243 | 14 | 51 | 146 | 43 | 498 | 20 | 3,710 |
| August | 1,266 | 1,040 | 18 | 2,323 | 757 | 198 | 14 | 50 | 122 | 44 | 428 | 19 | 3,527 |
| **8-Month Total** | **8,655** | **6,253** | **142** | **15,050** | **5,553** | **2,060** | **110** | **342** | **1,523** | **338** | **4,372** | **124** | **25,099** |
| **2016 8-Month Total** | **8,583** | **7,216** | **167** | **15,967** | **5,671** | **1,770** | **106** | **228** | **1,375** | **344** | **3,823** | **162** | **25,622** |
| **2015 8-Month Total** | **9,978** | **6,634** | **204** | **16,817** | **5,650** | **1,611** | **100** | **160** | **1,123** | **350** | **3,343** | **157** | **25,966** |

[a] See "Primary Energy Consumption" in Glossary.
[b] See Table 10.2c for notes on series components.
[c] Natural gas only; excludes the estimated portion of supplemental gaseous fuels. See Note 3, "Supplemental Gaseous Fuels," at end of Section 4.
[d] Conventional hydroelectric power.
[e] Solar photovoltaic (PV) and solar thermal electricity net generation in the electric power sector. See Tables 10.2c and 10.5.
[f] Net imports equal imports minus exports.
[g] Through 1988, data are for electric utilities only. Beginning in 1989, data are for electric utilities and independent power producers.
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 22 category whose primary business is to sell electricity, or electricity and heat, to the public. • See Note 2, "Energy Consumption Data and Surveys," at end of section. • Totals may not equal sum of components due to independent rounding. • Geographic coverage is the 50 states and the District of Columbia.

Web Page: See http://www.eia.gov/totalenergy/data/monthly/#consumption (Excel and CSV files) for all available annual data beginning in 1949 and monthly data beginning in 1973.

Sources: See end of section.

## Table 2.7 U.S. Government Energy Consumption by Agency, Fiscal Years

(Trillion Btu)

| Fiscal Year[a] | Agri-culture | Defense | Energy | GSA[b] | HHS[c] | Interior | Justice | NASA[d] | Postal Service | Trans-portation | Veterans Affairs | Other[e] | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1975 | 9.5 | 1,360.2 | 50.4 | 22.3 | 6.5 | 9.4 | 5.9 | 13.4 | 30.5 | 19.3 | 27.1 | 10.5 | 1,565.0 |
| 1976 | 9.3 | 1,183.3 | 50.3 | 20.6 | 6.7 | 9.4 | 5.7 | 12.4 | 30.0 | 19.5 | 25.0 | 11.2 | 1,383.4 |
| 1977 | 8.9 | 1,192.3 | 51.6 | 20.4 | 6.9 | 9.5 | 5.9 | 12.0 | 32.7 | 20.4 | 25.9 | 11.9 | 1,398.5 |
| 1978 | 9.1 | 1,157.8 | 50.1 | 20.4 | 6.5 | 9.2 | 5.9 | 11.2 | 30.9 | 20.6 | 26.8 | 12.4 | 1,360.9 |
| 1979 | 9.2 | 1,175.8 | 49.6 | 19.6 | 6.4 | 10.4 | 6.4 | 11.1 | 29.3 | 19.6 | 25.7 | 12.3 | 1,375.4 |
| 1980 | 8.6 | 1,183.1 | 47.4 | 18.1 | 6.0 | 8.5 | 5.7 | 10.4 | 27.2 | 19.2 | 24.8 | 12.3 | 1,371.2 |
| 1981 | 7.9 | 1,239.5 | 47.3 | 18.0 | 6.7 | 7.6 | 5.4 | 10.0 | 27.9 | 18.8 | 24.0 | 11.1 | 1,424.2 |
| 1982 | 7.6 | 1,264.5 | 49.0 | 18.1 | 6.4 | 7.4 | 5.8 | 10.1 | 27.5 | 19.1 | 24.2 | 11.6 | 1,451.4 |
| 1983 | 7.4 | 1,248.3 | 49.5 | 16.1 | 6.2 | 7.7 | 5.5 | 10.3 | 26.5 | 19.4 | 24.1 | 10.8 | 1,431.8 |
| 1984 | 7.9 | 1,292.1 | 51.6 | 16.2 | 6.4 | 8.4 | 6.4 | 10.6 | 27.7 | 19.8 | 24.6 | 10.7 | 1,482.5 |
| 1985 | 8.4 | 1,250.6 | 52.2 | 20.7 | 6.0 | 7.8 | 8.2 | 10.9 | 27.8 | 19.6 | 25.1 | 13.1 | 1,450.3 |
| 1986 | 6.8 | 1,222.8 | 46.9 | 14.0 | 6.2 | 6.9 | 8.6 | 11.2 | 28.0 | 19.4 | 25.0 | 10.8 | 1,406.7 |
| 1987 | 7.3 | 1,280.5 | 48.5 | 13.1 | 6.6 | 6.6 | 8.1 | 11.3 | 28.5 | 19.0 | 24.9 | 11.9 | 1,466.3 |
| 1988 | 7.8 | 1,165.8 | 49.9 | 12.4 | 6.4 | 7.0 | 9.4 | 11.3 | 29.6 | 18.7 | 26.3 | 15.8 | 1,360.3 |
| 1989 | 8.7 | 1,274.4 | 44.2 | 12.7 | 6.7 | 7.1 | 7.7 | 12.4 | 30.3 | 18.5 | 26.2 | 15.6 | 1,464.7 |
| 1990 | 9.6 | 1,241.7 | 43.5 | 17.5 | 7.1 | 7.4 | 7.0 | 12.4 | 30.6 | 19.0 | 24.9 | 17.5 | 1,438.0 |
| 1991 | 9.6 | 1,269.3 | 42.1 | 14.0 | 6.2 | 7.1 | 8.0 | 12.5 | 30.8 | 19.0 | 25.1 | 18.1 | 1,461.7 |
| 1992 | 9.1 | 1,104.0 | 44.3 | 13.8 | 6.8 | 7.0 | 7.5 | 12.6 | 31.7 | 17.0 | 25.3 | 15.7 | 1,294.8 |
| 1993 | 9.3 | 1,048.8 | 43.4 | 14.1 | 7.2 | 7.5 | 9.1 | 12.4 | 33.7 | 19.4 | 25.7 | 16.2 | 1,246.8 |
| 1994 | 9.4 | 977.0 | 42.1 | 14.0 | 7.5 | 7.9 | 10.3 | 12.6 | 35.0 | 19.8 | 25.6 | 17.1 | 1,178.2 |
| 1995 | 9.0 | 926.0 | 47.3 | 13.7 | 6.1 | 6.4 | 10.2 | 12.4 | 36.2 | 18.7 | 25.4 | 17.1 | 1,128.5 |
| 1996 | 9.1 | 904.5 | 44.6 | 14.5 | 6.6 | 4.3 | 12.1 | 11.5 | 36.4 | 19.6 | 26.8 | 17.7 | 1,107.7 |
| 1997 | 7.4 | 880.0 | 43.1 | 14.4 | 7.9 | 6.6 | 12.0 | 12.0 | 40.8 | 19.1 | 27.3 | 20.8 | 1,091.2 |
| 1998 | 7.9 | 837.1 | 31.5 | 14.1 | 7.4 | 6.4 | 15.8 | 11.7 | 39.5 | 18.5 | 27.6 | 19.5 | 1,037.1 |
| 1999 | 7.8 | 810.7 | 27.0 | 14.4 | 7.1 | 7.5 | 15.4 | 11.4 | 39.8 | 22.6 | 27.5 | 19.8 | 1,010.9 |
| 2000 | 7.4 | 779.1 | 30.5 | 17.6 | 8.0 | 7.8 | 19.7 | 11.1 | 43.3 | 21.2 | 27.0 | 20.3 | 993.1 |
| 2001 | 7.4 | 787.2 | 31.1 | 18.4 | 8.5 | 9.5 | 19.7 | 10.9 | 43.4 | 17.8 | 27.7 | 20.7 | 1,002.3 |
| 2002 | 7.2 | 837.5 | 30.7 | 17.5 | 8.0 | 8.2 | 17.7 | 10.7 | 41.6 | 18.3 | 27.7 | 18.4 | 1,043.4 |
| 2003 | 7.7 | 895.1 | 31.9 | 18.5 | 10.1 | 7.3 | 22.7 | 10.8 | 50.9 | 5.5 | 30.6 | 41.0 | 1,132.3 |
| 2004 | 7.0 | 960.7 | 31.4 | 18.3 | 8.8 | 8.7 | 17.5 | 9.9 | 50.5 | 5.2 | 29.9 | 44.0 | 1,191.7 |
| 2005 | 7.5 | 933.2 | 29.6 | 18.4 | 9.6 | 8.6 | 18.8 | 10.3 | 53.5 | 5.0 | 30.0 | 42.1 | 1,166.4 |
| 2006 | 6.8 | 843.7 | 32.9 | 18.2 | 9.3 | 8.1 | 23.5 | 10.2 | 51.8 | 4.6 | 29.3 | 38.1 | 1,076.4 |
| 2007 | 6.8 | 864.6 | 31.5 | 19.1 | 9.9 | 7.5 | 20.7 | 10.6 | 45.8 | 5.6 | 30.0 | 38.1 | 1,090.2 |
| 2008 | 6.5 | 910.8 | 32.1 | 18.8 | 10.3 | 7.1 | 19.0 | 10.8 | 47.1 | 7.7 | 29.0 | 44.1 | 1,143.2 |
| 2009 | 6.6 | 874.3 | 31.1 | 18.6 | 10.8 | 7.9 | 16.5 | 10.2 | 44.2 | 4.3 | 29.9 | 40.4 | 1,094.8 |
| 2010 | 6.8 | 889.9 | 31.7 | 18.8 | 10.4 | 7.3 | 15.7 | 10.1 | 43.3 | 5.7 | 30.2 | 42.9 | 1,112.7 |
| 2011 | 8.3 | 890.3 | 33.1 | 18.5 | 10.5 | 7.3 | 13.9 | 10.1 | 43.0 | 6.7 | 30.6 | 41.7 | 1,114.1 |
| 2012 | 6.7 | 828.5 | 30.3 | 16.3 | 10.0 | 6.7 | 15.1 | 8.9 | 40.8 | 5.6 | 29.7 | 40.6 | 1,039.3 |
| 2013 | 7.3 | 749.5 | 28.9 | 16.4 | 10.5 | 6.2 | 15.3 | 8.7 | 41.9 | 5.3 | 29.9 | 39.3 | 959.3 |
| 2014 | 6.3 | 730.6 | 29.4 | 17.0 | 9.5 | 6.2 | 15.6 | 8.3 | 43.0 | 5.2 | 31.4 | 39.0 | 941.5 |
| 2015 | 6.2 | 734.5 | 30.1 | 16.9 | 9.0 | 6.8 | 16.2 | 8.4 | 44.0 | 6.0 | 30.7 | 37.8 | 946.5 |
| 2016 | 6.2 | 709.2 | 28.9 | 15.8 | 8.7 | 6.4 | 15.6 | 8.5 | 43.9 | 6.0 | 30.3 | 37.6 | 917.2 |

[a] For 1975 and 1976, the U.S. Government's fiscal year was July 1 through June 30. Beginning in 1977, the U.S. Government's fiscal year is October 1 through September 30 (for example, fiscal year 2014 is October 2013 through September 2014).

[b] General Services Administration.

[c] Health and Human Services.

[d] National Aeronautics and Space Administration.

[e] Includes all U.S. government agencies not separately displayed. See http://ctsedwweb.ee.doe.gov/Annual/Report/AgencyReference.aspx for agency list.

Notes: • Data in this table are developed using conversion factors that often differ from those in Tables A1–A6. • Data include energy consumed at foreign installations and in foreign operations, including aviation and ocean bunkering, primarily by the U.S. Department of Defense. U.S. Government energy use for electricity generation and uranium enrichment is excluded. • Totals may not equal sum of components due to independent rounding.

Web Page: See http://www.eia.gov/totalenergy/data/monthly/#consumption (Excel and CSV files) for all annual data beginning in 1975.

Source: U.S. Department of Energy, Office of Energy Efficiency and Renewable Energy, Federal Energy Management Program. See http://ctsedwweb.ee.doe.gov/Annual/Report/Report.aspx, "A-1 Total Site-Delivered Energy Use in All End-Use Sectors, by Federal Agency (Billion Btu)" dataset.

## Table 2.8 U.S. Government Energy Consumption by Source, Fiscal Years

(Trillion Btu)

| Fiscal Year[a] | Coal | Natural Gas[b] | Petroleum | | | | | | Other Mobility Fuels[f] | Electricity | Purchased Steam and Other[g] | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Aviation Gasoline | Fuel Oil[c] | Jet Fuel | LPG[d] | Motor Gasoline[e] | Total | | | | |
| 1975 | 77.9 | 166.2 | 22.0 | 376.0 | 707.4 | 5.6 | 63.2 | 1,174.2 | 0.0 | 141.5 | 5.1 | 1,565.0 |
| 1976 | 71.3 | 151.8 | 11.6 | 329.7 | 610.0 | 4.7 | 60.4 | 1,016.4 | .0 | 139.3 | 4.6 | 1,383.4 |
| 1977 | 68.4 | 141.2 | 8.8 | 348.5 | 619.2 | 4.1 | 61.4 | 1,042.1 | .0 | 141.1 | 5.7 | 1,398.5 |
| 1978 | 66.0 | 144.7 | 6.2 | 332.3 | 601.1 | 3.0 | 60.1 | 1,002.9 | .0 | 141.0 | 6.4 | 1,360.9 |
| 1979 | 65.1 | 148.9 | 4.7 | 327.1 | 618.6 | 3.7 | 59.1 | 1,013.1 | .0 | 141.2 | 7.1 | 1,375.4 |
| 1980 | 63.5 | 147.3 | 4.9 | 307.7 | 638.7 | 3.8 | 56.5 | 1,011.6 | .2 | 141.9 | 6.8 | 1,371.2 |
| 1981 | 65.1 | 142.2 | 4.6 | 351.3 | 653.3 | 3.5 | 53.2 | 1,066.0 | .2 | 144.5 | 6.2 | 1,424.2 |
| 1982 | 68.6 | 146.2 | 3.6 | 349.4 | 672.7 | 3.7 | 53.1 | 1,082.5 | .2 | 147.5 | 6.2 | 1,451.4 |
| 1983 | 62.4 | 147.8 | 2.6 | 329.5 | 673.4 | 3.8 | 51.6 | 1,060.8 | .2 | 151.5 | 9.0 | 1,431.8 |
| 1984 | 65.3 | 157.4 | 1.9 | 342.9 | 693.7 | 3.9 | 51.2 | 1,093.6 | .2 | 155.9 | 10.1 | 1,482.5 |
| 1985 | 64.8 | 149.9 | 1.9 | 292.6 | 705.7 | 3.8 | 50.4 | 1,054.3 | .2 | 167.2 | 13.9 | 1,450.3 |
| 1986 | 63.8 | 140.9 | 1.4 | 271.6 | 710.2 | 3.6 | 45.3 | 1,032.1 | .3 | 155.8 | 13.7 | 1,406.7 |
| 1987 | 67.0 | 145.6 | 1.0 | 319.5 | 702.3 | 3.6 | 43.1 | 1,069.5 | .4 | 169.9 | 13.9 | 1,466.3 |
| 1988 | 60.2 | 144.6 | 6.0 | 284.8 | 617.2 | 2.7 | 41.2 | 951.9 | .4 | 171.2 | 32.0 | 1,360.3 |
| 1989 | 48.7 | 152.4 | .8 | 245.3 | 761.7 | 3.5 | 41.1 | 1,052.4 | 2.2 | 188.6 | 20.6 | 1,464.7 |
| 1990 | 44.3 | 159.4 | .5 | 245.2 | 732.4 | 3.8 | 37.2 | 1,019.1 | 2.6 | 193.6 | 19.1 | 1,438.0 |
| 1991 | 45.9 | 154.1 | .4 | 232.6 | 774.5 | 3.0 | 34.1 | 1,044.7 | 6.0 | 192.7 | 18.3 | 1,461.7 |
| 1992 | 51.7 | 151.2 | 1.0 | 200.6 | 628.2 | 3.0 | 35.6 | 868.4 | 8.4 | 192.5 | 22.5 | 1,294.8 |
| 1993 | 38.3 | 152.9 | .7 | 187.0 | 612.4 | 3.5 | 34.5 | 838.1 | 5.8 | 193.1 | 18.6 | 1,246.8 |
| 1994 | 35.0 | 143.9 | .6 | 198.5 | 550.7 | 3.2 | 29.5 | 782.6 | 7.7 | 190.9 | 18.2 | 1,178.2 |
| 1995 | 31.7 | 149.4 | .3 | 178.4 | 522.3 | 3.0 | 31.9 | 735.9 | 8.4 | 184.8 | 18.2 | 1,128.5 |
| 1996 | 23.3 | 147.3 | .2 | 170.5 | 513.0 | 3.1 | 27.6 | 714.4 | 18.7 | 184.0 | 20.1 | 1,107.7 |
| 1997 | 22.5 | 153.8 | .3 | 180.0 | 475.7 | 2.6 | 39.0 | 697.6 | 14.5 | 183.6 | 19.2 | 1,091.2 |
| 1998 | 23.9 | 140.4 | .2 | 174.5 | 445.5 | 3.5 | 43.0 | 666.8 | 5.9 | 181.4 | 18.8 | 1,037.1 |
| 1999 | 21.2 | 137.4 | .1 | 162.1 | 444.7 | 2.4 | 41.1 | 650.4 | .4 | 180.0 | 21.5 | 1,010.9 |
| 2000 | 22.7 | 133.8 | .2 | 171.3 | 403.1 | 2.5 | 43.9 | 621.0 | 1.8 | 193.6 | 20.2 | 993.1 |
| 2001 | 18.8 | 133.7 | .2 | 176.9 | 415.2 | 3.1 | 42.5 | 638.0 | 4.8 | 188.4 | 18.6 | 1,002.3 |
| 2002 | 16.9 | 133.7 | .2 | 165.6 | 472.9 | 2.8 | 41.3 | 682.8 | 3.2 | 188.3 | 18.5 | 1,043.4 |
| 2003 | 18.1 | 135.5 | .3 | 190.8 | 517.9 | 3.2 | 46.3 | 758.4 | 3.3 | 193.8 | 23.2 | 1,132.3 |
| 2004 | 17.4 | 135.3 | .2 | 261.4 | 508.2 | 2.9 | 44.1 | 816.9 | 3.1 | 197.1 | 22.0 | 1,191.7 |
| 2005 | 17.1 | 135.7 | .4 | 241.4 | 492.2 | 3.4 | 48.8 | 786.1 | 5.6 | 197.6 | 24.3 | 1,166.4 |
| 2006 | 23.5 | 132.6 | .6 | 209.3 | 442.6 | 2.7 | 48.3 | 703.6 | 2.1 | 196.7 | 18.2 | 1,076.4 |
| 2007 | 20.4 | 131.5 | .4 | 212.9 | 461.1 | 2.7 | 46.5 | 723.7 | 2.9 | 194.9 | 16.7 | 1,090.2 |
| 2008 | 20.8 | 129.6 | .4 | 198.4 | 525.4 | 2.3 | 49.0 | 775.4 | 3.6 | 196.1 | 17.7 | 1,143.2 |
| 2009 | 20.3 | 131.7 | .3 | 166.4 | 505.7 | 3.2 | 48.3 | 723.9 | 10.1 | 191.3 | 17.7 | 1,094.8 |
| 2010 | 20.0 | 130.1 | .4 | 157.8 | 535.8 | 2.5 | 51.3 | 747.7 | 3.0 | 193.7 | 18.2 | 1,112.7 |
| 2011 | 18.5 | 124.7 | .9 | 166.5 | 533.6 | 2.0 | 52.7 | 755.8 | 2.7 | 193.2 | 19.1 | 1,114.1 |
| 2012 | 15.9 | 116.2 | .4 | 148.6 | 493.5 | 1.7 | 50.1 | 694.4 | 3.1 | 187.2 | 22.5 | 1,039.3 |
| 2013 | 14.3 | 122.5 | .7 | 140.0 | 424.0 | 1.9 | 46.6 | 613.2 | 2.8 | 184.7 | 21.8 | 959.3 |
| 2014 | 13.5 | 125.6 | .3 | 133.5 | 414.3 | 1.8 | 44.9 | 594.8 | 3.6 | 182.1 | 21.9 | 941.5 |
| 2015 | 12.6 | 123.3 | .3 | 134.4 | 418.9 | 1.8 | 46.8 | 602.2 | 3.7 | 184.4 | 20.3 | 946.5 |
| 2016 | 10.2 | 115.4 | .3 | 129.7 | 403.9 | 1.7 | 46.5 | 582.2 | 3.6 | 184.5 | 21.4 | 917.2 |

[a] For 1975 and 1976, the U.S. Government's fiscal year was July 1 through June 30. Beginning in 1977, the U.S. Government's fiscal year is October 1 through September 30 (for example, fiscal year 2014 is October 2013 through September 2014).

[b] Natural gas, plus a small amount of supplemental gaseous fuels.

[c] Distillate fuel oil, including diesel fuel; and residual fuel oil, including Navy Special.

[d] Liquefied petroleum gases, primarily propane.

[e] Includes E10 (a mixture of 10% ethanol and 90% motor gasoline) and E15 (a mixture of 15% ethanol and 85% motor gasoline).

[f] Other types of fuel used in vehicles and equipment. Primarily includes alternative fuels such as compressed natural gas (CNG); liquefied natural gas (LNG); E85 (a mixture of 85% ethanol and 15% motor gasoline); B20 (a mixture of 20% biodiesel and 80% diesel fuel); B100 (100% biodiesel); hydrogen; and methanol.

[g] Other types of energy used in facilities. Primarily includes chilled water, but also includes small amounts of renewable energy such as wood and solar thermal.

Notes: • Data in this table are developed using conversion factors that often differ from those in Tables A1–A6. • Data include energy consumed at foreign installations and in foreign operations, including aviation and ocean bunkering, primarily by the U.S. Department of Defense. U.S. Government energy use for electricity generation and uranium enrichment is excluded. • Totals may not equal sum of components due to independent rounding.

Web Page: See http://www.eia.gov/totalenergy/data/monthly/#consumption (Excel and CSV files) for all annual data beginning in 1975.

Source: U.S. Department of Energy, Office of Energy Efficiency and Renewable Energy, Federal Energy Management Program. See http://ctsedwweb.ee.doe.gov/Annual/Report/Report.aspx, "A-5 Historical Federal Energy Consumption and Cost Data by Agency and Energy Type (FY 1975 to Present)" dataset.

# Energy Consumption by Sector

**Note 1. Electrical System Energy Losses.** Electrical system energy losses are calculated as the difference between total primary consumption by the electric power sector (see Table 2.6) and the total energy content of electricity retail sales (see Tables 7.6 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, geothermal, solar thermal, photovoltaic, and wind energy sources. 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, about two thirds of total energy input is lost in conversion. Currently, of electricity generated, approximately 5% is lost in plant use and 7% is lost in transmission and distribution.

**Note 2. Energy Consumption Data and Surveys.** Most of the data in this section of the *Monthly Energy Review* (*MER*) are developed from a group of energy-related surveys, typically called "supply surveys," conducted by the U.S. Energy Information Administration (EIA). Supply surveys are directed to suppliers and marketers of specific energy sources. They measure the quantities of specific energy sources produced, or the quantities supplied to the market, or both. The data obtained from EIA's supply surveys are integrated to yield the summary consumption statistics published in this section (and in Section 1) of the MER.

Users of EIA's energy consumption statistics should be aware of a second group of energy-related surveys, typically called "consumption surveys." Consumption surveys gather information on the types of energy consumed by end users of energy, along with the characteristics of those end users that can be associated with energy use. For example, the "Manufacturing Energy Consumption Survey" belongs to the consumption survey group because it collects information directly from end users (the manufacturing establishments). There are important differences between the supply and consumption surveys that need to be taken into account in any analysis that uses both data sources. For information on those differences, see "Energy Consumption by End-Use Sector, A Comparison of Measures by Consumption and Supply Surveys," DOE/EIA-0533, U.S. Energy Information Administration, Washington, DC, April 6, 1990.

## Table 2.2 Sources

**Coal**
1949–2007: Residential sector coal consumption data from Table 6.2 are converted to Btu by multiplying by the residential and commercial sectors coal consumption heat content factors in Table A5.

**Natural Gas**
1949–1979: Residential sector natural gas (including supplemental gaseous fuels) consumption data from Table 4.3 are converted to Btu by multiplying by the natural gas end-use sectors consumption heat content factors in Table A4.
1980 forward: Residential sector natural gas (including supplemental gaseous fuels) consumption data from Table 4.3 are converted to Btu by multiplying by the natural gas end-use sectors consumption heat content factors in Table A4. The residential sector portion of supplemental gaseous fuels data in Btu is estimated using the method described in Note 3, "Supplemental Gaseous Fuels," at the end of Section 4. Residential sector natural gas (excluding supplemental gaseous fuels) consumption is equal to residential sector natural gas (including supplemental gaseous fuels) consumption minus the residential sector portion of supplemental gaseous fuels.

**Petroleum**
1949 forward: Table 3.8a.

**Fossil Fuels Total**
1949–2007: Residential sector total fossil fuels consumption is the sum of the residential sector consumption values for coal, natural gas, and petroleum.
2008 forward: Residential sector total fossil fuels consumption is the sum of the residential sector consumption values for natural gas and petroleum.

**Renewable Energy**
1949 forward: Table 10.2a.

**Total Primary Energy Consumption**
1949 forward: Residential sector total primary energy consumption is the sum of the residential sector consumption values for fossil fuels and renewable energy.

**Electricity Retail Sales**
1949 forward: Residential sector electricity retail sales from Table 7.6 are converted to Btu by multiplying by the electricity heat content factor in Table A6.

**Electrical System Energy Losses**
1949 forward: Total electrical system energy losses are equal to electric power sector total primary energy consumption from Table 2.6 minus total electricity retail sales from Table 7.6 (converted to Btu by multiplying by the electricity heat content factor in Table A6). Total electrical system energy losses are allocated to the residential sector in proportion to the residential sector's share of total electricity retail sales from Table 7.6. See Note 1, "Electrical System Energy Losses."

**Total Energy Consumption**
1949 forward: Residential sector total energy consumption is the sum of the residential sector consumption values for

total primary energy, electricity retail sales, and electrical system energy losses.

## Table 2.3 Sources

**Coal**
1949 forward: Commercial sector coal consumption data from Table 6.2 are converted to Btu by multiplying by the residential and commercial sectors coal consumption heat content factors in Table A5.

**Natural Gas**
1949−1979: Commercial sector natural gas (including supplemental gaseous fuels) consumption data from Table 4.3 are converted to Btu by multiplying by the natural gas end-use sectors consumption heat content factors in Table A4.
1980 forward: Commercial sector natural gas (including supplemental gaseous fuels) consumption data from Table 4.3 are converted to Btu by multiplying by the natural gas end-use sectors consumption heat content factors in Table A4. The commercial sector portion of supplemental gaseous fuels data in Btu is estimated using the method described in Note 3, "Supplemental Gaseous Fuels," at the end of Section 4. Commercial sector natural gas (excluding supplemental gaseous fuels) consumption is equal to commercial sector natural gas (including supplemental gaseous fuels) consumption minus the commercial sector portion of supplemental gaseous fuels.

**Petroleum**
1949−1992: Table 3.8a.
1993−2008: The commercial sector share of motor gasoline consumption is equal to commercial sector motor gasoline consumption from Table 3.7a divided by motor gasoline product supplied from Table 3.5. Commercial sector fuel ethanol (including denaturant) consumption is equal to total fuel ethanol (including denaturant) consumption from Table 10.3 multiplied by the commercial sector share of motor gasoline consumption. Commercial sector petroleum (excluding biofuels) consumption is equal to commercial sector petroleum (including biofuels) consumption from Table 3.8a minus commercial sector fuel ethanol (including denaturant) consumption.
2009 forward: Commercial sector fuel ethanol (minus denaturant) consumption is equal to total fuel ethanol (minus denaturant) consumption from Table 10.3 multiplied by the commercial sector share of motor gasoline consumption (see 1993−2008 sources above). Commercial sector petroleum (excluding biofuels) consumption is equal to commercial sector petroleum (including biofuels) consumption from Table 3.8a minus commercial sector fuel ethanol (minus denaturant) consumption.

**Fossil Fuels Total**
1949 forward: Commercial sector total fossil fuels consumption is the sum of the commercial sector consumption values for coal, natural gas, and petroleum.

**Renewable Energy**
1949 forward: Table 10.2a.

**Total Primary Energy Consumption**
1949 forward: Commercial sector total primary energy consumption is the sum of the commercial sector consumption values for fossil fuels and renewable energy.

**Electricity Retail Sales**
1949 forward: Commercial sector electricity retail sales from Table 7.6 are converted to Btu by multiplying by the electricity heat content factor in Table A6.

**Electrical System Energy Losses**
1949 forward: Total electrical system energy losses are equal to electric power sector total primary energy consumption from Table 2.6 minus total electricity retail sales from Table 7.6 (converted to Btu by multiplying by the electricity heat content factor in Table A6). Total electrical system energy losses are allocated to the commercial sector in proportion to the commercial sector's share of total electricity retail sales from Table 7.6. See Note 1, "Electrical System Energy Losses."

**Total Energy Consumption**
1949 forward: Commercial sector total energy consumption is the sum of the commercial sector consumption values for total primary energy, electricity retail sales, and electrical system energy losses.

## Table 2.4 Sources

**Coal**
1949 forward: Coke plants coal consumption from Table 6.2 is converted to Btu by multiplying by the coke plants coal consumption heat content factors in Table A5. Other industrial coal consumption from Table 6.2 is converted to Btu by multiplying by the other industrial coal consumption heat content factors in Table A5. Industrial sector coal consumption is equal to coke plants coal consumption and other industrial coal consumption.

**Natural Gas**
1949−1979: Industrial sector natural gas (including supplemental gaseous fuels) consumption data from Table 4.3 are converted to Btu by multiplying by the natural gas end-use sectors consumption heat content factors in Table A4.
1980 forward: Industrial sector natural gas (including supplemental gaseous fuels) consumption data from Table 4.3 are converted to Btu by multiplying by the natural gas end-use sectors consumption heat content factors in Table A4. The industrial sector portion of supplemental gaseous fuels data in Btu is estimated using the method described in Note 3, "Supplemental Gaseous Fuels," at the end of Section 4. Industrial sector natural gas (excluding supplemental gaseous fuels) consumption is equal to industrial sector natural gas (including supplemental gaseous fuels) consumption minus the industrial sector portion of supplemental gaseous fuels.

**Petroleum**
1949−1992: Table 3.8b.

1993−2008: The industrial sector share of motor gasoline consumption is equal to industrial sector motor gasoline consumption from Table 3.7b divided by motor gasoline product supplied from Table 3.5. Industrial sector fuel ethanol (including denaturant) consumption is equal to total fuel ethanol (including denaturant) consumption from Table 10.3 multiplied by the industrial sector share of motor gasoline consumption. Industrial sector petroleum (excluding biofuels) consumption is equal to industrial sector petroleum (including biofuels) consumption from Table 3.8b minus industrial sector fuel ethanol (including denaturant) consumption.
2009 forward: Industrial sector fuel ethanol (minus denaturant) consumption is equal to total fuel ethanol (minus denaturant) consumption from Table 10.3 multiplied by the industrial sector share of motor gasoline consumption (see 1993−2008 sources above). Industrial sector petroleum (excluding biofuels) consumption is equal to industrial sector petroleum (including biofuels) consumption from Table 3.8b minus industrial sector fuel ethanol (minus denaturant) consumption.

**Coal Coke Net Imports**
1949 forward: Coal coke net imports are equal to coal coke imports from Table 1.4a minus coal coke exports from Table 1.4b.

**Fossil Fuels Total**
1949 forward: Industrial sector total fossil fuels consumption is the sum of the industrial sector consumption values for coal, natural gas, and petroleum, plus coal coke net imports.

**Renewable Energy**
1949 forward: Table 10.2b.

**Total Primary Energy Consumption**
1949 forward: Industrial sector total primary energy consumption is the sum of the industrial sector consumption values for fossil fuels and renewable energy.

**Electricity Retail Sales**
1949 forward: Industrial sector electricity retail sales from Table 7.6 are converted to Btu by multiplying by the electricity heat content factor in Table A6.

**Electrical System Energy Losses**
1949 forward: Total electrical system energy losses are equal to electric power sector total primary energy consumption from Table 2.6 minus total electricity retail sales from Table 7.6 (converted to Btu by multiplying by the electricity heat content factor in Table A6). Total electrical system energy losses are allocated to the industrial sector in proportion to the industrial sector's share of total electricity retail sales from Table 7.6. See Note 1, "Electrical System Energy Losses."

**Total Energy Consumption**
1949 forward: Industrial sector total energy consumption is the sum of the industrial sector consumption values for total primary energy, electricity retail sales, and electrical system energy losses.

## Table 2.5 Sources

**Coal**
1949−1977: Transportation sector coal consumption data from Table 6.2 are converted to Btu by multiplying by the other industrial sector coal consumption heat content factors in Table A5.

**Natural Gas**
1949 forward: Transportation sector natural gas consumption data from Table 4.3 are converted to Btu by multiplying by the natural gas end-use sectors consumption heat content factors in Table A4.

**Petroleum**
1949−1992: Table 3.8c.
1993−2008: The transportation sector share of motor gasoline consumption is equal to transportation sector motor gasoline consumption from Table 3.7c divided by motor gasoline product supplied from Table 3.5. Transportation sector fuel ethanol (including denaturant) consumption is equal to total fuel ethanol (including denaturant) consumption from Table 10.3 multiplied by the transportation sector share of motor gasoline consumption. Transportation sector petroleum (excluding biofuels) consumption is equal to transportation sector petroleum (including biofuels) consumption from Table 3.8c minus transportation sector fuel ethanol (including denaturant) consumption.
2009 forward: Transportation sector fuel ethanol (minus denaturant) consumption is equal to total fuel ethanol (minus denaturant) consumption from Table 10.3 multiplied by the transportation sector share of motor gasoline consumption (see 1993−2008 sources above). Transportation sector petroleum (excluding biofuels) consumption is equal to: transportation sector petroleum (including biofuels) consumption from Table 3.8c; minus transportation sector fuel ethanol (minus denaturant) consumption; minus refinery and blender net inputs of renewable fuels (excluding fuel ethanol) from U.S. Energy Information Administration, *Petroleum Supply Annual*/*Petroleum Supply Monthly*, Table 1 (for biomass-based diesel fuel, the data are converted to Btu by multiplying by the biodiesel heat content factor in Table A1; for other renewable diesel fuel, the data are converted to Btu by multiplying by the other renewable diesel fuel heat content factor in Table A1).

**Fossil Fuels Total**
1949−1977: Transportation sector total fossil fuels consumption is the sum of the transportation sector consumption values for coal, natural gas, and petroleum.
1978 forward: Transportation sector total fossil fuels consumption is the sum of the transportation sector consumption values for natural gas and petroleum.

**Renewable Energy**
1981 forward: Table 10.2b.

**Total Primary Energy Consumption**
1949−1980: Transportation sector total primary energy consumption is equal to transportation sector fossil fuels consumption.

1981 forward: Transportation sector total primary energy consumption is the sum of the transportation sector consumption values for fossil fuels and renewable energy.

**Electricity Retail Sales**
1949 forward: Transportation sector electricity retail sales from Table 7.6 are converted to Btu by multiplying by the electricity heat content factor in Table A6.

**Electrical System Energy Losses**
1949 forward: Total electrical system energy losses are equal to electric power sector total primary energy consumption from Table 2.6 minus total electricity retail sales from Table 7.6 (converted to Btu by multiplying by the electricity heat content factor in Table A6). Total electrical system energy losses are allocated to the transportation sector in proportion to the transportation sector's share of total electricity retail sales from Table 7.6. See Note 1, "Electrical System Energy Losses."

**Total Energy Consumption**
1949 forward: Transportation sector total energy consumption is the sum of the transportation sector consumption values for total primary energy, electricity retail sales, and electrical system energy losses.

## Table 2.6 Sources

**Coal**
1949 forward: Electric power sector coal consumption data from Table 6.2 are converted to Btu by multiplying by the electric power sector coal consumption heat content factors in Table A5.

**Natural Gas**
1949–1979: Electric power sector natural gas (including supplemental gaseous fuels) consumption data from Table 4.3 are converted to Btu by multiplying by the natural gas electric power sector consumption heat content factors in Table A4.

1980 forward: Electric power sector natural gas (including supplemental gaseous fuels) consumption data from Table 4.3 are converted to Btu by multiplying by the natural gas electric power sector consumption heat content factors in Table A4. The electric power sector portion of supplemental gaseous fuels data in Btu is estimated using the method described in Note 3, "Supplemental Gaseous Fuels," at the end of Section 4. Electric power sector natural gas (excluding supplemental gaseous fuels) consumption is equal to electric power sector natural gas (including supplemental gaseous fuels) consumption minus the electric power sector portion of supplemental gaseous fuels.

**Petroleum**
1949 forward: Table 3.8c.

**Fossil Fuels Total**
1949 forward: Electric power sector total fossil fuels consumption is the sum of the electric power sector consumption values for coal, natural gas, and petroleum.

**Nuclear Electric Power**
1949 forward: Nuclear electricity net generation data from Table 7.2a are converted to Btu by multiplying by the nuclear heat rate factors in Table A6.

**Renewable Energy**
1949 forward: Table 10.2c.

**Electricity Net Imports**
1949 forward: Electricity net imports are equal to electricity imports from Table 1.4a minus electricity exports from Table 1.4b.

**Total Primary Energy Consumption**
1949 forward: Electric power sector total primary energy consumption is the sum of the electric power sector consumption values for fossil fuels, nuclear electric power, and renewable energy, plus electricity net imports.

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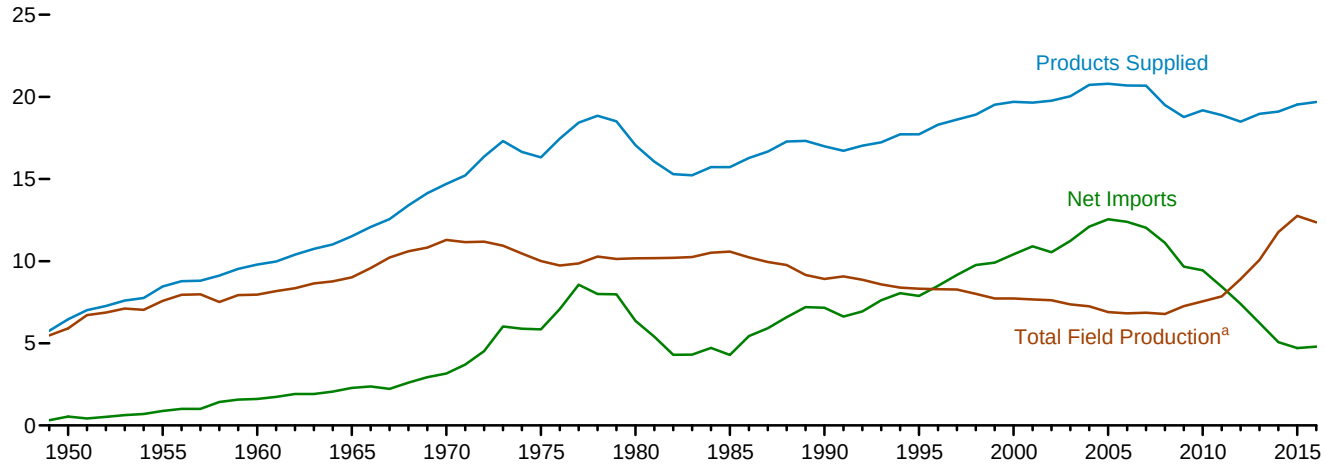
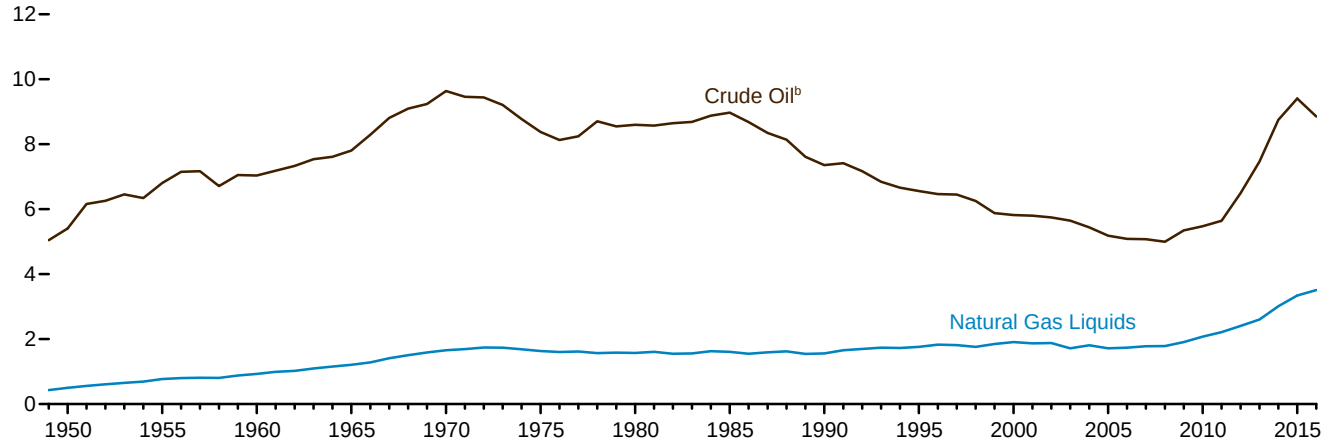
# 3. Petroleum

## Figure 3.1 Petroleum Overview
(Million Barrels per Day)

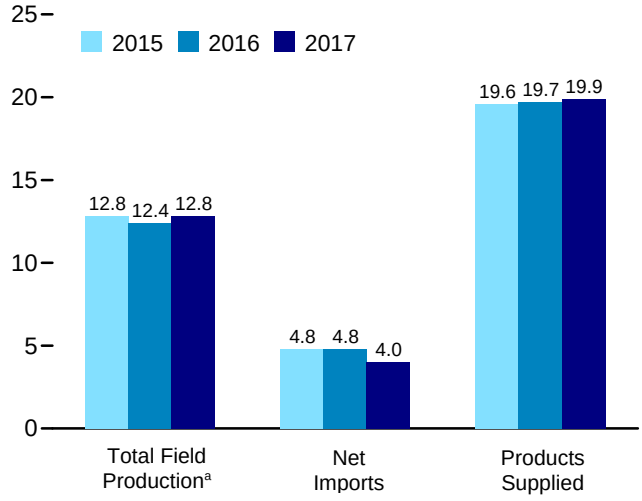
Overview, 1949–2016



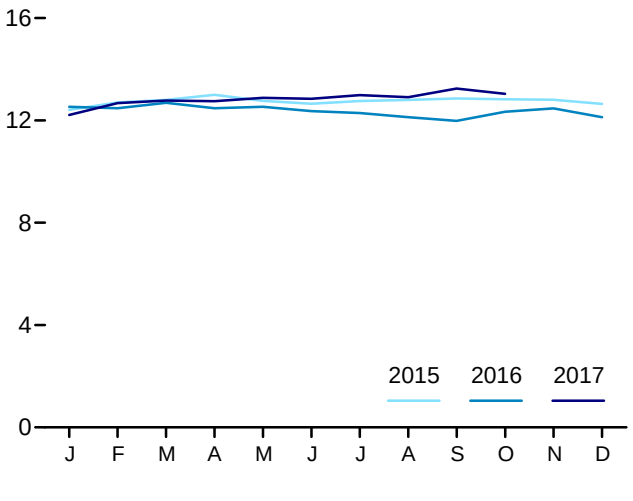

Crude Oil and Natural Gas Liquids Field Production, 1949–2016




Overview, January–October




Total Field Production,[a] Monthly




[a] Crude oil, including lease condensate, and natural gas liquids field production.
[b] Includes lease condensate.

Web Page: http://www.eia.gov/totalenergy/data/monthly/#petroleum.
Source: Table 3.1.

## Table 3.1 Petroleum Overview

(Thousand Barrels per Day)

| | Field Production[a] | | | | | Renewable Fuels and Oxygenates[e] | Processing Gain[f] | Trade | | | Stock Change[i] | Adjustments[c,j] | Petroleum Products Supplied |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Crude Oil[b,c] | | | Natural Gas Liquids | Total[c] | | | Imports[g] | Exports | Net Imports[h] | | | |
| | 48 States[d] | Alaska | Total | | | | | | | | | | |
| **1950 Average** | **5,407** | **0** | **5,407** | **499** | **5,906** | **NA** | **2** | **850** | **305** | **545** | **-56** | **-51** | **6,458** |
| **1955 Average** | **6,807** | **0** | **6,807** | **771** | **7,578** | **NA** | **34** | **1,248** | **368** | **880** | **(s)** | **-37** | **8,455** |
| **1960 Average** | **7,034** | **2** | **7,035** | **929** | **7,965** | **NA** | **146** | **1,815** | **202** | **1,613** | **-83** | **-8** | **9,797** |
| **1965 Average** | **7,774** | **30** | **7,804** | **1,210** | **9,014** | **NA** | **220** | **2,468** | **187** | **2,281** | **-8** | **-10** | **11,512** |
| **1970 Average** | **9,408** | **229** | **9,637** | **1,660** | **11,297** | **NA** | **359** | **3,419** | **259** | **3,161** | **103** | **-16** | **14,697** |
| **1975 Average** | **8,183** | **191** | **8,375** | **1,633** | **10,007** | **NA** | **460** | **6,056** | **209** | **5,846** | **32** | **41** | **16,322** |
| **1980 Average** | **6,980** | **1,617** | **8,597** | **1,573** | **10,170** | **NA** | **597** | **6,909** | **544** | **6,365** | **140** | **64** | **17,056** |
| **1985 Average** | **7,146** | **1,825** | **8,971** | **1,609** | **10,581** | **NA** | **557** | **5,067** | **781** | **4,286** | **-103** | **200** | **15,726** |
| **1990 Average** | **5,582** | **1,773** | **7,355** | **1,559** | **8,914** | **NA** | **683** | **8,018** | **857** | **7,161** | **107** | **338** | **16,988** |
| **1995 Average** | **5,076** | **1,484** | **6,560** | **1,762** | **8,322** | **NA** | **774** | **8,835** | **949** | **7,886** | **-246** | **496** | **17,725** |
| **2000 Average** | **4,851** | **970** | **5,822** | **1,911** | **7,733** | **NA** | **948** | **11,459** | **1,040** | **10,419** | **-69** | **532** | **19,701** |
| **2001 Average** | **4,839** | **963** | **5,801** | **1,868** | **7,670** | **NA** | **903** | **11,871** | **971** | **10,900** | **325** | **501** | **19,649** |
| **2002 Average** | **4,759** | **985** | **5,744** | **1,880** | **7,624** | **NA** | **957** | **11,530** | **984** | **10,546** | **-105** | **529** | **19,761** |
| **2003 Average** | **4,675** | **974** | **5,649** | **1,719** | **7,369** | **NA** | **974** | **12,264** | **1,027** | **11,238** | **56** | **509** | **20,034** |
| **2004 Average** | **4,533** | **908** | **5,441** | **1,809** | **7,250** | **NA** | **1,051** | **13,145** | **1,048** | **12,097** | **209** | **542** | **20,731** |
| **2005 Average** | **4,320** | **864** | **5,184** | **1,717** | **6,901** | **NA** | **989** | **13,714** | **1,165** | **12,549** | [k] **146** | **509** | **20,802** |
| **2006 Average** | **4,345** | **741** | **5,086** | **1,739** | **6,825** | **NA** | **994** | **13,707** | **1,317** | **12,390** | **59** | **537** | **20,687** |
| **2007 Average** | **4,352** | **722** | **5,074** | **1,783** | **6,857** | **NA** | **996** | **13,468** | **1,433** | **12,036** | **-152** | **640** | **20,680** |
| **2008 Average** | **4,315** | **683** | **4,998** | **1,784** | **6,781** | **NA** | **993** | **12,915** | **1,802** | **11,114** | **195** | **805** | **19,498** |
| **2009 Average** | **4,703** | **645** | **5,349** | **1,910** | **7,259** | **746** | **979** | **11,691** | **2,024** | **9,667** | **107** | **229** | **18,771** |
| **2010 Average** | **4,875** | **600** | **5,475** | **2,074** | **7,549** | **907** | **1,068** | **11,793** | **2,353** | **9,441** | **39** | **256** | **19,180** |
| **2011 Average** | **5,082** | **561** | **5,643** | **2,216** | **7,859** | **1,016** | **1,076** | **11,436** | **2,986** | **8,450** | **-129** | **356** | **18,887** |
| **2012 Average** | **5,971** | **526** | **6,497** | **2,408** | **8,905** | **964** | **1,059** | **10,598** | **3,205** | **7,393** | **147** | **313** | **18,487** |
| **2013 Average** | **6,951** | **515** | **7,466** | **2,606** | **10,072** | **1,002** | **1,087** | **9,859** | **3,621** | **6,237** | **-139** | **430** | **18,967** |
| **2014 Average** | **8,257** | **496** | **8,753** | **3,015** | **11,768** | **1,055** | **1,081** | **9,241** | **4,176** | **5,065** | **267** | **399** | **19,100** |
| **2015** January | 8,858 | 500 | 9,358 | 3,055 | 12,413 | 1,055 | 1,075 | 9,461 | 4,575 | 4,886 | 709 | 541 | 19,261 |
| February | 9,049 | 488 | 9,537 | 3,162 | 12,699 | 1,048 | 1,021 | 9,272 | 4,640 | 4,632 | 15 | 279 | 19,664 |
| March | 9,055 | 506 | 9,561 | 3,237 | 12,798 | 1,052 | 1,013 | 9,619 | 4,092 | 5,527 | 1,072 | 21 | 19,340 |
| April | 9,116 | 510 | 9,626 | 3,375 | 13,002 | 1,065 | 1,068 | 9,374 | 4,938 | 4,436 | 868 | 548 | 19,251 |
| May | 8,955 | 473 | 9,428 | 3,337 | 12,764 | 1,107 | 1,083 | 9,502 | 4,853 | 4,649 | 689 | 401 | 19,316 |
| June | 8,883 | 447 | 9,329 | 3,319 | 12,648 | 1,148 | 1,028 | 9,605 | 4,657 | 4,948 | 338 | 420 | 19,853 |
| July | 8,952 | 450 | 9,402 | 3,355 | 12,757 | 1,124 | 1,092 | 9,571 | 4,960 | 4,611 | -72 | 478 | 20,134 |
| August | 8,971 | 408 | 9,379 | 3,419 | 12,798 | 1,103 | 1,099 | 9,858 | 4,507 | 5,351 | 710 | 299 | 19,939 |
| September | 8,945 | 472 | 9,417 | 3,437 | 12,854 | 1,090 | 1,046 | 9,358 | 4,851 | 4,507 | 311 | 246 | 19,433 |
| October | 8,842 | 497 | 9,339 | 3,489 | 12,828 | 1,104 | 1,040 | 8,842 | 4,617 | 4,225 | 243 | 537 | 19,491 |
| November | 8,784 | 523 | 9,307 | 3,498 | 12,805 | 1,117 | 1,065 | 9,151 | 4,903 | 4,248 | 466 | 358 | 19,127 |
| December | 8,707 | 522 | 9,229 | 3,417 | 12,647 | 1,124 | 1,108 | 9,742 | 5,266 | 4,476 | -232 | 2 | 19,589 |
| **Average** | **8,925** | **483** | **9,408** | **3,342** | **12,751** | **1,095** | **1,062** | **9,449** | **4,738** | **4,711** | **429** | **344** | **19,534** |
| **2016** January | 8,671 | 516 | 9,186 | 3,345 | 12,531 | 1,109 | 1,117 | 9,707 | 4,977 | 4,730 | 1,020 | 597 | 19,063 |
| February | 8,600 | 507 | 9,107 | 3,369 | 12,476 | 1,128 | 1,070 | 10,066 | 4,934 | 5,132 | 148 | 188 | 19,847 |
| March | 8,623 | 511 | 9,134 | 3,556 | 12,690 | 1,146 | 1,049 | 10,001 | 5,092 | 4,910 | 206 | 140 | 19,728 |
| April | 8,418 | 489 | 8,906 | 3,570 | 12,477 | 1,094 | 1,095 | 9,822 | 5,195 | 4,627 | 361 | 409 | 19,340 |
| May | 8,354 | 505 | 8,859 | 3,672 | 12,531 | 1,146 | 1,160 | 10,181 | 5,739 | 4,441 | 495 | 545 | 19,328 |
| June | 8,233 | 470 | 8,703 | 3,662 | 12,365 | 1,180 | 1,114 | 10,054 | 5,437 | 4,617 | -36 | 534 | 19,846 |
| July | 8,243 | 438 | 8,682 | 3,604 | 12,285 | 1,180 | 1,190 | 10,532 | 5,226 | 5,306 | 550 | 364 | 19,776 |
| August | 8,257 | 459 | 8,716 | 3,410 | 12,127 | 1,190 | 1,149 | 10,322 | 5,097 | 5,226 | -5 | 579 | 20,275 |
| September | 8,101 | 452 | 8,553 | 3,427 | 11,981 | 1,167 | 1,122 | 10,199 | 5,439 | 4,760 | -504 | 222 | 19,757 |
| October | 8,296 | 495 | 8,791 | 3,544 | 12,335 | 1,153 | 1,089 | 9,699 | 4,985 | 4,715 | 58 | 416 | 19,650 |
| November | 8,363 | 513 | 8,876 | 3,596 | 12,472 | 1,195 | 1,113 | 10,293 | 5,426 | 4,867 | 107 | 120 | 19,659 |
| December | 8,252 | 519 | 8,771 | 3,352 | 12,123 | 1,212 | 1,143 | 9,792 | 5,574 | 4,219 | -860 | 428 | 19,984 |
| **Average** | **8,367** | **490** | **8,857** | **3,509** | **12,366** | **1,158** | **1,118** | **10,055** | **5,261** | **4,795** | **130** | **380** | **19,687** |
| **2017** January | E 8,335 | E 516 | E 8,851 | 3,365 | E 12,215 | 1,177 | 1,125 | 10,685 | 5,691 | 4,994 | 698 | 431 | 19,244 |
| February | E 8,557 | E 513 | E 9,070 | 3,604 | E 12,675 | 1,164 | 1,045 | 10,039 | 6,443 | 3,597 | -94 | 585 | 19,159 |
| March | E 8,605 | E 526 | E 9,131 | 3,644 | E 12,775 | 1,172 | 1,108 | 10,059 | 5,886 | 4,174 | -556 | 262 | 20,047 |
| April | E 8,595 | E 525 | E 9,120 | 3,633 | E 12,753 | 1,138 | 1,128 | 10,244 | 6,066 | 4,178 | 1 | 361 | 19,556 |
| May | E 8,654 | E 508 | E 9,161 | 3,721 | E 12,882 | 1,174 | 1,125 | 10,628 | 6,142 | 4,486 | 152 | 524 | 20,039 |
| June | RE 8,633 | E 463 | RE 9,096 | 3,752 | RE 12,847 | 1,186 | 1,151 | 10,240 | 6,148 | 4,092 | -824 | R 394 | 20,494 |
| July | RE 8,811 | E 423 | RE 9,234 | 3,755 | RE 12,989 | 1,188 | 1,091 | 9,850 | 6,232 | 3,618 | -364 | R 770 | 20,020 |
| August | RE 8,752 | RE 451 | RE 9,203 | R 3,704 | RE 12,907 | R 1,214 | R 1,112 | R 10,055 | R 5,647 | R 4,407 | R -377 | R 143 | R 20,161 |
| September | E 9,009 | E 483 | E 9,492 | E 3,752 | E 13,244 | E 1,078 | E 1,054 | E 9,513 | E 5,590 | E 3,923 | RE -726 | RE 183 | E 20,208 |
| October | E 8,776 | E 507 | E 9,283 | E 3,755 | E 13,038 | E 1,083 | E 1,081 | E 9,707 | E 6,913 | E 2,794 | E -1,211 | E 581 | E 19,788 |
| **10-Month Average** | **E 8,673** | **E 491** | **E 9,164** | **E 3,669** | **E 12,833** | **E 1,158** | **E 1,103** | **E 10,104** | **E 6,074** | **E 4,030** | **E -331** | **E 423** | **E 19,877** |
| **2016 10-Month Average** | **8,379** | **484** | **8,864** | **3,517** | **12,380** | **1,149** | **1,116** | **10,059** | **5,212** | **4,846** | **233** | **401** | **19,660** |
| **2015 10-Month Average** | **8,962** | **475** | **9,437** | **3,319** | **12,756** | **1,090** | **1,057** | **9,448** | **4,668** | **4,780** | **493** | **378** | **19,568** |

[a] Crude oil production on leases, and natural gas liquids (hydrocarbon gas liquids and a small amount of finished petroleum products) production at natural gas processing plants. Excludes what was previously classified as "Field Production" of finished motor gasoline, motor gasoline blending components, and other hydrocarbons and oxygenates; these are now included in "Adjustments."

[b] Includes lease condensate.

[c] Once a month, data for crude oil production, total field production, and adjustments are revised going back as far as the data year of the U.S. Energy Information Administration's (EIA) last published *Petroleum Supply Annual (PSA)*—these revisions are released at the same time as EIA's *Petroleum Supply Monthly.* Once a year, data for these series are revised going back as far as 10 years—these revisions are released at the same time as the PSA.

[d] United States excluding Alaska and Hawaii.

[e] Renewable fuels and oxygenate plant net production.

[f] Refinery and blender net production minus refinery and blender net inputs. See Table 3.2.

[g] Includes Strategic Petroleum Reserve imports. See Table 3.3b.

[h] Net imports equal imports minus exports.

[i] A negative value indicates a decrease in stocks and a positive value indicates an increase. The current month stock change estimate is based on the change from the previous month's estimate, rather than the stocks values shown in Table 3.4. Includes crude oil stocks in the Strategic Petroleum Reserve, but excludes distillate fuel oil stocks in the Northeast Home Heating Oil Reserve. See Table 3.4.

[j] An adjustment for crude oil, hydrogen, oxygenates, renewable fuels, other hydrocarbons, motor gasoline blending components, finished motor gasoline, and distillate fuel oil. See EIA's *Petroleum Supply Monthly,* Appendix B, "PSM Explanatory Notes," for further information.

[k] Derived from the 2004 petroleum stocks value that excludes crude oil stocks on leases (1,628 million barrels), not the 2004 petroleum stocks value that includes crude oil stocks on leases (1,645 million barrels).

R=Revised. E=Estimate. NA=Not available. (s)=Less than 500 barrels per day and greater than -500 barrels per day.

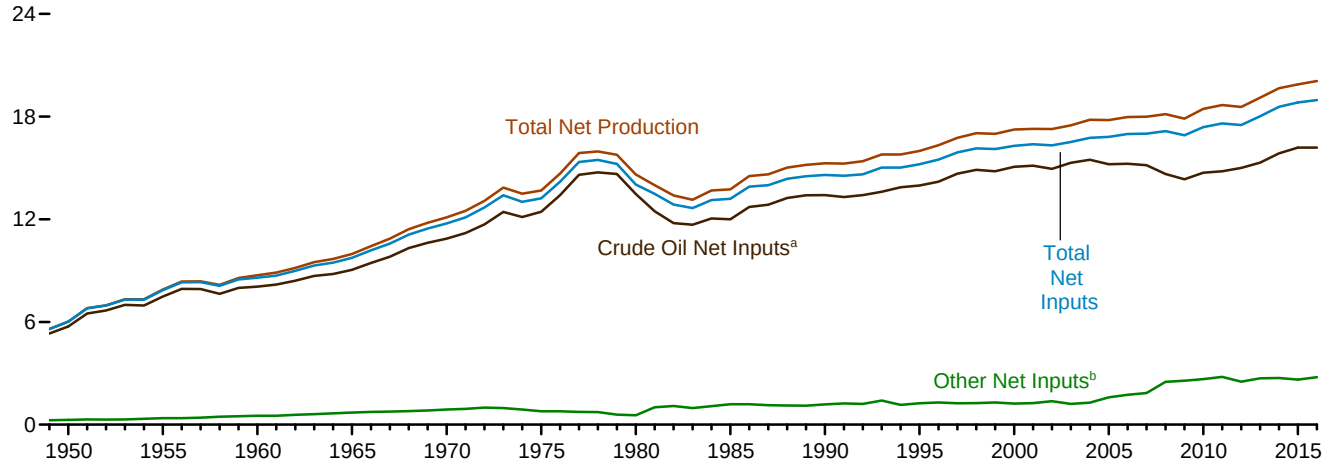
Notes: • Totals may not equal sum of components due to independent rounding. • Geographic coverage is the 50 states and the District of Columbia.

Web Page: See http://www.eia.gov/totalenergy/data/monthly/#petroleum (Excel and CSV files) for all available annual data beginning in 1949 and monthly data beginning in 1973.

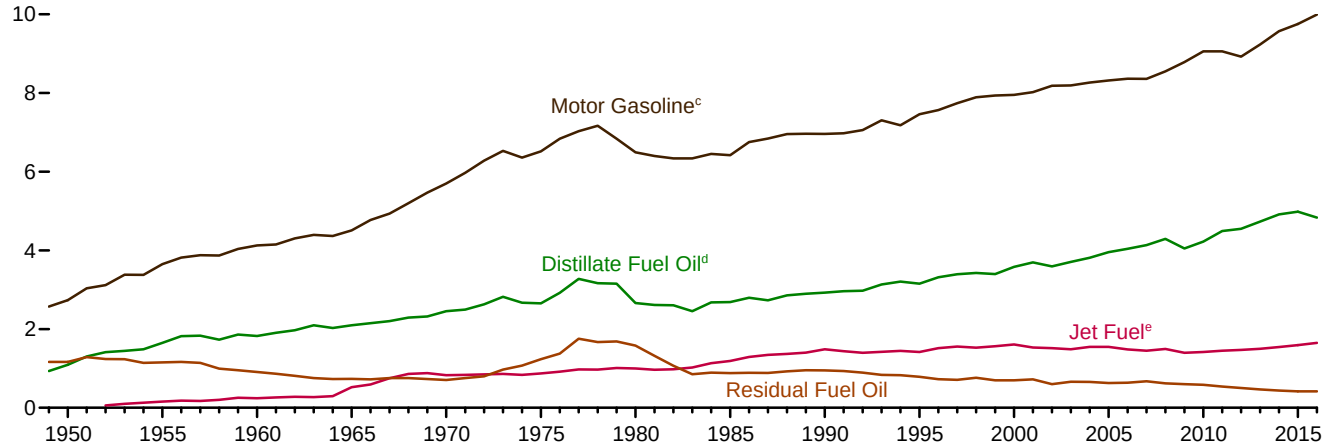
Sources: See end of section.

## Figure 3.2 Refinery and Blender Net Inputs and Net Production
(Million Barrels per Day)

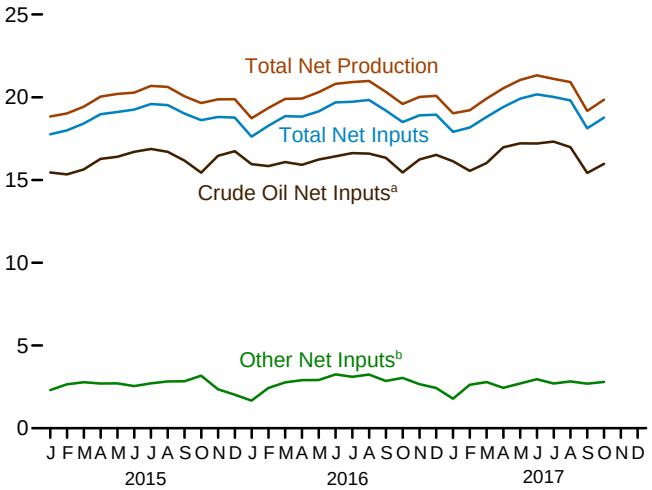
Net Inputs and Net Production, 1949–2016



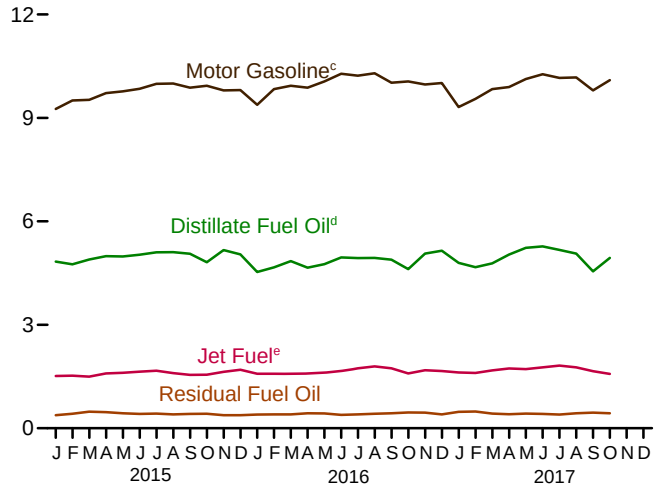

Net Production, Selected Products, 1949–2016




Net Inputs and Net Production, Monthly




Net Production, Selected Products, Monthly




[a] Includes lease condensate.
[b] Natural gas liquids and other liquids.
[c] Beginning in 1993, includes fuel ethanol blended into motor gasoline.
[d] Beginning in 2009, includes renewable diesel fuel (including biodiesel) blended into distillate fuel oil.
[e] Beginning in 2005, includes kerosene-type jet fuel only.
Web Page: http://www.eia.gov/totalenergy/data/monthly/#petroleum.
Source: Table 3.2.

# Table 3.2 Refinery and Blender Net Inputs and Net Production

(Thousand Barrels per Day)

| | Refinery and Blender Net Inputs[a] | | | | Refinery and Blender Net Production[b] | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | HGL[c] | | | | | | |
| | Crude Oil[d] | Natural Gas Liquids[e] | Other Liquids[f] | Total | Distillate Fuel Oil[g] | Propane[h] | Total[i] | Jet Fuel[j] | Motor Gasoline[k] | Residual Fuel Oil | Other Products[l] | Total |
| **1950 Average** | **5,739** | **259** | **19** | **6,018** | **1,093** | **NA** | **80** | **( j )** | **2,735** | **1,165** | **947** | **6,019** |
| **1955 Average** | **7,480** | **345** | **32** | **7,857** | **1,651** | **NA** | **119** | **155** | **3,648** | **1,152** | **1,166** | **7,891** |
| **1960 Average** | **8,067** | **455** | **61** | **8,583** | **1,823** | **NA** | **212** | **241** | **4,126** | **908** | **1,420** | **8,729** |
| **1965 Average** | **9,043** | **618** | **88** | **9,750** | **2,096** | **NA** | **293** | **523** | **4,507** | **736** | **1,814** | **9,970** |
| **1970 Average** | **10,870** | **763** | **121** | **11,754** | **2,454** | **239** | **345** | **827** | **5,699** | **706** | **2,082** | **12,113** |
| **1975 Average** | **12,442** | **710** | **72** | **13,225** | **2,653** | **238** | **311** | **871** | **6,518** | **1,235** | **2,097** | **13,685** |
| **1980 Average** | **13,481** | **462** | **81** | **14,025** | **2,661** | **273** | **330** | **999** | **6,492** | **1,580** | **2,559** | **14,622** |
| **1985 Average** | **12,002** | **509** | **681** | **13,192** | **2,686** | **295** | **391** | **1,189** | **6,419** | **882** | **2,183** | **13,750** |
| **1990 Average** | **13,409** | **467** | **713** | **14,589** | **2,925** | **404** | **499** | **1,488** | **6,959** | **950** | **2,452** | **15,272** |
| **1995 Average** | **13,973** | **471** | **775** | **15,220** | **3,155** | **503** | **654** | **1,416** | **7,459** | **788** | **2,522** | **15,994** |
| **2000 Average** | **15,067** | **380** | **849** | **16,295** | **3,580** | **583** | **705** | **1,606** | **7,951** | **696** | **2,705** | **17,243** |
| **2001 Average** | **15,128** | **429** | **825** | **16,382** | **3,695** | **556** | **667** | **1,530** | **8,022** | **721** | **2,651** | **17,285** |
| **2002 Average** | **14,947** | **429** | **941** | **16,316** | **3,592** | **572** | **671** | **1,514** | **8,183** | **601** | **2,712** | **17,273** |
| **2003 Average** | **15,304** | **419** | **791** | **16,513** | **3,707** | **570** | **658** | **1,488** | **8,194** | **660** | **2,780** | **17,487** |
| **2004 Average** | **15,475** | **422** | **866** | **16,762** | **3,814** | **584** | **645** | **1,547** | **8,265** | **655** | **2,887** | **17,814** |
| **2005 Average** | **15,220** | **441** | **1,149** | **16,811** | **3,954** | **540** | **573** | **1,546** | **8,318** | **628** | **2,782** | **17,800** |
| **2006 Average** | **15,242** | **501** | **1,238** | **16,981** | **4,040** | **543** | **627** | **1,481** | **8,364** | **635** | **2,827** | **17,975** |
| **2007 Average** | **15,156** | **505** | **1,337** | **16,999** | **4,133** | **562** | **655** | **1,448** | **8,358** | **673** | **2,728** | **17,994** |
| **2008 Average** | **14,648** | **485** | **2,019** | **17,153** | **4,294** | **519** | **630** | **1,493** | **8,548** | **620** | **2,561** | **18,146** |
| **2009 Average** | **14,336** | **485** | **2,082** | **16,904** | **4,048** | **537** | **623** | **1,396** | **8,786** | **598** | **2,431** | **17,882** |
| **2010 Average** | **14,724** | **442** | **2,219** | **17,385** | **4,223** | **560** | **659** | **1,418** | **9,059** | **585** | **2,509** | **18,452** |
| **2011 Average** | **14,806** | **490** | **2,300** | **17,596** | **4,492** | **552** | **619** | **1,449** | **9,058** | **537** | **2,518** | **18,673** |
| **2012 Average** | **14,999** | **509** | **1,997** | **17,505** | **4,550** | **553** | **630** | **1,471** | **8,926** | **501** | **2,487** | **18,564** |
| **2013 Average** | **15,312** | **496** | **2,211** | **18,019** | **4,733** | **564** | **623** | **1,499** | **9,234** | **467** | **2,550** | **19,106** |
| **2014 Average** | **15,848** | **511** | **2,214** | **18,574** | **4,916** | **587** | **653** | **1,541** | **9,570** | **435** | **2,537** | **19,654** |
| **2015** January | 15,456 | 589 | 1,721 | 17,766 | 4,835 | 561 | 392 | 1,513 | 9,260 | 377 | 2,464 | 18,841 |
| February | 15,342 | 545 | 2,112 | 17,998 | 4,752 | 529 | 401 | 1,525 | 9,504 | 420 | 2,418 | 19,019 |
| March | 15,640 | 494 | 2,281 | 18,415 | 4,894 | 536 | 610 | 1,498 | 9,524 | 478 | 2,424 | 19,428 |
| April | 16,273 | 406 | 2,292 | 18,971 | 4,991 | 589 | 815 | 1,591 | 9,720 | 467 | 2,455 | 20,039 |
| May | 16,402 | 394 | 2,317 | 19,112 | 4,983 | 582 | 885 | 1,608 | 9,771 | 436 | 2,513 | 20,195 |
| June | 16,701 | 418 | 2,131 | 19,250 | 5,032 | 569 | 864 | 1,640 | 9,846 | 413 | 2,483 | 20,278 |
| July | 16,879 | 432 | 2,280 | 19,591 | 5,101 | 580 | 853 | 1,670 | 9,989 | 426 | 2,644 | 20,683 |
| August | 16,700 | 449 | 2,377 | 19,526 | 5,107 | 574 | 839 | 1,600 | 9,998 | 404 | 2,677 | 20,625 |
| September | 16,168 | 546 | 2,294 | 19,008 | 5,061 | 529 | 583 | 1,547 | 9,878 | 414 | 2,572 | 20,054 |
| October | 15,440 | 600 | 2,573 | 18,613 | 4,817 | 520 | 442 | 1,554 | 9,935 | 419 | 2,487 | 19,653 |
| November | 16,458 | 683 | 1,669 | 18,810 | 5,169 | 559 | 343 | 1,634 | 9,799 | 377 | 2,554 | 19,875 |
| December | 16,742 | 649 | 1,377 | 18,768 | 5,042 | 578 | 333 | 1,698 | 9,806 | 376 | 2,621 | 19,876 |
| **Average** | **16,188** | **517** | **2,119** | **18,824** | **4,983** | **559** | **615** | **1,590** | **9,754** | **417** | **2,527** | **19,886** |
| **2016** January | 15,951 | 672 | 994 | 17,618 | 4,530 | 589 | 354 | 1,581 | 9,378 | 395 | 2,495 | 18,735 |
| February | 15,843 | 569 | 1,864 | 18,276 | 4,668 | 574 | 426 | 1,578 | 9,834 | 403 | 2,437 | 19,346 |
| March | 16,082 | 487 | 2,284 | 18,854 | 4,848 | 595 | 666 | 1,575 | 9,932 | 400 | 2,483 | 19,903 |
| April | 15,920 | 452 | 2,451 | 18,823 | 4,659 | 597 | 829 | 1,592 | 9,876 | 435 | 2,527 | 19,919 |
| May | 16,237 | 420 | 2,493 | 19,150 | 4,760 | 613 | 897 | 1,606 | 10,058 | 427 | 2,561 | 20,310 |
| June | 16,433 | 432 | 2,825 | 19,690 | 4,954 | 598 | 888 | 1,662 | 10,280 | 389 | 2,632 | 20,804 |
| July | 16,621 | 425 | 2,680 | 19,726 | 4,933 | 590 | 873 | 1,737 | 10,224 | 401 | 2,749 | 20,916 |
| August | 16,593 | 427 | 2,813 | 19,833 | 4,939 | 576 | 838 | 1,796 | 10,293 | 420 | 2,696 | 20,981 |
| September | 16,340 | 547 | 2,312 | 19,199 | 4,888 | 575 | 645 | 1,738 | 10,020 | 436 | 2,594 | 20,321 |
| October | 15,454 | 633 | 2,411 | 18,498 | 4,614 | 556 | 476 | 1,591 | 10,059 | 455 | 2,392 | 19,587 |
| November | 16,235 | 699 | 1,967 | 18,901 | 5,066 | 589 | 349 | 1,680 | 9,969 | 450 | 2,499 | 20,013 |
| December | 16,516 | 674 | 1,755 | 18,945 | 5,148 | 595 | 330 | 1,661 | 10,013 | 401 | 2,535 | 20,088 |
| **Average** | **16,187** | **536** | **2,238** | **18,961** | **4,834** | **587** | **632** | **1,650** | **9,995** | **418** | **2,550** | **20,079** |
| **2017** January | 16,129 | 650 | 1,131 | 17,910 | 4,797 | 564 | 353 | 1,615 | 9,316 | 473 | 2,479 | 19,035 |
| February | 15,546 | 586 | 2,034 | 18,167 | 4,672 | 543 | 412 | 1,604 | 9,552 | 484 | 2,487 | 19,212 |
| March | 16,028 | 518 | 2,266 | 18,813 | 4,781 | 586 | 679 | 1,677 | 9,834 | 427 | 2,524 | 19,921 |
| April | 16,970 | 477 | 1,963 | 19,411 | 5,036 | 601 | 857 | 1,734 | 9,897 | 405 | 2,610 | 20,538 |
| May | 17,212 | 484 | 2,216 | 19,911 | 5,230 | 622 | 908 | 1,713 | 10,126 | 423 | 2,637 | 21,036 |
| June | 17,205 | 473 | 2,492 | 20,170 | 5,275 | 615 | 915 | 1,764 | 10,269 | 415 | 2,684 | 21,321 |
| July | 17,318 | 446 | 2,257 | 20,021 | 5,171 | 607 | 877 | 1,816 | 10,159 | 396 | 2,691 | 21,111 |
| August | R 16,979 | R 480 | R 2,348 | R 19,807 | R 5,064 | R 589 | R 834 | R 1,764 | R 10,175 | R 435 | R 2,648 | R 20,920 |
| September | E 15,423 | F 509 | RE 2,188 | RF 18,120 | E 4,551 | RE 518 | F 561 | E 1,655 | E 9,797 | E 451 | RE 2,159 | RE 19,174 |
| October | E 15,973 | F 597 | E 2,198 | F 18,767 | E 4,939 | E 573 | F 482 | E 1,575 | E 10,093 | E 433 | E 2,326 | E 19,848 |
| **10-Month Average** | **E 16,487** | **E 522** | **E 2,109** | **E 19,118** | **E 4,954** | **E 582** | **E 690** | **E 1,692** | **E 9,925** | **E 434** | **E 2,525** | **E 20,220** |
| **2016 10-Month Average** | **16,149** | **506** | **2,314** | **18,969** | **4,780** | **586** | **690** | **1,646** | **9,996** | **416** | **2,557** | **20,085** |
| **2015 10-Month Average** | **16,105** | **487** | **2,239** | **18,831** | **4,959** | **557** | **670** | **1,575** | **9,744** | **425** | **2,515** | **19,888** |

[a] See "Refinery and Blender Net Inputs" in Glossary.
[b] See "Refinery and Blender Net Production" in Glossary.
[c] Hydrocarbon gas liquids.
[d] Includes lease condensate.
[e] Ethane, propane, normal butane, isobutane, and natural gasoline (pentanes plus).
[f] Unfinished oils (net), other hydrocarbons, and hydrogen. Beginning in 1981, also includes aviation and motor gasoline blending components (net). Beginning in 1993, also includes oxygenates (net), including fuel ethanol. Beginning in 2009, also includes renewable diesel fuel (including biodiesel).
[g] Beginning in 2009, includes renewable diesel fuel (including biodiesel) blended into distillate fuel oil.
[h] Propane and propylene. Through 1983, also includes 40% of "Butane-Propane Mixtures."
[i] Ethane, propane, normal butane, isobutane, and refinery olefins (ethylene, propylene, butylene, and isobutylene).
[j] Beginning in 1965, includes kerosene-type jet fuel. (Through 1964, kerosene-type jet fuel is included with kerosene in "Other Products.") For 1952–2004, also includes naphtha-type jet fuel. (Through 1951, naphtha-type jet fuel is included in the products from which it was blended—gasoline, kerosene, and distillate fuel oil. Beginning in 2005, naphtha-type jet fuel is included in "Other Products.")
[k] Finished motor gasoline. Through 1963, also includes aviation gasoline and special naphthas. Beginning in 1993, also includes fuel ethanol blended into motor gasoline.
[l] Asphalt and road oil, kerosene, lubricants, petrochemical feedstocks, petroleum coke, still gas (refinery gas), waxes, and miscellaneous products. Through 1964, also includes kerosene-type jet fuel. Beginning in 1964, also includes finished aviation gasoline and special naphthas. Beginning in 2005, also includes naphtha-type jet fuel.

R=Revised. E=Estimate. F=Forecast. NA=Not available.

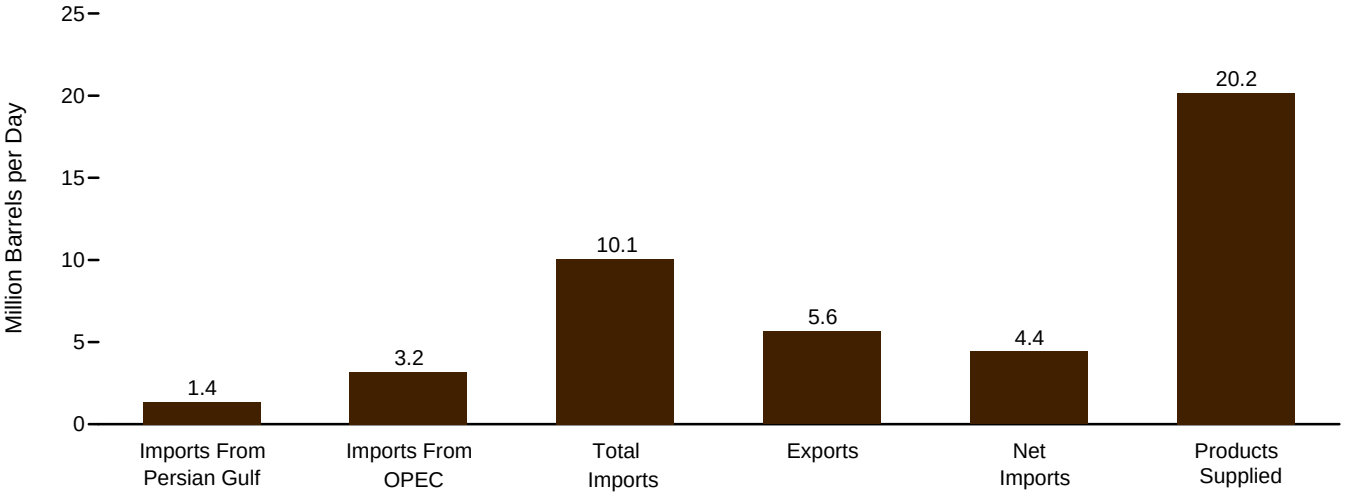
Notes: • Totals may not equal sum of components due to independent rounding. • Geographic coverage is the 50 states and the District of Columbia.

Web Page: See http://www.eia.gov/totalenergy/data/monthly/#petroleum (Excel and CSV files) for all available annual data beginning in 1949 and monthly data beginning in 1973.

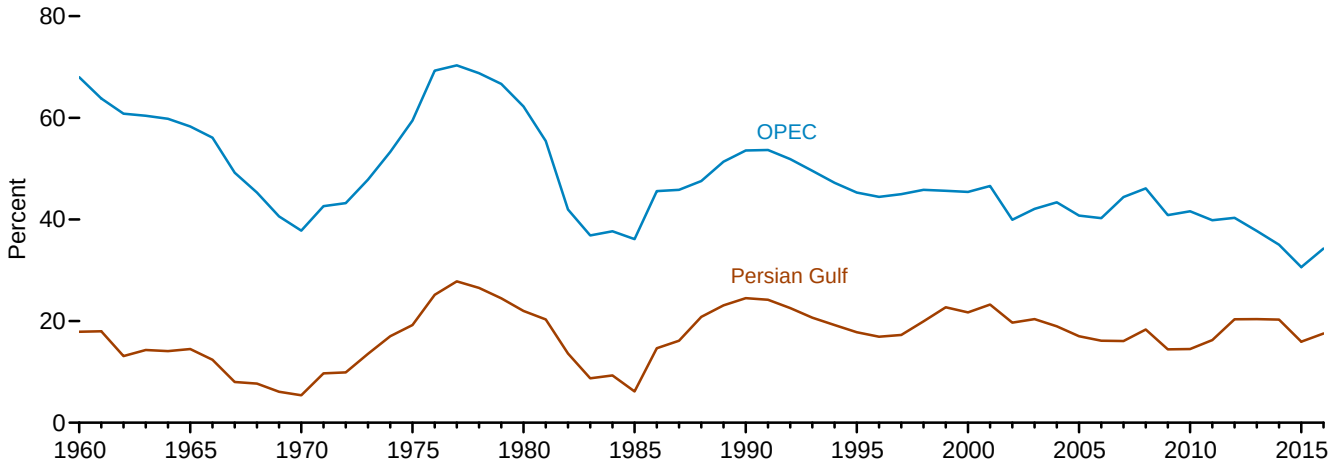
Sources: • **1949–1975:** Bureau of Mines, Mineral Industry Surveys, *Petroleum Statement, Annual,* annual reports. • **1976–1980:** U.S. Energy Information Administration (EIA), Energy Data Reports, *Petroleum Statement, Annual,* annual reports. • **1981–2016:** EIA, *Petroleum Supply Annual,* annual reports, and unpublished revisions. • **2017:** EIA, *Petroleum Supply Monthly,* monthly reports; and, for the current two months, *Weekly Petroleum Status Report* data system, Short-Term Integrated Forecasting System, and *Monthly Energy Review* data system calculations.

## Figure 3.3a Petroleum Trade: Overview

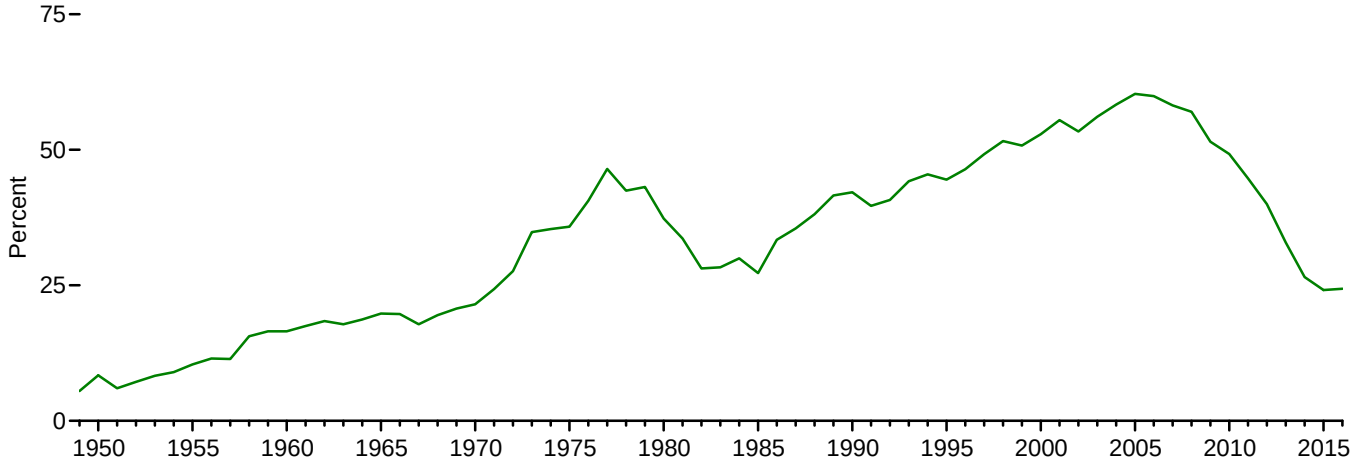
Overview, August 2017




Imports From OPEC and Persian Gulf as Share of Total Imports, 1960–2016




Net Imports as Share of Products Supplied, 1949–2016




Note: OPEC=Organization of the Petroleum Exporting Countries.
Web Page: http://www.eia.gov/totalenergy/data/monthly/#petroleum.
Source: Table 3.3a.

## Table 3.3a Petroleum Trade: Overview

| | Imports From Persian Gulf[a] | Imports From OPEC[b] | Imports | Exports | Net Imports | Products Supplied | As Share of Products Supplied: Imports From Persian Gulf[a] | As Share of Products Supplied: Imports From OPEC[b] | As Share of Products Supplied: Imports | As Share of Products Supplied: Net Imports | As Share of Total Imports: Imports From Persian Gulf[a] | As Share of Total Imports: Imports From OPEC[b] |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Thousand Barrels per Day | | | | | | Percent | | | | | |
| **1950 Average** | **NA** | **NA** | **850** | **305** | **545** | **6,458** | **NA** | **NA** | **13.2** | **8.4** | **NA** | **NA** |
| **1955 Average** | **NA** | **NA** | **1,248** | **368** | **880** | **8,455** | **NA** | **NA** | **14.8** | **10.4** | **NA** | **NA** |
| **1960 Average** | **326** | **1,233** | **1,815** | **202** | **1,613** | **9,797** | **3.3** | **12.6** | **18.5** | **16.5** | **17.9** | **68.0** |
| **1965 Average** | **359** | **1,439** | **2,468** | **187** | **2,281** | **11,512** | **3.1** | **12.5** | **21.4** | **19.8** | **14.5** | **58.3** |
| **1970 Average** | **184** | **1,294** | **3,419** | **259** | **3,161** | **14,697** | **1.3** | **8.8** | **23.3** | **21.5** | **5.4** | **37.8** |
| **1975 Average** | **1,165** | **3,601** | **6,056** | **209** | **5,846** | **16,322** | **7.1** | **22.1** | **37.1** | **35.8** | **19.2** | **59.5** |
| **1980 Average** | **1,519** | **4,300** | **6,909** | **544** | **6,365** | **17,056** | **8.9** | **25.2** | **40.5** | **37.3** | **22.0** | **62.2** |
| **1985 Average** | **311** | **1,830** | **5,067** | **781** | **4,286** | **15,726** | **2.0** | **11.6** | **32.2** | **27.3** | **6.1** | **36.1** |
| **1990 Average** | **1,966** | **4,296** | **8,018** | **857** | **7,161** | **16,988** | **11.6** | **25.3** | **47.2** | **42.2** | **24.5** | **53.6** |
| **1995 Average** | **1,573** | **4,002** | **8,835** | **949** | **7,886** | **17,725** | **8.9** | **22.6** | **49.8** | **44.5** | **17.8** | **45.3** |
| **2000 Average** | **2,488** | **5,203** | **11,459** | **1,040** | **10,419** | **19,701** | **12.6** | **26.4** | **58.2** | **52.9** | **21.7** | **45.4** |
| **2001 Average** | **2,761** | **5,528** | **11,871** | **971** | **10,900** | **19,649** | **14.1** | **28.1** | **60.4** | **55.5** | **23.3** | **46.6** |
| **2002 Average** | **2,269** | **4,605** | **11,530** | **984** | **10,546** | **19,761** | **11.5** | **23.3** | **58.3** | **53.4** | **19.7** | **39.9** |
| **2003 Average** | **2,501** | **5,162** | **12,264** | **1,027** | **11,238** | **20,034** | **12.5** | **25.8** | **61.2** | **56.1** | **20.4** | **42.1** |
| **2004 Average** | **2,493** | **5,701** | **13,145** | **1,048** | **12,097** | **20,731** | **12.0** | **27.5** | **63.4** | **58.4** | **19.0** | **43.4** |
| **2005 Average** | **2,334** | **5,587** | **13,714** | **1,165** | **12,549** | **20,802** | **11.2** | **26.9** | **65.9** | **60.3** | **17.0** | **40.7** |
| **2006 Average** | **2,211** | **5,517** | **13,707** | **1,317** | **12,390** | **20,687** | **10.7** | **26.7** | **66.3** | **59.9** | **16.1** | **40.2** |
| **2007 Average** | **2,163** | **5,980** | **13,468** | **1,433** | **12,036** | **20,680** | **10.5** | **28.9** | **65.1** | **58.2** | **16.1** | **44.4** |
| **2008 Average** | **2,370** | **5,954** | **12,915** | **1,802** | **11,114** | **19,498** | **12.2** | **30.5** | **66.2** | **57.0** | **18.4** | **46.1** |
| **2009 Average** | **1,689** | **4,776** | **11,691** | **2,024** | **9,667** | **18,771** | **9.0** | **25.4** | **62.3** | **51.5** | **14.4** | **40.9** |
| **2010 Average** | **1,711** | **4,906** | **11,793** | **2,353** | **9,441** | **19,180** | **8.9** | **25.6** | **61.5** | **49.2** | **14.5** | **41.6** |
| **2011 Average** | **1,861** | **4,555** | **11,436** | **2,986** | **8,450** | **18,887** | **9.9** | **24.1** | **60.6** | **44.7** | **16.3** | **39.8** |
| **2012 Average** | **2,156** | **4,271** | **10,598** | **3,205** | **7,393** | **18,487** | **11.7** | **23.1** | **57.3** | **40.0** | **20.3** | **40.3** |
| **2013 Average** | **2,009** | **3,720** | **9,859** | **3,621** | **6,237** | **18,967** | **10.6** | **19.6** | **52.0** | **32.9** | **20.4** | **37.7** |
| **2014 Average** | **1,875** | **3,237** | **9,241** | **4,176** | **5,065** | **19,100** | **9.8** | **16.9** | **48.4** | **26.5** | **20.3** | **35.0** |
| **2015** January | 1,334 | 2,538 | 9,461 | 4,575 | 4,886 | 19,261 | 6.9 | 13.2 | 49.1 | 25.4 | 14.1 | 26.8 |
| February | 1,433 | 2,794 | 9,272 | 4,640 | 4,632 | 19,664 | 7.3 | 14.2 | 47.2 | 23.6 | 15.5 | 30.1 |
| March | 1,466 | 2,801 | 9,619 | 4,092 | 5,527 | 19,340 | 7.6 | 14.5 | 49.7 | 28.6 | 15.2 | 29.1 |
| April | 1,532 | 2,734 | 9,374 | 4,938 | 4,436 | 19,251 | 8.0 | 14.2 | 48.7 | 23.0 | 16.3 | 29.2 |
| May | 1,724 | 3,133 | 9,502 | 4,853 | 4,649 | 19,316 | 8.9 | 16.2 | 49.2 | 24.1 | 18.1 | 33.0 |
| June | 1,617 | 2,869 | 9,605 | 4,657 | 4,948 | 19,853 | 8.1 | 14.4 | 48.4 | 24.9 | 16.8 | 29.9 |
| July | 1,479 | 2,911 | 9,571 | 4,960 | 4,611 | 20,134 | 7.3 | 14.5 | 47.5 | 22.9 | 15.5 | 30.4 |
| August | 1,247 | 2,750 | 9,858 | 4,507 | 5,351 | 19,939 | 6.3 | 13.8 | 49.4 | 26.8 | 12.7 | 27.9 |
| September | 1,290 | 2,854 | 9,358 | 4,851 | 4,507 | 19,433 | 6.6 | 14.7 | 48.2 | 23.2 | 13.8 | 30.5 |
| October | 1,519 | 2,899 | 8,842 | 4,617 | 4,225 | 19,491 | 7.8 | 14.9 | 45.4 | 21.7 | 17.2 | 32.8 |
| November | 1,662 | 3,169 | 9,151 | 4,903 | 4,248 | 19,127 | 8.7 | 16.6 | 47.8 | 22.2 | 18.2 | 34.6 |
| December | 1,773 | 3,274 | 9,742 | 5,266 | 4,476 | 19,589 | 9.1 | 16.7 | 49.7 | 22.9 | 18.2 | 33.6 |
| **Average** | **1,507** | **2,894** | **9,449** | **4,738** | **4,711** | **19,534** | **7.7** | **14.8** | **48.4** | **24.1** | **15.9** | **30.6** |
| **2016** January | 1,520 | 3,054 | 9,707 | 4,977 | 4,730 | 19,063 | 8.0 | 16.0 | 50.9 | 24.8 | 15.7 | 31.5 |
| February | 1,592 | 3,230 | 10,066 | 4,934 | 5,132 | 19,847 | 8.0 | 16.3 | 50.7 | 25.9 | 15.8 | 32.1 |
| March | 1,820 | 3,576 | 10,001 | 5,092 | 4,910 | 19,728 | 9.2 | 18.1 | 50.7 | 24.9 | 18.2 | 35.8 |
| April | 1,709 | 3,354 | 9,822 | 5,195 | 4,627 | 19,340 | 8.8 | 17.3 | 50.8 | 23.9 | 17.4 | 34.1 |
| May | 1,949 | 3,665 | 10,181 | 5,739 | 4,441 | 19,328 | 10.1 | 19.0 | 52.7 | 23.0 | 19.1 | 36.0 |
| June | 1,716 | 3,303 | 10,054 | 5,437 | 4,617 | 19,846 | 8.6 | 16.6 | 50.7 | 23.3 | 17.1 | 32.9 |
| July | 1,797 | 3,769 | 10,532 | 5,226 | 5,306 | 19,776 | 9.1 | 19.1 | 53.3 | 26.8 | 17.1 | 35.8 |
| August | 1,820 | 3,427 | 10,322 | 5,097 | 5,226 | 20,275 | 9.0 | 16.9 | 50.9 | 25.8 | 17.6 | 33.2 |
| September | 1,982 | 3,575 | 10,199 | 5,439 | 4,760 | 19,757 | 10.0 | 18.1 | 51.6 | 24.1 | 19.4 | 35.1 |
| October | 1,698 | 3,330 | 9,699 | 4,985 | 4,715 | 19,650 | 8.6 | 16.9 | 49.4 | 24.0 | 17.5 | 34.3 |
| November | 1,702 | 3,560 | 10,293 | 5,426 | 4,867 | 19,659 | 8.7 | 18.1 | 52.4 | 24.8 | 16.5 | 34.6 |
| December | 1,882 | 3,491 | 9,792 | 5,574 | 4,219 | 19,984 | 9.4 | 17.5 | 49.0 | 21.1 | 19.2 | 35.6 |
| **Average** | **1,766** | **3,446** | **10,055** | **5,261** | **4,795** | **19,687** | **9.0** | **17.5** | **51.1** | **24.4** | **17.6** | **34.3** |
| **2017** January | 2,085 | 3,793 | 10,685 | 5,691 | 4,994 | 19,244 | 10.8 | 19.7 | 55.5 | 26.0 | 19.5 | 35.5 |
| February | 2,013 | 3,445 | 10,039 | 6,443 | 3,597 | 19,159 | 10.5 | 18.0 | 52.4 | 18.8 | 20.0 | 34.3 |
| March | 1,955 | 3,592 | 10,059 | 5,886 | 4,174 | 20,047 | 9.8 | 17.9 | 50.2 | 20.8 | 19.4 | 35.7 |
| April | 2,094 | 3,737 | 10,244 | 6,066 | 4,178 | 19,556 | 10.7 | 19.1 | 52.4 | 21.4 | 20.4 | 36.5 |
| May | 1,943 | 3,644 | 10,628 | 6,142 | 4,486 | 20,039 | 9.7 | 18.2 | 53.0 | 22.4 | 18.3 | 34.3 |
| June | 1,806 | 3,537 | 10,240 | 6,148 | 4,092 | 20,494 | 8.8 | 17.3 | 50.0 | 20.0 | 17.6 | 34.5 |
| July | 1,796 | 3,399 | 9,850 | 6,232 | 3,618 | 20,020 | 9.0 | 17.0 | 49.2 | 18.1 | 18.2 | 34.5 |
| August | R 1,363 | R 3,181 | R 10,055 | R 5,647 | R 4,407 | R 20,161 | R 6.8 | R 15.8 | R 49.9 | R 21.9 | R 13.6 | R 31.6 |
| September | NA | NA | E 9,513 | E 5,590 | E 3,923 | E 20,208 | NA | NA | E 47.1 | E 19.4 | NA | NA |
| October | NA | NA | E 9,707 | E 6,913 | E 2,794 | E 19,788 | NA | NA | E 49.1 | E 14.1 | NA | NA |
| **10-Month Average** | **NA** | **NA** | **E 10,104** | **E 6,074** | **E 4,030** | **E 19,877** | **NA** | **NA** | **E 50.8** | **E 20.3** | **NA** | **NA** |
| **2016 10-Month Average** | **1,761** | **3,430** | **10,059** | **5,212** | **4,846** | **19,660** | **9.0** | **17.4** | **51.2** | **24.7** | **17.5** | **34.1** |
| **2015 10-Month Average** | **1,464** | **2,829** | **9,448** | **4,668** | **4,780** | **19,568** | **7.5** | **14.5** | **48.3** | **24.4** | **15.5** | **29.9** |

[a] Bahrain, Iran, Iraq, Kuwait, Qatar, Saudi Arabia, United Arab Emirates, and the Neutral Zone (between Kuwait and Saudi Arabia).

[b] See "Organization of the Petroleum Exporting Countries (OPEC)" in Glossary. See Table 3.3c for notes on which countries are included in the data.

R=Revised. E=Estimate. NA=Not available.

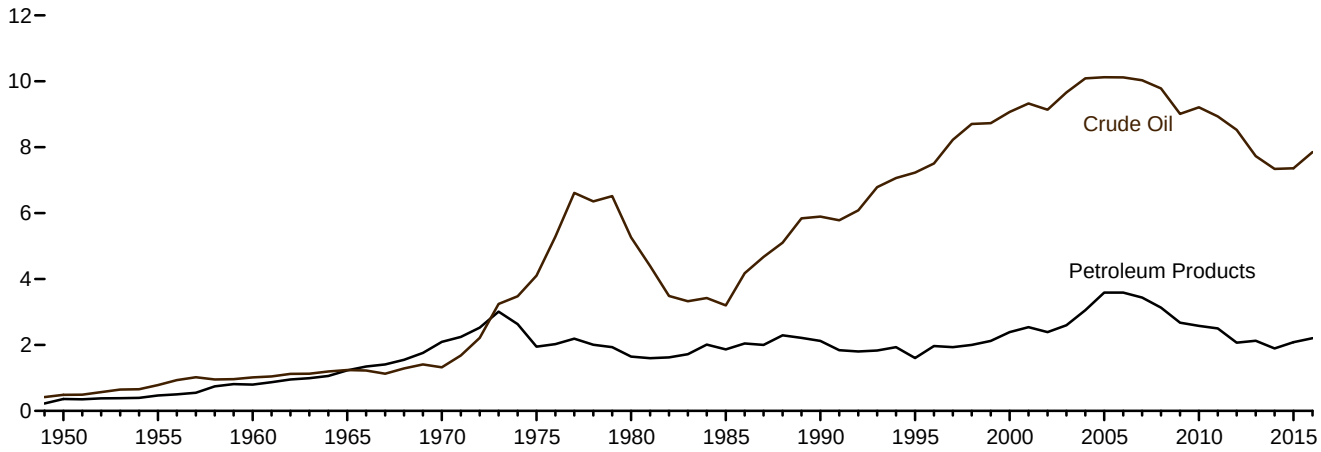
Notes: • For the feature article "Measuring Dependence on Imported Oil," published in the August 1995 *Monthly Energy Review,* see http://www.eia.gov/totalenergy/data/monthly/pdf/historical/imported_oil.pdf. • Beginning in October 1977, data include Strategic Petroleum Reserve imports. See Table 3.3b. • Annual averages may not equal average of months due to independent rounding. • U.S. geographic coverage is the 50 states and the District of Columbia. U.S. exports include shipments to U.S. territories, and imports include receipts from U.S. territories.

Web Page: See http://www.eia.gov/totalenergy/data/monthly/#petroleum (Excel and CSV files) for all available annual data beginning in 1949 and monthly data beginning in 1973.

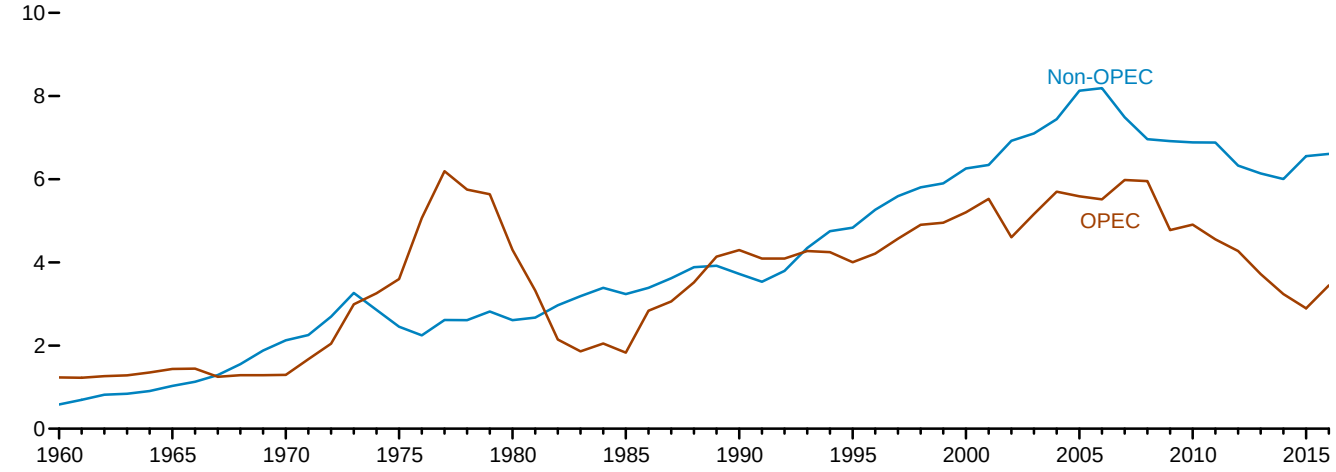
Sources: • **1949–1975:** Bureau of Mines, Mineral Industry Surveys, *Petroleum Statement, Annual,* annual reports. • **1976–1980:** U.S. Energy Information Administration (EIA), Energy Data Reports, *Petroleum Statement, Annual,* annual reports. • **1981–2016:** EIA, *Petroleum Supply Annual,* annual reports, and unpublished revisions. • **2017:** EIA, *Petroleum Supply Monthly,* monthly reports; and, for the current two months, *Weekly Petroleum Status Report* data system and *Monthly Energy Review* data system calculations.

## Figure 3.3b Petroleum Trade: Imports
(Million Barrels per Day)

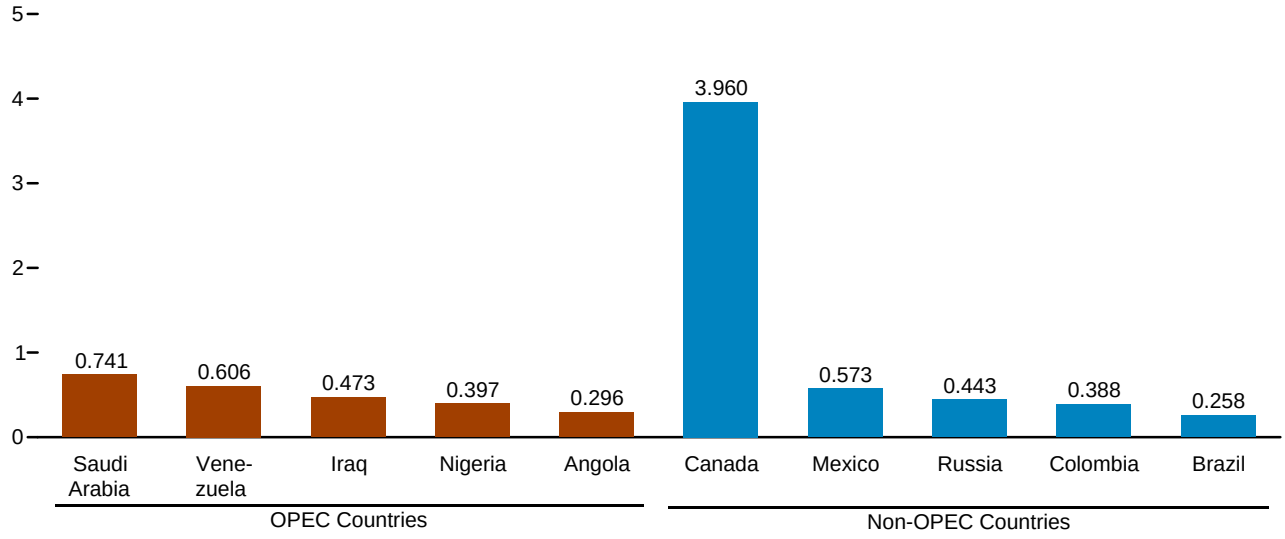
Overview, 1949–2016




OPEC and Non-OPEC, 1960–2016




From Selected Countries, August 2017




Note: OPEC=Organization of the Petroleum Exporting Countries.
Web Page: http://www.eia.gov/totalenergy/data/monthly/#petroleum.
Sources: Tables 3.3b–3.3d.

## Table 3.3b Petroleum Trade: Imports and Exports by Type

(Thousand Barrels per Day)

| | Imports | | | | | | | | | | Exports | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Crude Oil[a] | | Distillate Fuel Oil | HGL[b] | | Jet Fuel[f] | Motor Gasoline[g] | Residual Fuel Oil | Other[h] | Total | Crude Oil[a] | Petroleum Products | Total |
| | SPR[c] | Total | | Propane[d] | Total[e] | | | | | | | | |
| **1950 Average** | – – | 487 | 7 | – | – | ([f]) | (s) | 329 | 27 | 850 | 95 | 210 | 305 |
| **1955 Average** | – – | 782 | 12 | – | – | ([f]) | 13 | 417 | 24 | 1,248 | 32 | 336 | 368 |
| **1960 Average** | – – | 1,015 | 35 | NA | 4 | 34 | 27 | 637 | 62 | 1,815 | 8 | 193 | 202 |
| **1965 Average** | – – | 1,238 | 36 | NA | 21 | 81 | 28 | 946 | 119 | 2,468 | 3 | 184 | 187 |
| **1970 Average** | – – | 1,324 | 147 | 26 | 58 | 144 | 67 | 1,528 | 150 | 3,419 | 14 | 245 | 259 |
| **1975 Average** | – – | 4,105 | 155 | 60 | 185 | 133 | 184 | 1,223 | 70 | 6,056 | 6 | 204 | 209 |
| **1980 Average** | 44 | 5,263 | 142 | 84 | 226 | 80 | 140 | 939 | 120 | 6,909 | 287 | 258 | 544 |
| **1985 Average** | 118 | 3,201 | 200 | 67 | 235 | 39 | 381 | 510 | 501 | 5,067 | 204 | 577 | 781 |
| **1990 Average** | 27 | 5,894 | 278 | 115 | 197 | 108 | 342 | 504 | 695 | 8,018 | 109 | 748 | 857 |
| **1995 Average** | – | 7,230 | 193 | 102 | 192 | 106 | 265 | 187 | 662 | 8,835 | 95 | 855 | 949 |
| **2000 Average** | 8 | 9,071 | 295 | 161 | 256 | 162 | 427 | 352 | 897 | 11,459 | 50 | 990 | 1,040 |
| **2001 Average** | 11 | 9,328 | 344 | 145 | 250 | 148 | 454 | 295 | 1,051 | 11,871 | 20 | 951 | 971 |
| **2002 Average** | 16 | 9,140 | 267 | 145 | 199 | 107 | 498 | 249 | 1,069 | 11,530 | 9 | 975 | 984 |
| **2003 Average** | – | 9,665 | 333 | 168 | 271 | 109 | 518 | 327 | 1,041 | 12,264 | 12 | 1,014 | 1,027 |
| **2004 Average** | 77 | 10,088 | 325 | 209 | 305 | 127 | 496 | 426 | 1,377 | 13,145 | 27 | 1,021 | 1,048 |
| **2005 Average** | 52 | 10,126 | 329 | 233 | 374 | 190 | 603 | 530 | 1,562 | 13,714 | 32 | 1,133 | 1,165 |
| **2006 Average** | 8 | 10,118 | 365 | 228 | 360 | 186 | 475 | 350 | 1,854 | 13,707 | 25 | 1,292 | 1,317 |
| **2007 Average** | 7 | 10,031 | 304 | 182 | 276 | 217 | 413 | 372 | 1,856 | 13,468 | 27 | 1,405 | 1,433 |
| **2008 Average** | 19 | 9,783 | 213 | 185 | 275 | 103 | 302 | 349 | 1,891 | 12,915 | 29 | 1,773 | 1,802 |
| **2009 Average** | 56 | 9,013 | 225 | 147 | 194 | 81 | 223 | 331 | 1,623 | 11,691 | 44 | 1,980 | 2,024 |
| **2010 Average** | – | 9,213 | 228 | 121 | 179 | 98 | 134 | 366 | 1,574 | 11,793 | 42 | 2,311 | 2,353 |
| **2011 Average** | – | 8,935 | 179 | 110 | 183 | 69 | 105 | 328 | 1,637 | 11,436 | 47 | 2,939 | 2,986 |
| **2012 Average** | – | 8,527 | 126 | 116 | 170 | 55 | 44 | 256 | 1,421 | 10,598 | 67 | 3,137 | 3,205 |
| **2013 Average** | – | 7,730 | 155 | 127 | 182 | 84 | 45 | 225 | 1,438 | 9,859 | 134 | 3,487 | 3,621 |
| **2014 Average** | – | 7,344 | 195 | 108 | 143 | 94 | 49 | 173 | 1,242 | 9,241 | 351 | 3,824 | 4,176 |
| **2015** January | – | 7,171 | 349 | 156 | 196 | 132 | 74 | 218 | 1,321 | 9,461 | 495 | 4,080 | 4,575 |
| February | – | 7,100 | 388 | 163 | 197 | 127 | 51 | 225 | 1,184 | 9,272 | 442 | 4,198 | 4,640 |
| March | – | 7,592 | 324 | 147 | 168 | 163 | 61 | 146 | 1,165 | 9,619 | 438 | 3,654 | 4,092 |
| April | – | 7,208 | 243 | 127 | 156 | 134 | 75 | 179 | 1,378 | 9,374 | 599 | 4,339 | 4,938 |
| May | – | 7,245 | 191 | 91 | 122 | 170 | 109 | 239 | 1,425 | 9,502 | 527 | 4,326 | 4,853 |
| June | – | 7,321 | 132 | 96 | 132 | 204 | 100 | 174 | 1,541 | 9,605 | 445 | 4,211 | 4,657 |
| July | – | 7,360 | 143 | 107 | 129 | 160 | 33 | 144 | 1,603 | 9,571 | 546 | 4,414 | 4,960 |
| August | – | 7,717 | 140 | 111 | 141 | 132 | 33 | 177 | 1,519 | 9,858 | 461 | 4,047 | 4,507 |
| September | – | 7,228 | 103 | 92 | 114 | 66 | 63 | 243 | 1,541 | 9,358 | 410 | 4,441 | 4,851 |
| October | – | 7,102 | 101 | 120 | 159 | 83 | 103 | 136 | 1,158 | 8,842 | 500 | 4,116 | 4,617 |
| November | – | 7,371 | 150 | 129 | 174 | 102 | 70 | 198 | 1,086 | 9,151 | 320 | 4,584 | 4,903 |
| December | – | 7,902 | 155 | 145 | 181 | 108 | 84 | 222 | 1,090 | 9,742 | 392 | 4,874 | 5,266 |
| **Average** | – | 7,363 | 200 | 124 | 156 | 132 | 71 | 192 | 1,335 | 9,449 | 465 | 4,273 | 4,738 |
| **2016** January | – | 7,615 | 172 | 164 | 219 | 154 | 60 | 272 | 1,215 | 9,707 | 490 | 4,487 | 4,977 |
| February | – | 7,914 | 231 | 212 | 244 | 117 | 65 | 173 | 1,323 | 10,066 | 454 | 4,480 | 4,934 |
| March | – | 8,012 | 150 | 139 | 163 | 155 | 66 | 266 | 1,188 | 10,001 | 596 | 4,496 | 5,092 |
| April | – | 7,611 | 177 | 116 | 142 | 122 | 78 | 176 | 1,516 | 9,822 | 624 | 4,571 | 5,195 |
| May | – | 7,927 | 123 | 113 | 149 | 182 | 44 | 145 | 1,610 | 10,181 | 788 | 4,952 | 5,739 |
| June | – | 7,560 | 88 | 105 | 177 | 132 | 76 | 242 | 1,779 | 10,054 | 530 | 4,906 | 5,437 |
| July | – | 8,096 | 123 | 116 | 162 | 174 | 82 | 225 | 1,671 | 10,532 | 536 | 4,690 | 5,226 |
| August | – | 8,016 | 164 | 122 | 174 | 147 | 34 | 230 | 1,558 | 10,322 | 720 | 4,376 | 5,097 |
| September | – | 8,040 | 150 | 126 | 151 | 139 | 71 | 153 | 1,495 | 10,199 | 775 | 4,665 | 5,439 |
| October | – | 7,570 | 75 | 142 | 168 | 154 | 44 | 150 | 1,538 | 9,699 | 502 | 4,483 | 4,985 |
| November | – | 8,023 | 145 | 169 | 198 | 153 | 63 | 241 | 1,470 | 10,293 | 606 | 4,820 | 5,426 |
| December | – | 7,817 | 167 | 186 | 219 | 129 | 29 | 178 | 1,253 | 9,792 | 468 | 5,105 | 5,574 |
| **Average** | – | 7,850 | 147 | 142 | 180 | 147 | 59 | 205 | 1,468 | 10,055 | 591 | 4,670 | 5,261 |
| **2017** January | – | 8,435 | 204 | 242 | 283 | 140 | 33 | 176 | 1,413 | 10,685 | 746 | 4,945 | 5,691 |
| February | – | 7,890 | 199 | 214 | 253 | 147 | 36 | 225 | 1,289 | 10,039 | 1,116 | 5,327 | 6,443 |
| March | – | 8,048 | 108 | 166 | 195 | 123 | 51 | 221 | 1,312 | 10,059 | 834 | 5,052 | 5,886 |
| April | – | 8,131 | 116 | 112 | 152 | 183 | 42 | 146 | 1,475 | 10,244 | 1,001 | 5,065 | 6,066 |
| May | – | 8,397 | 124 | 120 | 166 | 126 | 37 | 241 | 1,537 | 10,628 | 1,023 | 5,119 | 6,142 |
| June | – | 8,010 | 102 | 116 | 152 | 119 | 23 | 172 | 1,661 | 10,240 | 786 | 5,362 | 6,148 |
| July | – | 7,825 | 111 | 110 | 147 | 140 | 23 | 174 | 1,429 | 9,850 | 893 | 5,339 | 6,232 |
| August | – | R 7,890 | R 112 | R 108 | R 146 | R 174 | R 24 | R 150 | R 1,558 | R 10,055 | R 772 | R 4,876 | R 5,647 |
| September | – | E 7,155 | E 94 | E 121 | NA | E 206 | E 61 | E 157 | NA | E 9,513 | E 1,293 | E 4,298 | E 5,590 |
| October | – | E 7,652 | E 113 | E 128 | NA | E 195 | E 42 | E 154 | NA | E 9,707 | E 1,667 | E 5,246 | E 6,913 |
| **10-Month Average** | – | E 7,946 | E 128 | E 143 | NA | E 155 | E 37 | E 182 | NA | E 10,104 | E 1,012 | E 5,062 | E 6,074 |
| **2016 10-Month Average** | – | 7,837 | 145 | 135 | 175 | 148 | 62 | 204 | 1,489 | 10,059 | 602 | 4,611 | 5,212 |
| **2015 10-Month Average** | – | 7,307 | 210 | 121 | 151 | 137 | 70 | 188 | 1,385 | 9,448 | 487 | 4,181 | 4,668 |

[a] Includes lease condensate.
[b] Hydrocarbon gas liquids.
[c] "SPR" is the Strategic Petroleum Reserve, which began in October 1977. Through 2003, includes crude oil imports by SPR only; beginning in 2004, includes crude oil imports by SPR, and crude oil imports into SPR by others.
[d] Propane and propylene. Through 1983, also includes 40% of "Butane-Propane Mixtures" and 30% of "Ethane-Propane Mixtures."
[e] Ethane, propane, normal butane, isobutane, natural gasoline (pentanes plus), and refinery olefins (ethylene, propylene, butylene, and isobutylene). Through 1983, also includes plant condensate and unfractionated stream.
[f] Beginning in 1965, includes kerosene-type jet fuel. (Through 1964, kerosene-type jet fuel is included with kerosene in "Other.") For 1956–2004, also includes naphtha-type jet fuel. (Through 1955, naphtha-type jet fuel is included in "Motor Gasoline." Beginning in 2005, naphtha-type jet fuel is included in "Other.")
[g] Finished motor gasoline. Through 1955, also includes naphtha-type jet fuel. Through 1963, also includes aviation gasoline and special naphthas. Through 1980, also includes motor gasoline blending components.
[h] Asphalt and road oil, aviation gasoline blending components, kerosene, lubricants, petrochemical feedstocks, petroleum coke, unfinished oils, waxes, other hydrocarbons and oxygenates, and miscellaneous products. Through 1964, also includes kerosene-type jet fuel. Beginning in 1964, also includes finished aviation gasoline and special naphthas. Beginning in 1981, also includes motor gasoline blending components. Beginning in 2005, also includes naphtha-type jet fuel.

R=Revised. E=Estimate. NA=Not available. – – =Not applicable. – =No data reported. (s)=Less than 500 barrels per day.

Notes: • Totals may not equal sum of components due to independent rounding. • Geographic coverage is the 50 states and the District of Columbia.

Web Page: See http://www.eia.gov/totalenergy/data/monthly/#petroleum (Excel and CSV files) for all available annual data beginning in 1949 and monthly data beginning in 1973.

Sources: • **1949–1975:** Bureau of Mines, Mineral Industry Surveys, *Petroleum Statement, Annual,* annual reports. • **1976–1980:** U.S. Energy Information Administration (EIA), Energy Data Reports, *Petroleum Statement, Annual,* annual reports. • **1981–2016:** EIA, *Petroleum Supply Annual,* annual reports, and unpublished revisions. • **2017:** EIA, *Petroleum Supply Monthly,* monthly reports; and, for the current two months, *Weekly Petroleum Status Report* data system and *Monthly Energy Review* data system calculations.

## Table 3.3c Petroleum Trade: Imports From OPEC Countries

(Thousand Barrels per Day)

| | Algeria[a] | Angola[b] | Ecuador[c] | Iraq | Kuwait[d] | Libya[e] | Nigeria[f] | Saudi Arabia[d] | Venezuela | Other[g] | Total OPEC |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **1960 Average** | ( [a] ) | ( [b] ) | ( [c] ) | **22** | **182** | ( [e] ) | ( [f] ) | **84** | **911** | **34** | **1,233** |
| **1965 Average** | ( [a] ) | ( [b] ) | ( [c] ) | **16** | **74** | **42** | ( [f] ) | **158** | **994** | **155** | **1,439** |
| **1970 Average** | **8** | ( [b] ) | ( [c] ) | **–** | **48** | **47** | ( [f] ) | **30** | **989** | **172** | **1,294** |
| **1975 Average** | **282** | ( [b] ) | **57** | **2** | **16** | **232** | **762** | **715** | **702** | **832** | **3,601** |
| **1980 Average** | **488** | ( [b] ) | **27** | **28** | **27** | **554** | **857** | **1,261** | **481** | **577** | **4,300** |
| **1985 Average** | **187** | ( [b] ) | **67** | **46** | **21** | **4** | **293** | **168** | **605** | **439** | **1,830** |
| **1990 Average** | **280** | ( [b] ) | **49** | **518** | **86** | **–** | **800** | **1,339** | **1,025** | **199** | **4,296** |
| **1995 Average** | **234** | ( [b] ) | ( [c] ) | **–** | **218** | **–** | **627** | **1,344** | **1,480** | **98** | **4,002** |
| **2000 Average** | **225** | ( [b] ) | ( [c] ) | **620** | **272** | **0** | **896** | **1,572** | **1,546** | **72** | **5,203** |
| **2001 Average** | **278** | ( [b] ) | ( [c] ) | **795** | **250** | **0** | **885** | **1,662** | **1,553** | **105** | **5,528** |
| **2002 Average** | **264** | ( [b] ) | ( [c] ) | **459** | **228** | **–** | **621** | **1,552** | **1,398** | **83** | **4,605** |
| **2003 Average** | **382** | ( [b] ) | ( [c] ) | **481** | **220** | **–** | **867** | **1,774** | **1,376** | **61** | **5,162** |
| **2004 Average** | **452** | ( [b] ) | ( [c] ) | **656** | **250** | **20** | **1,140** | **1,558** | **1,554** | **70** | **5,701** |
| **2005 Average** | **478** | ( [b] ) | ( [c] ) | **531** | **243** | **56** | **1,166** | **1,537** | **1,529** | **47** | **5,587** |
| **2006 Average** | **657** | ( [b] ) | ( [c] ) | **553** | **185** | **87** | **1,114** | **1,463** | **1,419** | **38** | **5,517** |
| **2007 Average** | **670** | **508** | ( [c] ) | **484** | **181** | **117** | **1,134** | **1,485** | **1,361** | **39** | **5,980** |
| **2008 Average** | **548** | **513** | **221** | **627** | **210** | **103** | **988** | **1,529** | **1,189** | **26** | **5,954** |
| **2009 Average** | **493** | **460** | **185** | **450** | **182** | **79** | **809** | **1,004** | **1,063** | **50** | **4,776** |
| **2010 Average** | **510** | **393** | **212** | **415** | **197** | **70** | **1,023** | **1,096** | **988** | **3** | **4,906** |
| **2011 Average** | **358** | **346** | **206** | **459** | **191** | **15** | **818** | **1,195** | **951** | **16** | **4,555** |
| **2012 Average** | **242** | **233** | **180** | **476** | **305** | **61** | **441** | **1,365** | **960** | **9** | **4,271** |
| **2013 Average** | **115** | **216** | **236** | **341** | **328** | **59** | **281** | **1,329** | **806** | **10** | **3,720** |
| **2014 Average** | **110** | **154** | **215** | **369** | **311** | **6** | **92** | **1,166** | **789** | **23** | **3,237** |
| **2015** January | 82 | 54 | 331 | 227 | 266 | 20 | 51 | 820 | 670 | 17 | 2,538 |
| February | 112 | 181 | 245 | 222 | 241 | 4 | 38 | 945 | 783 | 24 | 2,794 |
| March | 76 | 93 | 244 | 122 | 277 | – | 78 | 1,047 | 849 | 15 | 2,801 |
| April | 106 | 102 | 114 | 139 | 186 | 3 | 54 | 1,205 | 824 | – | 2,734 |
| May | 150 | 119 | 176 | 283 | 222 | 12 | 58 | 1,210 | 898 | 7 | 3,133 |
| June | 126 | 113 | 237 | 214 | 314 | – | 21 | 1,077 | 757 | 10 | 2,869 |
| July | 109 | 108 | 281 | 133 | 144 | – | 130 | 1,187 | 808 | 11 | 2,911 |
| August | 121 | 102 | 256 | 117 | 113 | 4 | 86 | 1,005 | 934 | 11 | 2,750 |
| September | 145 | 182 | 264 | 203 | 211 | 5 | 114 | 863 | 855 | 11 | 2,854 |
| October | 76 | 193 | 230 | 375 | 150 | 17 | 65 | 983 | 802 | 7 | 2,899 |
| November | 124 | 231 | 191 | 269 | 140 | 6 | 114 | 1,236 | 843 | 17 | 3,169 |
| December | 74 | 166 | 197 | 447 | 193 | 12 | 155 | 1,122 | 899 | 10 | 3,274 |
| **Average** | **108** | **136** | **231** | **229** | **204** | **7** | **81** | **1,059** | **827** | **12** | **2,894** |
| **2016** January | 126 | 166 | 334 | 252 | 205 | 10 | 132 | 1,054 | 702 | 74 | 3,054 |
| February | 174 | 133 | 246 | 245 | 289 | 5 | 274 | 1,029 | 773 | 63 | 3,230 |
| March | 147 | 172 | 264 | 365 | 123 | – | 290 | 1,309 | 846 | 59 | 3,576 |
| April | 137 | 242 | 182 | 349 | 199 | 10 | 243 | 1,154 | 788 | 48 | 3,354 |
| May | 102 | 161 | 230 | 571 | 177 | 75 | 297 | 1,171 | 787 | 93 | 3,665 |
| June | 183 | 128 | 223 | 434 | 135 | – | 252 | 1,104 | 748 | 97 | 3,303 |
| July | 191 | 299 | 234 | 390 | 323 | 5 | 265 | 1,053 | 933 | 75 | 3,769 |
| August | 169 | 159 | 253 | 488 | 156 | 22 | 181 | 1,147 | 773 | 78 | 3,427 |
| September | 155 | 157 | 213 | 448 | 275 | 4 | 168 | 1,211 | 825 | 119 | 3,575 |
| October | 296 | 122 | 203 | 508 | 154 | – | 232 | 1,025 | 741 | 49 | 3,330 |
| November | 300 | 174 | 250 | 434 | 228 | 27 | 247 | 1,003 | 849 | 49 | 3,560 |
| December | 202 | 102 | 236 | 590 | 254 | 32 | 246 | 1,014 | 789 | 25 | 3,491 |
| **Average** | **182** | **168** | **239** | **424** | **210** | **16** | **235** | **1,106** | **796** | **69** | **3,446** |
| **2017** January | 232 | 118 | 247 | 622 | 105 | 31 | 332 | 1,345 | 749 | 10 | 3,793 |
| February | 234 | 64 | 141 | 413 | 251 | 22 | 223 | 1,338 | 751 | 9 | 3,445 |
| March | 193 | 30 | 278 | 544 | 219 | 30 | 342 | 1,173 | 764 | 20 | 3,592 |
| April | 153 | 84 | 180 | 811 | 101 | 45 | 332 | 1,154 | 857 | 21 | 3,737 |
| May | 196 | 105 | 230 | 619 | 174 | 87 | 294 | 1,109 | 767 | 64 | 3,644 |
| June | 254 | 178 | 212 | 587 | 162 | 38 | 320 | 1,015 | 663 | 108 | 3,537 |
| July | 215 | 189 | 166 | 756 | 206 | 108 | 241 | 795 | 686 | 37 | 3,399 |
| August | 229 | 296 | 193 | 473 | 87 | 35 | 397 | 741 | 606 | 125 | 3,181 |
| **8-Month Average** | **213** | **134** | **207** | **605** | **162** | **50** | **311** | **1,081** | **730** | **50** | **3,541** |
| **2016 8-Month Average** | **153** | **183** | **246** | **388** | **201** | **16** | **241** | **1,128** | **794** | **74** | **3,425** |
| **2015 8-Month Average** | **110** | **108** | **236** | **182** | **220** | **5** | **65** | **1,063** | **816** | **12** | **2,816** |

[a] Algeria joined OPEC in 1969. For 1960–1968, Algeria is included in "Total Non-OPEC" on Table 3.3d.

[b] Angola joined OPEC in January 2007. For 1960–2006, Angola is included in "Total Non-OPEC" on Table 3.3d.

[c] Ecuador was a member of OPEC from 1973–1992, and rejoined OPEC in November 2007. For 1960–1972 and 1993–2007, Ecuador is included in "Total Non-OPEC" on Table 3.3d.

[d] Through 1970, includes half the imports from the Neutral Zone between Kuwait and Saudi Arabia. Beginning in 1971, imports from the Neutral Zone are reported as originating in either Kuwait or Saudi Arabia depending on the country reported to U.S. Customs.

[e] Libya joined OPEC in 1962. For 1960 and 1961, Libya is included in "Total Non-OPEC" on Table 3.3d.

[f] Nigeria joined OPEC in 1971. For 1960–1970, Nigeria is included in "Total Non-OPEC" on Table 3.3d.

[g] Includes these countries for the dates indicated: Equatorial Guinea (May 2017 forward), Gabon (1975–1994 and July 2016 forward), Indonesia (1962–2008 and January–November 2016), Iran (1960 forward), Qatar (1961 forward), and United Arab Emirates (1967 forward).

– =No data reported.

Notes: • See "Organization of the Petroleum Exporting Countries (OPEC)" in Glossary. Petroleum imports not classified as "OPEC" on this table are included on Table 3.3d. • The country of origin for petroleum products may not be the country of origin for the crude oil from which the products were produced. For example, refined products imported from West European refining areas may have been produced from Middle East crude oil. • Includes imports for the Strategic Petroleum Reserve, which began in October 1977. • Totals may not equal sum of components due to independent rounding. • U.S. geographic coverage is the 50 states and the District of Columbia.

Web Page: See http://www.eia.gov/totalenergy/data/monthly/#petroleum (Excel and CSV files) for all available annual data beginning in 1960 and monthly data beginning in 1973.

Sources: • **1960–1972:** Bureau of Mines, *Minerals Yearbook,* annual reports. • **1973–1975:** Bureau of Mines, Mineral Industry Surveys, *Petroleum Statement, Annual,* annual reports. • **1976–1980:** U.S. Energy Information Administration (EIA), Energy Data Reports, *Petroleum Statement, Annual,* annual reports. • **1981–2016:** EIA, *Petroleum Supply Annual,* annual reports. • **2017:** EIA, *Petroleum Supply Monthly,* monthly reports.

## Table 3.3d Petroleum Trade: Imports From Non-OPEC Countries

(Thousand Barrels per Day)

| | Brazil | Canada | Colombia | Mexico | Nether-lands | Norway | Russia[a] | United Kingdom | U.S. Virgin Islands | Other | Total Non-OPEC |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **1960 Average** | **1** | **120** | **42** | **16** | **NA** | **NA** | **–** | **(s)** | **NA** | **NA** | **581** |
| **1965 Average** | **–** | **323** | **51** | **48** | **1** | **–** | **–** | **(s)** | **–** | **606** | **1,029** |
| **1970 Average** | **2** | **766** | **46** | **42** | **39** | **–** | **3** | **11** | **189** | **1,027** | **2,126** |
| **1975 Average** | **5** | **846** | **9** | **71** | **19** | **17** | **14** | **14** | **406** | **1,052** | **2,454** |
| **1980 Average** | **3** | **455** | **4** | **533** | **2** | **144** | **1** | **176** | **388** | **903** | **2,609** |
| **1985 Average** | **61** | **770** | **23** | **816** | **58** | **32** | **8** | **310** | **247** | **913** | **3,237** |
| **1990 Average** | **49** | **934** | **182** | **755** | **55** | **102** | **45** | **189** | **282** | **1,128** | **3,721** |
| **1995 Average** | **8** | **1,332** | **219** | **1,068** | **15** | **273** | **25** | **383** | **278** | **1,233** | **4,833** |
| **2000 Average** | **51** | **1,807** | **342** | **1,373** | **30** | **343** | **72** | **366** | **291** | **1,581** | **6,257** |
| **2001 Average** | **82** | **1,828** | **296** | **1,440** | **43** | **341** | **90** | **324** | **268** | **1,631** | **6,343** |
| **2002 Average** | **116** | **1,971** | **260** | **1,547** | **66** | **393** | **210** | **478** | **236** | **1,649** | **6,925** |
| **2003 Average** | **108** | **2,072** | **195** | **1,623** | **87** | **270** | **254** | **440** | **288** | **1,766** | **7,103** |
| **2004 Average** | **104** | **2,138** | **176** | **1,665** | **101** | **244** | **298** | **380** | **330** | **2,008** | **7,444** |
| **2005 Average** | **156** | **2,181** | **196** | **1,662** | **151** | **233** | **410** | **396** | **328** | **2,413** | **8,127** |
| **2006 Average** | **193** | **2,353** | **155** | **1,705** | **174** | **196** | **369** | **272** | **328** | **2,446** | **8,190** |
| **2007 Average** | **200** | **2,455** | **155** | **1,532** | **128** | **142** | **414** | **277** | **346** | **1,839** | **7,489** |
| **2008 Average** | **258** | **2,493** | **200** | **1,302** | **168** | **102** | **465** | **236** | **320** | **1,416** | **6,961** |
| **2009 Average** | **309** | **2,479** | **276** | **1,210** | **140** | **108** | **563** | **245** | **277** | **1,307** | **6,915** |
| **2010 Average** | **272** | **2,535** | **365** | **1,284** | **108** | **89** | **612** | **256** | **253** | **1,112** | **6,887** |
| **2011 Average** | **253** | **2,729** | **433** | **1,206** | **100** | **113** | **624** | **159** | **186** | **1,077** | **6,881** |
| **2012 Average** | **226** | **2,946** | **433** | **1,035** | **99** | **75** | **477** | **149** | **12** | **874** | **6,327** |
| **2013 Average** | **151** | **3,142** | **389** | **919** | **89** | **54** | **460** | **147** | **–** | **786** | **6,138** |
| **2014 Average** | **160** | **3,388** | **318** | **842** | **85** | **45** | **330** | **117** | **–** | **720** | **6,004** |
| **2015** January | 236 | 4,010 | 417 | 831 | 78 | 11 | 401 | 140 | – | 799 | 6,923 |
| February | 138 | 3,942 | 353 | 784 | 81 | 58 | 300 | 88 | – | 733 | 6,478 |
| March | 170 | 3,899 | 525 | 875 | 110 | 52 | 376 | 83 | – | 727 | 6,818 |
| April | 232 | 3,849 | 442 | 714 | 78 | 37 | 358 | 111 | – | 820 | 6,640 |
| May | 108 | 3,562 | 535 | 663 | 80 | 108 | 337 | 138 | – | 838 | 6,369 |
| June | 255 | 3,625 | 377 | 856 | 23 | 66 | 500 | 134 | – | 898 | 6,736 |
| July | 222 | 3,488 | 441 | 755 | 54 | 87 | 445 | 142 | – | 1,027 | 6,661 |
| August | 396 | 3,932 | 339 | 731 | 22 | 138 | 509 | 154 | – | 887 | 7,108 |
| September | 276 | 3,807 | 292 | 647 | 53 | 48 | 369 | 178 | – | 835 | 6,504 |
| October | 229 | 3,411 | 221 | 756 | 32 | 44 | 307 | 99 | – | 842 | 5,942 |
| November | 99 | 3,621 | 402 | 721 | 39 | 37 | 320 | 92 | – | 651 | 5,982 |
| December | 208 | 4,043 | 390 | 760 | 38 | 39 | 219 | 112 | – | 660 | 6,469 |
| **Average** | **215** | **3,765** | **395** | **758** | **57** | **61** | **371** | **123** | **–** | **811** | **6,554** |
| **2016** January | 168 | 4,084 | 499 | 710 | 57 | 58 | 395 | 115 | – | 566 | 6,653 |
| February | 148 | 4,211 | 507 | 539 | 73 | 61 | 436 | 71 | – | 790 | 6,836 |
| March | 112 | 3,870 | 569 | 657 | 30 | 143 | 329 | 141 | – | 574 | 6,425 |
| April | 160 | 3,549 | 386 | 788 | 54 | 89 | 509 | 149 | – | 784 | 6,468 |
| May | 110 | 3,548 | 570 | 676 | 63 | 44 | 435 | 106 | – | 964 | 6,516 |
| June | 200 | 3,437 | 583 | 739 | 59 | 113 | 485 | 168 | 1 | 966 | 6,751 |
| July | 158 | 3,451 | 536 | 733 | 43 | 109 | 539 | 92 | – | 1,102 | 6,763 |
| August | 274 | 3,809 | 534 | 672 | 31 | 49 | 499 | 141 | – | 886 | 6,895 |
| September | 154 | 3,784 | 500 | 595 | 67 | 124 | 421 | 132 | – | 850 | 6,624 |
| October | 199 | 3,587 | 346 | 614 | 107 | 75 | 491 | 89 | – | 861 | 6,369 |
| November | 189 | 4,032 | 368 | 697 | 74 | 38 | 419 | 137 | – | 779 | 6,732 |
| December | 126 | 4,017 | 397 | 606 | 60 | 11 | 334 | 121 | – | 631 | 6,302 |
| **Average** | **167** | **3,780** | **483** | **669** | **60** | **76** | **441** | **122** | **(s)** | **812** | **6,610** |
| **2017** January | 206 | 4,282 | 345 | 730 | 75 | 134 | 348 | 141 | – | 631 | 6,892 |
| February | 240 | 4,182 | 401 | 607 | 81 | 34 | 319 | 96 | – | 633 | 6,594 |
| March | 229 | 4,065 | 338 | 630 | 47 | 12 | 379 | 120 | – | 648 | 6,467 |
| April | 168 | 3,887 | 417 | 680 | 62 | 86 | 308 | 123 | – | 777 | 6,507 |
| May | 132 | 4,123 | 424 | 810 | 49 | 73 | 401 | 167 | – | 806 | 6,984 |
| June | 202 | 3,804 | 334 | 784 | 72 | 122 | 503 | 126 | – | 756 | 6,703 |
| July | 376 | 3,768 | 357 | 668 | 45 | 64 | 358 | 113 | – | 703 | 6,451 |
| August | 258 | 3,960 | 388 | 573 | 74 | 186 | 443 | 67 | – | 925 | 6,874 |
| **8-Month Average** | **227** | **4,008** | **375** | **686** | **63** | **89** | **383** | **119** | **–** | **736** | **6,686** |
| **2016 8-Month Average** | **166** | **3,743** | **523** | **690** | **51** | **83** | **453** | **123** | **(s)** | **829** | **6,662** |
| **2015 8-Month Average** | **221** | **3,787** | **430** | **776** | **65** | **70** | **404** | **124** | **–** | **842** | **6,720** |

[a] Through 1992, may include imports from republics other than Russia in the former U.S.S.R. See "Union of Soviet Socialist Republics (U.S.S.R.)" in Glossary.

NA=Not available. – =No data reported. (s)=Less than 500 barrels per day.

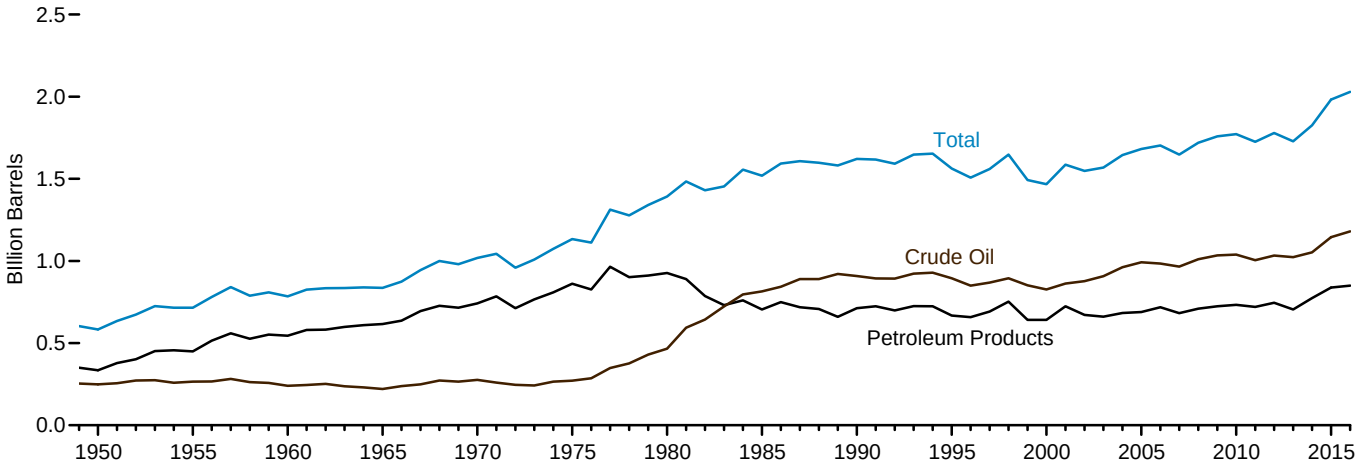
Notes: • See "Organization of the Petroleum Exporting Countries (OPEC)" in Glossary. Petroleum imports not classified as "OPEC" on Table 3.3c are included on this table. • The country of origin for petroleum products may not be the country of origin for the crude oil from which the products were produced. For example, refined products imported from West European refining areas may have been produced from Middle East crude oil. • Includes imports for the Strategic Petroleum Reserve, which began in October 1977. • Totals may not equal sum of components due to independent rounding. • U.S. geographic coverage is the 50 states and the District of Columbia.

Web Page: See http://www.eia.gov/totalenergy/data/monthly/#petroleum (Excel and CSV files) for all available annual data beginning in 1960 and monthly data beginning in 1973.

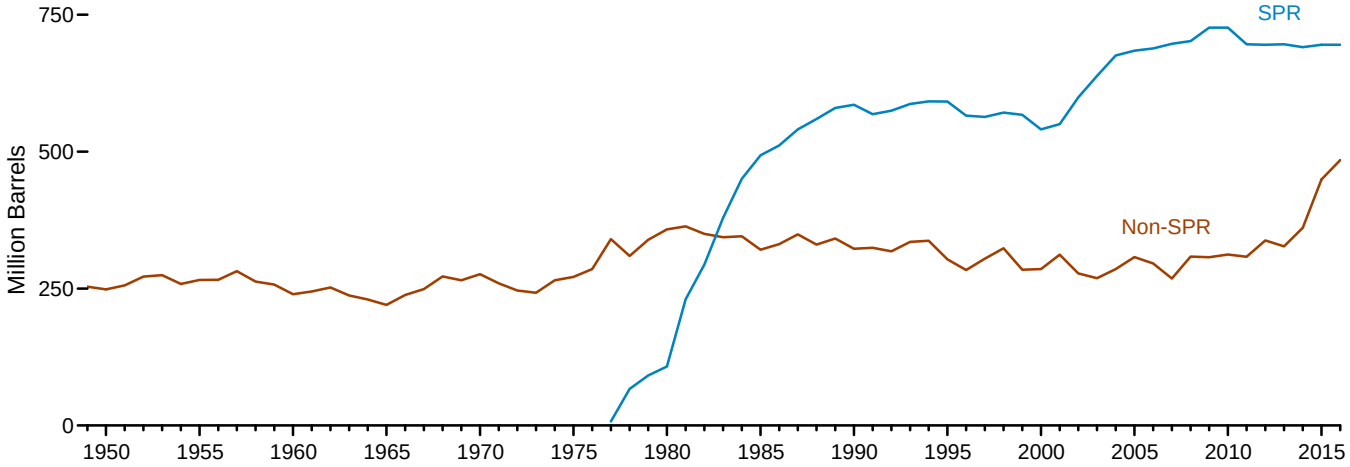
Sources: • **1960–1972:** Bureau of Mines, *Minerals Yearbook,* annual reports. • **1973–1975:** Bureau of Mines, Mineral Industry Surveys, *Petroleum Statement, Annual,* annual reports. • **1976–1980:** U.S. Energy Information Administration (EIA), Energy Data Reports, *Petroleum Statement, Annual,* annual reports. • **1981–2016:** EIA, *Petroleum Supply Annual,* annual reports. • **2017:** EIA, *Petroleum Supply Monthly,* monthly reports.

## Figure 3.4 Petroleum Stocks

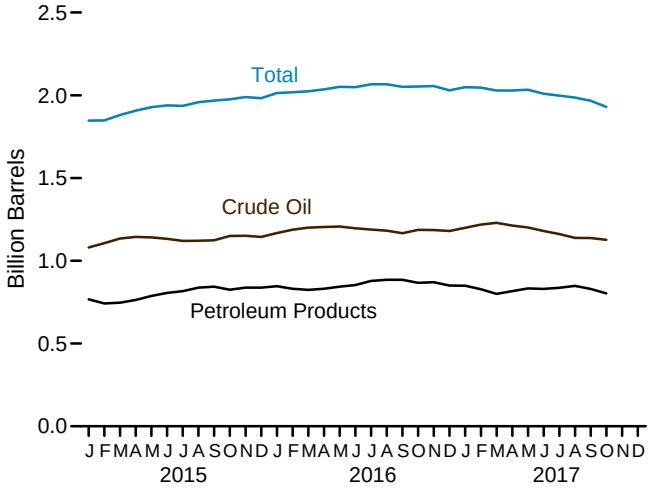
Overview, 1949–2016



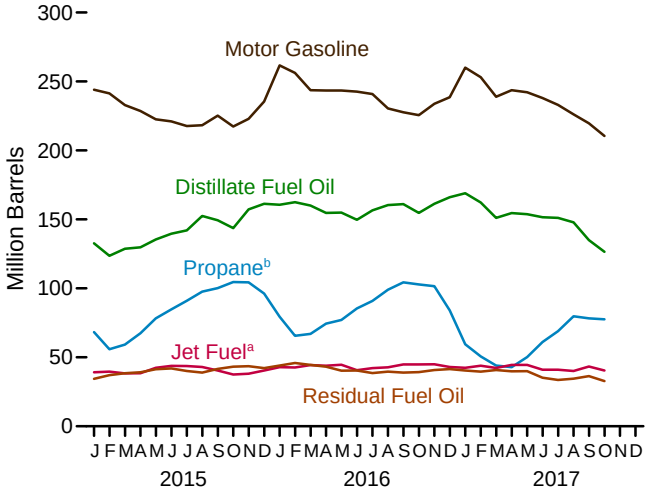

SPR and Non-SPR Crude Oil Stocks, 1949–2016




Overview, Monthly




Selected Products, Monthly




[a] Includes kerosene-type jet fuel only.
[b] Includes propylene.
Notes: • SPR=Strategic Petroleum Reserve. • Stocks are at end of period.
Web Page: http://www.eia.gov/totalenergy/data/monthly/#petroleum.
Source: Table 3.4.

# Table 3.4 Petroleum Stocks

(Million Barrels)

| | Crude Oil[a] | | | Distillate Fuel Oil[f] | HGL[b] | | Jet Fuel[i] | Motor Gasoline[j] | Residual Fuel Oil | Other[k] | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | SPR[c] | Non-SPR[d,e] | Total[e] | | Propane[g] | Total[h] | | | | | |
| **1950 Year** | – – | 248 | 248 | 72 | NA | 2 | ( [i] ) | 116 | 41 | 104 | 583 |
| **1955 Year** | – – | 266 | 266 | 111 | NA | 7 | 3 | 165 | 39 | 123 | 715 |
| **1960 Year** | – – | 240 | 240 | 138 | NA | 23 | 7 | 195 | 45 | 137 | 785 |
| **1965 Year** | – – | 220 | 220 | 155 | NA | 35 | 19 | 175 | 56 | 176 | 836 |
| **1970 Year** | – – | 276 | 276 | 195 | 44 | 74 | 28 | 209 | 54 | 181 | 1,018 |
| **1975 Year** | – – | 271 | 271 | 209 | 82 | 133 | 30 | 235 | 74 | 181 | 1,133 |
| **1980 Year** | 108 | 358 | 466 | 205 | 71 | 137 | 42 | 261 | 92 | 189 | 1,392 |
| **1985 Year** | 493 | 321 | 814 | 144 | 39 | 82 | 40 | 223 | 50 | 165 | 1,519 |
| **1990 Year** | 586 | 323 | 908 | 132 | 49 | 104 | 52 | 220 | 49 | 156 | 1,621 |
| **1995 Year** | 592 | 303 | 895 | 130 | 43 | 100 | 40 | 202 | 37 | 158 | 1,563 |
| **2000 Year** | 541 | 286 | 826 | 118 | 41 | 88 | 45 | 196 | 36 | 159 | 1,468 |
| **2001 Year** | 550 | 312 | 862 | 145 | 66 | 128 | 42 | 210 | 41 | 158 | 1,586 |
| **2002 Year** | 599 | 278 | 877 | 134 | 53 | 113 | 39 | 209 | 31 | 144 | 1,548 |
| **2003 Year** | 638 | 269 | 907 | 137 | 50 | 101 | 39 | 207 | 38 | 140 | 1,568 |
| **2004 Year** | 676 | 286 | 961 | 126 | 55 | 111 | 40 | 218 | 42 | 146 | 1,645 |
| **2005 Year** | 685 | 308 | 992 | 136 | 57 | 117 | 42 | 208 | 37 | 148 | 1,682 |
| **2006 Year** | 689 | 296 | 984 | 144 | 62 | 125 | 39 | 212 | 42 | 157 | 1,703 |
| **2007 Year** | 697 | 268 | 965 | 134 | 52 | 106 | 39 | 218 | 39 | 146 | 1,648 |
| **2008 Year** | 702 | 308 | 1,010 | 146 | 55 | 127 | 38 | 214 | 36 | 149 | 1,719 |
| **2009 Year** | 727 | 307 | 1,034 | 166 | 50 | 113 | 43 | 223 | 37 | 142 | 1,758 |
| **2010 Year** | 727 | 312 | 1,039 | 164 | 49 | 120 | 43 | 219 | 41 | 145 | 1,772 |
| **2011 Year** | 696 | 308 | 1,004 | 149 | 55 | 127 | 41 | 223 | 34 | 146 | 1,725 |
| **2012 Year** | 695 | 338 | 1,033 | 135 | 68 | 152 | 40 | 231 | 34 | 154 | 1,779 |
| **2013 Year** | 696 | 327 | 1,023 | 128 | 45 | 125 | 37 | 228 | 38 | 149 | 1,728 |
| **2014 Year** | 691 | 361 | 1,052 | 136 | 78 | 174 | 38 | 240 | 34 | 151 | 1,825 |
| **2015** January | 691 | 389 | 1,080 | 133 | 68 | 152 | 39 | 244 | 34 | 165 | 1,847 |
| February | 691 | 415 | 1,106 | 124 | 56 | 132 | 40 | 241 | 37 | 168 | 1,848 |
| March | 691 | 443 | 1,134 | 129 | 59 | 138 | 38 | 233 | 38 | 170 | 1,881 |
| April | 691 | 453 | 1,144 | 130 | 68 | 158 | 38 | 229 | 39 | 170 | 1,907 |
| May | 692 | 449 | 1,141 | 135 | 78 | 178 | 42 | 223 | 41 | 167 | 1,928 |
| June | 694 | 439 | 1,133 | 140 | 85 | 193 | 44 | 221 | 42 | 166 | 1,939 |
| July | 695 | 425 | 1,120 | 142 | 91 | 206 | 44 | 218 | 40 | 167 | 1,936 |
| August | 695 | 426 | 1,121 | 153 | 98 | 221 | 43 | 218 | 39 | 164 | 1,958 |
| September | 695 | 429 | 1,124 | 149 | 100 | 226 | 40 | 225 | 42 | 161 | 1,968 |
| October | 695 | 455 | 1,150 | 144 | 105 | 225 | 37 | 217 | 43 | 158 | 1,975 |
| November | 695 | 456 | 1,151 | 157 | 104 | 214 | 38 | 223 | 44 | 162 | 1,989 |
| **December** | 695 | 449 | 1,144 | 161 | 96 | 194 | 40 | 235 | 42 | 164 | 1,982 |
| **2016** January | 695 | 472 | 1,167 | 161 | 79 | 164 | 43 | 262 | 44 | 173 | 2,014 |
| February | 695 | 492 | 1,187 | 162 | 66 | 147 | 43 | 256 | 46 | 176 | 2,018 |
| March | 695 | 505 | 1,200 | 160 | 67 | 152 | 44 | 244 | 45 | 179 | 2,024 |
| April | 695 | 509 | 1,204 | 155 | 74 | 168 | 44 | 243 | 43 | 178 | 2,035 |
| May | 695 | 512 | 1,207 | 155 | 77 | 185 | 45 | 243 | 40 | 175 | 2,051 |
| June | 695 | 501 | 1,196 | 150 | 85 | 210 | 41 | 243 | 40 | 170 | 2,049 |
| July | 695 | 493 | 1,189 | 157 | 91 | 229 | 42 | 241 | 39 | 171 | 2,066 |
| August | 695 | 487 | 1,182 | 160 | 99 | 247 | 43 | 230 | 40 | 164 | 2,066 |
| September | 695 | 472 | 1,167 | 161 | 104 | 251 | 45 | 228 | 39 | 161 | 2,051 |
| October | 695 | 491 | 1,186 | 155 | 103 | 243 | 45 | 226 | 39 | 159 | 2,053 |
| November | 695 | 491 | 1,186 | 161 | 102 | 233 | 45 | 234 | 41 | 157 | 2,056 |
| **December** | 695 | 485 | 1,180 | 166 | 84 | 200 | 43 | 239 | 41 | 161 | 2,030 |
| **2017** January | 695 | 504 | 1,200 | 169 | 59 | 165 | 42 | 260 | 40 | 172 | 2,049 |
| February | 695 | 524 | 1,218 | 162 | 51 | 154 | 44 | 253 | 40 | 175 | 2,046 |
| March | 692 | 538 | 1,229 | 151 | 44 | 148 | 42 | 239 | 41 | 179 | 2,029 |
| April | 689 | 524 | 1,213 | 155 | 43 | 154 | 45 | 244 | 40 | 180 | 2,029 |
| May | 684 | 517 | 1,201 | 154 | 50 | 171 | 44 | 242 | 40 | 181 | 2,034 |
| June | 679 | 500 | 1,180 | 152 | 61 | 191 | 41 | 238 | 35 | 173 | 2,009 |
| July | 679 | 482 | 1,161 | 151 | 69 | 207 | 41 | 233 | 34 | 171 | 1,998 |
| August | 679 | R 459 | R 1,138 | 148 | 80 | R 231 | R 40 | R 226 | 35 | R 169 | R 1,986 |
| September | E 673 | E 464 | E 1,137 | E 135 | E 78 | RF 228 | E 43 | E 220 | E 36 | RE 167 | E 1,967 |
| October | E 670 | E 457 | E 1,127 | E 127 | E 78 | F 224 | E 40 | E 210 | E 33 | E 169 | E 1,930 |

[a] Includes lease condensate.

[b] Hydrocarbon gas liquids.

[c] "SPR" is the Strategic Petroleum Reserve, which began in October 1977. Crude oil stocks in the SPR include non-U.S. stocks held under foreign or commercial storage agreements.

[d] All crude oil stocks other than those in "SPR."

[e] Beginning in 1981, includes stocks of Alaskan crude oil in transit.

[f] Excludes stocks in the Northeast Home Heating Oil Reserve. Beginning in 2009, includes renewable diesel fuel (including biodiesel) blended into distillate fuel oil.

[g] Propane and propylene. Through 1983, also includes 40% of "Butane-Propane Mixtures" and 30% of "Ethane-Propane Mixtures."

[h] Ethane, propane, normal butane, isobutane, natural gasoline (pentanes plus), and refinery olefins (ethylene, propylene, butylene, and isobutylene). Through 1983, also includes plant condensate and unfractionated stream.

[i] Beginning in 1965, includes kerosene-type jet fuel. (Through 1964, kerosene-type jet fuel is included with kerosene in "Other.") For 1952–2004, also includes naphtha-type jet fuel. (Through 1951, naphtha-type jet fuel is included in the products from which it was blended—gasoline, kerosene, and distillate fuel oil. Beginning in 2005, naphtha-type jet fuel is included in "Other.").

[j] Includes finished motor gasoline and motor gasoline blending components; excludes oxygenates. Through 1963, also includes aviation gasoline and special naphthas.

[k] Asphalt and road oil, aviation gasoline blending components, kerosene, lubricants, petrochemical feedstocks, petroleum coke, unfinished oils, waxes, miscellaneous products, oxygenates, renewable fuels, and other hydrocarbons. Through 1964, also includes kerosene-type jet fuel. Beginning in 1964, also includes finished aviation gasoline and special naphthas. Beginning in 2005, also includes naphtha-type jet fuel.

R=Revised. E=Estimate. F=Forecast. NA=Not available. – – =Not applicable.

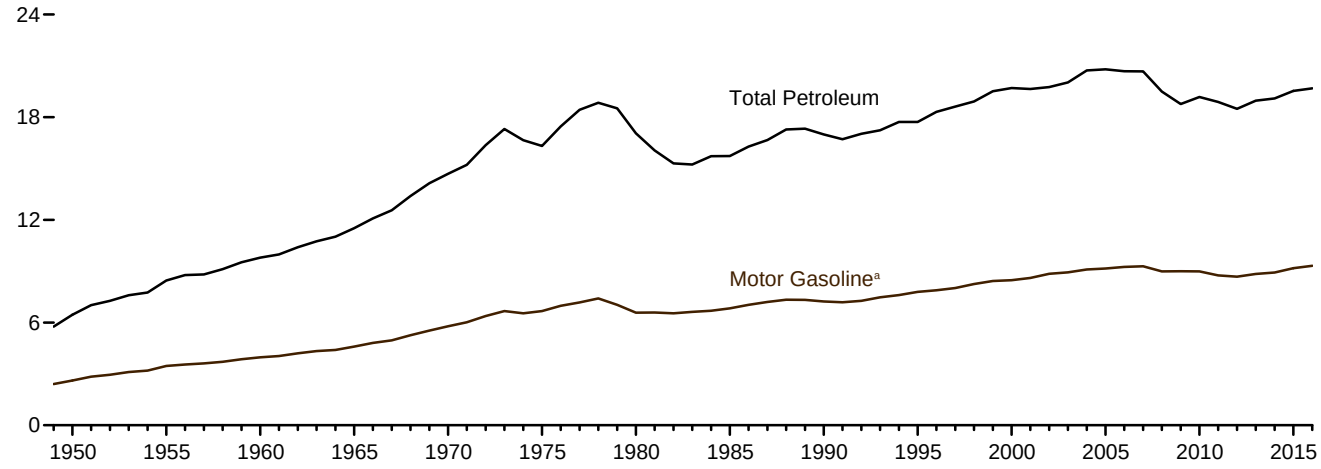
Notes: • Stocks are at end of period. • Totals may not equal sum of components due to independent rounding. • Geographic coverage is the 50 states and the District of Columbia.

Web Page: See http://www.eia.gov/totalenergy/data/monthly/#petroleum (Excel and CSV files) for all available annual data beginning in 1949 and monthly data beginning in 1973.

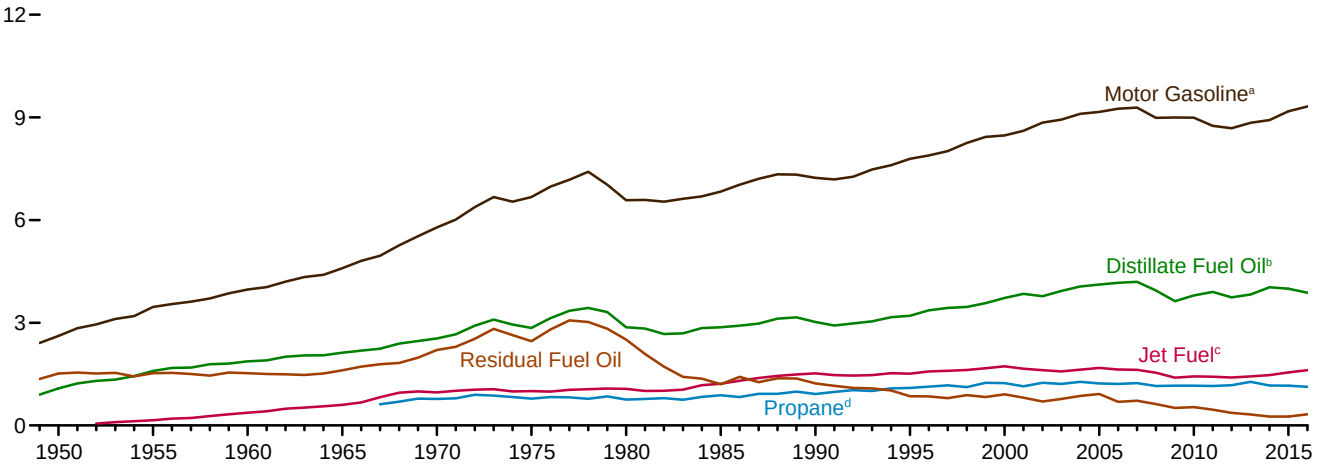
Sources: • **1949–1975:** Bureau of Mines, Mineral Industry Surveys, *Petroleum Statement, Annual,* annual reports. • **1976–1980:** U.S. Energy Information Administration (EIA), Energy Data Reports, *Petroleum Statement, Annual,* annual reports. • **1981–2016:** EIA, *Petroleum Supply Annual,* annual reports, and unpublished revisions. • **2017:** EIA, *Petroleum Supply Monthly,* monthly reports; and, for the current two months, *Weekly Petroleum Status Report* data system, Short-Term Integrated Forecasting System, and *Monthly Energy Review* data system calculations.

## Figure 3.5 Petroleum Products Supplied by Type
(Million Barrels per Day)

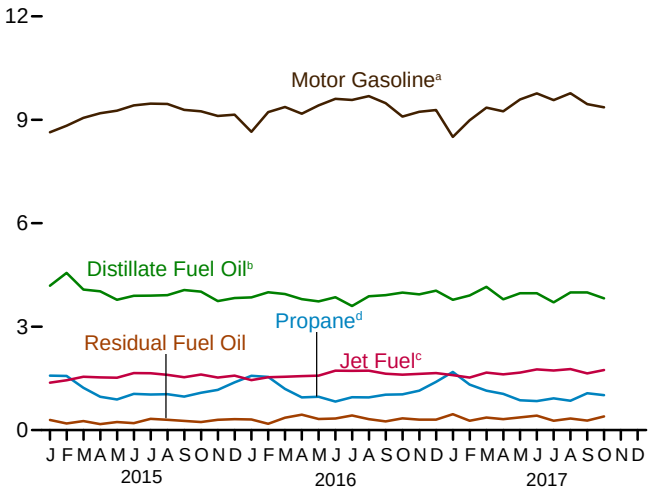
Total Petroleum and Motor Gasoline, 1949–2016



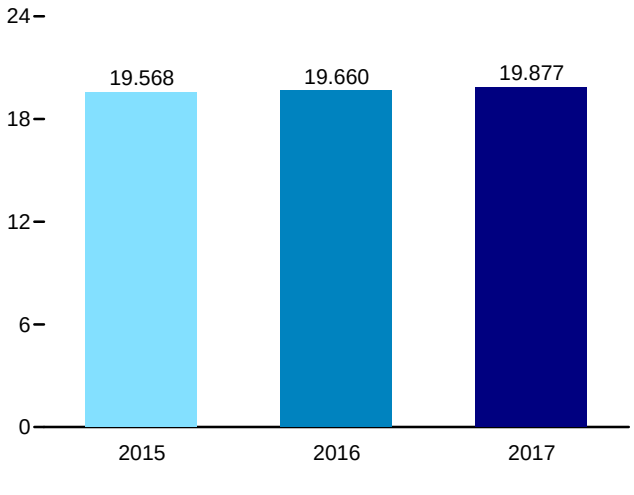

Selected Products,1949–2016




Selected Products, Monthly




Total, January–October




[a] Beginning in 1993, includes fuel ethanol blended into motor gasoline.
[b] Beginning in 2009, includes renewable diesel fuel (including biodiesel) blended into distillate fuel oil.
[c] Beginning in 2005, includes kerosene-type jet fuel only.
[d] Includes propylene.
Note: SPR=Strategic Petroleum Reserve.
Web Page: http://www.eia.gov/totalenergy/data/monthly/#petroleum.
Source: Table 3.5.

## Table 3.5 Petroleum Products Supplied by Type

(Thousand Barrels per Day)

| | Asphalt and Road Oil | Aviation Gasoline | Distillate Fuel Oil[b] | HGL[a] | | Jet Fuel[e] | Kero-sene | Lubri-cants | Motor Gasoline[f] | Petro-leum Coke | Residual Fuel Oil | Other[g] | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Propane[c] | Total[d] | | | | | | | | |
| **1950 Average** | **180** | **108** | **1,082** | **NA** | **234** | **( [e] )** | **323** | **106** | **2,616** | **41** | **1,517** | **250** | **6,458** |
| **1955 Average** | **254** | **192** | **1,592** | **NA** | **404** | **154** | **320** | **116** | **3,463** | **67** | **1,526** | **366** | **8,455** |
| **1960 Average** | **302** | **161** | **1,872** | **NA** | **621** | **371** | **271** | **117** | **3,969** | **149** | **1,529** | **435** | **9,797** |
| **1965 Average** | **368** | **120** | **2,126** | **NA** | **841** | **602** | **267** | **129** | **4,593** | **202** | **1,608** | **657** | **11,512** |
| **1970 Average** | **447** | **55** | **2,540** | **782** | **1,224** | **967** | **263** | **136** | **5,785** | **212** | **2,204** | **866** | **14,697** |
| **1975 Average** | **419** | **39** | **2,851** | **790** | **1,352** | **1,001** | **159** | **137** | **6,675** | **247** | **2,462** | **982** | **16,322** |
| **1980 Average** | **396** | **35** | **2,866** | **813** | **1,590** | **1,068** | **158** | **159** | **6,579** | **237** | **2,508** | **1,460** | **17,056** |
| **1985 Average** | **425** | **27** | **2,868** | **883** | **1,721** | **1,218** | **114** | **145** | **6,831** | **264** | **1,202** | **909** | **15,726** |
| **1990 Average** | **483** | **24** | **3,021** | **917** | **1,705** | **1,522** | **43** | **164** | **7,235** | **339** | **1,229** | **1,225** | **16,988** |
| **1995 Average** | **486** | **21** | **3,207** | **1,096** | **2,100** | **1,514** | **54** | **156** | **7,789** | **365** | **852** | **1,180** | **17,725** |
| **2000 Average** | **525** | **20** | **3,722** | **1,235** | **2,434** | **1,725** | **67** | **166** | **8,472** | **406** | **909** | **1,255** | **19,701** |
| **2001 Average** | **519** | **19** | **3,847** | **1,142** | **2,200** | **1,655** | **72** | **153** | **8,610** | **437** | **811** | **1,325** | **19,649** |
| **2002 Average** | **512** | **18** | **3,776** | **1,248** | **2,295** | **1,614** | **43** | **151** | **8,848** | **463** | **700** | **1,342** | **19,761** |
| **2003 Average** | **503** | **16** | **3,927** | **1,215** | **2,205** | **1,578** | **55** | **140** | **8,935** | **455** | **772** | **1,448** | **20,034** |
| **2004 Average** | **537** | **17** | **4,058** | **1,276** | **2,264** | **1,630** | **64** | **141** | **9,105** | **524** | **865** | **1,525** | **20,731** |
| **2005 Average** | **546** | **19** | **4,118** | **1,229** | **2,146** | **1,679** | **70** | **141** | **9,159** | **515** | **920** | **1,489** | **20,802** |
| **2006 Average** | **521** | **18** | **4,169** | **1,215** | **2,135** | **1,633** | **54** | **137** | **9,253** | **522** | **689** | **1,557** | **20,687** |
| **2007 Average** | **494** | **17** | **4,196** | **1,235** | **2,191** | **1,622** | **32** | **142** | **9,286** | **490** | **723** | **1,487** | **20,680** |
| **2008 Average** | **417** | **15** | **3,945** | **1,154** | **2,044** | **1,539** | **14** | **131** | **8,989** | **464** | **622** | **1,317** | **19,498** |
| **2009 Average** | **360** | **14** | **3,631** | **1,160** | **2,127** | **1,393** | **18** | **118** | **8,997** | **427** | **511** | **1,175** | **18,771** |
| **2010 Average** | **362** | **15** | **3,800** | **1,160** | **2,265** | **1,432** | **20** | **131** | **8,993** | **376** | **535** | **1,251** | **19,180** |
| **2011 Average** | **355** | **15** | **3,899** | **1,153** | **2,241** | **1,425** | **12** | **125** | **8,753** | **361** | **461** | **1,240** | **18,887** |
| **2012 Average** | **340** | **14** | **3,741** | **1,175** | **2,297** | **1,398** | **5** | **114** | **8,682** | **360** | **369** | **1,165** | **18,487** |
| **2013 Average** | **323** | **12** | **3,827** | **1,275** | **2,501** | **1,434** | **5** | **121** | **8,843** | **354** | **319** | **1,227** | **18,967** |
| **2014 Average** | **327** | **12** | **4,037** | **1,167** | **2,442** | **1,470** | **9** | **126** | **8,921** | **347** | **257** | **1,151** | **19,100** |
| **2015** January | 200 | 8 | 4,186 | 1,580 | 2,921 | 1,375 | 3 | 153 | 8,639 | 404 | 294 | 1,079 | 19,261 |
| February | 215 | 8 | 4,559 | 1,572 | 2,892 | 1,445 | 9 | 123 | 8,829 | 217 | 195 | 1,173 | 19,664 |
| March | 222 | 9 | 4,078 | 1,228 | 2,548 | 1,548 | 11 | 152 | 9,057 | 377 | 263 | 1,075 | 19,340 |
| April | 303 | 14 | 4,027 | 966 | 2,366 | 1,527 | 1 | 148 | 9,189 | 377 | 172 | 1,126 | 19,251 |
| May | 343 | 13 | 3,778 | 890 | 2,322 | 1,519 | 20 | 159 | 9,262 | 383 | 235 | 1,281 | 19,316 |
| June | 472 | 12 | 3,897 | 1,053 | 2,430 | 1,654 | (s) | 132 | 9,417 | 407 | 200 | 1,231 | 19,853 |
| July | 480 | 18 | 3,901 | 1,030 | 2,468 | 1,650 | 1 | 156 | 9,470 | 399 | 325 | 1,265 | 20,134 |
| August | 510 | 11 | 3,915 | 1,042 | 2,454 | 1,601 | 2 | 121 | 9,460 | 412 | 298 | 1,156 | 19,939 |
| September | 469 | 11 | 4,063 | 970 | 2,283 | 1,534 | 1 | 127 | 9,289 | 283 | 267 | 1,106 | 19,433 |
| October | 400 | 14 | 4,014 | 1,084 | 2,540 | 1,614 | 3 | 145 | 9,245 | 329 | 236 | 951 | 19,491 |
| November | 287 | 9 | 3,740 | 1,169 | 2,585 | 1,524 | 1 | 104 | 9,112 | 306 | 300 | 1,159 | 19,127 |
| December | 212 | 9 | 3,831 | 1,384 | 2,826 | 1,578 | 25 | 130 | 9,148 | 283 | 317 | 1,231 | 19,589 |
| **Average** | **343** | **11** | **3,995** | **1,162** | **2,552** | **1,548** | **6** | **138** | **9,178** | **349** | **259** | **1,153** | **19,534** |
| **2016** January | 195 | 7 | 3,850 | 1,574 | 2,958 | 1,449 | 2 | 136 | 8,653 | 380 | 306 | 1,126 | 19,063 |
| February | 230 | 11 | 3,996 | 1,543 | 2,798 | 1,534 | 2 | 148 | 9,221 | 361 | 183 | 1,362 | 19,847 |
| March | 254 | 10 | 3,947 | 1,193 | 2,613 | 1,547 | 10 | 143 | 9,373 | 364 | 361 | 1,107 | 19,728 |
| April | 301 | 14 | 3,799 | 951 | 2,403 | 1,566 | 3 | 131 | 9,176 | 293 | 449 | 1,205 | 19,340 |
| May | 394 | 11 | 3,732 | 966 | 2,383 | 1,578 | 8 | 132 | 9,417 | 276 | 323 | 1,075 | 19,328 |
| June | 482 | 12 | 3,853 | 830 | 2,269 | 1,723 | 10 | 146 | 9,608 | 246 | 338 | 1,159 | 19,846 |
| July | 472 | 12 | 3,597 | 952 | 2,421 | 1,720 | 11 | 115 | 9,578 | 322 | 424 | 1,103 | 19,776 |
| August | 524 | 14 | 3,880 | 950 | 2,308 | 1,722 | 1 | 124 | 9,687 | 437 | 318 | 1,261 | 20,275 |
| September | 439 | 11 | 3,912 | 1,030 | 2,429 | 1,635 | 14 | 125 | 9,484 | 285 | 253 | 1,171 | 19,757 |
| October | 417 | 10 | 3,986 | 1,038 | 2,557 | 1,610 | 19 | 131 | 9,093 | 311 | 340 | 1,175 | 19,650 |
| November | 310 | 12 | 3,938 | 1,142 | 2,520 | 1,632 | 2 | 121 | 9,233 | 485 | 305 | 1,101 | 19,659 |
| December | 195 | 10 | 4,043 | 1,397 | 2,775 | 1,653 | 21 | 115 | 9,283 | 381 | 306 | 1,201 | 19,984 |
| **Average** | **351** | **11** | **3,877** | **1,130** | **2,536** | **1,614** | **9** | **130** | **9,317** | **345** | **326** | **1,170** | **19,687** |
| **2017** January | 192 | 9 | 3,781 | 1,687 | 3,049 | 1,593 | 14 | 105 | 8,501 | 412 | 460 | 1,127 | 19,244 |
| February | 241 | 9 | 3,905 | 1,321 | 2,684 | 1,525 | 6 | 123 | 8,986 | 262 | 270 | 1,148 | 19,159 |
| March | 265 | 10 | 4,154 | 1,143 | 2,634 | 1,669 | 2 | 133 | 9,352 | 175 | 362 | 1,292 | 20,047 |
| April | 318 | 10 | 3,791 | 1,051 | 2,510 | 1,617 | 7 | 105 | 9,248 | 322 | 320 | 1,309 | 19,556 |
| May | 365 | 11 | 3,969 | 863 | 2,415 | 1,671 | 3 | 108 | 9,590 | 339 | 368 | 1,201 | 20,039 |
| June | 477 | 17 | 3,969 | 842 | 2,439 | 1,762 | 2 | 108 | 9,766 | 270 | 418 | 1,266 | 20,494 |
| July | 441 | 13 | 3,707 | 921 | 2,512 | 1,728 | 1 | 98 | 9,573 | 461 | 272 | 1,215 | 20,020 |
| August | R 542 | R 14 | R 3,992 | R 851 | R 2,145 | R 1,769 | R 1 | R 91 | R 9,770 | R 307 | R 335 | R 1,196 | R 20,161 |
| September | F 457 | F 11 | E 3,994 | E 1,070 | RF 2,286 | E 1,646 | F 8 | RF 139 | E 9,457 | F 342 | E 275 | RE 1,594 | E 20,208 |
| October | F 424 | F 10 | E 3,821 | E 1,016 | F 2,528 | E 1,743 | F 7 | F 124 | E 9,363 | F 320 | E 396 | E 1,051 | E 19,788 |
| **10-Month Average** | **E 373** | **E 11** | **E 3,908** | **E 1,075** | **E 2,520** | **E 1,674** | **E 5** | **E 113** | **E 9,363** | **E 322** | **E 348** | **E 1,239** | **E 19,877** |
| **2016 10-Month Average** | **371** | **11** | **3,854** | **1,101** | **2,514** | **1,609** | **8** | **133** | **9,329** | **328** | **330** | **1,173** | **19,660** |
| **2015 10-Month Average** | **362** | **12** | **4,037** | **1,139** | **2,520** | **1,548** | **5** | **142** | **9,188** | **360** | **249** | **1,144** | **19,568** |

[a] Hydrocarbon gas liquids.

[b] Beginning in 2009, includes renewable diesel fuel (including biodiesel) blended into distillate fuel oil.

[c] Propane and propylene. Through 1983, also includes 40% of "Butane-Propane Mixtures" and 30% of "Ethane-Propane Mixtures."

[d] Ethane, propane, normal butane, isobutane, natural gasoline (pentanes plus), and refinery olefins (ethylene, propylene, butylene, and isobutylene). Through 1983, also includes plant condensate and unfractionated stream.

[e] Beginning in 1957, includes kerosene-type jet fuel. For 1952–2004, also includes naphtha-type jet fuel. (Through 1951, naphtha-type jet fuel is included in the products from which it was blended—gasoline, kerosene, and distillate fuel oil. Beginning in 2005, naphtha-type jet fuel is included in "Other.").

[f] Finished motor gasoline. Through 1963, also includes special naphthas. Beginning in 1993, also includes fuel ethanol blended into motor gasoline.

[g] Petrochemical feedstocks, still gas (refinery gas), waxes, and miscellaneous products. Beginning in 1964, also includes special naphthas. Beginning in 1981, also includes negative barrels per day of distillate and residual fuel oil reclassified as unfinished oils, and other products (from both primary and secondary supply) reclassified as gasoline blending components. Beginning in 1983, also includes crude oil burned as fuel. Beginning in 2005, also includes naphtha-type jet fuel.

R=Revised. E=Estimate. F=Forecast. NA=Not available. (s)=Less than 500 barrels per day and greater than -500 barrels per day.

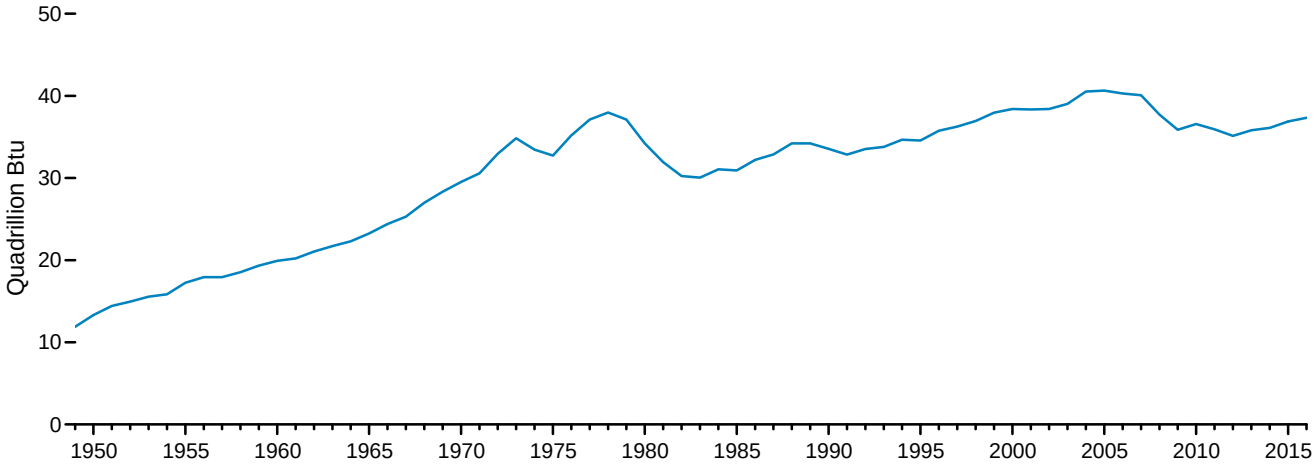
Notes: • Petroleum products supplied is an approximation of petroleum consumption and is synonymous with the term "petroleum consumption" in Tables 3.7a–3.8c. See Note 1, "Petroleum Products Supplied and Petroleum Consumption," at end of section. • Totals may not equal sum of components due to independent rounding. • Geographic coverage is the 50 states and the District of Columbia.

Web Page: See http://www.eia.gov/totalenergy/data/monthly/#petroleum (Excel and CSV files) for all available annual data beginning in 1949 and monthly data beginning in 1973.

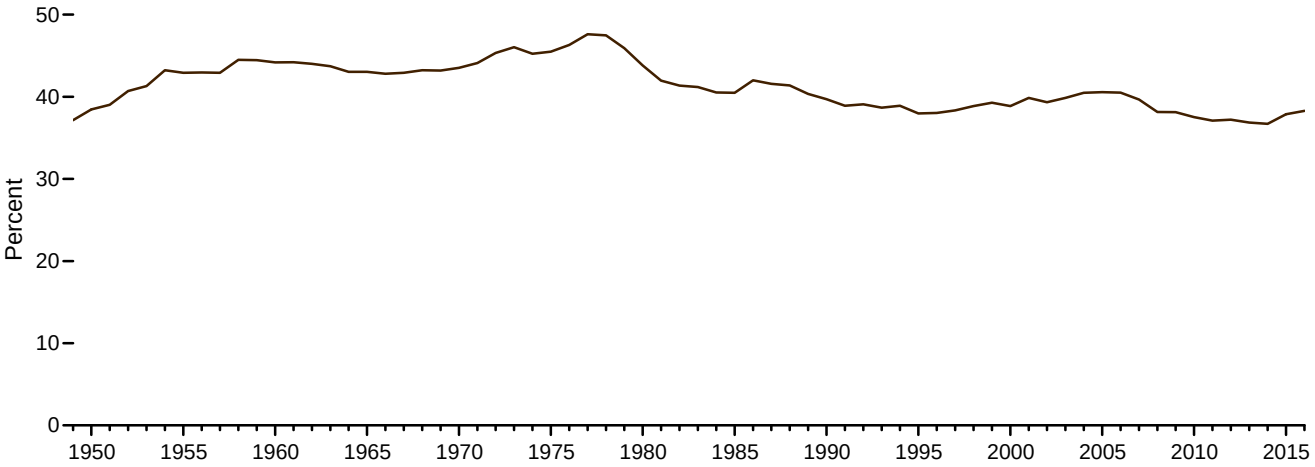
Sources: • **1949–1975:** Bureau of Mines, Mineral Industry Surveys, *Petroleum Statement, Annual,* annual reports. • **1976–1980:** U.S. Energy Information Administration (EIA), Energy Data Reports, *Petroleum Statement, Annual,* annual reports. • **1981–2016:** EIA, *Petroleum Supply Annual,* annual reports, and unpublished revisions. • **2017:** EIA, *Petroleum Supply Monthly,* monthly reports; and, for the current two months, *Weekly Petroleum Status Report* data system, Short-Term Integrated Forecasting System, and *Monthly Energy Review* data system calculations.

## Figure 3.6 Heat Content of Petroleum Products Supplied by Type

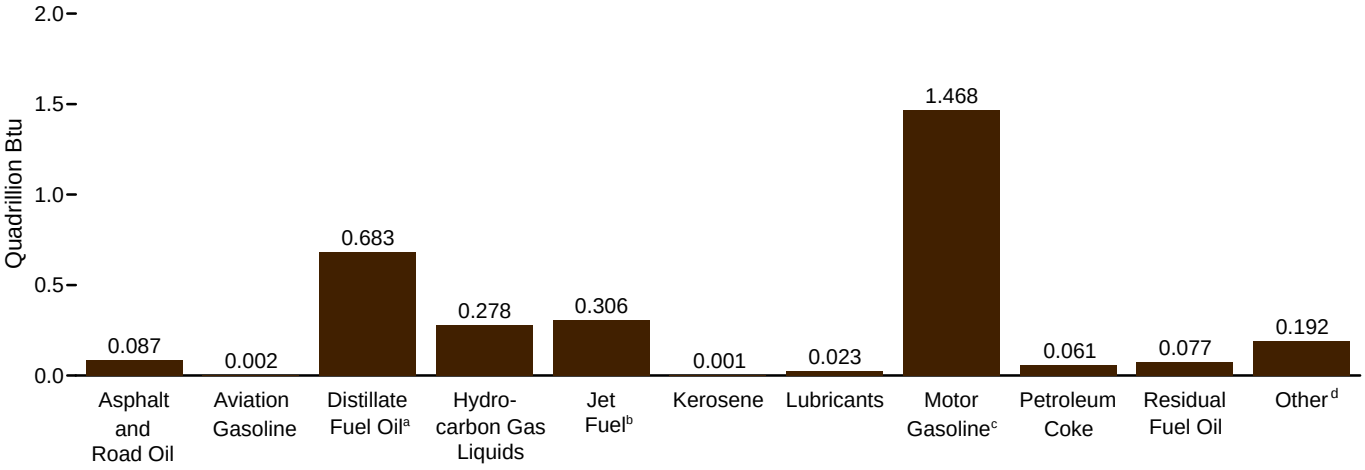
Total, 1949–2016




Petroleum Products Supplied as Share of Total Energy Consumption, 1949–2016




By Product, October 2017




[a] Includes renewable diesel fuel (including biodiesel) blended into distillate fuel oil.
[b] Includes kerosene-type jet fuel only.
[c] Includes fuel ethanol blended into motor gasoline.
[d] All petroleum products not separately displayed.
Web Page: http://www.eia.gov/totalenergy/data/monthly/#petroleum.
Sources: Tables 1.1 and 3.6.

## Table 3.6 Heat Content of Petroleum Products Supplied by Type

(Trillion Btu)

| | Asphalt and Road Oil | Aviation Gasoline | Distillate Fuel Oil[b] | HGL[a] | | Jet Fuel[e] | Kero-sene | Lubri-cants | Motor Gasoline[f] | Petro-leum Coke | Residual Fuel Oil | Other[g] | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Propane[c] | Total[d] | | | | | | | | |
| **1950 Total** | **435** | **199** | **2,300** | **NA** | **343** | **( [e] )** | **668** | **236** | **5,015** | **90** | **3,482** | **546** | **13,315** |
| **1955 Total** | **615** | **354** | **3,385** | **NA** | **592** | **301** | **662** | **258** | **6,640** | **147** | **3,502** | **798** | **17,255** |
| **1960 Total** | **734** | **298** | **3,992** | **NA** | **912** | **739** | **563** | **259** | **7,631** | **328** | **3,517** | **947** | **19,919** |
| **1965 Total** | **890** | **222** | **4,519** | **NA** | **1,232** | **1,215** | **553** | **286** | **8,806** | **444** | **3,691** | **1,390** | **23,246** |
| **1970 Total** | **1,082** | **100** | **5,401** | **1,095** | **1,689** | **1,973** | **544** | **301** | **11,091** | **465** | **5,057** | **1,817** | **29,521** |
| **1975 Total** | **1,014** | **71** | **6,061** | **1,107** | **1,845** | **2,047** | **329** | **304** | **12,798** | **542** | **5,649** | **2,071** | **32,732** |
| **1980 Total** | **962** | **64** | **6,110** | **1,142** | **2,180** | **2,190** | **329** | **354** | **12,648** | **522** | **5,772** | **3,073** | **34,205** |
| **1985 Total** | **1,029** | **50** | **6,098** | **1,236** | **2,309** | **2,497** | **236** | **322** | **13,098** | **582** | **2,759** | **1,945** | **30,925** |
| **1990 Total** | **1,170** | **45** | **6,422** | **1,284** | **2,309** | **3,129** | **88** | **362** | **13,872** | **745** | **2,820** | **2,589** | **33,552** |
| **1995 Total** | **1,178** | **40** | **6,812** | **1,534** | **2,849** | **3,132** | **112** | **346** | **14,834** | **802** | **1,955** | **2,499** | **34,558** |
| **2000 Total** | **1,276** | **36** | **7,927** | **1,734** | **3,288** | **3,580** | **140** | **369** | **16,167** | **895** | **2,091** | **2,636** | **38,406** |
| **2001 Total** | **1,257** | **35** | **8,170** | **1,598** | **2,960** | **3,426** | **150** | **338** | **16,386** | **961** | **1,861** | **2,793** | **38,337** |
| **2002 Total** | **1,240** | **34** | **8,020** | **1,747** | **3,076** | **3,340** | **90** | **334** | **16,829** | **1,018** | **1,605** | **2,816** | **38,401** |
| **2003 Total** | **1,220** | **30** | **8,341** | **1,701** | **2,968** | **3,265** | **113** | **309** | **16,968** | **1,000** | **1,772** | **3,043** | **39,030** |
| **2004 Total** | **1,304** | **31** | **8,642** | **1,791** | **3,047** | **3,383** | **133** | **313** | **17,333** | **1,148** | **1,990** | **3,205** | **40,528** |
| **2005 Total** | **1,323** | **35** | **8,745** | **1,721** | **2,878** | **3,475** | **144** | **312** | **17,378** | **1,125** | **2,111** | **3,122** | **40,647** |
| **2006 Total** | **1,261** | **33** | **8,831** | **1,701** | **2,841** | **3,379** | **111** | **303** | **17,531** | **1,141** | **1,581** | **3,276** | **40,289** |
| **2007 Total** | **1,197** | **32** | **8,858** | **1,729** | **2,912** | **3,358** | **67** | **313** | **17,472** | **1,072** | **1,659** | **3,134** | **40,073** |
| **2008 Total** | **1,012** | **28** | **8,346** | **1,620** | **2,727** | **3,193** | **30** | **291** | **16,865** | **1,017** | **1,432** | **2,788** | **37,728** |
| **2009 Total** | **873** | **27** | **7,661** | **1,624** | **2,791** | **2,883** | **36** | **262** | **16,750** | **937** | **1,173** | **2,483** | **35,877** |
| **2010 Total** | **878** | **27** | **8,014** | **1,624** | **2,976** | **2,963** | **41** | **291** | **16,668** | **831** | **1,228** | **2,645** | **36,561** |
| **2011 Total** | **859** | **27** | **8,217** | **1,614** | **2,898** | **2,950** | **25** | **276** | **16,191** | **801** | **1,058** | **2,621** | **35,925** |
| **2012 Total** | **827** | **25** | **7,903** | **1,649** | **2,992** | **2,901** | **11** | **254** | **16,089** | **802** | **849** | **2,474** | **35,126** |
| **2013 Total** | **783** | **22** | **8,059** | **1,785** | **3,267** | **2,969** | **11** | **268** | **16,339** | **786** | **731** | **2,583** | **35,818** |
| **2014 Total** | **793** | **22** | **8,499** | **1,634** | **3,172** | **3,042** | **19** | **280** | **16,476** | **772** | **590** | **2,430** | **36,094** |
| **2015** January | 41 | 1 | 749 | 188 | 326 | 242 | (s) | 29 | 1,355 | 76 | 57 | 192 | 3,069 |
| February | 40 | 1 | 736 | 169 | 290 | 229 | 1 | 21 | 1,251 | 37 | 34 | 190 | 2,831 |
| March | 46 | 1 | 729 | 146 | 285 | 272 | 2 | 29 | 1,421 | 71 | 51 | 193 | 3,100 |
| April | 60 | 2 | 697 | 111 | 253 | 260 | (s) | 27 | 1,395 | 69 | 32 | 196 | 2,991 |
| May | 70 | 2 | 675 | 106 | 256 | 267 | 4 | 30 | 1,453 | 72 | 46 | 231 | 3,106 |
| June | 94 | 2 | 674 | 121 | 261 | 281 | (s) | 24 | 1,430 | 74 | 38 | 215 | 3,092 |
| July | 99 | 3 | 697 | 123 | 274 | 290 | (s) | 29 | 1,486 | 75 | 63 | 228 | 3,245 |
| August | 105 | 2 | 700 | 124 | 274 | 281 | (s) | 23 | 1,484 | 78 | 58 | 207 | 3,213 |
| September | 93 | 2 | 703 | 112 | 242 | 261 | (s) | 23 | 1,410 | 52 | 50 | 192 | 3,027 |
| October | 82 | 2 | 718 | 129 | 282 | 284 | 1 | 27 | 1,450 | 62 | 46 | 170 | 3,124 |
| November | 57 | 1 | 647 | 135 | 274 | 259 | (s) | 19 | 1,383 | 56 | 57 | 201 | 2,955 |
| December | 44 | 1 | 685 | 165 | 313 | 277 | 4 | 24 | 1,435 | 53 | 62 | 221 | 3,120 |
| **Total** | **832** | **21** | **8,411** | **1,627** | **3,331** | **3,204** | **13** | **305** | **16,952** | **776** | **595** | **2,435** | **36,873** |
| **2016** January | 40 | 1 | 688 | 187 | 329 | 255 | (s) | 26 | 1,357 | 72 | 60 | 208 | 3,036 |
| February | 44 | 2 | 668 | 172 | 288 | 252 | (s) | 26 | 1,353 | 64 | 33 | 235 | 2,966 |
| March | 52 | 2 | 706 | 142 | 286 | 272 | 2 | 27 | 1,470 | 69 | 70 | 205 | 3,160 |
| April | 60 | 2 | 657 | 109 | 254 | 266 | 1 | 24 | 1,393 | 54 | 85 | 215 | 3,011 |
| May | 81 | 2 | 667 | 115 | 260 | 277 | 1 | 25 | 1,477 | 52 | 63 | 199 | 3,104 |
| June | 96 | 2 | 666 | 96 | 241 | 293 | 2 | 27 | 1,458 | 45 | 64 | 208 | 3,101 |
| July | 97 | 2 | 643 | 113 | 264 | 302 | 2 | 22 | 1,502 | 61 | 83 | 205 | 3,182 |
| August | 108 | 2 | 694 | 113 | 251 | 303 | (s) | 23 | 1,519 | 83 | 62 | 233 | 3,278 |
| September | 87 | 2 | 677 | 118 | 260 | 278 | 2 | 23 | 1,439 | 52 | 48 | 210 | 3,078 |
| October | 86 | 2 | 713 | 123 | 282 | 283 | 3 | 25 | 1,426 | 59 | 66 | 217 | 3,161 |
| November | 62 | 2 | 681 | 131 | 267 | 278 | (s) | 22 | 1,401 | 89 | 58 | 197 | 3,056 |
| December | 40 | 2 | 723 | 166 | 307 | 291 | 4 | 22 | 1,456 | 72 | 60 | 222 | 3,197 |
| **Total** | **853** | **20** | **8,183** | **1,586** | **3,289** | **3,350** | **18** | **289** | **17,251** | **771** | **751** | **2,553** | **37,330** |
| **2017** January | 39 | 1 | 676 | 201 | 338 | 280 | 2 | 20 | 1,333 | 78 | 90 | 208 | 3,066 |
| February | 45 | 1 | 631 | 142 | 265 | 242 | 1 | 21 | 1,273 | 45 | 48 | 190 | 2,761 |
| March | 54 | 2 | 743 | 136 | 290 | 293 | (s) | 25 | 1,467 | 33 | 71 | 237 | 3,215 |
| April | 63 | 2 | 656 | 121 | 267 | 275 | 1 | 19 | 1,404 | 59 | 60 | 234 | 3,039 |
| May | 75 | 2 | 709 | 103 | 263 | 294 | 1 | 20 | 1,504 | 64 | 72 | 222 | 3,225 |
| June | 95 | 3 | 687 | 97 | 254 | 300 | (s) | 20 | 1,482 | 49 | 79 | 226 | 3,194 |
| July | 91 | 2 | 663 | 110 | 274 | 304 | (s) | 19 | 1,501 | 87 | 53 | 225 | 3,218 |
| August | R 112 | 2 | R 714 | R 101 | R 232 | R 311 | (s) | R 17 | R 1,532 | R 58 | R 65 | R 221 | R 3,264 |
| September | F 91 | F 2 | E 691 | E 123 | RF 244 | E 280 | F 1 | RF 25 | E 1,435 | F 63 | E 52 | RE 258 | E 3,141 |
| October | F 87 | F 2 | E 683 | E 121 | F 278 | E 306 | F 1 | F 23 | E 1,468 | F 61 | E 77 | E 192 | E 3,178 |
| **10-Month Total** | **E 753** | **E 17** | **E 6,851** | **E 1,254** | **E 2,703** | **E 2,885** | **E 9** | **E 209** | **E 14,400** | **E 597** | **E 666** | **E 2,212** | **E 31,301** |
| **2016 10-Month Total** | **752** | **17** | **6,779** | **1,289** | **2,715** | **2,782** | **14** | **246** | **14,394** | **610** | **633** | **2,135** | **31,077** |
| **2015 10-Month Total** | **731** | **18** | **7,078** | **1,328** | **2,744** | **2,668** | **9** | **262** | **14,133** | **666** | **477** | **2,013** | **30,799** |

[a] Hydrocarbon gas liquids.

[b] Beginning in 2009, includes renewable diesel fuel (including biodiesel) blended into distillate fuel oil.

[c] Propane and propylene. Through 1983, also includes 40% of "Butane-Propane Mixtures" and 30% of "Ethane-Propane Mixtures."

[d] Ethane, propane, normal butane, isobutane, natural gasoline (pentanes plus), and refinery olefins (ethylene, propylene, butylene, and isobutylene). Through 1983, also includes plant condensate and unfractionated stream.

[e] Beginning in 1957, includes kerosene-type jet fuel. For 1952–2004, also includes naphtha-type jet fuel. (Through 1951, naphtha-type jet fuel is included in the products from which it was blended—gasoline, kerosene, and distillate fuel oil. Beginning in 2005, naphtha-type jet fuel is included in "Other.").

[f] Finished motor gasoline. Through 1963, also includes special naphthas. Beginning in 1993, also includes fuel ethanol blended into motor gasoline.

[g] Petrochemical feedstocks, still gas (refinery gas), waxes, and miscellaneous products. Beginning in 1964, also includes special naphthas. Beginning in 1981, also includes negative barrels per day of distillate and residual fuel oil reclassified as unfinished oils, and other products (from both primary and secondary supply) reclassified as gasoline blending components. Beginning in 1983, also includes crude oil burned as fuel. Beginning in 2005, also includes naphtha-type jet fuel.

R=Revised. E=Estimate. F=Forecast. NA=Not available. (s)=Less than 0.5 trillion Btu and greater than -0.5 trillion Btu.

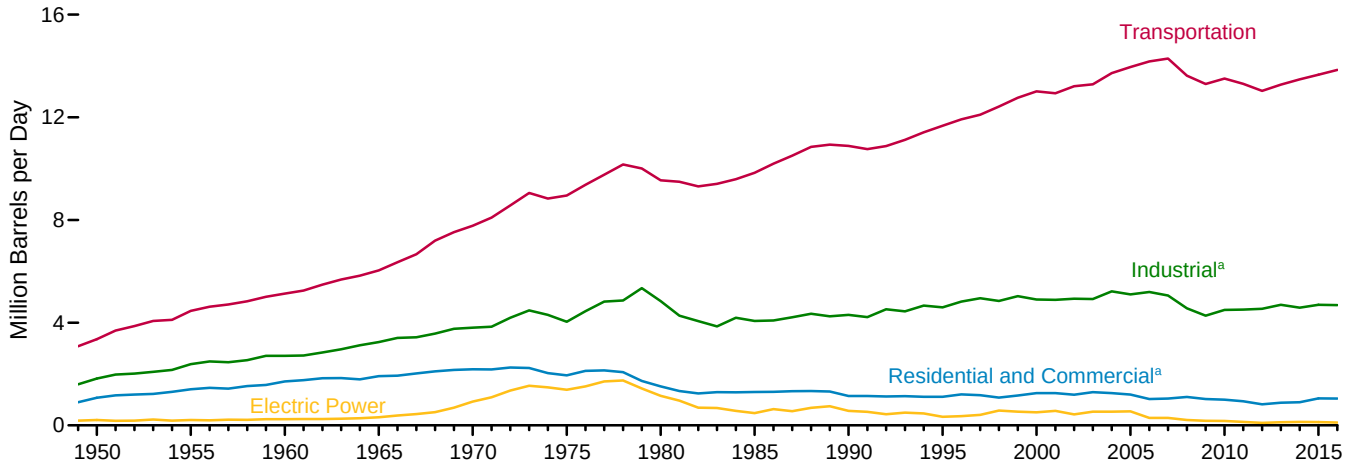
Notes: • Petroleum products supplied is an approximation of petroleum consumption and is synonymous with the term "petroleum consumption" in Tables 3.7a–3.8c. See Note 1, "Petroleum Products Supplied and Petroleum Consumption," at end of section. • Totals may not equal sum of components due to independent rounding. • Geographic coverage is the 50 states and the District of Columbia.

Web Page: See http://www.eia.gov/totalenergy/data/monthly/#petroleum (Excel and CSV files) for all available annual data beginning in 1949 and monthly data beginning in 1973.

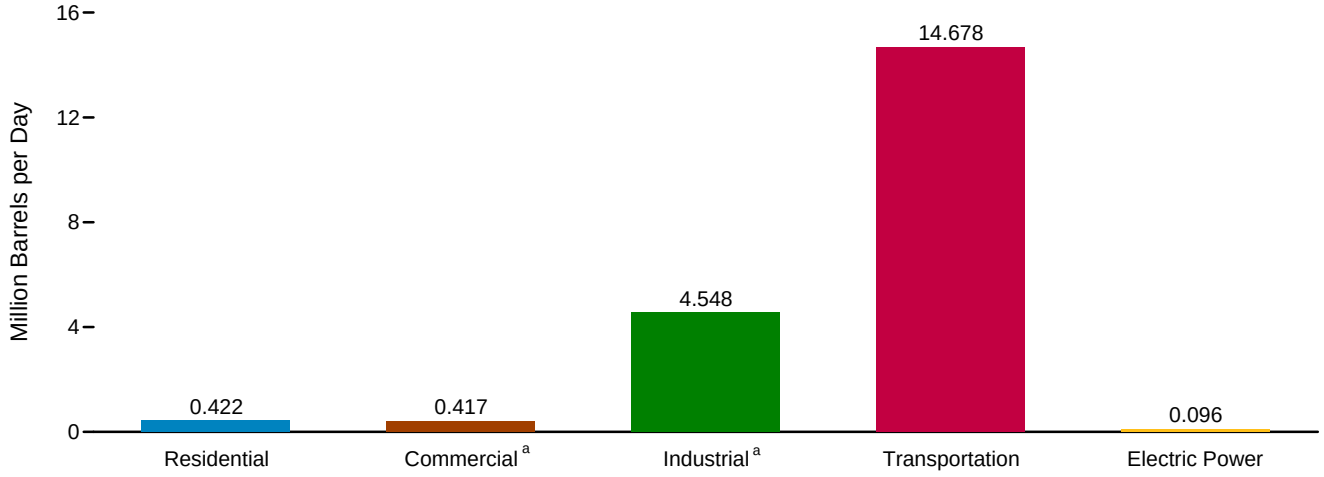
Sources: See end of section.

## Figure 3.7 Petroleum Consumption by Sector

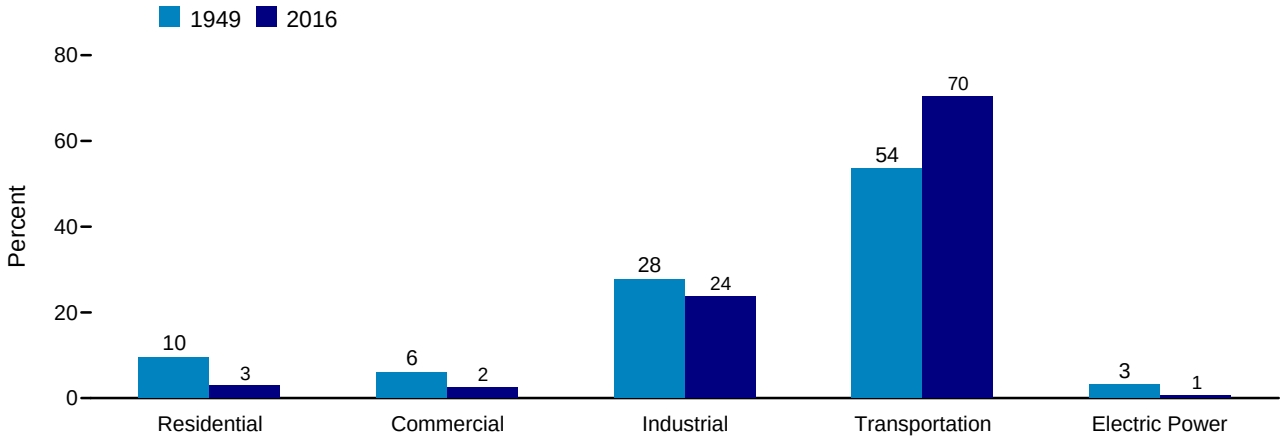
By Sector, 1949–2016




By Sector, August 2017




Sector Shares 1949 and 2016




[a] Includes combined-heat-and-power plants and a small number of electricity-only plants.

Web Page: http://www.eia.gov/totalenergy/data/monthly/#petroleum.
Sources: Tables 3.7a–3.7c.

## Table 3.7a Petroleum Consumption: Residential and Commercial Sectors

(Thousand Barrels per Day)

| | Residential Sector | | | | Commercial Sector[a] | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Distillate Fuel Oil | HGL[b] Propane[c] | Kero-sene | Total | Distillate Fuel Oil | HGL[b] Propane[c] | Kero-sene | Motor Gasoline[d,e] | Petroleum Coke | Residual Fuel Oil | Total |
| **1950 Average** | **390** | **104** | **168** | **662** | **123** | **28** | **23** | **52** | **NA** | **185** | **411** |
| **1955 Average** | **562** | **144** | **179** | **885** | **177** | **38** | **24** | **69** | **NA** | **209** | **519** |
| **1960 Average** | **736** | **217** | **171** | **1,123** | **232** | **58** | **23** | **35** | **NA** | **243** | **590** |
| **1965 Average** | **805** | **275** | **161** | **1,242** | **251** | **74** | **26** | **40** | **NA** | **281** | **672** |
| **1970 Average** | **883** | **392** | **144** | **1,419** | **276** | **102** | **30** | **45** | **NA** | **311** | **764** |
| **1975 Average** | **850** | **365** | **78** | **1,293** | **276** | **92** | **24** | **46** | **NA** | **214** | **653** |
| **1980 Average** | **617** | **222** | **51** | **890** | **243** | **63** | **20** | **56** | **NA** | **245** | **626** |
| **1985 Average** | **514** | **224** | **77** | **815** | **297** | **68** | **16** | **50** | **NA** | **99** | **530** |
| **1990 Average** | **460** | **252** | **31** | **742** | **252** | **73** | **6** | **58** | **0** | **100** | **489** |
| **1995 Average** | **426** | **282** | **36** | **743** | **225** | **78** | **11** | **10** | **(s)** | **62** | **385** |
| **2000 Average** | **424** | **395** | **46** | **865** | **230** | **107** | **14** | **23** | **(s)** | **40** | **415** |
| **2001 Average** | **427** | **375** | **46** | **849** | **239** | **102** | **15** | **20** | **(s)** | **30** | **406** |
| **2002 Average** | **404** | **384** | **29** | **817** | **209** | **101** | **8** | **24** | **(s)** | **35** | **376** |
| **2003 Average** | **438** | **389** | **34** | **861** | **233** | **112** | **9** | **32** | **(s)** | **48** | **434** |
| **2004 Average** | **433** | **364** | **41** | **839** | **221** | **108** | **10** | **23** | **(s)** | **53** | **416** |
| **2005 Average** | **402** | **366** | **40** | **809** | **210** | **94** | **10** | **24** | **(s)** | **50** | **389** |
| **2006 Average** | **335** | **318** | **32** | **685** | **189** | **88** | **7** | **26** | **(s)** | **33** | **343** |
| **2007 Average** | **342** | **345** | **21** | **708** | **181** | **87** | **4** | **32** | **(s)** | **33** | **337** |
| **2008 Average** | **354** | **394** | **10** | **758** | **181** | **113** | **2** | **24** | **(s)** | **31** | **351** |
| **2009 Average** | **276** | **391** | **13** | **680** | **187** | **99** | **2** | **28** | **(s)** | **31** | **348** |
| **2010 Average** | **266** | **379** | **14** | **659** | **185** | **100** | **2** | **28** | **(s)** | **27** | **343** |
| **2011 Average** | **248** | **348** | **9** | **605** | **186** | **101** | **2** | **24** | **(s)** | **23** | **335** |
| **2012 Average** | **228** | **286** | **4** | **518** | **168** | **98** | **1** | **21** | **(s)** | **14** | **301** |
| **2013 Average** | **233** | **337** | **4** | **574** | **163** | **110** | **(s)** | **22** | **(s)** | **11** | **306** |
| **2014 Average** | **253** | **329** | **7** | **589** | **169** | **108** | **1** | **29** | **(s)** | **3** | **311** |
| **2015** January | 424 | 350 | 2 | 776 | 277 | 116 | (s) | [e] 195 | (s) | 3 | 592 |
| February | 405 | 344 | 7 | 757 | 265 | 114 | 1 | 200 | (s) | 3 | 583 |
| March | 290 | 295 | 9 | 594 | 190 | 98 | 1 | 205 | (s) | 2 | 496 |
| April | 181 | 276 | 1 | 457 | 118 | 92 | (s) | 208 | (s) | 1 | 419 |
| May | 175 | 276 | 16 | 467 | 114 | 92 | 2 | 209 | (s) | 1 | 419 |
| June | 106 | 286 | (s) | 393 | 69 | 95 | (s) | 213 | 0 | 1 | 378 |
| July | 118 | 293 | 1 | 412 | 77 | 97 | (s) | 214 | 0 | 1 | 390 |
| August | 147 | 282 | 1 | 430 | 96 | 94 | (s) | 214 | (s) | 1 | 405 |
| September | 144 | 271 | (s) | 415 | 94 | 90 | (s) | 210 | (s) | 1 | 396 |
| October | 353 | 294 | 2 | 649 | 230 | 98 | (s) | 209 | (s) | 2 | 540 |
| November | 391 | 311 | 1 | 704 | 256 | 103 | (s) | 206 | (s) | 3 | 568 |
| December | 412 | 336 | 19 | 766 | 269 | 112 | 3 | 207 | (s) | 3 | 593 |
| **Average** | **262** | **301** | **5** | **568** | **171** | **100** | **1** | **208** | **(s)** | **2** | **481** |
| **2016** January | 378 | 355 | 1 | 735 | 247 | 118 | (s) | 196 | (s) | 4 | 565 |
| February | 395 | 343 | 2 | 739 | 258 | 114 | (s) | 209 | (s) | 4 | 585 |
| March | 261 | 312 | 8 | 581 | 170 | 104 | 1 | 212 | (s) | 3 | 490 |
| April | 237 | 288 | 3 | 527 | 155 | 96 | (s) | 208 | (s) | 2 | 461 |
| May | 208 | 289 | 6 | 503 | 136 | 96 | 1 | 213 | 0 | 2 | 448 |
| June | 147 | 267 | 8 | 422 | 96 | 89 | 1 | 217 | (s) | 1 | 405 |
| July | 151 | 287 | 8 | 447 | 99 | 95 | 1 | 217 | (s) | 2 | 414 |
| August | 118 | 278 | 1 | 396 | 77 | 92 | (s) | 219 | 0 | 1 | 389 |
| September | 185 | 290 | 11 | 485 | 121 | 96 | 1 | 214 | 0 | 2 | 435 |
| October | 253 | 298 | 15 | 566 | 165 | 99 | 2 | 206 | 0 | 3 | 474 |
| November | 282 | 300 | 2 | 583 | 184 | 100 | (s) | 209 | (s) | 3 | 496 |
| December | 442 | 326 | 16 | 785 | 289 | 108 | 2 | 210 | (s) | 5 | 614 |
| **Average** | **254** | **303** | **7** | **564** | **166** | **101** | **1** | **211** | **(s)** | **3** | **481** |
| **2017** January | 423 | 362 | 10 | 795 | 276 | 120 | 1 | 192 | (s) | 4 | 595 |
| February | 348 | 317 | 5 | 670 | 227 | 105 | 1 | 203 | (s) | 4 | 540 |
| March | 295 | 309 | 1 | 606 | 193 | 103 | (s) | 212 | (s) | 3 | 511 |
| April | 244 | 295 | 5 | 544 | 159 | 98 | 1 | 209 | (s) | 2 | 470 |
| May | 169 | 283 | 2 | 454 | 110 | 94 | (s) | 217 | (s) | 2 | 423 |
| June | 210 | 296 | 2 | 508 | 137 | 98 | (s) | 221 | (s) | 2 | 459 |
| July | [R] 129 | 300 | (s) | [R] 429 | [R] 84 | 100 | (s) | 216 | (s) | 1 | [R] 402 |
| August | 168 | 254 | 1 | 422 | 110 | 84 | (s) | 221 | (s) | 2 | 417 |
| **8-Month Average** | **247** | **302** | **3** | **552** | **161** | **100** | **(s)** | **211** | **(s)** | **3** | **476** |
| **2016 8-Month Average** | **236** | **302** | **5** | **543** | **154** | **100** | **1** | **211** | **(s)** | **2** | **469** |
| **2015 8-Month Average** | **229** | **300** | **4** | **534** | **150** | **100** | **1** | **207** | **(s)** | **2** | **459** |

[a] Commercial sector fuel use, including that at commercial combined-heat-and-power (CHP) and commercial electricity-only plants.

[b] Hydrocarbon gas liquids.

[c] Propane and propylene.

[d] Finished motor gasoline. Through 1963, also includes special naphthas. Beginning in 1993, also includes fuel ethanol blended into motor gasoline.

[e] There is a discontinuity in this time series between 2014 and 2015 due to a change in the method for allocating motor gasoline consumption to the end-use sectors. Beginning in 2015, the commercial and industrial sector shares of motor gasoline consumption are larger than in 2014, while the transportation sector share is smaller.

R=Revised. NA=Not available. (s)=Less than 500 barrels per day and greater than -500 barrels per day.

Notes: • Data are estimates. • For total petroleum consumption by all sectors, see petroleum products supplied data in Table 3.5. Petroleum products supplied is an approximation of petroleum consumption and is synonymous with the term "petroleum consumption" in Tables 3.7a–3.8c. See Note 1, "Petroleum Products Supplied and Petroleum Consumption," at end of section. • Totals may not equal sum of components due to independent rounding. • Geographic coverage is the 50 states and the District of Columbia.

Web Page: See http://www.eia.gov/totalenergy/data/monthly/#petroleum (Excel and CSV files) for all available annual data beginning in 1949 and monthly data beginning in 1973.

Sources: See end of section.

## Table 3.7b Petroleum Consumption: Industrial Sector

(Thousand Barrels per Day)

| | Industrial Sector[a] | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Asphalt and Road Oil | Distillate Fuel Oil | HGL[b] | | Kerosene | Lubricants | Motor Gasoline[e,f] | Petroleum Coke | Residual Fuel Oil | Other[g] | Total |
| | | | Propane[c] | Total[d] | | | | | | | |
| **1950 Average** | **180** | **328** | **NA** | **100** | **132** | **43** | **131** | **41** | **617** | **250** | **1,822** |
| **1955 Average** | **254** | **466** | **NA** | **212** | **116** | **47** | **173** | **67** | **686** | **366** | **2,387** |
| **1960 Average** | **302** | **476** | **NA** | **333** | **78** | **48** | **198** | **149** | **689** | **435** | **2,708** |
| **1965 Average** | **368** | **541** | **NA** | **470** | **80** | **62** | **179** | **202** | **689** | **657** | **3,247** |
| **1970 Average** | **447** | **577** | **256** | **699** | **89** | **70** | **150** | **203** | **708** | **866** | **3,808** |
| **1975 Average** | **419** | **630** | **302** | **863** | **58** | **68** | **116** | **246** | **658** | **982** | **4,038** |
| **1980 Average** | **396** | **621** | **516** | **1,293** | **87** | **82** | **82** | **234** | **586** | **1,460** | **4,842** |
| **1985 Average** | **425** | **526** | **569** | **1,408** | **21** | **75** | **114** | **261** | **326** | **909** | **4,065** |
| **1990 Average** | **483** | **541** | **576** | **1,364** | **6** | **84** | **97** | **325** | **179** | **1,225** | **4,304** |
| **1995 Average** | **486** | **532** | **723** | **1,727** | **7** | **80** | **105** | **328** | **147** | **1,180** | **4,594** |
| **2000 Average** | **525** | **563** | **724** | **1,923** | **8** | **86** | **79** | **361** | **105** | **1,255** | **4,903** |
| **2001 Average** | **519** | **611** | **654** | **1,713** | **11** | **79** | **155** | **390** | **89** | **1,325** | **4,892** |
| **2002 Average** | **512** | **566** | **754** | **1,801** | **7** | **78** | **163** | **383** | **83** | **1,342** | **4,934** |
| **2003 Average** | **503** | **551** | **701** | **1,691** | **12** | **72** | **171** | **375** | **96** | **1,448** | **4,918** |
| **2004 Average** | **537** | **570** | **790** | **1,778** | **14** | **73** | **195** | **423** | **108** | **1,525** | **5,222** |
| **2005 Average** | **546** | **594** | **749** | **1,666** | **19** | **72** | **187** | **404** | **123** | **1,489** | **5,100** |
| **2006 Average** | **521** | **594** | **789** | **1,710** | **14** | **71** | **198** | **425** | **104** | **1,557** | **5,193** |
| **2007 Average** | **494** | **595** | **787** | **1,744** | **6** | **73** | **161** | **412** | **84** | **1,487** | **5,056** |
| **2008 Average** | **417** | **637** | **619** | **1,510** | **2** | **67** | **131** | **394** | **84** | **1,317** | **4,559** |
| **2009 Average** | **360** | **509** | **650** | **1,617** | **2** | **61** | **128** | **363** | **57** | **1,175** | **4,272** |
| **2010 Average** | **362** | **547** | **660** | **1,766** | **4** | **68** | **140** | **310** | **52** | **1,251** | **4,500** |
| **2011 Average** | **355** | **586** | **680** | **1,769** | **2** | **64** | **138** | **295** | **59** | **1,240** | **4,507** |
| **2012 Average** | **340** | **602** | **765** | **1,888** | **1** | **59** | **136** | **319** | **30** | **1,165** | **4,540** |
| **2013 Average** | **323** | **601** | **796** | **2,022** | **1** | **62** | **142** | **295** | **21** | **1,227** | **4,694** |
| **2014 Average** | **327** | **648** | **696** | **1,972** | **1** | **65** | **114** | **290** | **18** | **1,151** | **4,586** |
| **2015** January | 200 | 714 | 1,080 | 2,422 | (s) | 79 | [f]132 | 342 | 17 | 1,079 | 4,984 |
| February | 215 | 826 | 1,080 | 2,401 | 1 | 63 | 135 | 146 | 8 | 1,173 | 4,967 |
| March | 222 | 658 | 807 | 2,127 | 1 | 78 | 138 | 334 | 16 | 1,075 | 4,650 |
| April | 303 | 650 | 573 | 1,973 | (s) | 76 | 140 | 330 | 11 | 1,126 | 4,609 |
| May | 343 | 466 | 496 | 1,928 | 3 | 82 | 141 | 330 | 14 | 1,281 | 4,588 |
| June | 472 | 543 | 644 | 2,021 | (s) | 68 | 144 | 357 | 12 | 1,231 | 4,848 |
| July | 480 | 515 | 612 | 2,050 | (s) | 80 | 144 | 335 | 18 | 1,265 | 4,887 |
| August | 510 | 486 | 640 | 2,052 | (s) | 62 | 144 | 350 | 17 | 1,156 | 4,777 |
| September | 469 | 662 | 584 | 1,897 | (s) | 65 | 142 | 222 | 15 | 1,106 | 4,577 |
| October | 400 | 444 | 664 | 2,121 | (s) | 75 | 141 | 281 | 14 | 951 | 4,426 |
| November | 287 | 328 | 725 | 2,141 | (s) | 54 | 139 | 264 | 17 | 1,159 | 4,387 |
| December | 212 | 396 | 905 | 2,347 | 3 | 67 | 139 | 239 | 18 | 1,231 | 4,653 |
| **Average** | **343** | **555** | **733** | **2,122** | **1** | **71** | **140** | **295** | **15** | **1,153** | **4,695** |
| **2016** January | 195 | 604 | 1,068 | 2,451 | (s) | 70 | 132 | 326 | 20 | 1,126 | 4,924 |
| February | 230 | 657 | 1,054 | 2,309 | (s) | 76 | 141 | 305 | 11 | 1,362 | 5,091 |
| March | 254 | 654 | 748 | 2,168 | 1 | 73 | 143 | 306 | 23 | 1,107 | 4,729 |
| April | 301 | 500 | 540 | 1,992 | (s) | 67 | 140 | 231 | 28 | 1,205 | 4,465 |
| May | 394 | 443 | 554 | 1,970 | 1 | 68 | 144 | 218 | 20 | 1,075 | 4,333 |
| June | 482 | 517 | 450 | 1,889 | 1 | 75 | 146 | 185 | 21 | 1,159 | 4,476 |
| July | 472 | 338 | 542 | 2,011 | 1 | 59 | 146 | 259 | 26 | 1,103 | 4,416 |
| August | 524 | 530 | 555 | 1,912 | (s) | 64 | 148 | 371 | 19 | 1,261 | 4,828 |
| September | 439 | 575 | 616 | 2,016 | 2 | 64 | 145 | 223 | 15 | 1,171 | 4,649 |
| October | 417 | 562 | 612 | 2,131 | 2 | 68 | 139 | 272 | 21 | 1,175 | 4,787 |
| November | 310 | 585 | 715 | 2,092 | (s) | 62 | 141 | 436 | 19 | 1,101 | 4,745 |
| December | 195 | 522 | 932 | 2,310 | 3 | 59 | 141 | 329 | 19 | 1,201 | 4,779 |
| **Average** | **351** | **540** | **698** | **2,104** | **1** | **67** | **142** | **289** | **20** | **1,170** | **4,684** |
| **2017** January | 192 | 521 | 1,171 | 2,532 | 2 | 54 | 130 | 355 | 29 | 1,127 | 4,942 |
| February | 241 | 601 | 869 | 2,232 | 1 | 64 | 137 | 215 | 16 | 1,148 | 4,654 |
| March | 265 | 741 | 701 | 2,193 | (s) | 68 | 143 | 132 | 23 | 1,292 | 4,856 |
| April | 318 | 487 | 631 | 2,089 | 1 | 54 | 141 | 297 | 20 | 1,309 | 4,716 |
| May | 365 | 623 | 460 | 2,012 | (s) | 56 | 146 | 288 | 23 | 1,201 | 4,714 |
| June | 477 | 525 | 419 | 2,016 | (s) | 56 | 149 | 215 | 26 | 1,266 | 4,729 |
| July | 441 | [R]428 | 493 | 2,084 | (s) | 51 | 146 | 408 | 17 | 1,215 | [R]4,789 |
| August | 542 | 549 | 490 | 1,783 | (s) | 47 | 149 | 262 | 21 | 1,196 | 4,548 |
| **8-Month Average** | **356** | **559** | **653** | **2,117** | **1** | **56** | **143** | **272** | **22** | **1,219** | **4,745** |
| **2016 8-Month Average** | **357** | **529** | **687** | **2,087** | **1** | **69** | **142** | **276** | **21** | **1,173** | **4,656** |
| **2015 8-Month Average** | **344** | **605** | **739** | **2,119** | **1** | **74** | **140** | **317** | **14** | **1,173** | **4,787** |

[a] Industrial sector fuel use, including that at industrial combined-heat-and-power (CHP) and industrial electricity-only plants.

[b] Hydrocarbon gas liquids.

[c] Propane and propylene. Through 1983, also includes 40% of "Butane-Propane Mixtures" and 30% of "Ethane-Propane Mixtures."

[d] Ethane, propane, normal butane, isobutane, natural gasoline (pentanes plus), and refinery olefins (ethylene, propylene, butylene, and isobutylene). Through 1983, also includes plant condensate and unfractionated stream.

[e] Finished motor gasoline. Through 1963, also includes special naphthas. Beginning in 1993, also includes fuel ethanol blended into motor gasoline.

[f] There is a discontinuity in this time series between 2014 and 2015 due to a change in the method for allocating motor gasoline consumption to the end-use sectors. Beginning in 2015, the commercial and industrial sector shares of motor gasoline consumption are larger than in 2014, while the transportation sector share is smaller.

[g] Petrochemical feedstocks, still gas (refinery gas), waxes, and miscellaneous products. Beginning in 1964, also includes special naphthas. Beginning in 1981, also includes negative barrels per day of distillate and residual fuel oil reclassified as unfinished oils, and other products (from both primary and secondary supply) reclassified as gasoline blending components. Beginning in 1983, also includes crude oil burned as fuel. Beginning in 2005, also includes naphtha-type jet fuel.

R=Revised. NA=Not available. (s)=Less than 500 barrels per day and greater than -500 barrels per day.

Notes: • Data are estimates. • For total petroleum consumption by all sectors, see petroleum products supplied data in Table 3.5. Petroleum products supplied is an approximation of petroleum consumption and is synonymous with the term "petroleum consumption" in Tables 3.7a–3.8c. See Note 1, "Petroleum Products Supplied and Petroleum Consumption," at end of section. • Totals may not equal sum of components due to independent rounding. • Geographic coverage is the 50 states and the District of Columbia.

Web Page: See http://www.eia.gov/totalenergy/data/monthly/#petroleum (Excel and CSV files) for all available annual data beginning in 1949 and monthly data beginning in 1973.

Sources: See end of section.

# Table 3.7c Petroleum Consumption: Transportation and Electric Power Sectors

(Thousand Barrels per Day)

| | Transportation Sector | | | | | | | | Electric Power Sector[a] | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Aviation Gasoline | Distillate Fuel Oil[c] | HGL[b] Propane[d] | Jet Fuel[e] | Lubricants | Motor Gasoline[f,g] | Residual Fuel Oil | Total | Distillate Fuel Oil[h] | Petroleum Coke | Residual Fuel Oil[i] | Total |
| **1950 Average** | **108** | **226** | **2** | **( [e] )** | **64** | **2,433** | **524** | **3,356** | **15** | **NA** | **192** | **207** |
| **1955 Average** | **192** | **372** | **9** | **154** | **70** | **3,221** | **440** | **4,458** | **15** | **NA** | **191** | **206** |
| **1960 Average** | **161** | **418** | **13** | **371** | **68** | **3,736** | **367** | **5,135** | **10** | **NA** | **231** | **241** |
| **1965 Average** | **120** | **514** | **23** | **602** | **67** | **4,374** | **336** | **6,036** | **14** | **NA** | **302** | **316** |
| **1970 Average** | **55** | **738** | **32** | **967** | **66** | **5,589** | **332** | **7,778** | **66** | **9** | **853** | **928** |
| **1975 Average** | **39** | **998** | **31** | **992** | **70** | **6,512** | **310** | **8,951** | **107** | **1** | **1,280** | **1,388** |
| **1980 Average** | **35** | **1,311** | **13** | **1,062** | **77** | **6,441** | **608** | **9,546** | **79** | **2** | **1,069** | **1,151** |
| **1985 Average** | **27** | **1,491** | **21** | **1,218** | **71** | **6,667** | **342** | **9,838** | **40** | **3** | **435** | **478** |
| **1990 Average** | **24** | **1,722** | **16** | **1,522** | **80** | **7,080** | **443** | **10,888** | **45** | **14** | **507** | **566** |
| **1995 Average** | **21** | **1,973** | **13** | **1,514** | **76** | **7,674** | **397** | **11,668** | **51** | **37** | **247** | **334** |
| **2000 Average** | **20** | **2,422** | **8** | **1,725** | **81** | **8,370** | **386** | **13,012** | **82** | **45** | **378** | **505** |
| **2001 Average** | **19** | **2,489** | **10** | **1,655** | **74** | **8,435** | **255** | **12,938** | **80** | **47** | **437** | **564** |
| **2002 Average** | **18** | **2,536** | **10** | **1,614** | **73** | **8,662** | **295** | **13,208** | **60** | **80** | **287** | **427** |
| **2003 Average** | **16** | **2,629** | **13** | **1,578** | **68** | **8,733** | **249** | **13,286** | **76** | **79** | **379** | **534** |
| **2004 Average** | **17** | **2,783** | **14** | **1,630** | **69** | **8,887** | **321** | **13,720** | **52** | **101** | **382** | **535** |
| **2005 Average** | **19** | **2,858** | **20** | **1,679** | **68** | **8,948** | **365** | **13,957** | **54** | **111** | **382** | **547** |
| **2006 Average** | **18** | **3,017** | **20** | **1,633** | **67** | **9,029** | **395** | **14,178** | **35** | **97** | **157** | **289** |
| **2007 Average** | **17** | **3,037** | **16** | **1,622** | **69** | **9,093** | **433** | **14,287** | **42** | **78** | **173** | **293** |
| **2008 Average** | **15** | **2,738** | **29** | **1,539** | **64** | **8,834** | **402** | **13,621** | **34** | **70** | **104** | **209** |
| **2009 Average** | **14** | **2,626** | **20** | **1,393** | **57** | **8,841** | **344** | **13,297** | **33** | **63** | **79** | **175** |
| **2010 Average** | **15** | **2,764** | **21** | **1,432** | **64** | **8,824** | **389** | **13,508** | **38** | **65** | **67** | **170** |
| **2011 Average** | **15** | **2,849** | **24** | **1,425** | **61** | **8,591** | **338** | **13,303** | **30** | **66** | **41** | **137** |
| **2012 Average** | **14** | **2,719** | **26** | **1,398** | **56** | **8,525** | **291** | **13,029** | **25** | **41** | **33** | **99** |
| **2013 Average** | **12** | **2,804** | **32** | **1,434** | **59** | **8,679** | **253** | **13,274** | **26** | **59** | **34** | **119** |
| **2014 Average** | **12** | **2,928** | **34** | **1,470** | **61** | **8,778** | **195** | **13,477** | **39** | **57** | **41** | **137** |
| **2015** January | 8 | 2,729 | 33 | 1,375 | 74 | [g] 8,312 | 218 | 12,750 | 41 | 61 | 57 | 159 |
| February | 8 | 2,931 | 32 | 1,445 | 60 | 8,494 | 35 | 13,006 | 132 | 71 | 149 | 352 |
| March | 9 | 2,913 | 28 | 1,548 | 74 | 8,714 | 217 | 13,503 | 27 | 43 | 28 | 97 |
| April | 14 | 3,058 | 26 | 1,527 | 72 | 8,842 | 133 | 13,672 | 21 | 47 | 27 | 95 |
| May | 13 | 2,996 | 26 | 1,519 | 77 | 8,912 | 194 | 13,738 | 26 | 53 | 25 | 105 |
| June | 12 | 3,153 | 27 | 1,654 | 64 | 9,061 | 158 | 14,130 | 26 | 50 | 29 | 105 |
| July | 18 | 3,168 | 28 | 1,650 | 76 | 9,112 | 269 | 14,320 | 23 | 65 | 38 | 126 |
| August | 11 | 3,165 | 27 | 1,601 | 59 | 9,102 | 247 | 14,212 | 22 | 61 | 33 | 116 |
| September | 11 | 3,142 | 26 | 1,534 | 62 | 8,937 | 221 | 13,932 | 21 | 61 | 30 | 112 |
| October | 14 | 2,967 | 28 | 1,614 | 70 | 8,895 | 193 | 13,781 | 20 | 47 | 27 | 94 |
| November | 9 | 2,740 | 29 | 1,524 | 51 | 8,767 | 250 | 13,370 | 26 | 42 | 30 | 99 |
| December | 9 | 2,731 | 32 | 1,578 | 63 | 8,801 | 270 | 13,484 | 24 | 43 | 26 | 93 |
| **Average** | **11** | **2,974** | **28** | **1,548** | **67** | **8,831** | **202** | **13,662** | **33** | **54** | **41** | **128** |
| **2016** January | 7 | 2,584 | 33 | 1,449 | 66 | 8,326 | 249 | 12,715 | 38 | 53 | 34 | 124 |
| February | 11 | 2,659 | 32 | 1,534 | 72 | 8,872 | 129 | 13,309 | 28 | 55 | 39 | 123 |
| March | 10 | 2,840 | 29 | 1,547 | 69 | 9,018 | 314 | 13,828 | 21 | 58 | 21 | 100 |
| April | 14 | 2,887 | 27 | 1,566 | 64 | 8,828 | 396 | 13,781 | 20 | 63 | 22 | 105 |
| May | 11 | 2,920 | 27 | 1,578 | 64 | 9,060 | 278 | 13,939 | 25 | 57 | 24 | 106 |
| June | 12 | 3,070 | 25 | 1,723 | 71 | 9,244 | 288 | 14,432 | 23 | 61 | 28 | 112 |
| July | 12 | 2,984 | 27 | 1,720 | 56 | 9,215 | 354 | 14,368 | 26 | 63 | 43 | 131 |
| August | 14 | 3,131 | 26 | 1,722 | 60 | 9,320 | 256 | 14,530 | 25 | 66 | 41 | 132 |
| September | 11 | 3,011 | 27 | 1,635 | 61 | 9,125 | 207 | 14,077 | 20 | 62 | 29 | 111 |
| October | 10 | 2,987 | 28 | 1,610 | 64 | 8,749 | 287 | 13,734 | 19 | 39 | 30 | 88 |
| November | 12 | 2,862 | 28 | 1,632 | 59 | 8,884 | 260 | 13,736 | 25 | 49 | 24 | 99 |
| December | 10 | 2,761 | 31 | 1,653 | 56 | 8,932 | 254 | 13,697 | 29 | 53 | 28 | 109 |
| **Average** | **11** | **2,892** | **29** | **1,614** | **63** | **8,964** | **273** | **13,847** | **25** | **57** | **30** | **112** |
| **2017** January | 9 | 2,529 | 34 | 1,593 | 51 | 8,179 | 399 | 12,796 | 32 | 57 | 28 | 117 |
| February | 9 | 2,701 | 30 | 1,525 | 60 | 8,646 | 224 | 13,194 | 27 | 47 | 26 | 100 |
| March | 10 | 2,898 | 29 | 1,669 | 64 | 8,998 | 313 | 13,982 | 26 | 43 | 24 | 93 |
| April | 10 | 2,877 | 28 | 1,617 | 51 | 8,898 | 273 | 13,754 | 24 | 25 | 24 | 73 |
| May | 11 | 3,040 | 27 | 1,671 | 52 | 9,227 | 316 | 14,345 | 26 | 51 | 27 | 104 |
| June | 17 | 3,075 | 28 | 1,762 | 53 | 9,397 | 360 | 14,691 | 22 | 56 | 30 | 108 |
| July | 13 | [R] 3,045 | 28 | 1,728 | 48 | 9,210 | 227 | [R] 14,299 | 22 | 52 | 27 | 101 |
| August | 14 | 3,144 | 24 | 1,769 | 44 | 9,400 | 283 | 14,678 | 21 | 45 | 30 | 96 |
| **8-Month Average** | **12** | **2,916** | **28** | **1,668** | **53** | **8,997** | **300** | **13,975** | **25** | **47** | **27** | **99** |
| **2016 8-Month Average** | **11** | **2,886** | **28** | **1,605** | **65** | **8,986** | **284** | **13,865** | **26** | **59** | **31** | **117** |
| **2015 8-Month Average** | **12** | **3,014** | **28** | **1,541** | **70** | **8,821** | **186** | **13,672** | **39** | **56** | **47** | **142** |

[a] 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.

[b] Hydrocarbon gas liquids.

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

[d] Propane and propylene.

[e] Beginning in 1957, includes kerosene-type jet fuel. For 1952–2004, also includes naphtha-type jet fuel. (Through 1951, naphtha-type jet fuel is included in the products from which it was blended—gasoline, kerosene, and distillate fuel oil. Beginning in 2005, naphtha-type jet fuel is included in "Other" on Table 3.7b.)

[f] Finished motor gasoline. Through 1963, also includes special naphthas. Beginning in 1993, also includes fuel ethanol blended into motor gasoline.

[g] There is a discontinuity in this time series between 2014 and 2015 due to a change in the method for allocating motor gasoline consumption to the end-use sectors. Beginning in 2015, the commercial and industrial sector shares of motor gasoline consumption are larger than in 2014, while the transportation sector share is smaller.

[h] Fuel oil nos. 1, 2, and 4. Through 1979, data are for gas turbine and internal combustion plant use of petroleum. Through 2000, electric utility data also include small amounts of kerosene and jet fuel.

[i] Fuel oil nos. 5 and 6. Through 1979, data are for steam plant use of petroleum. Through 2000, electric utility data also include a small amount of fuel oil no. 4.

R=Revised. NA=Not available.

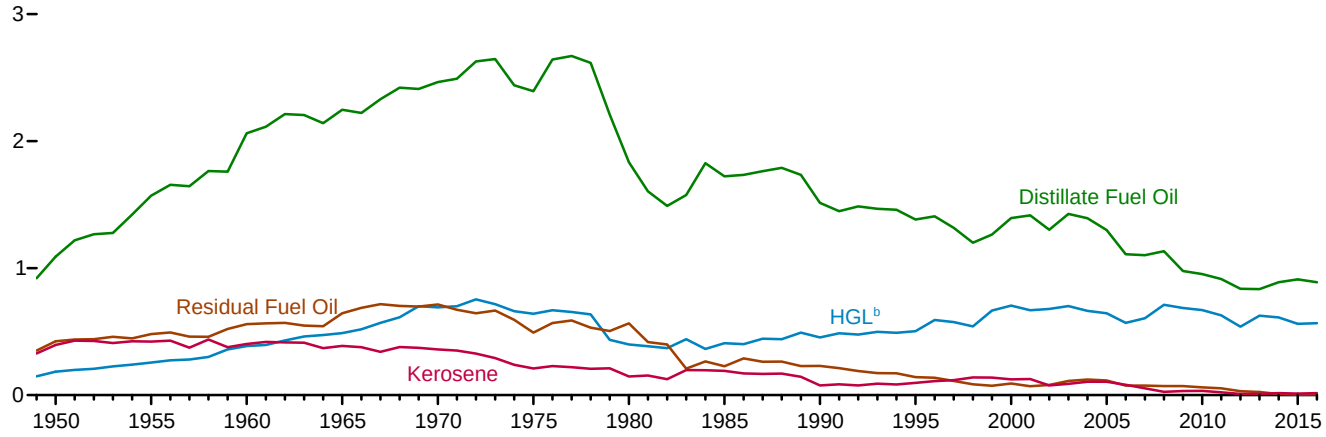
Notes: • Transportation sector data are estimates. • For total petroleum consumption by all sectors, see petroleum products supplied data in Table 3.5. Petroleum products supplied is an approximation of petroleum consumption and is synonymous with the term "petroleum consumption" in Tables 3.7a–3.8c. Other measurements of consumption by fuel type or sector may differ. For example, jet fuel product supplied may not equal jet fuel consumed by U.S-flagged aircraft. See Note 1, "Petroleum Products Supplied and Petroleum Consumption," at end of section. • Totals may not equal sum of components due to independent rounding. • Geographic coverage is the 50 states and the District of Columbia.

Web Page: See http://www.eia.gov/totalenergy/data/monthly/#petroleum (Excel and CSV files) for all available annual data beginning in 1949 and monthly data beginning in 1973.

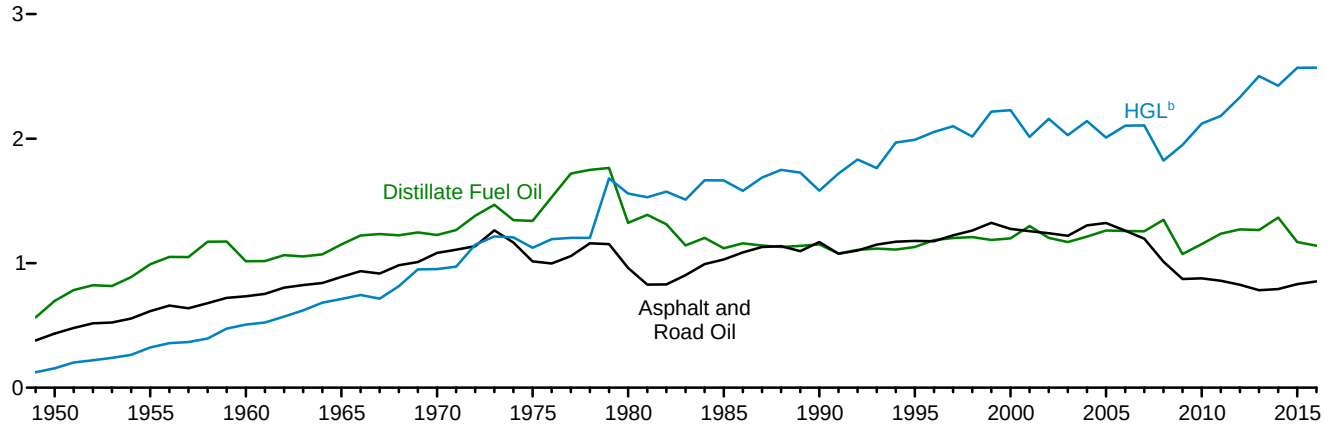
Sources: See end of section.

## Figure 3.8a Heat Content of Petroleum Consumption by End-Use Sector, 1949–2016
(Quadrillion Btu)

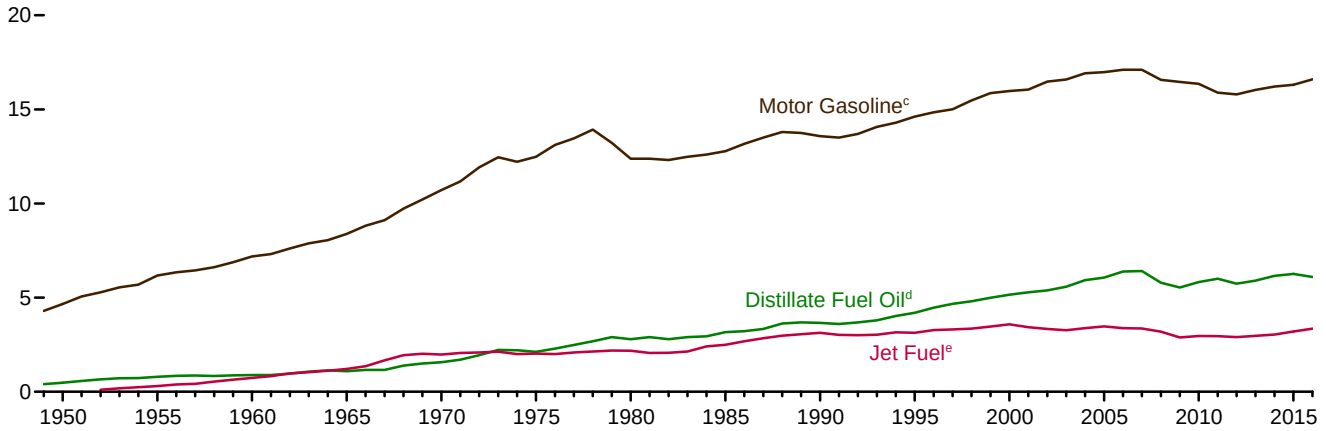
Residential and Commercial[a] Sectors, Selected Products




Industrial[a] Sector, Selected Products




Transportation Sector, Selected Products



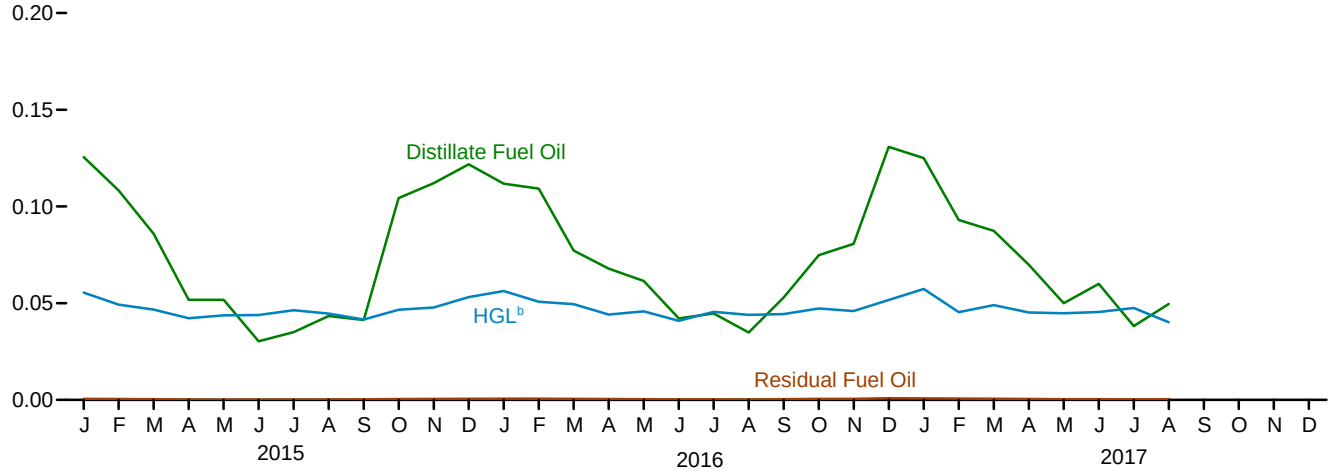

[a] Includes combined-heat-and-power plants and a small number of electricity-only plants.
[b] Hydrocarbon gas liquids.
[c] Beginning in 1993, includes fuel ethanol blended into motor gasoline.
[d] Beginning in 2009, includes renewable diesel fuel (including biodiesel) blended into distillate fuel oil.
[e] Beginning in 2005, includes kerosene-type jet fuel only.

Note: Petroleum products supplied is an approximation of petroleum consumption and is synonymous with the term "petroleum consumption" in Tables 3.7a–3.8c. Other measurements of consumption by fuel type or sector may differ. For example, jet fuel product supplied may not equal jet fuel consumed by U.S.-flagged aircraft.
Web Page: http://www.eia.gov/totalenergy/data/monthly/#petroleum.
Sources: Tables 3.8a–3.8c.

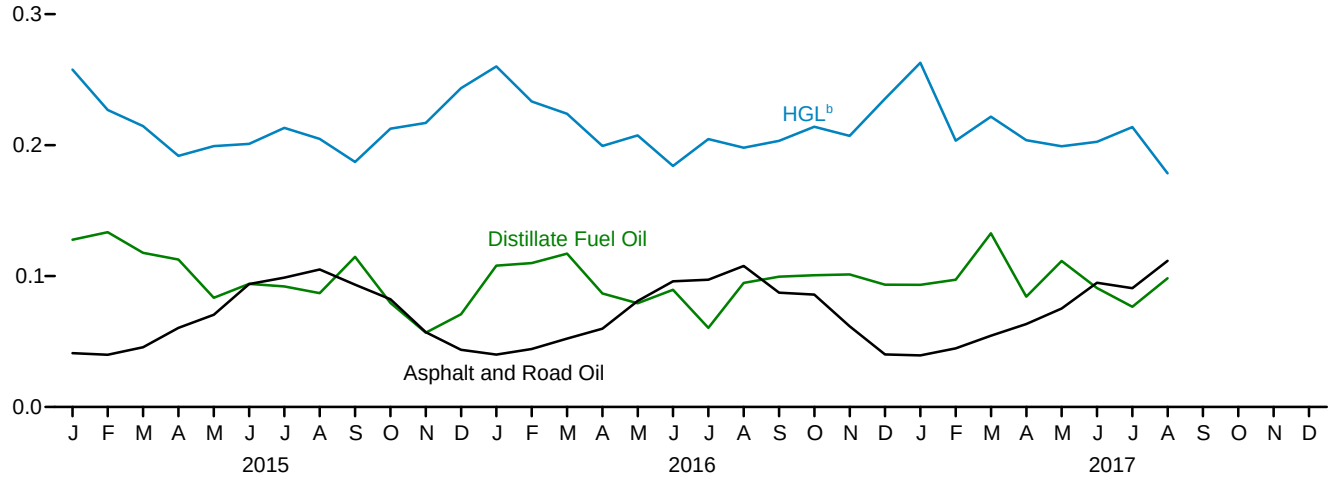
## Figure 3.8b Heat Content of Petroleum Consumption by End-Use Sector, Monthly

(Quadrillion Btu)

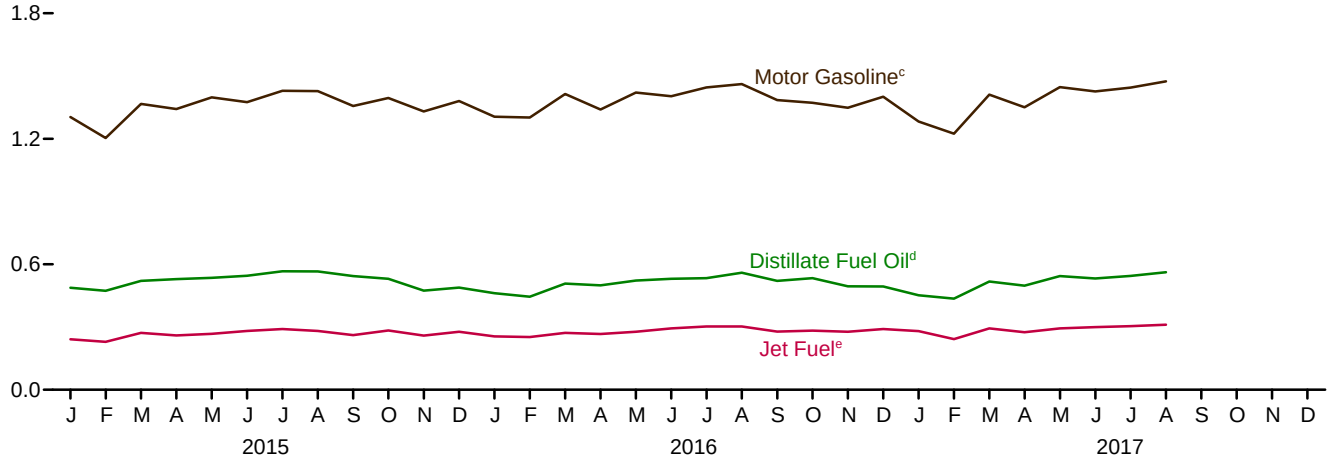
Residential and Commercial[a] Sectors, Selected Products




Industrial[a] Sector, Selected Products




Transportation Sector, Selected Products




[a] Includes combined-heat-and-power plants and a small number of electricity-only plants.
[b] Hydrocarbon gas liquids.
[c] Includes fuel ethanol blended into motor gasoline.
[d] Includes renewable diesel fuel (including biodiesel) blended into distillate fuel oil.
[e] Includes kerosene-type jet fuel only.

Note: Petroleum products supplied is an approximation of petroleum consumption and is synonymous with the term "petroleum consumption" in Tables 3.7a–3.8c. Other measurements of consumption by fuel type or sector may differ. For example, jet fuel product supplied may not equal jet fuel consumed by U.S.-flagged aircraft.
Web Page: http://www.eia.gov/totalenergy/data/monthly/#petroleum.
Sources: Tables 3.8a–3.8c.

## Table 3.8a Heat Content of Petroleum Consumption: Residential and Commercial Sectors

(Trillion Btu)

| | Residential Sector | | | | Commercial Sector[a] | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Distillate Fuel Oil | HGL[b] Propane[c] | Kero-sene | Total | Distillate Fuel Oil | HGL[b] Propane[c] | Kero-sene | Motor Gasoline[d,e] | Petroleum Coke | Residual Fuel Oil | Total |
| **1950 Total** | **829** | **146** | **347** | **1,322** | **262** | **39** | **47** | **100** | **NA** | **424** | **872** |
| **1955 Total** | **1,194** | **202** | **371** | **1,767** | **377** | **54** | **51** | **133** | **NA** | **480** | **1,095** |
| **1960 Total** | **1,568** | **305** | **354** | **2,227** | **494** | **81** | **48** | **67** | **NA** | **559** | **1,248** |
| **1965 Total** | **1,713** | **385** | **334** | **2,432** | **534** | **103** | **54** | **77** | **NA** | **645** | **1,413** |
| **1970 Total** | **1,878** | **549** | **298** | **2,725** | **587** | **143** | **61** | **86** | **NA** | **714** | **1,592** |
| **1975 Total** | **1,807** | **512** | **161** | **2,479** | **587** | **129** | **49** | **89** | **NA** | **492** | **1,346** |
| **1980 Total** | **1,316** | **311** | **107** | **1,734** | **518** | **88** | **41** | **107** | **NA** | **565** | **1,318** |
| **1985 Total** | **1,092** | **314** | **159** | **1,565** | **631** | **95** | **33** | **96** | **NA** | **228** | **1,083** |
| **1990 Total** | **978** | **352** | **64** | **1,394** | **536** | **102** | **12** | **111** | **0** | **230** | **991** |
| **1995 Total** | **904** | **395** | **74** | **1,373** | **478** | **109** | **22** | **18** | **(s)** | **141** | **769** |
| **2000 Total** | **904** | **555** | **95** | **1,553** | **490** | **150** | **30** | **45** | **(s)** | **92** | **807** |
| **2001 Total** | **907** | **526** | **95** | **1,528** | **508** | **143** | **31** | **37** | **(s)** | **70** | **789** |
| **2002 Total** | **859** | **537** | **60** | **1,456** | **444** | **141** | **16** | **45** | **(s)** | **80** | **726** |
| **2003 Total** | **931** | **544** | **70** | **1,546** | **496** | **157** | **19** | **60** | **(s)** | **111** | **842** |
| **2004 Total** | **923** | **512** | **85** | **1,519** | **470** | **152** | **20** | **45** | **(s)** | **122** | **810** |
| **2005 Total** | **853** | **513** | **84** | **1,450** | **447** | **131** | **22** | **46** | **(s)** | **116** | **762** |
| **2006 Total** | **709** | **446** | **66** | **1,221** | **400** | **123** | **15** | **48** | **(s)** | **75** | **662** |
| **2007 Total** | **721** | **484** | **44** | **1,249** | **381** | **121** | **9** | **60** | **(s)** | **75** | **648** |
| **2008 Total** | **750** | **553** | **21** | **1,324** | **384** | **158** | **4** | **45** | **(s)** | **71** | **663** |
| **2009 Total** | **582** | **547** | **28** | **1,157** | **395** | **139** | **4** | **52** | **(s)** | **71** | **662** |
| **2010 Total** | **562** | **530** | **29** | **1,121** | **391** | **140** | **5** | **52** | **(s)** | **62** | **650** |
| **2011 Total** | **523** | **487** | **19** | **1,028** | **391** | **141** | **3** | **44** | **(s)** | **54** | **633** |
| **2012 Total** | **482** | **401** | **8** | **891** | **355** | **137** | **1** | **39** | **(s)** | **31** | **564** |
| **2013 Total** | **491** | **472** | **8** | **971** | **344** | **154** | **1** | **40** | **(s)** | **24** | **563** |
| **2014 Total** | **533** | **461** | **14** | **1,008** | **357** | **151** | **2** | **54** | **1** | **8** | **572** |
| **2015** January | 76 | 42 | (s) | 118 | 50 | 14 | (s) | [e] 31 | (s) | 1 | 95 |
| February | 66 | 37 | 1 | 104 | 43 | 12 | (s) | 28 | (s) | (s) | 84 |
| March | 52 | 35 | 2 | 89 | 34 | 12 | (s) | 32 | (s) | (s) | 78 |
| April | 31 | 32 | (s) | 63 | 20 | 11 | (s) | 32 | (s) | (s) | 63 |
| May | 31 | 33 | 3 | 67 | 20 | 11 | (s) | 33 | (s) | (s) | 65 |
| June | 18 | 33 | (s) | 51 | 12 | 11 | (s) | 32 | 0 | (s) | 55 |
| July | 21 | 35 | (s) | 56 | 14 | 12 | (s) | 34 | 0 | (s) | 59 |
| August | 26 | 34 | (s) | 60 | 17 | 11 | (s) | 34 | (s) | (s) | 62 |
| September | 25 | 31 | (s) | 56 | 16 | 10 | (s) | 32 | (s) | (s) | 59 |
| October | 63 | 35 | (s) | 98 | 41 | 12 | (s) | 33 | (s) | (s) | 86 |
| November | 68 | 36 | (s) | 104 | 44 | 12 | (s) | 31 | (s) | (s) | 88 |
| December | 74 | 40 | 3 | 117 | 48 | 13 | (s) | 32 | (s) | 1 | 95 |
| **Total** | **551** | **421** | **10** | **983** | **360** | **140** | **1** | **383** | **1** | **4** | **889** |
| **2016** January | 68 | 42 | (s) | 110 | 44 | 14 | (s) | 31 | (s) | 1 | 90 |
| February | 66 | 38 | (s) | 104 | 43 | 13 | (s) | 31 | (s) | 1 | 87 |
| March | 47 | 37 | 1 | 85 | 31 | 12 | (s) | 33 | (s) | 1 | 77 |
| April | 41 | 33 | (s) | 75 | 27 | 11 | (s) | 31 | (s) | (s) | 70 |
| May | 37 | 34 | 1 | 73 | 24 | 11 | (s) | 33 | 0 | (s) | 70 |
| June | 25 | 31 | 1 | 58 | 17 | 10 | (s) | 33 | (s) | (s) | 60 |
| July | 27 | 34 | 1 | 63 | 18 | 11 | (s) | 34 | (s) | (s) | 64 |
| August | 21 | 33 | (s) | 54 | 14 | 11 | (s) | 34 | 0 | (s) | 59 |
| September | 32 | 33 | 2 | 67 | 21 | 11 | (s) | 33 | 0 | (s) | 65 |
| October | 45 | 35 | 3 | 83 | 30 | 12 | (s) | 32 | 0 | 1 | 74 |
| November | 49 | 34 | (s) | 84 | 32 | 11 | (s) | 32 | (s) | 1 | 76 |
| December | 79 | 39 | 3 | 121 | 52 | 13 | (s) | 33 | (s) | 1 | 99 |
| **Total** | **538** | **425** | **14** | **976** | **351** | **141** | **2** | **390** | **(s)** | **6** | **890** |
| **2017** January | 76 | 43 | 2 | 121 | 49 | 14 | (s) | 30 | (s) | 1 | 95 |
| February | 56 | 34 | 1 | 91 | 37 | 11 | (s) | 29 | (s) | 1 | 78 |
| March | 53 | 37 | (s) | 90 | 35 | 12 | (s) | 33 | (s) | 1 | 81 |
| April | 42 | 34 | 1 | 77 | 28 | 11 | (s) | 32 | (s) | (s) | 71 |
| May | 30 | 34 | (s) | 64 | 20 | 11 | (s) | 34 | (s) | (s) | 65 |
| June | 36 | 34 | (s) | 71 | 24 | 11 | (s) | 34 | (s) | (s) | 69 |
| July | [R] 23 | 36 | (s) | [R] 59 | [R] 15 | 12 | (s) | 34 | (s) | (s) | [R] 61 |
| August | 30 | 30 | (s) | 60 | 20 | 10 | (s) | 35 | (s) | (s) | 65 |
| **8-Month Total** | **347** | **281** | **5** | **633** | **226** | **93** | **1** | **260** | **(s)** | **4** | **585** |
| **2016 8-Month Total** | **332** | **283** | **6** | **621** | **217** | **94** | **1** | **261** | **(s)** | **4** | **576** |
| **2015 8-Month Total** | **322** | **280** | **6** | **607** | **210** | **93** | **1** | **255** | **(s)** | **2** | **561** |

[a] Commercial sector fuel use, including that at commercial combined-heat-and-power (CHP) and commercial electricity-only plants.

[b] Hydrocarbon gas liquids.

[c] Propane and propylene.

[d] Finished motor gasoline. Through 1963, also includes special naphthas. Beginning in 1993, also includes fuel ethanol blended into motor gasoline.

[e] There is a discontinuity in this time series between 2014 and 2015 due to a change in the method for allocating motor gasoline consumption to the end-use sectors. Beginning in 2015, the commercial and industrial sector shares of motor gasoline consumption are larger than in 2014, while the transportation sector share is smaller.

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

Notes: • Data are estimates. • For total heat content of petroleum consumption by all sectors, see data for heat content of petroleum products supplied in Table 3.6. Petroleum products supplied is an approximation of petroleum consumption and is synonymous with the term "petroleum consumption" in Tables 3.7a–3.8c. See Note 1, "Petroleum Products Supplied and Petroleum Consumption," at end of section. • Totals may not equal sum of components due to independent rounding. • Geographic coverage is the 50 states and the District of Columbia.

Web Page: See http://www.eia.gov/totalenergy/data/monthly/#petroleum (Excel and CSV files) for all available annual data beginning in 1949 and monthly data beginning in 1973.

Sources: See end of section.

## Table 3.8b Heat Content of Petroleum Consumption: Industrial Sector

(Trillion Btu)

| | Industrial Sector[a] | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Asphalt and Road Oil | Distillate Fuel Oil | HGL[b] | | Kerosene | Lubricants | Motor Gasoline[e,f] | Petroleum Coke | Residual Fuel Oil | Other[g] | Total |
| | | | Propane[c] | Total[d] | | | | | | | |
| **1950 Total** | **435** | **698** | **NA** | **156** | **274** | **94** | **251** | **90** | **1,416** | **546** | **3,960** |
| **1955 Total** | **615** | **991** | **NA** | **323** | **241** | **103** | **332** | **147** | **1,573** | **798** | **5,123** |
| **1960 Total** | **734** | **1,016** | **NA** | **507** | **161** | **107** | **381** | **328** | **1,584** | **947** | **5,766** |
| **1965 Total** | **890** | **1,150** | **NA** | **712** | **165** | **137** | **342** | **444** | **1,582** | **1,390** | **6,813** |
| **1970 Total** | **1,082** | **1,226** | **359** | **953** | **185** | **155** | **288** | **446** | **1,624** | **1,817** | **7,776** |
| **1975 Total** | **1,014** | **1,339** | **422** | **1,161** | **119** | **149** | **223** | **540** | **1,509** | **2,071** | **8,127** |
| **1980 Total** | **962** | **1,324** | **725** | **1,763** | **181** | **182** | **158** | **516** | **1,349** | **3,073** | **9,509** |
| **1985 Total** | **1,029** | **1,119** | **797** | **1,871** | **44** | **166** | **218** | **575** | **748** | **1,945** | **7,714** |
| **1990 Total** | **1,170** | **1,150** | **807** | **1,832** | **12** | **186** | **185** | **714** | **411** | **2,589** | **8,251** |
| **1995 Total** | **1,178** | **1,130** | **1,013** | **2,328** | **15** | **178** | **200** | **721** | **337** | **2,499** | **8,587** |
| **2000 Total** | **1,276** | **1,199** | **1,016** | **2,571** | **16** | **190** | **150** | **796** | **241** | **2,636** | **9,075** |
| **2001 Total** | **1,257** | **1,299** | **916** | **2,278** | **23** | **174** | **295** | **858** | **203** | **2,793** | **9,179** |
| **2002 Total** | **1,240** | **1,203** | **1,055** | **2,383** | **14** | **172** | **309** | **842** | **190** | **2,816** | **9,170** |
| **2003 Total** | **1,220** | **1,169** | **981** | **2,249** | **24** | **159** | **324** | **825** | **220** | **3,043** | **9,233** |
| **2004 Total** | **1,304** | **1,213** | **1,109** | **2,364** | **28** | **161** | **371** | **937** | **249** | **3,205** | **9,832** |
| **2005 Total** | **1,323** | **1,262** | **1,049** | **2,205** | **39** | **160** | **355** | **894** | **281** | **3,122** | **9,641** |
| **2006 Total** | **1,261** | **1,258** | **1,105** | **2,244** | **30** | **156** | **374** | **938** | **239** | **3,276** | **9,777** |
| **2007 Total** | **1,197** | **1,256** | **1,102** | **2,285** | **13** | **161** | **302** | **910** | **193** | **3,134** | **9,452** |
| **2008 Total** | **1,012** | **1,348** | **870** | **1,976** | **4** | **150** | **246** | **870** | **194** | **2,788** | **8,588** |
| **2009 Total** | **873** | **1,073** | **910** | **2,077** | **4** | **135** | **238** | **805** | **130** | **2,483** | **7,819** |
| **2010 Total** | **878** | **1,153** | **924** | **2,276** | **7** | **149** | **260** | **694** | **120** | **2,645** | **8,183** |
| **2011 Total** | **859** | **1,236** | **952** | **2,237** | **4** | **142** | **255** | **663** | **135** | **2,621** | **8,151** |
| **2012 Total** | **827** | **1,271** | **1,074** | **2,416** | **2** | **130** | **252** | **717** | **70** | **2,474** | **8,160** |
| **2013 Total** | **783** | **1,266** | **1,115** | **2,597** | **1** | **138** | **263** | **663** | **48** | **2,583** | **8,343** |
| **2014 Total** | **793** | **1,366** | **975** | **2,513** | **3** | **144** | **210** | **653** | **41** | **2,430** | **8,152** |
| **2015** January | 41 | 128 | 128 | 267 | (s) | 15 | [f] 21 | 65 | 3 | 192 | 732 |
| February | 40 | 134 | 116 | 237 | (s) | 11 | 19 | 26 | 1 | 190 | 657 |
| March | 46 | 118 | 96 | 235 | (s) | 15 | 22 | 63 | 3 | 193 | 694 |
| April | 60 | 113 | 66 | 208 | (s) | 14 | 21 | 61 | 2 | 196 | 675 |
| May | 70 | 83 | 59 | 209 | (s) | 15 | 22 | 63 | 3 | 231 | 697 |
| June | 94 | 94 | 74 | 214 | (s) | 12 | 22 | 66 | 2 | 215 | 718 |
| July | 99 | 92 | 73 | 224 | (s) | 15 | 23 | 64 | 4 | 228 | 748 |
| August | 105 | 87 | 76 | 227 | (s) | 12 | 23 | 67 | 3 | 207 | 730 |
| September | 93 | 115 | 67 | 197 | (s) | 12 | 21 | 41 | 3 | 192 | 674 |
| October | 82 | 80 | 79 | 232 | (s) | 14 | 22 | 54 | 3 | 170 | 657 |
| November | 57 | 57 | 83 | 223 | (s) | 10 | 21 | 49 | 3 | 201 | 620 |
| December | 44 | 71 | 108 | 256 | 1 | 13 | 22 | 46 | 4 | 221 | 675 |
| **Total** | **832** | **1,170** | **1,026** | **2,730** | **2** | **157** | **258** | **663** | **34** | **2,435** | **8,280** |
| **2016** January | 40 | 108 | 127 | 269 | (s) | 13 | 21 | 62 | 4 | 208 | 725 |
| February | 44 | 110 | 117 | 234 | (s) | 13 | 21 | 55 | 2 | 235 | 713 |
| March | 52 | 117 | 89 | 233 | (s) | 14 | 22 | 59 | 4 | 205 | 707 |
| April | 60 | 87 | 62 | 207 | (s) | 12 | 21 | 43 | 5 | 215 | 651 |
| May | 81 | 79 | 66 | 211 | (s) | 13 | 23 | 42 | 4 | 199 | 651 |
| June | 96 | 90 | 52 | 197 | (s) | 14 | 22 | 35 | 4 | 208 | 665 |
| July | 97 | 60 | 64 | 215 | (s) | 11 | 23 | 50 | 5 | 205 | 667 |
| August | 108 | 95 | 66 | 204 | (s) | 12 | 23 | 71 | 4 | 233 | 750 |
| September | 87 | 100 | 71 | 212 | (s) | 12 | 22 | 42 | 3 | 210 | 687 |
| October | 86 | 101 | 73 | 232 | (s) | 13 | 22 | 52 | 4 | 217 | 726 |
| November | 62 | 101 | 82 | 217 | (s) | 11 | 21 | 80 | 4 | 197 | 694 |
| December | 40 | 93 | 111 | 252 | (s) | 11 | 22 | 63 | 4 | 222 | 707 |
| **Total** | **853** | **1,141** | **980** | **2,683** | **2** | **149** | **263** | **653** | **46** | **2,553** | **8,343** |
| **2017** January | 39 | 93 | 139 | 276 | (s) | 10 | 20 | 68 | 6 | 208 | 722 |
| February | 45 | 97 | 93 | 216 | (s) | 11 | 19 | 37 | 3 | 190 | 619 |
| March | 54 | 133 | 83 | 237 | (s) | 13 | 22 | 25 | 4 | 237 | 727 |
| April | 63 | 84 | 73 | 218 | (s) | 10 | 21 | 55 | 4 | 234 | 689 |
| May | 75 | 112 | 55 | 215 | (s) | 10 | 23 | 55 | 4 | 222 | 716 |
| June | 95 | 91 | 48 | 205 | (s) | 10 | 23 | 40 | 5 | 226 | 694 |
| July | 91 | [R] 77 | 59 | 223 | (s) | 10 | 23 | 78 | 3 | 225 | [R] 729 |
| August | 112 | 98 | 58 | 189 | (s) | 9 | 23 | 50 | 4 | 221 | 706 |
| **8-Month Total** | **574** | **785** | **608** | **1,780** | **1** | **82** | **175** | **408** | **33** | **1,763** | **5,602** |
| **2016 8-Month Total** | **578** | **746** | **643** | **1,770** | **1** | **102** | **176** | **416** | **32** | **1,708** | **5,529** |
| **2015 8-Month Total** | **555** | **848** | **688** | **1,821** | **1** | **109** | **172** | **474** | **22** | **1,651** | **5,653** |

[a] Industrial sector fuel use, including that at industrial combined-heat-and-power (CHP) and industrial electricity-only plants.

[b] Hydrocarbon gas liquids.

[c] Propane and propylene. Through 1983, also includes 40% of "Butane-Propane Mixtures" and 30% of "Ethane-Propane Mixtures."

[d] Ethane, propane, normal butane, isobutane, natural gasoline (pentanes plus), and refinery olefins (ethylene, propylene, butylene, and isobutylene). Through 1983, also includes plant condensate and unfractionated stream.

[e] Finished motor gasoline. Through 1963, also includes special naphthas. Beginning in 1993, also includes fuel ethanol blended into motor gasoline.

[f] There is a discontinuity in this time series between 2014 and 2015 due to a change in the method for allocating motor gasoline consumption to the end-use sectors. Beginning in 2015, the commercial and industrial sector shares of motor gasoline consumption are larger than in 2014, while the transportation sector share is smaller.

[g] Petrochemical feedstocks, still gas (refinery gas), waxes, and miscellaneous products. Beginning in 1964, also includes special naphthas. Beginning in 1981, also includes negative barrels per day of distillate and residual fuel oil reclassified as unfinished oils, and other products (from both primary and secondary supply) reclassified as gasoline blending components. Beginning in 1983, also includes crude oil burned as fuel. Beginning in 2005, also includes naphtha-type jet fuel.

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

Notes: • Data are estimates. • For total heat content of petroleum consumption by all sectors, see data for heat content of petroleum products supplied in Table 3.6. Petroleum products supplied is an approximation of petroleum consumption and is synonymous with the term "petroleum consumption" in Tables 3.7a–3.8c. See Note 1, "Petroleum Products Supplied and Petroleum Consumption," at end of section. • Totals may not equal sum of components due to independent rounding. • Geographic coverage is the 50 states and the District of Columbia.

Web Page: See http://www.eia.gov/totalenergy/data/monthly/#petroleum (Excel and CSV files) for all available annual data beginning in 1949 and monthly data beginning in 1973.

Sources: See end of section.

## Table 3.8c Heat Content of Petroleum Consumption: Transportation and Electric Power Sectors (Trillion Btu)

| | Transportation Sector | | | | | | | | Electric Power Sector[a] | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Aviation Gasoline | Distillate Fuel Oil[c] | HGL[b] Propane[d] | Jet Fuel[e] | Lubricants | Motor Gasoline[f,g] | Residual Fuel Oil | Total | Distillate Fuel Oil[h] | Petroleum Coke | Residual Fuel Oil[i] | Total |
| **1950 Total** | **199** | **480** | **3** | **( [e] )** | **141** | **4,664** | **1,201** | **6,690** | **32** | **NA** | **440** | **472** |
| **1955 Total** | **354** | **791** | **13** | **301** | **155** | **6,175** | **1,009** | **8,799** | **32** | **NA** | **439** | **471** |
| **1960 Total** | **298** | **892** | **19** | **739** | **152** | **7,183** | **844** | **10,125** | **22** | **NA** | **530** | **553** |
| **1965 Total** | **222** | **1,093** | **32** | **1,215** | **149** | **8,386** | **770** | **11,866** | **29** | **NA** | **693** | **722** |
| **1970 Total** | **100** | **1,569** | **44** | **1,973** | **147** | **10,716** | **761** | **15,310** | **141** | **19** | **1,958** | **2,117** |
| **1975 Total** | **71** | **2,121** | **43** | **2,029** | **155** | **12,485** | **711** | **17,615** | **226** | **2** | **2,937** | **3,166** |
| **1980 Total** | **64** | **2,795** | **18** | **2,179** | **172** | **12,383** | **1,398** | **19,009** | **169** | **5** | **2,459** | **2,634** |
| **1985 Total** | **50** | **3,170** | **30** | **2,497** | **156** | **12,784** | **786** | **19,472** | **85** | **7** | **998** | **1,090** |
| **1990 Total** | **45** | **3,661** | **23** | **3,129** | **176** | **13,575** | **1,016** | **21,626** | **97** | **30** | **1,163** | **1,289** |
| **1995 Total** | **40** | **4,191** | **18** | **3,132** | **168** | **14,616** | **911** | **23,075** | **108** | **81** | **566** | **755** |
| **2000 Total** | **36** | **5,159** | **12** | **3,580** | **179** | **15,973** | **888** | **25,827** | **175** | **99** | **871** | **1,144** |
| **2001 Total** | **35** | **5,286** | **14** | **3,426** | **164** | **16,053** | **586** | **25,564** | **170** | **103** | **1,003** | **1,276** |
| **2002 Total** | **34** | **5,387** | **14** | **3,340** | **162** | **16,474** | **677** | **26,089** | **127** | **175** | **659** | **961** |
| **2003 Total** | **30** | **5,584** | **18** | **3,265** | **150** | **16,585** | **571** | **26,203** | **161** | **175** | **869** | **1,205** |
| **2004 Total** | **31** | **5,925** | **19** | **3,383** | **152** | **16,917** | **740** | **27,166** | **111** | **211** | **879** | **1,201** |
| **2005 Total** | **35** | **6,068** | **28** | **3,475** | **151** | **16,977** | **837** | **27,573** | **114** | **231** | **876** | **1,222** |
| **2006 Total** | **33** | **6,390** | **27** | **3,379** | **147** | **17,108** | **906** | **27,991** | **73** | **203** | **361** | **637** |
| **2007 Total** | **32** | **6,411** | **22** | **3,358** | **152** | **17,109** | **994** | **28,077** | **89** | **163** | **397** | **648** |
| **2008 Total** | **28** | **5,792** | **40** | **3,193** | **141** | **16,574** | **926** | **26,695** | **73** | **146** | **240** | **459** |
| **2009 Total** | **27** | **5,541** | **28** | **2,883** | **127** | **16,460** | **791** | **25,857** | **70** | **132** | **181** | **382** |
| **2010 Total** | **27** | **5,828** | **29** | **2,963** | **141** | **16,356** | **892** | **26,236** | **80** | **137** | **154** | **370** |
| **2011 Total** | **27** | **6,003** | **34** | **2,950** | **134** | **15,892** | **776** | **25,817** | **64** | **138** | **93** | **295** |
| **2012 Total** | **25** | **5,741** | **37** | **2,901** | **123** | **15,798** | **671** | **25,296** | **52** | **85** | **77** | **214** |
| **2013 Total** | **22** | **5,902** | **44** | **2,969** | **130** | **16,036** | **581** | **25,685** | **55** | **123** | **77** | **255** |
| **2014 Total** | **22** | **6,162** | **47** | **3,042** | **136** | **16,212** | **447** | **26,067** | **82** | **118** | **95** | **295** |
| **2015** January | 1 | 488 | 4 | 242 | 14 | [g] 1,304 | 42 | 2,095 | 7 | 11 | 11 | 29 |
| February | 1 | 473 | 3 | 229 | 10 | 1,203 | 6 | 1,927 | 21 | 11 | 26 | 59 |
| March | 1 | 521 | 3 | 272 | 14 | 1,367 | 42 | 2,221 | 5 | 8 | 5 | 18 |
| April | 2 | 529 | 3 | 260 | 13 | 1,342 | 25 | 2,174 | 4 | 8 | 5 | 17 |
| May | 2 | 535 | 3 | 267 | 15 | 1,398 | 38 | 2,258 | 5 | 9 | 5 | 19 |
| June | 2 | 545 | 3 | 281 | 12 | 1,375 | 30 | 2,249 | 4 | 9 | 6 | 19 |
| July | 3 | 566 | 3 | 290 | 14 | 1,429 | 52 | 2,358 | 4 | 11 | 7 | 23 |
| August | 2 | 566 | 3 | 281 | 11 | 1,428 | 48 | 2,339 | 4 | 11 | 6 | 21 |
| September | 2 | 543 | 3 | 261 | 11 | 1,357 | 42 | 2,218 | 4 | 10 | 6 | 20 |
| October | 2 | 530 | 3 | 284 | 13 | 1,395 | 38 | 2,265 | 4 | 8 | 5 | 17 |
| November | 1 | 474 | 3 | 259 | 9 | 1,331 | 47 | 2,125 | 5 | 7 | 6 | 18 |
| December | 1 | 488 | 4 | 277 | 12 | 1,381 | 53 | 2,216 | 4 | 8 | 5 | 17 |
| **Total** | **21** | **6,259** | **40** | **3,204** | **148** | **16,310** | **463** | **26,445** | **70** | **112** | **94** | **276** |
| **2016** January | 1 | 462 | 4 | 255 | 12 | 1,306 | 49 | 2,088 | 7 | 9 | 7 | 23 |
| February | 2 | 445 | 4 | 252 | 13 | 1,302 | 24 | 2,040 | 5 | 9 | 7 | 21 |
| March | 2 | 508 | 4 | 272 | 13 | 1,414 | 61 | 2,273 | 4 | 10 | 4 | 18 |
| April | 2 | 499 | 3 | 266 | 12 | 1,340 | 75 | 2,197 | 3 | 11 | 4 | 18 |
| May | 2 | 522 | 3 | 277 | 12 | 1,421 | 54 | 2,291 | 5 | 10 | 5 | 19 |
| June | 2 | 531 | 3 | 293 | 13 | 1,403 | 54 | 2,299 | 4 | 11 | 5 | 20 |
| July | 2 | 533 | 3 | 302 | 10 | 1,445 | 69 | 2,365 | 5 | 11 | 8 | 24 |
| August | 2 | 559 | 3 | 303 | 11 | 1,462 | 50 | 2,390 | 4 | 12 | 8 | 24 |
| September | 2 | 521 | 3 | 278 | 11 | 1,385 | 39 | 2,239 | 4 | 11 | 5 | 20 |
| October | 2 | 534 | 3 | 283 | 12 | 1,372 | 56 | 2,262 | 3 | 7 | 6 | 16 |
| November | 2 | 495 | 3 | 278 | 11 | 1,348 | 49 | 2,186 | 4 | 8 | 5 | 17 |
| December | 2 | 493 | 4 | 291 | 11 | 1,401 | 50 | 2,250 | 5 | 9 | 6 | 20 |
| **Total** | **20** | **6,102** | **40** | **3,350** | **141** | **16,598** | **629** | **26,880** | **53** | **118** | **69** | **240** |
| **2017** January | 1 | 452 | 4 | 280 | 10 | 1,283 | 78 | 2,108 | 6 | 10 | 5 | 21 |
| February | 1 | 436 | 3 | 242 | 10 | 1,225 | 39 | 1,957 | 4 | 8 | 5 | 16 |
| March | 2 | 518 | 3 | 293 | 12 | 1,411 | 61 | 2,301 | 5 | 8 | 5 | 17 |
| April | 2 | 498 | 3 | 275 | 9 | 1,350 | 51 | 2,189 | 4 | 4 | 5 | 13 |
| May | 2 | 543 | 3 | 294 | 10 | 1,447 | 62 | 2,360 | 5 | 9 | 5 | 19 |
| June | 3 | 532 | 3 | 300 | 10 | 1,426 | 68 | 2,341 | 4 | 10 | 6 | 19 |
| July | 2 | [R] 544 | 3 | 304 | 9 | 1,444 | 44 | [R] 2,351 | 4 | 9 | 5 | 18 |
| August | 2 | 562 | 3 | 311 | 8 | 1,474 | 55 | 2,415 | 4 | 8 | 6 | 18 |
| **8-Month Total** | **14** | **4,085** | **27** | **2,299** | **78** | **11,061** | **459** | **18,021** | **35** | **65** | **41** | **142** |
| **2016 8-Month Total** | **14** | **4,059** | **27** | **2,221** | **96** | **11,092** | **435** | **17,944** | **36** | **83** | **48** | **167** |
| **2015 8-Month Total** | **14** | **4,223** | **26** | **2,123** | **103** | **10,847** | **284** | **17,621** | **54** | **78** | **72** | **204** |

[a] 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.

[b] Hydrocarbon gas liquids.

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

[d] Propane and propylene.

[e] Beginning in 1957, includes kerosene-type jet fuel. For 1952–2004, also includes naphtha-type jet fuel. (Through 1951, naphtha-type jet fuel is included in the products from which it was blended—gasoline, kerosene, and distillate fuel oil. Beginning in 2005, naphtha-type jet fuel is included in "Other" on Table 3.8b.)

[f] Finished motor gasoline. Through 1963, also includes special naphthas. Beginning in 1993, also includes fuel ethanol blended into motor gasoline.

[g] There is a discontinuity in this time series between 2014 and 2015 due to a change in the method for allocating motor gasoline consumption to the end-use sectors. Beginning in 2015, the commercial and industrial sector shares of motor gasoline consumption are larger than in 2014, while the transportation sector share is smaller.

[h] Fuel oil nos. 1, 2, and 4. Through 1979, data are for gas turbine and internal combustion plant use of petroleum. Through 2000, electric utility data also include small amounts of kerosene and jet fuel.

[i] Fuel oil nos. 5 and 6. Through 1979, data are for steam plant use of petroleum. Through 2000, electric utility data also include a small amount of fuel oil no. 4.

R=Revised. NA=Not available.

Notes: • Transportation sector data are estimates. • For total heat content of petroleum consumption by all sectors, see data for heat content of petroleum products supplied in Table 3.6. Petroleum products supplied is an approximation of petroleum consumption and is synonymous with the term "petroleum consumption" in Tables 3.7a–3.8c. Other measurements of consumption by fuel type or sector may differ. For example, jet fuel product supplied may not equal jet fuel consumed by U.S.-flagged aircraft. See Note 1, "Petroleum Products Supplied and Petroleum Consumption," at end of section. • Totals may not equal sum of components due to independent rounding. • Geographic coverage is the 50 states and the District of Columbia.

Web Page: See http://www.eia.gov/totalenergy/data/monthly/#petroleum (Excel and CSV files) for all available annual data beginning in 1949 and monthly data beginning in 1973.

Sources: See end of section.

# Petroleum

**Note 1. Petroleum Products Supplied and Petroleum Consumption.** Total petroleum products supplied is the sum of the products supplied for each petroleum product, crude oil, unfinished oils, and gasoline blending components. This also includes petroleum products supplied for non-combustion use in the industrial and transportation sectors (see Tables 1.11a and 1.11b). In general, except for crude oil, product supplied of each product is computed as follows: field production, plus renewable fuels and oxygenate plant net production, plus refinery and blender net production, plus imports, plus net receipts, plus adjustments, minus stock change, minus refinery and blender net inputs, minus exports. Crude oil product supplied is the sum of crude oil burned on leases and at pipeline pump stations as reported on Form EIA-813, "Monthly Crude Oil Report." Prior to 1983, crude oil burned on leases and used at pipeline pump stations was reported as either distillate or residual fuel oil and was included as product supplied for these products. Petroleum product supplied (see Tables 3.5 and 3.6) is an approximation of petroleum consumption and is synonymous with the term "Petroleum Consumption" in Tables 3.7a–3.8c.

**Note 2. Petroleum Survey Respondents.** The U.S. Energy Information Administration (EIA) uses a number of sources and methods to maintain the survey respondent lists. On a regular basis, survey managers review such industry publications as the *Oil & Gas Journal* and *Oil Daily* for information on facilities or companies starting up or closing down operations. Those sources are augmented by articles in newspapers, communications from respondents indicating changes in status, and information received from survey systems.

To supplement routine frames maintenance and to provide more thorough coverage, a comprehensive frames investigation is conducted every 3 years. This investigation results in the reassessment and recompilation of the complete frame for each survey. The effort also includes the evaluation of the impact of potential frame changes on the historical time series of data from these respondents. The results of this frame study are usually implemented in January to provide a full year under the same frame.

**Note 3. Historical Petroleum Data.** Detailed information on petroleum data through 1993 can be found in Notes 1–6 on pages 60 and 61 in the July 2013 *Monthly Energy Review (MER)* at http://www.eia.gov/totalenergy/data/monthly/archive/00351307.pdf. The notes discuss:
Note 1, "Petroleum Survey Respondents": In 1993, EIA added numerous companies that produce, blend, store, or import oxygenates to the monthly surveys.
Note 2, "Motor Gasoline": In 1981, EIA expanded its universe to include nonrefinery blenders and separated blending components from finished motor gasoline as a reporting category. In 1993, EIA made adjustments to finished motor gasoline product supplied data to more accurately account for fuel ethanol and motor gasoline blending components blended into finished motor gasoline.
Note 3, "Distillate and Residual Fuel Oils": In 1981, EIA eliminated the requirement to report crude oil in pipelines or burned on leases as either distillate or residual fuel oil.
Note 4, "Petroleum New Stock Basis": In 1975, 1979, 1981, and 1983, EIA added numerous respondents to bulk terminal and pipeline surveys; in 1984, EIA made changes in the reporting of natural gas liquids; and in 1993, EIA changed how it collected bulk terminal and pipeline stocks of oxygenates. These changes affected stocks reported and stock change calculations.
Note 5, "Stocks of Alaskan Crude Oil": In 1981, EIA began to include data for stocks of Alaskan crude oil in transit.
Note 6, "Petroleum Data Discrepancies": In 1976, 1978, and 1979, there are some small discrepancies between data in the MER and the *Petroleum Supply Annual.*

## Table 3.1 Sources

1949–1975: Bureau of Mines, Mineral Industry Surveys, *Petroleum Statement, Annual,* annual reports.

1976–1980: U.S. Energy Information Administration (EIA), Energy Data Reports, *Petroleum Statement, Annual,* annual reports.

1981–2001: EIA, *Petroleum Supply Annual (PSA),* annual reports.

2002 forward: EIA, PSA, annual reports, and unpublished revisions; *Petroleum Supply Monthly,* monthly reports; revisions to crude oil production, total field production, and adjustments (based on crude oil production data from: Form EIA-914, "Monthly Crude Oil, Lease Condensate, and Natural Gas Production Report"; state government agencies; U.S. Department of the Interior, Bureau of Safety and Environmental Enforcement, and predecessor agencies; and Form EIA-182, "Domestic Crude Oil First Purchase Report"); and, for the current two months, *Weekly Petroleum Status Report* data system and *Monthly Energy Review* data system calculations.

## Table 3.6 Sources

**Asphalt and Road Oil**
Product supplied data in thousand barrels per day for asphalt and road oil are from Table 3.5, and are converted to trillion Btu by multiplying by the asphalt and road oil heat content factors in Table A1.

**Aviation Gasoline**
Product supplied data in thousand barrels per day for aviation gasoline are from Table 3.5, and are converted to trillion Btu by multiplying by the aviation gasoline (finished) heat content factor in Table A1.

**Distillate Fuel Oil**

1949–2008: Product supplied data in thousand barrels per day for distillate fuel oil are from Table 3.5, and are converted to trillion Btu by multiplying by the distillate fuel oil heat content factors in Table A3.

2009 forward: Data for refinery and blender net inputs of renewable diesel fuel are from U.S. Energy Information Administration (EIA), *Petroleum Supply Annual (PSA)/Petroleum Supply Monthly (PSM)*, Table 1 (for biomass-based diesel fuel, the data are converted to Btu by multiplying by the biodiesel heat content factor in Table A1; for other renewable diesel fuel, the data are converted to Btu by multiplying by the other renewable diesel fuel heat content factor in Table A1). Product supplied data for distillate fuel oil from Table 3.5, minus data for renewable diesel fuel from the PSA/PSM, are converted to Btu by multiplying by the distillate fuel oil heat content factors in Table A3. Total distillate fuel oil product supplied is the sum of distillate fuel oil (excluding renewable diesel fuel) and renewable diesel fuel.

**Hydrocarbon Gas Liquids (HGL)—Propane (Including Propylene)**

Product supplied data in thousand barrels per day for propane (including propylene) are from Table 3.5, and are converted to trillion Btu by multiplying by the propane/propylene heat content factor in Table A1.

**Hydrocarbon Gas Liquids (HGL)—Total**

Prior to the current two months, product supplied data in thousand barrels per day for the component products of HGL (ethane, propane, normal butane, isobutane, natural gasoline, and refinery olefins—ethylene, propylene, butylene, and isobutylene) are from the PSA, PSM, and earlier publications (see sources for Table 3.5). These data are converted to trillion Btu by multiplying by the appropriate heat content factors in Table A1. Total HGL product supplied is the sum of the data in trillion Btu for the HGL component products.

For the current two months: Note that "liquefied petroleum gases" ("LPG") below include ethane, propane, normal butane, isobutane, and refinery olefins (ethylene, propylene, butylene, and isobutylene), but exclude natural gasoline. Product supplied data in thousand barrels per day for LPG are from EIA's Short-Term Integrated Forecasting System (STIFS). (The STIFS model results are used in EIA's *Short-Term Energy Outlook*, which is accessible on the Web at https://www.eia.gov/outlooks/steo/.) These data are converted to trillion Btu by multiplying by the previous year's quantity-weighted LPG heat content factor (derived using LPG component heat content factors in Table A1). Product supplied data in thousand barrels per day for natural gasoline are from STIFS, and are converted to trillion Btu by multiplying by the natural gasoline heat content factor in Table A1. Total HGL product supplied is the sum of the data in trillion Btu for LPG and natural gasoline.

**Jet Fuel**

Product supplied data in thousand barrels per day for kerosene-type jet fuel and, through 2004, naphtha-type jet fuel are from EIA's PSA, PSM, and earlier publications (see sources for Table 3.5). These data are converted to trillion Btu by multiplying by the appropriate heat content factors in Table A1. Total jet fuel product supplied is the sum of the data in trillion Btu for kerosene-type and naphtha-type jet fuel.

**Kerosene**

Product supplied data in thousand barrels per day for kerosene are from Table 3.5, and are converted to trillion Btu by multiplying by the kerosene heat content factor in Table A1.

**Lubricants**

Product supplied data in thousand barrels per day for lubricants are from Table 3.5, and are converted to trillion Btu by multiplying by the lubricants heat content factor in Table A1.

**Motor Gasoline**

Product supplied data in thousand barrels per day for motor gasoline are from Table 3.5, and are converted to trillion Btu by multiplying by the motor gasoline heat content factors in Table A3.

**Other Petroleum Products**

Prior to the current two months, product supplied data in thousand barrels per day for "other" petroleum products are from the PSA, PSM, and earlier publications (see sources for Table 3.5). "Other" petroleum products include petrochemical feedstocks, special naphthas, still gas (refinery gas), waxes, and miscellaneous products; beginning in 1981, also includes negative barrels per day of distillate and residual fuel oil reclassified as unfinished oils, and other products (from both primary and secondary supply) reclassified as gasoline blending components; beginning in 1983, also includes crude oil burned as fuel; and beginning in 2005, also includes naphtha-type jet fuel. These data are converted to trillion Btu by multiplying by the appropriate heat content factors in MER Table A1. Total "Other" petroleum product supplied is the sum of the data in trillion Btu for the individual products.

For the current two months, total "Other" petroleum products supplied is calculated by first estimating total petroleum products supplied (product supplied data in thousand barrels per day for total petroleum from Table 3.5 are converted to trillion Btu by multiplying by the total petroleum consumption heat content factor in Table A3), and then subtracting data in trillion Btu (from Table 3.6) for asphalt and road oil, aviation gasoline, distillate fuel oil, jet fuel, kerosene, total HGL, lubricants, motor gasoline, petroleum coke, and residual fuel oil.

**Petroleum Coke**

Product supplied data in thousand barrels per day for petroleum coke are from Table 3.5, and are converted to trillion

Btu by multiplying by the petroleum coke heat content factors in Table A3.

**Residual Fuel Oil**
Product supplied data in thousand barrels per day for residual fuel oil are from Table 3.5, and are converted to trillion Btu by multiplying by the residual fuel oil heat content factor in Table A1.

**Total Petroleum**
Total petroleum products supplied is the sum of the data in trillion Btu for the products (except "Propane") shown in Table 3.6.

## Tables 3.7a–3.7c Sources

Petroleum consumption data for 1949–1972 are from the following sources:

1949–1959: Bureau of Mines, Mineral Industry Surveys, *Petroleum Statement, Annual*, annual reports, and U.S. Energy Information Administration (EIA) estimates.
1960–1972: EIA, State Energy Data System.

Petroleum consumption data beginning in 1973 are derived from data for "petroleum products supplied" from the following sources:

1973–1975: Bureau of Mines, Mineral Industry Surveys, *Petroleum Statement Annual*, annual reports.
1976–1980: EIA, Energy Data Reports, *Petroleum Statement Annual*, annual reports.
1981–2016: EIA, *Petroleum Supply Annual (PSA)*, annual reports, and unpublished revisions.
2017: EIA, *Petroleum Supply Monthly (PSM)*, monthly reports.

Beginning in 1973, energy-use allocation procedures by individual product are as follows:

**Asphalt and Road Oil**
All consumption of asphalt and road oil is assigned to the industrial sector.

**Aviation Gasoline**
All consumption of aviation gasoline is assigned to the transportation sector.

**Distillate Fuel Oil**
Distillate fuel oil consumption is assigned to the sectors as follows:

**Distillate Fuel Oil, Electric Power Sector**
See sources for Table 7.4b. For 1973–1979, electric utility consumption of distillate fuel oil is assumed to be the amount of petroleum (minus small amounts of kerosene and kerosene-type jet fuel deliveries) consumed in gas turbine and internal combustion plants. For 1980–2000, electric utility consumption of distillate fuel oil is assumed to be the amount of light oil (fuel oil nos. 1 and 2, plus small amounts of kerosene and jet fuel) consumed.

**Distillate Fuel Oil, End-Use Sectors, Annual Data**
The aggregate end-use amount is total distillate fuel oil supplied minus the amount consumed by the electric power sector. The end-use total consumed annually is allocated to the individual end-use sectors (residential, commercial, industrial, and transportation) in proportion to each sector's share of sales as reported in EIA's *Fuel Oil and Kerosene Sales* (*Sales*) report series (DOE/EIA-0535), which is based primarily on data collected by Form EIA-821, "Annual Fuel Oil and Kerosene Sales Report" (previously Form EIA-172). Shares for the current year are based on the most recent Sales report.

Following are notes on the individual sector groupings:

Beginning in 1979, the residential sector sales total is directly from the Sales reports. Through 1978, each year's sales subtotal of the heating plus industrial category is split into residential, commercial, and industrial (including farm) in proportion to the 1979 shares.

Beginning in 1979, the commercial sector sales total is directly from the Sales reports. Through 1978, each year's sales subtotal of the heating plus industrial category is split into residential, commercial, and industrial (including farm) in proportion to the 1979 shares.

Beginning in 1979, the industrial sector sales total is the sum of the sales for industrial, farm, oil company, off-highway diesel, and all other uses. Through 1978, each year's sales subtotal of the heating plus industrial category is split into residential, commercial, and industrial (including farm) in proportion to the 1979 shares, and this estimated industrial portion is added to oil company, off-highway diesel, and all other uses.

The transportation sector sales total is the sum of the sales for railroad, vessel bunkering, on-highway diesel, and military uses for all years.

**Distillate Fuel Oil, End-Use Sectors, Monthly Data**
Residential sector and commercial sector monthly consumption is estimated by allocating the annual estimates, which are described above, into the months in proportion to each month's share of the year's sales of No. 2 heating oil. (For each month of the current year, the residential and commercial consumption increase from the same month in the previous year is based on the percent increase in that month's No. 2 heating oil sales from the same month in the previous year.) The years' No. 2 heating oil sales totals are from the following sources: for 1973–1980, the Ethyl Corporation, *Monthly Report of Heating Oil Sales*; for 1981 and 1982, the American Petroleum Institute, *Monthly Report of Heating Oil Sales*; and for 1983 forward, EIA, Form EIA-782A,

"Refiners'/Gas Plant Operators' Monthly Petroleum Product Sales Report," No. 2 Fuel Oil Sales to End Users and for Resale.

The transportation highway use portion is allocated into the months in proportion to each month's share of the year's total sales for highway use as reported by the Federal Highway Administration's Table MF-25, "Private and Commercial Highway Use of Special Fuels by Months." Beginning in 1994, the sales-for-highway-use data are no longer available as a monthly series; the 1993 data are used for allocating succeeding year's totals into months.

A distillate fuel oil "balance" is calculated as total distillate fuel oil supplied minus the amount consumed by the electric power sector, residential sector, commercial sector, and for highway use.

Industrial sector monthly consumption is estimated by multiplying each month's distillate fuel oil "balance" by the annual industrial consumption share of the annual distillate fuel oil "balance."

Total transportation sector monthly consumption is estimated as total distillate fuel oil supplied minus the amount consumed by the residential, commercial, industrial, and electric power sectors.

**Hydrocarbon Gas Liquids (HGL)—Propane (Including Propylene) and Total**

Note that "liquefied petroleum gases" ("LPG") below include ethane, propane, normal butane, isobutane, and refinery olefins (ethylene, propylene, butylene, and isobutylene), but exclude natural gasoline.

The annual shares of LPG total consumption that are estimated to be used by each sector are applied to each month's total LPG consumption to create monthly sector consumption estimates. The annual sector shares are calculated as described below.

Sales of propane to the residential and commercial sectors combined are converted from thousand gallons per year to thousand barrels per year and are assumed to be the annual consumption of LPG by the combined sectors. Beginning in 2003, residential sector LPG consumption is assumed to equal propane retail sales to the residential sector and sales to retailers, with the remainder of the combined residential and commercial LPG consumption being assigned to the commercial sector. Through 2002, residential sector LPG consumption is based on the average of the state residential shares for 2003–2008, with the remainder of the combined residential and commercial LPG consumption being assigned to the commercial sector.

The quantity of propane sold each year for consumption in internal combustion engines is allocated between the transportation and industrial sectors using data for special fuels used on highways provided by the U.S. Department of Transportation, Federal Highway Administration. The transportation portion is assumed to equal annual LPG consumption by the transportation sector.

LPG consumed annually by the industrial sector is estimated as the difference between LPG total product supplied and the sum of the estimated LPG consumption by the residential, commercial, and transportation sectors. The industrial sector LPG consumption includes LPG used by chemical plants as raw materials or solvents and used in the production of synthetic rubber; refinery fuel use; use as synthetic natural gas feedstock and use in secondary recovery projects; all farm use; LPG sold to gas utility companies for distribution through the mains; and a portion of the use of LPG as an internal combustion engine fuel.

Sources of the annual consumption estimates for creating annual sector shares are:

1973–1982: EIA's "Sales of Liquefied Petroleum Gases and Ethane" reports, based primarily on data collected by Form EIA-174, "Sales of Liquefied Petroleum Gases."
1983: End-use consumption estimates for 1983 are based on 1982 end-use consumption because the collection of data under Form EIA-174 was discontinued after data year 1982.
1984–2007: American Petroleum Institute (API), "Sales of Natural Gas Liquids and Liquefied Refinery Gases," table on sales of natural gas liquids and liquefied refinery gases by end use. EIA adjusts the data to remove quantities of natural gasoline and to estimate withheld values.
2008 forward: Propane consumption is from API, "Sales of Natural Gas Liquids and Liquefied Refinery Gases," table on sales of propane by end use. EIA adjusts the data to estimate withheld values. Other LPG consumption is from EIA, PSA, annual reports, and is allocated to the industrial sector.

Residential sector propane (including propylene) consumption is equal to residential sector LPG consumption.

Commercial sector propane (including propylene) consumption is equal to commercial sector LPG consumption.

Transportation sector propane (including propylene) consumption is equal to transportation sector LPG consumption.

Industrial sector propane (including propylene) consumption is equal to propane (including propylene) product supplied from the PSA, PSM, and earlier publications (see sources for Table 3.5), minus propane (including propylene) consumption in the residential, commercial, and transportation sectors.

Industrial sector total HGL consumption: Product supplied data in thousand barrels per day for natural gasoline are

from the PSA, PSM, and earlier publications (see sources for Table 3.5). Industrial sector total HGL consumption is the sum of industrial sector LPG consumption and natural gasoline product supplied.

**Jet Fuel**

Through 1982, small amounts of kerosene-type jet fuel were consumed by the electric power sector. Kerosene-type jet fuel deliveries to the electric power sector as reported on Form FERC-423 (formerly Form FPC-423) were used as estimates of this consumption. Through 2004, all remaining jet fuel (kerosene-type and naphtha-type) is assigned to the transportation sector. Beginning in 2005, kerosene-type jet fuel is assigned to the transportation sector, while naphtha-type jet fuel is classified under "Other Petroleum Products," which is assigned to the industrial sector. (*Note:* Petroleum products supplied is an approximation of petroleum consumption and is synonymous with the term "petroleum consumption" in Tables 3.7a–3.8c. Other measurements of consumption by fuel type or sector may differ. For example, jet fuel product supplied may not equal jet fuel consumed by U.S.-flagged aircraft.)

**Kerosene**

Kerosene product supplied is allocated to the individual end-use sectors (residential, commercial, and industrial) in proportion to each sector's share of sales as reported in EIA's *Fuel Oil and Kerosene Sales* (*Sales*) report series (DOE/EIA-0535), which is based primarily on data collected by Form EIA-821, "Annual Fuel Oil and Kerosene Sales Report" (previously Form EIA-172).

Beginning in 1979, the residential sector sales total is directly from the Sales reports. Through 1978, each year's sales category called "heating" is allocated to the residential, commercial, and industrial sectors in proportion to the 1979 shares.

Beginning in 1979, the commercial sector sales total is directly from the Sales reports. Through 1978, each year's sales category called "heating" is allocated to the residential, commercial, and industrial sectors in proportion to the 1979 shares.

Beginning in 1979, the industrial sector sales total is the sum of the sales for industrial, farm, and all other uses. Through 1978, each year's sales category called "heating" is allocated to the residential, commercial and industrial sectors in proportion to the 1979 shares, and the estimated industrial (including farm) portion is added to all other uses.

**Lubricants**

The consumption of lubricants is allocated to the industrial and transportation sectors for all months according to proportions developed from annual sales of lubricants to the two sectors from U.S. Department of Commerce, U.S. Census Bureau, *Current Industrial Reports*, "Sales of Lubricating and Industrial Oils and Greases." The 1973 shares are applied to 1973 and 1974; the 1975 shares are applied to 1975 and 1976; and the 1977 shares are applied to 1977 forward.

**Motor Gasoline**

The total monthly consumption of motor gasoline is allocated to the sectors in proportion to aggregations of annual sales categories created on the basis of the U.S. Department of Transportation, Federal Highway Administration, *Highway Statistics*, Tables MF-21, MF-24, and MF-25, as follows:

Through 2014, commercial sales are the sum of sales for public non-highway use and miscellaneous use. Beginning in 2015, commercial sales are the sum of sales for public non-highway use, lawn and garden use, and miscellaneous use.

For all years, industrial sales are the sum of sales for agriculture, construction, and "industrial and commercial" use (as classified in the *Highway Statistics*).

Through 2014, transportation sales are the sum of sales for highway use (minus the sales of special fuels, which are primarily diesel fuel and are accounted for in the transportation sector of distillate fuel) and sales for marine use. Beginning in 2015, transportation sales are the sum of sales for highway use (minus the sales of special fuels, which are primarily diesel fuel and are accounted for in the transportation sector of distillate fuel) and sales for boating use and recreational vehicle use.

**Petroleum Coke**

Portions of petroleum coke are consumed by the electric power sector (see sources for Table 7.4b) and the commercial sector (see sources for Table 7.4c). The remaining petroleum coke is assigned to the industrial sector.

**Residual Fuel Oil**

Residual fuel oil consumption is assigned to the sectors as follows:

**Residual Fuel Oil, Electric Power Sector**

See sources for Table 7.4b. For 1973–1979, electric utility consumption of residual fuel oil is assumed to be the amount of petroleum consumed in steam-electric power plants. For 1980–2000, electric utility consumption of residual fuel oil is assumed to be the amount of heavy oil (fuel oil nos. 4, 5, and 6) consumed.

**Residual Fuel Oil, End-Use Sectors, Annual Data**

The aggregate end-use amount is total residual fuel oil supplied minus the amount consumed by the electric power sector. The end-use total consumed annually is allocated to the individual end-use sectors (commercial, industrial, and transportation) in proportion to each sector's share of sales as reported in EIA's *Fuel Oil and Kerosene Sales* (*Sales*) report series (DOE/EIA-535), which is based primarily on data collected by Form

EIA-821, "Annual Fuel Oil and Kerosene Sales Report" (previously Form EIA-172). Shares for the current year are based on the most recent Sales report.

Following are notes on the individual sector groupings:

Beginning in 1979, commercial sales data are directly from the Sales reports. Through 1978, each year's sales subtotal of the heating plus industrial category is allocated to the commercial and industrial sectors in proportion to the 1979 shares.

Beginning in 1979, industrial sales data are the sum of sales for industrial, oil company, and all other uses. Through 1978, each year's sales subtotal of the heating plus industrial category is allocated to the commercial and industrial sectors in proportion to the 1979 shares, and the estimated industrial portion is added to oil company and all other uses.

Transportation sales are the sum of sales for railroad, vessel bunkering, and military uses for all years.

**Residual Fuel Oil, End-Use Sectors, Monthly Data**
Commercial sector monthly consumption is estimated by allocating the annual estimates, which are described above, into the months in proportion to each month's share of the year's sales of No. 2 heating oil. (For each month of the current year, the consumption increase from the same month in the previous year is based on the percent increase in that month's No. 2 heating oil sales from the same month in the previous year.) The years' No. 2 heating oil sales totals are from the following sources: for 1973–1980, the Ethyl Corporation, *Monthly Report of Heating Oil Sales*; for 1981 and 1982, the American Petroleum Institute, *Monthly Report of Heating Oil Sales*; and for 1983 forward, EIA, Form EIA-782A, "Refiners'/Gas Plant Operators' Monthly Petroleum Product Sales Report," No. 2 Fuel Oil Sales to End Users and for Resale.

A residual fuel oil "balance" is calculated as total residual fuel oil supplied minus the amount consumed by the electric power sector, commercial sector, and by industrial combined-heat-and-power plants (see sources for Table 7.4c).

Transportation sector monthly consumption is estimated by multiplying each month's residual fuel oil "balance" by the annual transportation consumption share of the annual residual fuel oil "balance."

Total industrial sector monthly consumption is estimated as total residual fuel oil supplied minus the amount consumed by the commercial, transportation, and electric power sectors.

**Other Petroleum Products**
Consumption of all remaining petroleum products is assigned to the industrial sector. Other petroleum products include petrochemical feedstocks, special naphthas, still gas (refinery gas), waxes, and miscellaneous products. Beginning in 1981, also includes negative barrels per day of distillate and residual fuel oil reclassified as unfinished oils, and other products (from both primary and secondary supply) reclassified as gasoline blending components. Beginning in 1983, also includes crude oil burned as fuel. Beginning in 2005, also includes naphtha-type jet fuel.

## Table 3.8a Sources

**Distillate Fuel Oil**
Residential and commercial sector consumption data in thousand barrels per day for distillate fuel oil are from Table 3.7a, and are converted to trillion Btu by multiplying by the distillate fuel oil heat content factors in Table A3.

**Hydrocarbon Gas Liquids (HGL)—Propane (Including Propylene)**
Residential and commercial sector consumption data in thousand barrels per day for HGL are from Table 3.7a, and are converted to trillion Btu by multiplying by the propane/propylene heat content factor in Table A1.

**Kerosene**
Residential and commercial sector consumption data in thousand barrels per day for kerosene are from Table 3.7a, and are converted to trillion Btu by multiplying by the kerosene heat content factor in Table A1.

**Motor Gasoline**
Commercial sector consumption data in thousand barrels per day for motor gasoline are from Table 3.7a, and are converted to trillion Btu by multiplying by the motor gasoline heat content factors in Table A3.

**Petroleum Coke**
1949–2003: Commercial sector consumption data in thousand barrels per day for petroleum coke are from Table 3.7a, and are converted to trillion Btu by multiplying by the total petroleum coke heat content factor in Table A1.
2004 forward: Commercial sector consumption data in thousand barrels per day for petroleum coke are from Table 3.7a, and are converted to trillion Btu by multiplying by the marketable petroleum coke heat content factor in Table A1.

**Residual Fuel Oil**
Commercial sector consumption data in thousand barrels per day for residual fuel oil are from Table 3.7a, and are converted to trillion Btu by multiplying by the residual fuel oil heat content factor in Table A1.

**Total Petroleum**
Residential sector total petroleum consumption is the sum of the data in trillion Btu for the petroleum products shown under "Residential Sector" in Table 3.8a. Commercial sector total petroleum consumption is the sum of the data in trillion Btu for the petroleum products shown under "Commercial Sector" in Table 3.8a.

## Table 3.8b Sources

**Asphalt and Road Oil**
Industrial sector consumption data in thousand barrels per day for asphalt and road oil are from Table 3.7b, and are converted to trillion Btu by multiplying by the asphalt and road oil heat content factor in Table A1.

**Distillate Fuel Oil**
Industrial sector consumption data in thousand barrels per day for distillate fuel oil are from Table 3.7b, and are converted to trillion Btu by multiplying by the distillate fuel oil heat content factors in Table A3.

**Hydrocarbon Gas Liquids (HGL)—Propane (Including Propylene)**
Industrial sector consumption data in thousand barrels per day for HGL are from Table 3.7b, and are converted to trillion Btu by multiplying by the propane/propylene heat content factor in Table A1.

**Hydrocarbon Gas Liquids (HGL)—Total**
Industrial sector consumption data for HGL are calculated by subtracting HGL consumption data in trillion Btu for the residential (Table 3.8a), commercial (Table 3.8a), and transportation (Table 3.8c) sectors from total HGL consumption (Table 3.6).

**Kerosene**
Industrial sector consumption data in thousand barrels per day for kerosene are from Table 3.7b, and are converted to trillion Btu by multiplying by the kerosene heat content factor in Table A1.

**Lubricants**
Industrial sector consumption data in thousand barrels per day for lubricants are from Table 3.7b, and are converted to trillion Btu by multiplying by the lubricants heat content factor in Table A1.

**Motor Gasoline**
Industrial sector consumption data in thousand barrels per day for motor gasoline are from Table 3.7b, and are converted to trillion Btu by multiplying by the motor gasoline heat content factors in Table A3.

**Other Petroleum Products**
Industrial sector "Other" petroleum data are equal to the "Other" petroleum data in Table 3.6.

**Petroleum Coke**
1949–2003: Industrial sector consumption data in thousand barrels per day for petroleum coke are from Table 3.7b, and are converted to trillion Btu by multiplying by the total petroleum coke heat content factor in Table A1.
2004 forward: Industrial sector consumption data for petroleum coke are calculated by subtracting petroleum coke consumption data in trillion Btu for the commercial (Table 3.8a) and electric power (Table 3.8c) sectors from total petroleum coke consumption (Table 3.6).

**Residual Fuel Oil**
Industrial sector consumption data in thousand barrels per day for residual fuel oil are from Table 3.7b, and are converted to trillion Btu by multiplying by the residual fuel oil heat content factor in Table A1.

**Total Petroleum**
Industrial sector total petroleum consumption is the sum of the data in trillion Btu for the petroleum products shown in Table 3.8b.

## Table 3.8c Sources

**Aviation Gasoline**
Transportation sector consumption data in thousand barrels per day for aviation gasoline are from Table 3.7c, and are converted to trillion Btu by multiplying by the aviation gasoline (finished) heat content factor in Table A1.

**Distillate Fuel Oil, Electric Power Sector**
Electric power sector consumption data in thousand barrels per day for distillate fuel oil are from Table 3.7c, and are converted to trillion Btu by multiplying by the distillate fuel oil heat content factors in Table A3.

**Distillate Fuel Oil, Transportation Sector**
1949–2008: Transportation sector consumption data in thousand barrels per day for distillate fuel oil are from Table 3.7c, and are converted to trillion Btu by multiplying by the distillate fuel oil heat content factors in Table A3.
2009 forward: Data for refinery and blender net inputs of renewable diesel fuel are from U.S. Energy Information Administration (EIA), *Petroleum Supply Annual (PSA)/Petroleum Supply Monthly (PSM)*, Table 1 (for biomass-based diesel fuel, the data are converted to Btu by multiplying by the biodiesel heat content factor in Table A1; for other renewable diesel fuel, the data are converted to Btu by multiplying by the other renewable diesel fuel heat content factor in Table A1). Transportation sector consumption data from Table 3.7c, minus data for renewable diesel fuel from the PSA/PSM, are converted to Btu by multiplying by the distillate fuel oil heat content factors in Table A3. Total transportation sector distillate fuel oil consumption is the sum of distillate fuel oil (excluding renewable diesel fuel) and renewable diesel fuel.

**Hydrocarbon Gas Liquids (HGL)—Propane (Including Propylene)**
Transportation sector consumption data in thousand barrels per day for HGL are from Table 3.7c, and are converted to trillion Btu by multiplying by the propane/propylene heat content factor in Table A1.

**Jet Fuel**
Transportation sector consumption data in thousand barrels per day for kerosene-type jet fuel and, through 2004, naphtha-type jet fuel (see sources for Table 3.7c) are

converted to trillion Btu by multiplying by the appropriate heat content factors in Table A1. Total transportation sector jet fuel consumption is the sum of the data in trillion Btu for kerosene-type and naphtha-type jet fuel. (*Note:* Petroleum products supplied is an approximation of petroleum consumption and is synonymous with the term "petroleum consumption" in Tables 3.7a–3.8c. Other measurements of consumption by fuel type or sector may differ. For example, jet fuel product supplied may not equal jet fuel consumed by U.S.-flagged aircraft.)

**Lubricants**

Transportation sector consumption data in thousand barrels per day for lubricants are from Table 3.7c, and are converted to trillion Btu by multiplying by the lubricants heat content factor in Table A1.

**Motor Gasoline**

Transportation sector consumption data in thousand barrels per day for motor gasoline are from Table 3.7c, and are converted to trillion Btu by multiplying by the motor gasoline heat content factors in Table A3.

**Petroleum Coke**

1949–2003: Electric power sector consumption data in thousand barrels per day for petroleum coke are from Table 3.7c, and are converted to trillion Btu by multiplying by the total petroleum coke heat content factor in Table A1.
2004 forward: Electric power sector consumption data in thousand barrels per day for petroleum coke are from Table 3.7c, and are converted to trillion Btu by multiplying by the marketable petroleum coke heat content factor in Table A1.

**Residual Fuel Oil**

Transportation and electric power consumption data in thousand barrels per day for residual fuel oil are from Table 3.7c, and are converted to trillion Btu by multiplying by the residual fuel oil heat content factor in Table A1.

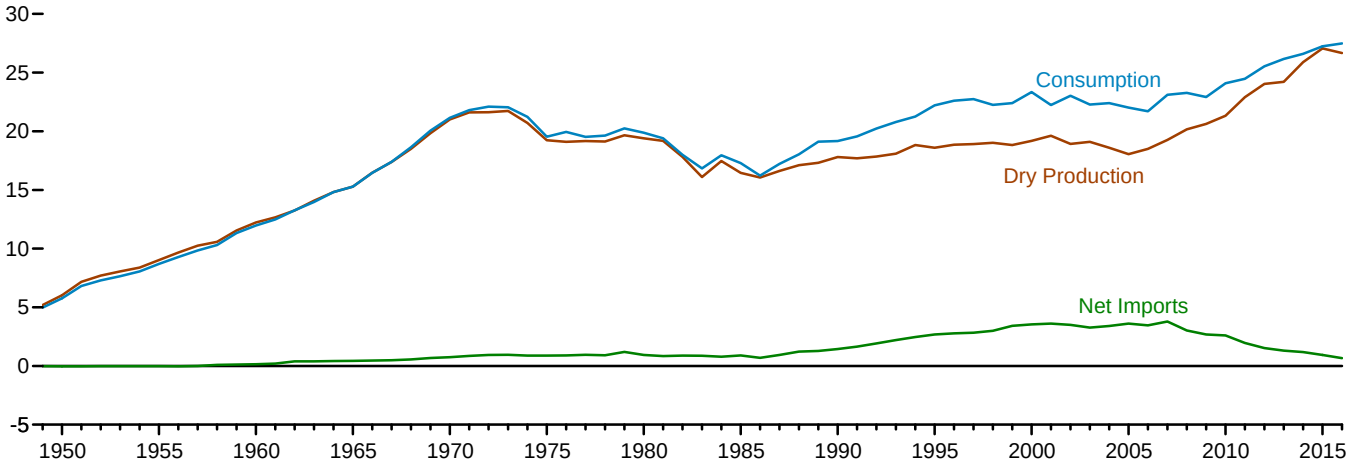
**Total Petroleum**

Transportation sector total petroleum consumption is the sum of the data in trillion Btu for the petroleum products shown under "Transportation Sector" in Table 3.8c. Electric power sector total petroleum consumption is the sum of the data in trillion Btu for the petroleum products shown under "Electric Power Sector" in Table 3.8c.

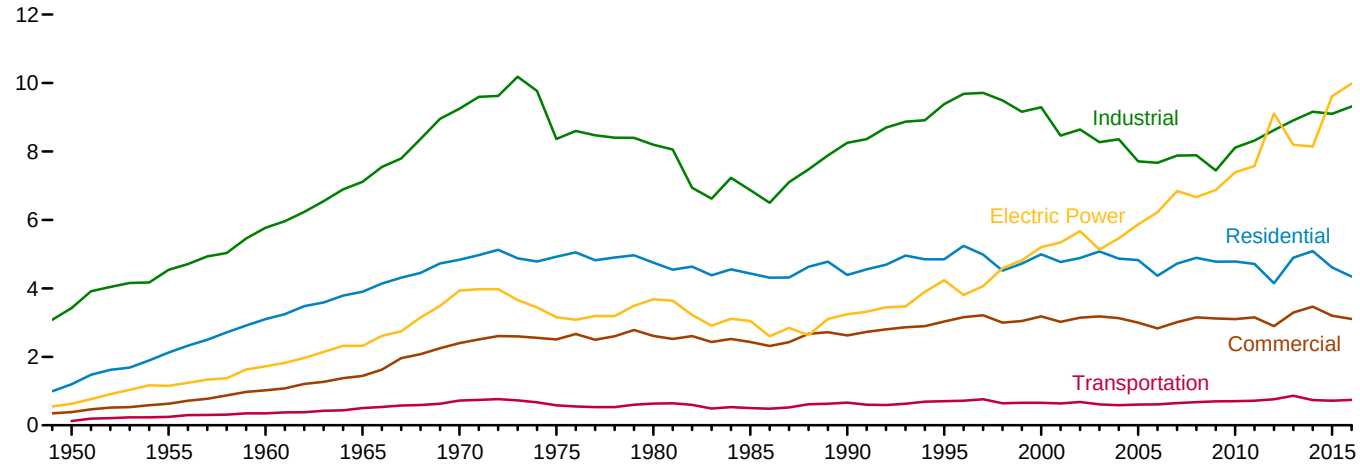
# 4. Natural Gas

## Figure 4.1 Natural Gas
(Trillion Cubic Feet)

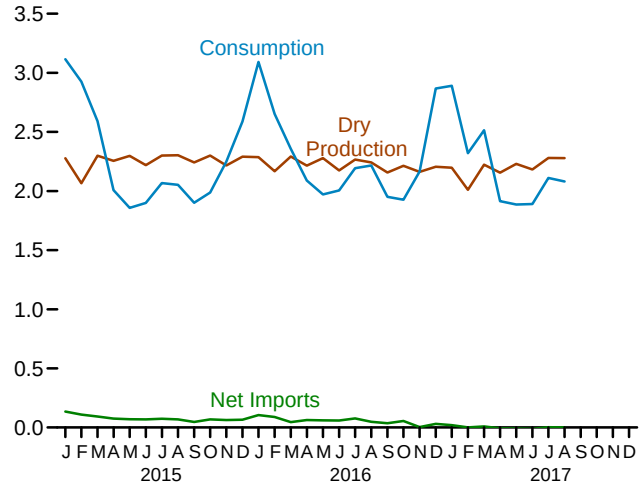
Overview, 1949–2016



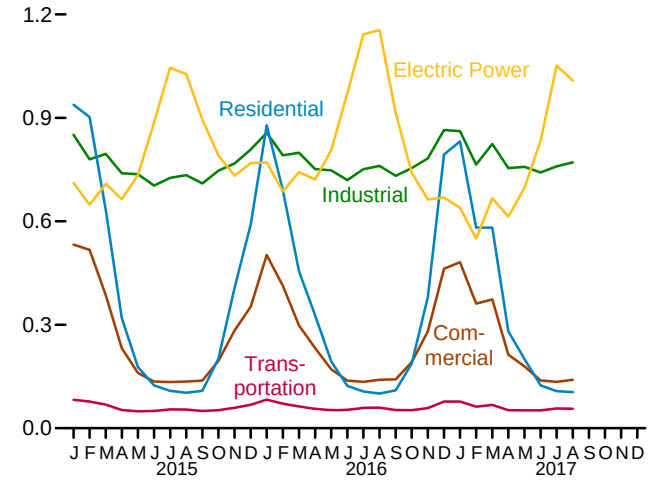

Consumption by Sector, 1949–2016




Overview, Monthly




Consumption by Sector, Monthly




Web Page: http://www.eia.gov/totalenergy/data/monthly/#naturalgas.
Sources: Tables 4.1 and 4.3.

## Table 4.1 Natural Gas Overview

(Billion Cubic Feet)

| | Gross Withdrawals[a] | Marketed Production (Wet)[b] | NGPL Production[c] | Dry Gas Production[d] | Supplemental Gaseous Fuels[e] | Trade | | | Net Storage Withdrawals[f] | Balancing Item[g] | Consumption[h] |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Imports | Exports | Net Imports | | | |
| **1950 Total** | **8,480** | **[i] 6,282** | **260** | **[i] 6,022** | **NA** | **0** | **26** | **-26** | **-54** | **-175** | **5,767** |
| **1955 Total** | **11,720** | **[i] 9,405** | **377** | **[i] 9,029** | **NA** | **11** | **31** | **-20** | **-68** | **-247** | **8,694** |
| **1960 Total** | **15,088** | **[i] 12,771** | **543** | **[i] 12,228** | **NA** | **156** | **11** | **144** | **-132** | **-274** | **11,967** |
| **1965 Total** | **17,963** | **[i] 16,040** | **753** | **[i] 15,286** | **NA** | **456** | **26** | **430** | **-118** | **-319** | **15,280** |
| **1970 Total** | **23,786** | **[i] 21,921** | **906** | **[i] 21,014** | **NA** | **821** | **70** | **751** | **-398** | **-228** | **21,139** |
| **1975 Total** | **21,104** | **[i] 20,109** | **872** | **[i] 19,236** | **NA** | **953** | **73** | **880** | **-344** | **-235** | **19,538** |
| **1980 Total** | **21,870** | **20,180** | **777** | **19,403** | **155** | **985** | **49** | **936** | **23** | **-640** | **19,877** |
| **1985 Total** | **19,607** | **17,270** | **816** | **16,454** | **126** | **950** | **55** | **894** | **235** | **-428** | **17,281** |
| **1990 Total** | **21,523** | **18,594** | **784** | **17,810** | **123** | **1,532** | **86** | **1,447** | **-513** | **307** | **[j] 19,174** |
| **1995 Total** | **23,744** | **19,506** | **908** | **18,599** | **110** | **2,841** | **154** | **2,687** | **415** | **396** | **22,207** |
| **2000 Total** | **24,174** | **20,198** | **1,016** | **19,182** | **90** | **3,782** | **244** | **3,538** | **829** | **-306** | **23,333** |
| **2001 Total** | **24,501** | **20,570** | **954** | **19,616** | **86** | **3,977** | **373** | **3,604** | **-1,166** | **99** | **22,239** |
| **2002 Total** | **23,941** | **19,885** | **957** | **18,928** | **68** | **4,015** | **516** | **3,499** | **467** | **65** | **23,027** |
| **2003 Total** | **24,119** | **19,974** | **876** | **19,099** | **68** | **3,944** | **680** | **3,264** | **-197** | **44** | **22,277** |
| **2004 Total** | **23,970** | **19,517** | **927** | **18,591** | **60** | **4,259** | **854** | **3,404** | **-114** | **461** | **22,403** |
| **2005 Total** | **23,457** | **18,927** | **876** | **18,051** | **64** | **4,341** | **729** | **3,612** | **52** | **236** | **22,014** |
| **2006 Total** | **23,535** | **19,410** | **906** | **18,504** | **66** | **4,186** | **724** | **3,462** | **-436** | **103** | **21,699** |
| **2007 Total** | **24,664** | **20,196** | **930** | **19,266** | **63** | **4,608** | **822** | **3,785** | **192** | **-203** | **23,104** |
| **2008 Total** | **25,636** | **21,112** | **953** | **20,159** | **61** | **3,984** | **963** | **3,021** | **34** | **2** | **23,277** |
| **2009 Total** | **26,057** | **21,648** | **1,024** | **20,624** | **65** | **3,751** | **1,072** | **2,679** | **-355** | **-103** | **22,910** |
| **2010 Total** | **26,816** | **22,382** | **1,066** | **21,316** | **65** | **3,741** | **1,137** | **2,604** | **-13** | **115** | **24,087** |
| **2011 Total** | **28,479** | **24,036** | **1,134** | **22,902** | **60** | **3,469** | **1,506** | **1,963** | **-354** | **-94** | **24,477** |
| **2012 Total** | **29,542** | **25,283** | **1,250** | **24,033** | **61** | **3,138** | **1,619** | **1,519** | **-9** | **-66** | **25,538** |
| **2013 Total** | **29,523** | **25,562** | **1,357** | **24,206** | **55** | **2,883** | **1,572** | **1,311** | **546** | **38** | **26,155** |
| **2014 Total** | **31,405** | **27,498** | **1,608** | **25,890** | **60** | **2,695** | **1,514** | **1,181** | **-254** | **-283** | **26,593** |
| **2015** January | 2,790 | 2,420 | 144 | 2,277 | 5 | 279 | 145 | 135 | 741 | -42 | 3,115 |
| February | 2,521 | 2,197 | 130 | 2,067 | 4 | 254 | 145 | 109 | 757 | -12 | 2,925 |
| March | 2,828 | 2,443 | 145 | 2,298 | 5 | 257 | 164 | 93 | 201 | -6 | 2,591 |
| April | 2,759 | 2,398 | 142 | 2,256 | 5 | 205 | 130 | 75 | -329 | 1 | 2,008 |
| May | 2,791 | 2,443 | 145 | 2,298 | 5 | 204 | 134 | 70 | -507 | -8 | 1,858 |
| June | 2,660 | 2,358 | 140 | 2,219 | 5 | 206 | 138 | 68 | -370 | -21 | 1,900 |
| July | 2,756 | 2,445 | 145 | 2,300 | 5 | 217 | 144 | 73 | -292 | -19 | 2,068 |
| August | 2,745 | 2,448 | 145 | 2,302 | 5 | 214 | 145 | 69 | -317 | -7 | 2,053 |
| September | 2,721 | 2,384 | 141 | 2,242 | 5 | 209 | 163 | 46 | -381 | -11 | 1,901 |
| October | 2,806 | 2,445 | 145 | 2,300 | 5 | 226 | 159 | 68 | -339 | -47 | 1,987 |
| November | 2,726 | 2,356 | 140 | 2,216 | 5 | 218 | 156 | 63 | 16 | -51 | 2,249 |
| December | 2,812 | 2,435 | 144 | 2,290 | 5 | 227 | 162 | 66 | 272 | -45 | 2,588 |
| **Total** | **32,915** | **28,772** | **1,707** | **27,065** | **59** | **2,718** | **1,784** | **935** | **-547** | **-268** | **27,244** |
| **2016** January | 2,828 | 2,443 | 156 | 2,287 | 5 | 274 | 169 | 105 | 741 | -46 | 3,092 |
| February | 2,656 | 2,315 | 148 | 2,167 | 5 | 252 | 163 | 89 | 411 | -20 | 2,651 |
| March | 2,828 | 2,449 | 156 | 2,293 | 5 | 241 | 195 | 46 | 53 | -39 | 2,357 |
| April | 2,681 | 2,366 | 151 | 2,215 | 5 | 241 | 178 | 63 | -171 | -23 | 2,089 |
| May | 2,787 | 2,433 | 155 | 2,278 | 5 | 248 | 188 | 60 | -337 | -35 | 1,971 |
| June | 2,636 | 2,323 | 148 | 2,175 | 5 | 242 | 183 | 59 | -229 | -4 | 2,005 |
| July | 2,730 | 2,421 | 154 | 2,266 | 5 | 265 | 189 | 76 | -139 | -15 | 2,193 |
| August | 2,726 | 2,395 | 153 | 2,242 | 5 | 262 | 214 | 48 | -130 | 51 | 2,216 |
| September | 2,630 | 2,304 | 147 | 2,157 | 5 | 238 | 202 | 37 | -270 | 23 | 1,951 |
| October | 2,718 | 2,365 | 151 | 2,214 | 5 | 231 | 176 | 55 | -317 | -31 | 1,926 |
| November | 2,673 | 2,310 | 147 | 2,162 | 5 | 231 | 228 | 3 | 39 | -44 | 2,164 |
| December | 2,742 | 2,356 | 150 | 2,206 | 5 | 281 | 251 | 30 | 688 | -61 | 2,867 |
| **Total** | **32,636** | **28,479** | **1,817** | **26,663** | **57** | **3,006** | **2,335** | **671** | **339** | **-244** | **27,486** |
| **2017** January | [E] 2,733 | [E] 2,345 | 149 | [RE] 2,197 | 5 | 292 | 272 | 20 | 675 | -5 | 2,891 |
| February | [E] 2,509 | [E] 2,153 | [R] 143 | [RE] 2,010 | 5 | 255 | 255 | -1 | 285 | [R] 21 | 2,320 |
| March | [E] 2,780 | [E] 2,384 | 161 | [RE] 2,223 | 5 | 281 | 272 | 9 | 275 | 2 | 2,514 |
| April | [E] 2,684 | [E] 2,311 | 156 | [E] 2,155 | 5 | 238 | 247 | -9 | -230 | -7 | 1,914 |
| May | [E] 2,772 | [E] 2,394 | 164 | [RE] 2,229 | 3 | 244 | 254 | -10 | -341 | 5 | 1,887 |
| June | [RE] 2,683 | [RE] 2,343 | 160 | [RE] 2,182 | 4 | 240 | 253 | -14 | -281 | [R] -2 | 1,890 |
| July | [RE] 2,752 | [RE] 2,446 | 166 | [RE] 2,280 | 5 | 251 | 248 | 2 | -150 | [R] -26 | [R] 2,110 |
| August | [E] 2,761 | [E] 2,441 | 162 | [E] 2,278 | 5 | 248 | 247 | 1 | -195 | -8 | 2,081 |
| **8-Month Total** | **[E] 21,676** | **[E] 18,816** | **1,262** | **[E] 17,554** | **36** | **2,047** | **2,049** | **-1** | **38** | **-19** | **17,607** |
| **2016 8-Month Total** | **21,872** | **19,145** | **1,221** | **17,923** | **38** | **2,025** | **1,478** | **546** | **199** | **-131** | **18,576** |
| **2015 8-Month Total** | **21,849** | **19,152** | **1,136** | **18,016** | **39** | **1,837** | **1,145** | **693** | **-116** | **-114** | **18,518** |

[a] Gases withdrawn from natural gas, crude oil, coalbed, and shale gas wells. Includes natural gas, natural gas plant liquids, and nonhydrocarbon gases; but excludes lease condensate.

[b] Gross withdrawals minus repressuring, nonhydrocarbon gases removed, and vented and flared. See Note 1, "Natural Gas Production," at end of section.

[c] Natural gas plant liquids (NGPL) production, gaseous equivalent. This data series was previously called "Extraction Loss." See Note 2, "Natural Gas Plant Liquids Production," at end of section.

[d] Marketed production (wet) minus NGPL production.

[e] See Note 3, "Supplemental Gaseous Fuels," at end of section.

[f] Net withdrawals from underground storage. For 1980–2014, also includes net withdrawals of liquefied natural gas in above-ground tanks. See Note 4, "Natural Gas Storage," at end of section.

[g] See Note 5, "Natural Gas Balancing Item," at end of section. Beginning in 1980, excludes transit shipments that cross the U.S.-Canada border (i.e., natural gas delivered to its destination via the other country).

[h] See Note 6, "Natural Gas Consumption," at end of section.

[i] Through 1979, may include unknown quantities of nonhydrocarbon gases.

[j] For 1989–1992, a small amount of consumption at independent power producers may be counted in both "Other Industrial" and "Electric Power Sector" on Table 4.3. See Note 7, "Natural Gas Consumption, 1989–1992," at end of section.

R=Revised. E=Estimate. NA=Not available.

Notes: • See Note 8, "Natural Gas Data Adjustments, 1993–2000," at end of section. • Through 1964, all volumes are shown on a pressure base of 14.65 psia (pounds per square inch absolute) at 60° Fahrenheit; beginning in 1965, the pressure base is 14.73 psia at 60° Fahrenheit. • Totals may not equal sum of components due to independent rounding. • Geographic coverage is the 50 states and the District of Columbia (except Alaska, for which underground storage is excluded from "Net Storage Withdrawals" through 2012).

Web Page: See http://www.eia.gov/totalenergy/data/monthly/#naturalgas (Excel and CSV files) for all available annual data beginning in 1949 and monthly data beginning in 1973.

Sources: • **Imports and Exports:** Table 4.2. • **Consumption:** Table 4.3. • **Balancing Item:** Calculated as consumption minus dry gas production, supplemental gaseous fuels, net imports, and net storage withdrawals. • **All Other Data: 1949–2014—**U.S. Energy Information Administration (EIA), *Natural Gas Annual,* annual reports. **2015 forward—**EIA, *Natural Gas Monthly,* October 2017, Table 1.

## Table 4.2 Natural Gas Trade by Country

(Billion Cubic Feet)

| | Imports | | | | | | | | | Exports[a] | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Algeria[b] | Canada[c] | Egypt[b] | Mexico[c] | Nigeria[b] | Qatar[b] | Trinidad and Tobago[b] | Other[b,d] | Total | Canada[c] | Japan[b] | Mexico[c] | Other[b,e] | Total |
| **1950 Total** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **3** | **0** | **23** | **0** | **26** |
| **1955 Total** | **0** | **11** | **0** | **(s)** | **0** | **0** | **0** | **0** | **11** | **11** | **0** | **20** | **0** | **31** |
| **1960 Total** | **0** | **109** | **0** | **47** | **0** | **0** | **0** | **0** | **156** | **6** | **0** | **6** | **0** | **11** |
| **1965 Total** | **0** | **405** | **0** | **52** | **0** | **0** | **0** | **0** | **456** | **18** | **0** | **8** | **0** | **26** |
| **1970 Total** | **1** | **779** | **0** | **(s)** | **0** | **0** | **0** | **0** | **821** | **11** | **44** | **15** | **0** | **70** |
| **1975 Total** | **5** | **948** | **0** | **0** | **0** | **0** | **0** | **0** | **953** | **10** | **53** | **9** | **0** | **73** |
| **1980 Total** | **86** | **797** | **0** | **102** | **0** | **0** | **0** | **0** | **985** | **(s)** | **45** | **4** | **0** | **49** |
| **1985 Total** | **24** | **926** | **0** | **0** | **0** | **0** | **0** | **0** | **950** | **(s)** | **53** | **2** | **0** | **55** |
| **1990 Total** | **84** | **1,448** | **0** | **0** | **0** | **0** | **0** | **0** | **1,532** | **17** | **53** | **16** | **0** | **86** |
| **1995 Total** | **18** | **2,816** | **0** | **7** | **0** | **0** | **0** | **0** | **2,841** | **28** | **65** | **61** | **0** | **154** |
| **2000 Total** | **47** | **3,544** | **0** | **12** | **13** | **46** | **99** | **21** | **3,782** | **73** | **66** | **106** | **0** | **244** |
| **2001 Total** | **65** | **3,729** | **0** | **10** | **38** | **23** | **98** | **14** | **3,977** | **167** | **66** | **141** | **0** | **373** |
| **2002 Total** | **27** | **3,785** | **0** | **2** | **8** | **35** | **151** | **8** | **4,015** | **189** | **63** | **263** | **0** | **516** |
| **2003 Total** | **53** | **3,437** | **0** | **0** | **50** | **14** | **378** | **11** | **3,944** | **271** | **66** | **343** | **0** | **680** |
| **2004 Total** | **120** | **3,607** | **0** | **0** | **12** | **12** | **462** | **46** | **4,259** | **395** | **62** | **397** | **0** | **854** |
| **2005 Total** | **97** | **3,700** | **73** | **9** | **8** | **3** | **439** | **11** | **4,341** | **358** | **65** | **305** | **0** | **729** |
| **2006 Total** | **17** | **3,590** | **120** | **13** | **57** | **0** | **389** | **0** | **4,186** | **341** | **61** | **322** | **0** | **724** |
| **2007 Total** | **77** | **3,783** | **115** | **54** | **95** | **18** | **448** | **18** | **4,608** | **482** | **47** | **292** | **2** | **822** |
| **2008 Total** | **0** | **3,589** | **55** | **43** | **12** | **3** | **267** | **15** | **3,984** | **559** | **39** | **365** | **0** | **963** |
| **2009 Total** | **0** | **3,271** | **160** | **28** | **13** | **13** | **236** | **29** | **3,751** | **701** | **31** | **338** | **3** | **1,072** |
| **2010 Total** | **0** | **3,280** | **73** | **30** | **42** | **46** | **190** | **81** | **3,741** | **739** | **33** | **333** | **32** | **1,137** |
| **2011 Total** | **0** | **3,117** | **35** | **3** | **2** | **91** | **129** | **92** | **3,469** | **937** | **18** | **499** | **52** | **1,506** |
| **2012 Total** | **0** | **2,963** | **3** | **(s)** | **0** | **34** | **112** | **26** | **3,138** | **971** | **14** | **620** | **14** | **1,619** |
| **2013 Total** | **0** | **2,786** | **0** | **1** | **3** | **7** | **70** | **17** | **2,883** | **911** | **0** | **661** | **0** | **1,572** |
| **2014 Total** | **0** | **2,635** | **0** | **1** | **0** | **0** | **43** | **16** | **2,695** | **770** | **13** | **729** | **3** | **1,514** |
| **2015** January | 0 | 268 | 0 | (s) | 0 | 0 | 9 | 2 | 279 | 73 | 0 | 69 | 3 | 145 |
| February | 0 | 242 | 0 | (s) | 0 | 0 | 10 | 2 | 254 | 78 | 0 | 65 | 3 | 145 |
| March | 0 | 243 | 0 | (s) | 0 | 0 | 12 | 3 | 257 | 90 | 0 | 74 | 0 | 164 |
| April | 0 | 202 | 0 | (s) | 0 | 0 | 3 | 0 | 205 | 53 | 0 | 77 | 0 | 130 |
| May | 0 | 203 | 0 | (s) | 0 | 0 | 2 | 0 | 204 | 45 | 0 | 87 | 3 | 134 |
| June | 0 | 204 | 0 | (s) | 0 | 0 | 3 | 0 | 206 | 45 | 0 | 91 | 3 | 138 |
| July | 0 | 210 | 0 | (s) | 0 | 0 | 7 | 0 | 217 | 40 | 3 | 101 | 0 | 144 |
| August | 0 | 203 | 0 | (s) | 0 | 0 | 11 | 0 | 214 | 41 | 3 | 101 | 0 | 145 |
| September | 0 | 203 | 0 | (s) | 0 | 0 | 6 | 0 | 209 | 60 | 0 | 100 | 3 | 163 |
| October | 0 | 218 | 0 | (s) | 0 | 0 | 3 | 6 | 226 | 57 | 3 | 98 | 0 | 159 |
| November | 0 | 211 | 0 | (s) | 0 | 0 | 4 | 3 | 218 | 61 | 0 | 92 | 3 | 156 |
| December | 0 | 222 | 0 | (s) | 0 | 0 | 2 | 3 | 227 | 59 | 0 | 100 | 3 | 162 |
| **Total** | **0** | **2,626** | **0** | **1** | **0** | **0** | **71** | **20** | **2,718** | **701** | **8** | **1,054** | **20** | **1,784** |
| **2016** January | 0 | 262 | 0 | (s) | 0 | 0 | 12 | 0 | 274 | 70 | 0 | 99 | 0 | 169 |
| February | 0 | 242 | 0 | (s) | 0 | 0 | 10 | 0 | 252 | 62 | 0 | 97 | 3 | 163 |
| March | 0 | 232 | 0 | (s) | 0 | 0 | 9 | 0 | 241 | 81 | 0 | 103 | 10 | 195 |
| April | 0 | 237 | 0 | (s) | 0 | 0 | 5 | 0 | 241 | 63 | 0 | 105 | 10 | 178 |
| May | 0 | 243 | 0 | (s) | 0 | 0 | 5 | 0 | 248 | 63 | 0 | 116 | 10 | 188 |
| June | 0 | 234 | 0 | (s) | 0 | 0 | 8 | 0 | 242 | 51 | 0 | 116 | 16 | 183 |
| July | 0 | 259 | 0 | (s) | 0 | 0 | 6 | 0 | 265 | 50 | 0 | 123 | 16 | 189 |
| August | 0 | 254 | 0 | (s) | 0 | 0 | 8 | 0 | 262 | 55 | 0 | 136 | 23 | 214 |
| September | 0 | 236 | 0 | (s) | 0 | 0 | 3 | 0 | 238 | 61 | 0 | 127 | 13 | 202 |
| October | 0 | 226 | 0 | (s) | 0 | 0 | 6 | 0 | 231 | 43 | 0 | 130 | 3 | 176 |
| November | 0 | 222 | 0 | (s) | 0 | 0 | 6 | 3 | 231 | 75 | 0 | 134 | 20 | 228 |
| December | 0 | 272 | 0 | (s) | 0 | 0 | 9 | 0 | 281 | 97 | 11 | 119 | 23 | 251 |
| **Total** | **0** | **2,918** | **0** | **1** | **0** | **0** | **84** | **3** | **3,006** | **771** | **11** | **1,405** | **148** | **2,335** |
| **2017** January | 0 | 279 | 0 | (s) | 3 | 0 | 10 | 0 | 292 | 99 | 11 | 136 | 27 | 272 |
| February | 0 | 246 | 0 | (s) | 0 | 0 | 8 | 0 | 255 | 88 | 4 | 130 | 34 | 255 |
| March | 0 | 276 | 0 | (s) | 0 | 0 | 5 | 0 | 281 | 100 | 0 | 140 | 33 | 272 |
| April | 0 | 233 | 0 | (s) | 0 | 0 | 5 | 0 | 238 | 81 | 7 | 130 | 29 | 247 |
| May | 0 | 239 | 0 | (s) | 0 | 0 | 5 | 0 | 244 | 64 | 4 | 139 | 47 | 254 |
| June | 0 | 234 | 0 | (s) | 0 | 0 | 5 | 0 | 240 | 67 | 4 | 159 | 24 | 253 |
| July | 0 | 245 | 0 | (s) | 0 | 0 | 5 | 0 | 251 | 60 | 0 | 150 | 39 | 248 |
| August | 0 | 240 | 0 | (s) | 0 | 0 | 8 | 0 | 248 | 66 | 4 | 142 | 35 | 247 |
| **8-Month Total** | **0** | **1,992** | **0** | **1** | **3** | **0** | **52** | **0** | **2,047** | **624** | **33** | **1,124** | **268** | **2,049** |
| **2016 8-Month Total** | **0** | **1,963** | **0** | **1** | **0** | **0** | **61** | **0** | **2,025** | **495** | **0** | **895** | **88** | **1,478** |
| **2015 8-Month Total** | **0** | **1,773** | **0** | **1** | **0** | **0** | **56** | **7** | **1,837** | **464** | **6** | **665** | **11** | **1,145** |

[a] Includes re-exports.

[b] As liquefied natural gas.

[c] By pipeline, except for small amounts of: liquefied natural gas (LNG) imported from Canada in 1973, 1977, 1981, and 2013 forward; LNG exported to Canada in 2007 and 2012 forward; compressed natural gas (CNG) imported from Canada in 2014 forward; CNG exported to Canada in 2013 forward; and LNG exported to Mexico beginning in 1998. See Note 9, "Natural Gas Imports and Exports," at end of section.

[d] Australia in 1997–2001 and 2004; Brunei in 2002; Equatorial Guinea in 2007; Indonesia in 1986 and 2000; Malaysia in 1999 and 2002–2005; Norway in 2008–2016; Oman in 2000–2005; Peru in 2010 and 2011; United Arab Emirates in 1996–2000; Yemen in 2010–2015; and Other (unassigned) in 2004–2015.

[e] Argentina in 2016; Barbados in 2016 and 2017; Brazil in 2010–2012, and 2014–2016; Chile in 2011, 2016, and 2017; China in 2011, 2016, and 2017; Dominican Republic in 2016 and 2017; Egypt in 2015 and 2016; India in 2010–2012, 2016, and 2017; Italy in 2016; Jordan in 2016 and 2017; Kuwait in 2016 and 2017; Malta in 2017; Pakistan in 2017; Portugal in 2012, 2016, and 2017; Russia in 2007; South Korea in 2009–2011, 2016, and 2017; Spain in 2010–2011, 2016, and 2017; Taiwan in 2015; Thailand in 2017; Turkey in 2015–2017; United Arab Emirates in 2016; and United Kingdom in 2010 and 2011.

(s)=Less than 500 million cubic feet.

Notes: • See Note 9, "Natural Gas Imports and Exports," at end of section. • Through 1964, all volumes are shown on a pressure base of 14.65 psia (pounds per square inch absolute) at 60° Fahrenheit; beginning in 1965, the pressure base is 14.73 psia at 60° Fahrenheit. • Totals may not equal sum of components due to independent rounding. • U.S. geographic coverage is the 50 states and the District of Columbia.

Web Page: See http://www.eia.gov/totalenergy/data/monthly/#naturalgas (Excel and CSV files) for all available annual data beginning in 1949 and monthly data beginning in 1973.

Sources: • **1949–1954:** U.S. Energy Information Administration (EIA) estimates based on Bureau of Mines, Minerals Yearbook, "Natural Gas" chapter. • **1955–1971:** Federal Power Commission data. • **1972–1987:** EIA, Form FPC-14, "Annual Report for Importers and Exporters of Natural Gas." • **1988–2014:** EIA, *Natural Gas Annual,* annual reports. • **2015 forward:** EIA, *Natural Gas Monthly,* October 2017, Tables 4 and 5; and U.S. Department of Energy, Office of Fossil Energy, "Natural Gas Imports and Exports."

# Table 4.3 Natural Gas Consumption by Sector

(Billion Cubic Feet)

| | End-Use Sectors | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Industrial | | | | | Transportation | | | | |
| | | | | Other Industrial | | | | | | | | |
| | Resi-dential | Com-mercial[a] | Lease and Plant Fuel | CHP[b] | Non-CHP[c] | Total | Total | Pipelines[d] and Dis-tribution[e] | Vehicle Fuel | Total | Electric Power Sector[f,g] | Total |
| **1950 Total** | **1,198** | **388** | **928** | ([h]) | **2,498** | **2,498** | **3,426** | **126** | **NA** | **126** | **629** | **5,767** |
| **1955 Total** | **2,124** | **629** | **1,131** | ([h]) | **3,411** | **3,411** | **4,542** | **245** | **NA** | **245** | **1,153** | **8,694** |
| **1960 Total** | **3,103** | **1,020** | **1,237** | ([h]) | **4,535** | **4,535** | **5,771** | **347** | **NA** | **347** | **1,725** | **11,967** |
| **1965 Total** | **3,903** | **1,444** | **1,156** | ([h]) | **5,955** | **5,955** | **7,112** | **501** | **NA** | **501** | **2,321** | **15,280** |
| **1970 Total** | **4,837** | **2,399** | **1,399** | ([h]) | **7,851** | **7,851** | **9,249** | **722** | **NA** | **722** | **3,932** | **21,139** |
| **1975 Total** | **4,924** | **2,508** | **1,396** | ([h]) | **6,968** | **6,968** | **8,365** | **583** | **NA** | **583** | **3,158** | **19,538** |
| **1980 Total** | **4,752** | **2,611** | **1,026** | ([h]) | **7,172** | **7,172** | **8,198** | **635** | **NA** | **635** | **3,682** | **19,877** |
| **1985 Total** | **4,433** | **2,432** | **966** | ([h]) | **5,901** | **5,901** | **6,867** | **504** | **NA** | **504** | **3,044** | **17,281** |
| **1990 Total** | **4,391** | **2,623** | **1,236** | **1,055** | **[i] 5,963** | **[i] 7,018** | **8,255** | **660** | **(s)** | **660** | **[i] 3,245** | **[i] 19,174** |
| **1995 Total** | **4,850** | **3,031** | **1,220** | **1,258** | **6,906** | **8,164** | **9,384** | **700** | **5** | **705** | **4,237** | **22,207** |
| **2000 Total** | **4,996** | **3,182** | **1,151** | **1,386** | **6,757** | **8,142** | **9,293** | **642** | **13** | **655** | **5,206** | **23,333** |
| **2001 Total** | **4,771** | **3,023** | **1,119** | **1,310** | **6,035** | **7,344** | **8,463** | **625** | **15** | **640** | **5,342** | **22,239** |
| **2002 Total** | **4,889** | **3,144** | **1,113** | **1,240** | **6,287** | **7,527** | **8,640** | **667** | **15** | **682** | **5,672** | **23,027** |
| **2003 Total** | **5,079** | **3,179** | **1,122** | **1,144** | **6,007** | **7,150** | **8,273** | **591** | **18** | **610** | **5,135** | **22,277** |
| **2004 Total** | **4,869** | **3,129** | **1,098** | **1,191** | **6,066** | **7,256** | **8,354** | **566** | **21** | **587** | **5,464** | **22,403** |
| **2005 Total** | **4,827** | **2,999** | **1,112** | **1,084** | **5,518** | **6,601** | **7,713** | **584** | **23** | **607** | **5,869** | **22,014** |
| **2006 Total** | **4,368** | **2,832** | **1,142** | **1,115** | **5,412** | **6,527** | **7,669** | **584** | **24** | **608** | **6,222** | **21,699** |
| **2007 Total** | **4,722** | **3,013** | **1,226** | **1,050** | **5,604** | **6,655** | **7,881** | **621** | **25** | **646** | **6,841** | **23,104** |
| **2008 Total** | **4,892** | **3,153** | **1,220** | **955** | **5,715** | **6,670** | **7,890** | **648** | **26** | **674** | **6,668** | **23,277** |
| **2009 Total** | **4,779** | **3,119** | **1,275** | **990** | **5,178** | **6,167** | **7,443** | **670** | **27** | **697** | **6,873** | **22,910** |
| **2010 Total** | **4,782** | **3,103** | **1,286** | **1,029** | **5,797** | **6,826** | **8,112** | **674** | **29** | **703** | **7,387** | **24,087** |
| **2011 Total** | **4,714** | **3,155** | **1,323** | **1,063** | **5,931** | **6,994** | **8,317** | **688** | **30** | **718** | **7,574** | **24,477** |
| **2012 Total** | **4,150** | **2,895** | **1,396** | **1,149** | **6,077** | **7,226** | **8,622** | **731** | **30** | **761** | **9,111** | **25,538** |
| **2013 Total** | **4,897** | **3,295** | **1,483** | **1,170** | **6,255** | **7,425** | **8,909** | **833** | **30** | **863** | **8,191** | **26,155** |
| **2014 Total** | **5,087** | **3,466** | **1,512** | **1,145** | **6,501** | **7,646** | **9,158** | **700** | **35** | **735** | **8,146** | **26,593** |
| **2015** January | 938 | 533 | 133 | 103 | 615 | 718 | 851 | 79 | 3 | 82 | 711 | 3,115 |
| February | 902 | 517 | 120 | 92 | 567 | 660 | 780 | 74 | 3 | 77 | 648 | 2,925 |
| March | 633 | 386 | 134 | 99 | 563 | 662 | 795 | 65 | 3 | 68 | 709 | 2,591 |
| April | 319 | 232 | 131 | 93 | 515 | 608 | 739 | 50 | 3 | 53 | 664 | 2,008 |
| May | 178 | 161 | 134 | 95 | 508 | 603 | 737 | 46 | 3 | 49 | 734 | 1,858 |
| June | 124 | 135 | 129 | 101 | 474 | 575 | 704 | 47 | 3 | 50 | 886 | 1,900 |
| July | 108 | 134 | 134 | 109 | 482 | 592 | 726 | 51 | 3 | 54 | 1,046 | 2,068 |
| August | 103 | 135 | 134 | 110 | 489 | 600 | 734 | 51 | 3 | 54 | 1,027 | 2,053 |
| September | 108 | 138 | 131 | 102 | 477 | 579 | 710 | 47 | 3 | 50 | 895 | 1,901 |
| October | 202 | 195 | 134 | 102 | 511 | 613 | 747 | 49 | 3 | 52 | 792 | 1,987 |
| November | 407 | 283 | 129 | 103 | 535 | 639 | 768 | 56 | 3 | 59 | 732 | 2,249 |
| December | 591 | 353 | 133 | 110 | 564 | 675 | 808 | 65 | 3 | 68 | 769 | 2,588 |
| **Total** | **4,613** | **3,202** | **1,576** | **1,222** | **6,300** | **7,522** | **9,098** | **678** | **39** | **718** | **9,613** | **27,244** |
| **2016** January | 879 | 503 | 136 | 107 | 613 | 720 | 857 | 80 | 3 | 83 | 771 | 3,092 |
| February | 690 | 413 | 129 | 100 | 562 | 662 | 791 | 68 | 3 | 71 | 686 | 2,651 |
| March | 455 | 298 | 137 | 103 | 559 | 662 | 799 | 60 | 3 | 63 | 743 | 2,357 |
| April | 328 | 233 | 132 | 100 | 520 | 620 | 752 | 53 | 3 | 56 | 721 | 2,089 |
| May | 194 | 171 | 136 | 102 | 510 | 612 | 748 | 49 | 3 | 53 | 806 | 1,971 |
| June | 123 | 138 | 130 | 104 | 486 | 590 | 720 | 51 | 3 | 54 | 971 | 2,005 |
| July | 106 | 134 | 135 | 108 | 508 | 616 | 751 | 55 | 4 | 59 | 1,142 | 2,193 |
| August | 100 | 140 | 134 | 109 | 518 | 627 | 761 | 56 | 4 | 60 | 1,155 | 2,216 |
| September | 110 | 142 | 129 | 104 | 499 | 604 | 732 | 49 | 4 | 53 | 915 | 1,951 |
| October | 187 | 191 | 132 | 102 | 520 | 622 | 754 | 48 | 4 | 52 | 741 | 1,926 |
| November | 380 | 280 | 129 | 106 | 548 | 654 | 782 | 55 | 4 | 58 | 664 | 2,164 |
| December | 794 | 462 | 132 | 112 | 622 | 733 | 865 | 74 | 4 | 77 | 669 | 2,867 |
| **Total** | **4,345** | **3,105** | **1,590** | **1,257** | **6,465** | **7,722** | **9,312** | **697** | **42** | **739** | **9,984** | **27,486** |
| **2017** January | 832 | 481 | [E] 131 | 114 | 617 | 731 | 862 | [E] 73 | [E] 4 | [E] 77 | 639 | 2,891 |
| February | 582 | 361 | [E] 120 | 102 | 542 | 644 | 765 | [E] 59 | [E] 3 | [E] 62 | 550 | 2,320 |
| March | 582 | 373 | [E] 133 | 108 | 583 | 691 | 824 | [E] 64 | [E] 4 | [E] 67 | 667 | 2,514 |
| April | 281 | 213 | [E] 129 | 103 | 522 | 625 | 754 | [E] 49 | [E] 4 | [E] 52 | 614 | 1,914 |
| May | 201 | 179 | [E] 134 | 103 | 521 | 625 | 758 | [E] 48 | [E] 4 | [E] 52 | 697 | 1,887 |
| June | 124 | 139 | [E] 131 | 104 | 507 | 611 | 742 | [E] 48 | [E] 4 | [E] 52 | 834 | 1,890 |
| July | 108 | 134 | [RE] 137 | 109 | [R] 514 | [R] 623 | [R] 759 | [E] 54 | [E] 4 | [E] 57 | 1,052 | [R] 2,110 |
| August | 105 | 140 | [E] 136 | 105 | 529 | 635 | 771 | [E] 53 | [E] 4 | [E] 56 | 1,008 | 2,081 |
| **8-Month Total** | **2,813** | **2,022** | **[E] 1,050** | **848** | **4,336** | **5,185** | **6,235** | **[E] 447** | **[E] 29** | **[E] 476** | **6,061** | **17,607** |
| **2016 8-Month Total** | **2,874** | **2,030** | **1,069** | **834** | **4,276** | **5,110** | **6,178** | **472** | **27** | **499** | **6,995** | **18,576** |
| **2015 8-Month Total** | **3,305** | **2,233** | **1,049** | **804** | **4,213** | **5,017** | **6,066** | **462** | **26** | **488** | **6,426** | **18,518** |

[a] All commercial sector fuel use, including that at commercial combined-heat-and-power (CHP) and commercial electricity-only plants. See Table 7.4c for CHP fuel use.

[b] Industrial combined-heat-and-power (CHP) and a small number of industrial electricity-only plants.

[c] All industrial sector fuel use other than that in "Lease and Plant Fuel" and "CHP."

[d] Natural gas consumed in the operation of pipelines, primarily in compressors. Beginning in 2009, includes line loss, which is known volumes of natural gas that are the result of leaks, damage, accidents, migration, and/or blow down.

[e] Natural gas used as fuel in the delivery of natural gas to consumers. Beginning in 2009, includes line loss, which is known volumes of natural gas that are the result of leaks, damage, accidents, migration, and/or blow down.

[f] The electric power sector comprises 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.

[g] Through 1988, data are for electric utilities only. Beginning in 1989, data are for electric utilities and independent power producers.

[h] Included in "Non-CHP."

[i] For 1989–1992, a small amount of consumption at independent power producers may be counted in both "Other Industrial" and "Electric Power Sector." See Note 7, "Natural Gas Consumption, 1989–1992," at end of section.

R=Revised. E=Estimate. NA=Not available. (s)=Less than 500 million cubic feet.

Notes: • Data are for natural gas, plus a small amount of supplemental gaseous fuels. See Note 3, "Supplemental Gaseous Fuels," at end of section. • See Note 8, "Natural Gas Data Adjustments, 1993–2000," at end of section. • See Note 2, "Classification of Power Plants Into Energy-Use Sectors," at end of Section 7. • Through 1964, all volumes are shown on a pressure base of 14.65 psia (pounds per square inch absolute) at 60° Fahrenheit; beginning in 1965, the pressure base is 14.73 psia at 60° Fahrenheit. • Totals may not equal sum of components due to independent rounding. • Geographic coverage is the 50 states and the District of Columbia.

Web Page: See http://www.eia.gov/totalenergy/data/monthly/#naturalgas (Excel and CSV files) for all available annual data beginning in 1949 and monthly data beginning in 1973.

Sources: • **Residential, Commercial, Lease and Plant Fuel, Other Industrial Total** and **Pipelines and Distribution: 1949–2014—**U.S. Energy Information Administration (EIA), *Natural Gas Annual (NGA),* annual reports and unpublished revisions. **2015 forward—**EIA, *Natural Gas Monthly (NGM),* October 2017, Table 2. • **Other Industrial CHP:** Table 7.4c. • **Other Industrial Non-CHP:** Calculated as other industrial total minus other industrial CHP. • **Industrial Total:** Calculated as lease and plant fuel plus other industrial total. • **Vehicle Fuel: 1990 and 1991—**EIA, NGA 2000, (November 2001), Table 95. **1992–1998—**EIA, "Alternatives to Traditional Transportation Fuels 1999" (October 1999), Table 10, and "Alternatives to Traditional Transportation Fuels 2003" (February 2004), Table 10. Data for compressed natural gas and liquefied natural gas in gasoline-equivalent gallons were converted to cubic feet by multiplying by the motor gasoline conversion factor (see Table A3) and dividing by the natural gas end-use sectors conversion factor (see Table A4). **1999–2014—**EIA, NGA, annual reports. **2015 forward—**EIA, NGM, October 2017, Table 2. • **Transportation Total:** Calculated as pipelines and distribution plus vehicle fuel. • **Electric Power Sector:** Table 7.4b. • **Total Consumption:** Calculated as the sum of residential, commercial, industrial total, transportation total, and electric power sector.

# Table 4.4 Natural Gas in Underground Storage

(Volumes in Billion Cubic Feet)

| | Natural Gas in Underground Storage, End of Period | | | Change in Working Gas From Same Period Previous Year | | Storage Activity | | |
|---|---|---|---|---|---|---|---|---|
| | Base Gas | Working Gas | Total[a] | Volume | Percent | Withdrawals | Injections | Net[b,c] |
| **1950 Total** | **NA** | **NA** | **NA** | **NA** | **NA** | **175** | **230** | **-54** |
| **1955 Total** | **863** | **505** | **1,368** | **40** | **8.7** | **437** | **505** | **-68** |
| **1960 Total** | **NA** | **NA** | **2,184** | **NA** | **NA** | **713** | **844** | **-132** |
| **1965 Total** | **1,848** | **1,242** | **3,090** | **83** | **7.2** | **960** | **1,078** | **-118** |
| **1970 Total** | **2,326** | **1,678** | **4,004** | **257** | **18.1** | **1,459** | **1,857** | **-398** |
| **1975 Total** | **3,162** | **2,212** | **5,374** | **162** | **7.9** | **1,760** | **2,104** | **-344** |
| **1980 Total** | **3,642** | **2,655** | **6,297** | **-99** | **-3.6** | **1,910** | **1,896** | **14** |
| **1985 Total** | **3,842** | **2,607** | **6,448** | **-270** | **-9.4** | **2,359** | **2,128** | **231** |
| **1990 Total** | **3,868** | **3,068** | **6,936** | **555** | **22.1** | **1,934** | **2,433** | **-499** |
| **1995 Total** | **4,349** | **2,153** | **6,503** | **-453** | **-17.4** | **2,974** | **2,566** | **408** |
| **2000 Total** | **4,352** | **1,719** | **6,071** | **-806** | **-31.9** | **3,498** | **2,684** | **814** |
| **2001 Total** | **4,301** | **2,904** | **7,204** | **1,185** | **68.9** | **2,309** | **3,464** | **-1,156** |
| **2002 Total** | **4,340** | **2,375** | **6,715** | **-528** | **-18.2** | **3,138** | **2,670** | **468** |
| **2003 Total** | **4,303** | **2,563** | **6,866** | **187** | **7.9** | **3,099** | **3,292** | **-193** |
| **2004 Total** | **4,201** | **2,696** | **6,897** | **133** | **5.2** | **3,037** | **3,150** | **-113** |
| **2005 Total** | **4,200** | **2,635** | **6,835** | **-61** | **-2.3** | **3,057** | **3,002** | **55** |
| **2006 Total** | **4,211** | **3,070** | **7,281** | **435** | **16.5** | **2,493** | **2,924** | **-431** |
| **2007 Total** | **4,234** | **2,879** | **7,113** | **-191** | **-6.2** | **3,325** | **3,133** | **192** |
| **2008 Total** | **4,232** | **2,840** | **7,073** | **-39** | **-1.4** | **3,374** | **3,340** | **34** |
| **2009 Total** | **4,277** | **3,130** | **7,407** | **290** | **10.2** | **2,966** | **3,315** | **-349** |
| **2010 Total** | **4,301** | **3,111** | **7,412** | **-19** | **-.6** | **3,274** | **3,291** | **-17** |
| **2011 Total** | **4,302** | **3,462** | **7,764** | **351** | **11.3** | **3,074** | **3,422** | **-348** |
| **2012 Total** | **4,372** | **3,413** | **7,785** | **-49** | **-1.4** | **2,818** | **2,825** | **-7** |
| **2013 Total** | **4,365** | **2,890** | **7,255** | **-523** | **-15.3** | **3,702** | **3,156** | **546** |
| **2014 Total** | **4,365** | **3,141** | **7,506** | **251** | **8.7** | **3,586** | **3,839** | **-253** |
| **2015** January | 4,368 | 2,407 | 6,776 | 482 | 25.1 | 795 | 70 | 725 |
| February | 4,368 | 1,666 | 6,034 | 466 | 38.8 | 803 | 62 | 742 |
| March | 4,369 | 1,471 | 5,841 | 614 | 71.6 | 376 | 182 | 193 |
| April | 4,369 | 1,793 | 6,162 | 727 | 68.1 | 84 | 405 | -321 |
| May | 4,371 | 2,287 | 6,658 | 739 | 47.8 | 44 | 541 | -496 |
| June | 4,375 | 2,647 | 7,022 | 641 | 32.0 | 68 | 430 | -362 |
| July | 4,380 | 2,924 | 7,305 | 524 | 21.9 | 95 | 379 | -284 |
| August | 4,372 | 3,242 | 7,614 | 473 | 17.1 | 85 | 394 | -309 |
| September | 4,373 | 3,614 | 7,987 | 427 | 13.4 | 63 | 435 | -372 |
| October | 4,374 | 3,942 | 8,316 | 355 | 9.9 | 70 | 401 | -331 |
| November | 4,376 | 3,927 | 8,303 | 500 | 14.6 | 214 | 201 | 12 |
| December | 4,372 | 3,667 | 8,038 | 525 | 16.7 | 403 | 138 | 264 |
| **Total** | **4,372** | **3,667** | **8,038** | **525** | **16.7** | **3,100** | **3,638** | **-539** |
| **2016** January | 4,369 | 2,938 | 7,307 | 531 | 22.1 | 795 | 66 | 729 |
| February | 4,369 | 2,534 | 6,904 | 869 | 52.2 | 515 | 111 | 403 |
| March | 4,360 | 2,486 | 6,847 | 1,015 | 69.0 | 264 | 215 | 49 |
| April | 4,364 | 2,646 | 7,009 | 852 | 47.5 | 130 | 294 | -164 |
| May | 4,366 | 2,966 | 7,332 | 679 | 29.7 | 74 | 402 | -329 |
| June | 4,369 | 3,186 | 7,555 | 539 | 20.4 | 94 | 316 | -222 |
| July | 4,369 | 3,318 | 7,687 | 394 | 13.5 | 150 | 283 | -133 |
| August | 4,369 | 3,441 | 7,811 | 200 | 6.2 | 162 | 285 | -124 |
| September | 4,369 | 3,705 | 8,074 | 91 | 2.5 | 88 | 351 | -262 |
| October | 4,371 | 4,013 | 8,384 | 70 | 1.8 | 78 | 387 | -308 |
| November | 4,372 | 3,977 | 8,349 | 50 | 1.3 | 213 | 178 | 35 |
| December | 4,380 | 3,297 | 7,677 | -370 | -10.1 | 762 | 87 | 676 |
| **Total** | **4,380** | **3,297** | **7,677** | **-370** | **-10.1** | **3,325** | **2,977** | **348** |
| **2017** January | 4,379 | 2,623 | 7,002 | -315 | -10.7 | 776 | 101 | 675 |
| February | 4,378 | 2,338 | 6,716 | -196 | -7.7 | 416 | 131 | 285 |
| March | 4,379 | 2,063 | 6,442 | -423 | -17.0 | 443 | 167 | 275 |
| April | 4,380 | 2,292 | 6,672 | -353 | -13.4 | 111 | 341 | -230 |
| May | 4,386 | 2,627 | 7,013 | -339 | -11.4 | 82 | 423 | -341 |
| June | 4,355 | 2,908 | 7,263 | -278 | -8.7 | 106 | 387 | -281 |
| July | 4,357 | 3,055 | 7,412 | -263 | -7.9 | 160 | 310 | -150 |
| August | 4,357 | 3,250 | 7,607 | -191 | -5.6 | 160 | 355 | -195 |
| **8-Month Total** | – – | – – | – – | – – | – – | **2,254** | **2,217** | **38** |
| **2016 8-Month Total** | – – | – – | – – | – – | – – | **2,183** | **1,975** | **208** |
| **2015 8-Month Total** | – – | – – | – – | – – | – – | **2,350** | **2,463** | **-112** |

[a] For total underground storage capacity at the end of each calendar year, see Note 4, "Natural Gas Storage," at end of section.

[b] For 1980–2015, data differ from those shown on Table 4.1, which includes liquefied natural gas storage for that period.

[c] Positive numbers indicate that withdrawals are greater than injections. Negative numbers indicate that injections are greater than withdrawals. Net withdrawals or injections may not equal the difference between applicable ending stocks. See Note 4, "Natural Gas Storage," at end of section.

– – =Not applicable. NA=Not available.

Notes: • Through 1964, all volumes are shown on a pressure base of 14.65 psia (pounds per square inch absolute) at 60° Fahrenheit; beginning in 1965, the pressure base is 14.73 psia at 60° Fahrenheit. • Totals may not equal sum of components due to independent rounding. • Geographic coverage is the 50 states and the District of Columbia (except Alaska, which is excluded through 2012).

Web Page: See http://www.eia.gov/totalenergy/data/monthly/#naturalgas (Excel and CSV files) for all available annual data beginning in 1949 and monthly data beginning in 1973.

Sources: • **Storage Activity: 1949–1975—**U.S. Energy Information Administration (EIA), *Natural Gas Annual 1994, Volume 2,* Table 9. **1976–1979—**EIA, *Natural Gas Production and Consumption 1979,* Table 1. **1980–1995—**EIA, *Historical Natural Gas Annual 1930 Through 2000,* Table 11. **1996–2014—**EIA, *Natural Gas Monthly (NGM),* monthly issues. **2015 forward—**EIA, NGM, October 2017, Table 8. • **All Other Data: 1954–1974—**American Gas Association, *Gas Facts,* annual issues. **1975 and 1976—**Federal Energy Administration (FEA), Form FEA-G318-M-0, "Underground Gas Storage Report," and Federal Power Commission (FPC), Form FPC-8, "Underground Gas Storage Report." **1977 and 1978—**EIA, Form FEA-G318-M-0, "Underground Gas Storage Report," and Federal Energy Regulatory Commission (FERC), Form FERC-8, "Underground Gas Storage Report." **1979–1995—**EIA, Form EIA-191, "Underground Gas Storage Report," and FERC, Form FERC-8, "Underground Gas Storage Report." **1996–2014—**EIA, NGA, annual reports. **2015 forward—**EIA, NGM, October 2017, Table 8.

# Natural Gas

**Note 1. Natural Gas Production.** Final annual data are from the U.S. Energy Information Administration's (EIA) *Natural Gas Annual (NGA)*.

Data for the two most recent months presented are estimated. Some of the data for earlier months are also estimated or computed. For a discussion of computation and estimation procedures, see EIA's *Natural Gas Monthly* (*NGM*).

Monthly data are considered preliminary until after publication of the NGA. Preliminary monthly data are gathered from reports to the Interstate Oil Compact Commission and the U.S. Minerals Management Service. Volumetric data are converted, as necessary, to a standard pressure base of 14.73 psia (pounds per square inch absolute) at 60° Fahrenheit. Unless there are major changes, data are not revised until after publication of the NGA.

Differences between annual data in the NGA and the sum of preliminary monthly data (January–December) are allocated proportionally to the months to create final monthly data.

**Note 2. Natural Gas Plant Liquids Production.** Natural gas plant liquids (NGPL) production is the reduction in volume of natural gas resulting from the removal of natural gas liquid constituents at natural gas processing plants—these natural gas plant liquids are transferred to petroleum supply.

Annual data are from EIA's *Natural Gas Annual* (*NGA*), where they are estimated on the basis of the type and quantity of liquid products extracted from the gas stream and the calculated volume of such products at standard conditions. For a detailed explanation of the calculations used to derive estimated NGPL production, see the NGA.

Through 2006, preliminary monthly data are estimated on the basis of NGPL production as an annual percentage of marketed production. Beginning in 2007, preliminary monthly data are estimated on the basis of NGPL production reported on Form EIA-816, "Monthly Natural Gas Liquids Report."

Monthly data are revised and considered final after publication of the NGA. Final monthly data are estimated by allocating annual NGPL production data to the months on the basis of total natural gas marketed production data from the NGA.

**Note 3. Supplemental Gaseous Fuels.** Supplemental gaseous fuels are any substances that, introduced into or commingled with natural gas, increase the volume available for disposition. Such substances include, but are not limited to, propane-air, refinery gas, coke oven gas, still gas, manufactured gas, biomass gas, and air or inert gases added for Btu stabilization.

Annual data beginning with 1980 are from EIA's *Natural Gas Annual* (*NGA*). Unknown quantities of supplemental gaseous fuels are included in consumption data for 1979 and earlier years. Monthly data are considered preliminary until after publication of the NGA. Monthly estimates are based on the annual ratio of supplemental gaseous fuels to the sum of dry gas production, net imports, and net withdrawals from storage. The ratio is applied to the monthly sum of the three elements to compute a monthly supplemental gaseous fuels figure.

Although the total amount of supplemental gaseous fuels consumed is known for 1980 forward, the amount consumed by each energy-use sector is estimated by EIA. These estimates are used to create natural gas (without supplemental gaseous fuels) data for Tables 1.3, 2.2, 2.3, 2.4, and 2.6 (note: to avoid double-counting in these tables, supplemental gaseous fuels are accounted for in their primary energy category: "Coal," "Petroleum," or "Biomass"). It is assumed that supplemental gaseous fuels are commingled with natural gas consumed by the residential, commercial, other industrial, and electric power sectors, but are not commingled with natural gas used for lease and plant fuel, pipelines and distribution, or vehicle fuel. The estimated consumption of supplemental gaseous fuels by each sector (residential, commercial, other industrial, and electric power) is calculated as that sector's natural gas consumption (see Table 4.3) divided by the sum of natural gas consumption by the residential, commercial, other industrial, and electric power sectors (see Table 4.3), and then multiplied by total supplemental gaseous fuels consumption (see Table 4.1). For estimated sectoral consumption of supplemental gaseous fuels in Btu, the residential, commercial, and other industrial values in cubic feet are multiplied by the "End-Use Sectors" conversion factors (see Table A4), and the electric power values in cubic feet are multiplied by the "Electric Power Sector" conversion factors (see Table A4). Total supplemental gaseous fuels consumption in Btu is calculated as the sum of the Btu values for the sectors.

**Note 4. Natural Gas Storage.** Natural gas in storage at the end of a reporting period may not equal the quantity derived by adding or subtracting net injections or withdrawals from the quantity in storage at the end of the previous period. Injection and withdrawal data from the FERC-8/EIA-191 survey may be adjusted to correspond to data from Form EIA-176 for publication of EIA's *Natural Gas Annual* (*NGA*).

Total underground storage capacity, which includes both active and inactive fields, at the end of each calendar year since 1975 (first year data were available), in billion cubic feet, was:

| | | |
|---|---|---|
| **1975** . . . 6,280 | **1989** . . . 8,120 | **2003** . . . 8,206 |
| **1976** . . . 6,544 | **1990** . . . 7,794 | **2004** . . . 8,255 |
| **1977** . . . 6,678 | **1991** . . . 7,993 | **2005** . . . 8,268 |
| **1978** . . . 6,890 | **1992** . . . 7,932 | **2006** . . . 8,330 |
| **1979** . . . 6,929 | **1993** . . . 7,989 | **2007** . . . 8,402 |
| **1980** . . . 7,434 | **1994** . . . 8,043 | **2008** . . . 8,499 |
| **1981** . . . 7,805 | **1995** . . . 7,953 | **2009** . . . 8,656 |
| **1982** . . . 7,915 | **1996** . . . 7,980 | **2010** . . . 8,764 |
| **1983** . . . 7,985 | **1997** . . . 8,332 | **2011** . . . 8,849 |
| **1984** . . . 8,043 | **1998** . . . 8,179 | **2012** . . . 8,991 |
| **1985** . . . 8,087 | **1999** . . . 8,229 | **2013** . . . 9,173 |
| **1986** . . . 8,145 | **2000** . . . 8,241 | **2014** . . . 9,233 |
| **1987** . . . 8,124 | **2001** . . . 8,182 | **2015** . . . 9,231 |
| **1988** . . . 8,124 | **2002** . . . 8,207 | **2016** . . . 9,239 |

Through 1990, monthly underground storage data are collected from the Federal Energy Regulatory Commission Form FERC-8 (interstate data) and EIA Form EIA-191 (intrastate data). Beginning in 1991, all data are collected on the revised Form EIA-191. Injection and withdrawal data from the EIA-191 survey may be adjusted to correspond to data from Form EIA-176 following publication of EIA's NGA.

The final monthly and annual storage and withdrawal data for 1980–2015 include both underground and liquefied natural gas (LNG) storage. Annual data on LNG additions and withdrawals are from Form EIA-176. Monthly data are estimated by computing the ratio of each month's underground storage additions and withdrawals to annual underground storage additions and withdrawals and applying the ratio to the annual LNG data.

**Note 5. Natural Gas Balancing Item.** The balancing item for natural gas represents the difference between the sum of the components of natural gas supply and the sum of components of natural gas disposition. The differences may be due to quantities lost or to the effects of data reporting problems. Reporting problems include differences due to the net result of conversions of flow data metered at varying temperature and pressure bases and converted to a standard temperature and pressure base; the effect of variations in company accounting and billing practices; differences between billing cycle and calendar period time frames; and imbalances resulting from the merger of data reporting systems that vary in scope, format, definitions, and type of respondents.

**Note 6. Natural Gas Consumption.** Natural gas consumption statistics include data for the following: "Residential Sector": residential deliveries; "Commercial Sector": commercial deliveries, including to commercial combined-heat-and-power (CHP) and commercial electricity-only plants; "Industrial Sector": lease and plant fuel use, and other industrial deliveries, including to industrial CHP and industrial electricity-only plants also includes the relatively small amount of natural gas consumption for non-combustion use (see Tables 1.11a and 1.11b); "Transportation Sector": pipelines and distribution use, and vehicle fuel use; and "Electric Power Sector": electric utility and independent power producer use.

Final data for series other than "Other Industrial CHP" and "Electric Power Sector" are from EIA's *Natural Gas Annual* (*NGA*). Monthly data are considered preliminary until after publication of the NGA. For more detailed information on the methods of estimating preliminary and final monthly data, see EIA's *Natural Gas Monthly*.

**Note 7. Natural Gas Consumption, 1989–1992.** Prior to 1993, deliveries to nonutility generators were not separately collected from natural gas companies on Form EIA-176, "Annual Report of Natural and Supplemental Gas Supply and Disposition." As a result, for 1989–1992, those volumes are probably included in both the industrial and electric power sectors and double-counted in total consumption. In 1993, 0.28 trillion cubic feet was reported as delivered to nonutility generators.

**Note 8. Natural Gas Data Adjustments, 1993–2000.** For 1993–2000, the original data for natural gas delivered to industrial consumers (now "Other Industrial" in Table 4.3) included deliveries to both industrial users and independent power producers (IPPs). These data were adjusted to remove the estimated consumption at IPPs from "Other Industrial" and include it with electric utilities under "Electric Power Sector." (To estimate the monthly IPP consumption, the monthly pattern for Other Industrial CHP in Table 4.3 was used.)

For 1996–2000, monthly data for several natural gas series shown in EIA's Natural Gas Navigator (see http://www.eia.gov/dnav/ng/ng_cons_sum_dcu_nus_m.htm) were not reconciled and updated to be consistent with the final annual data in EIA's *Natural Gas Annual*. In the *Monthly Energy Review*, monthly data for these series were adjusted so that the monthly data sum to the final annual values. The Table 4.1 data series (and years) that were adjusted are: Gross Withdrawals (1996, 1997), Marketed Production (1997), NGPL Production (1997, 1998, 2000), Dry Gas Production (1996, 1997), Supplemental Gaseous Fuels (1997–2000), Balancing Item (1997–2000), and Total Consumption (1997–2000). The Table 4.3 data series (and years) that were adjusted are: Lease and Plant Fuel (1997–2000), Total Industrial (1997–2000), Pipelines and Distribution (2000), Total Transportation (2000), and Total Consumption (1997–2000).

**Note 9. Natural Gas Imports and Exports.** The United States imports natural gas via pipeline from Canada and Mexico; and imports liquefied natural gas (LNG) via tanker from Algeria, Australia, Brunei, Egypt, Equatorial Guinea, Indonesia, Malaysia, Nigeria, Norway, Oman, Peru, Qatar, Trinidad and Tobago, the United Arab Emirates, and Yemen. In addition, small amounts of LNG arrived from Canada in 1973 (667 million cubic feet), 1977 (572 million cubic feet), 1981 (6 million cubic feet), 2013 (555 million cubic feet), 2014 (132 million cubic feet), 2015 (437 million cubic feet), 2016 (924 million cubic feet), and 2017 (1,093 million cubic feet). Also, small amounts of compressed natural gas (CNG) were imported from Canada in 2014 forward. The United States exports natural gas via pipeline to Canada and Mexico; and exports LNG via tanker to Argentina, Barbados, Brazil, Chile, China, Dominican Republic, Egypt, India, Italy, Japan, Jordan, Kuwait, Malta, Parkistan, Portugal, Russia, South Korea, Spain, Taiwan, Thailand, Turkey, United Arab Emirates, and United Kingdom. Also, small amounts of LNG have gone to Mexico since 1998 and to Canada in 2007 and 2012 forward. Small amounts of CNG have been exported to Canada since 2013.

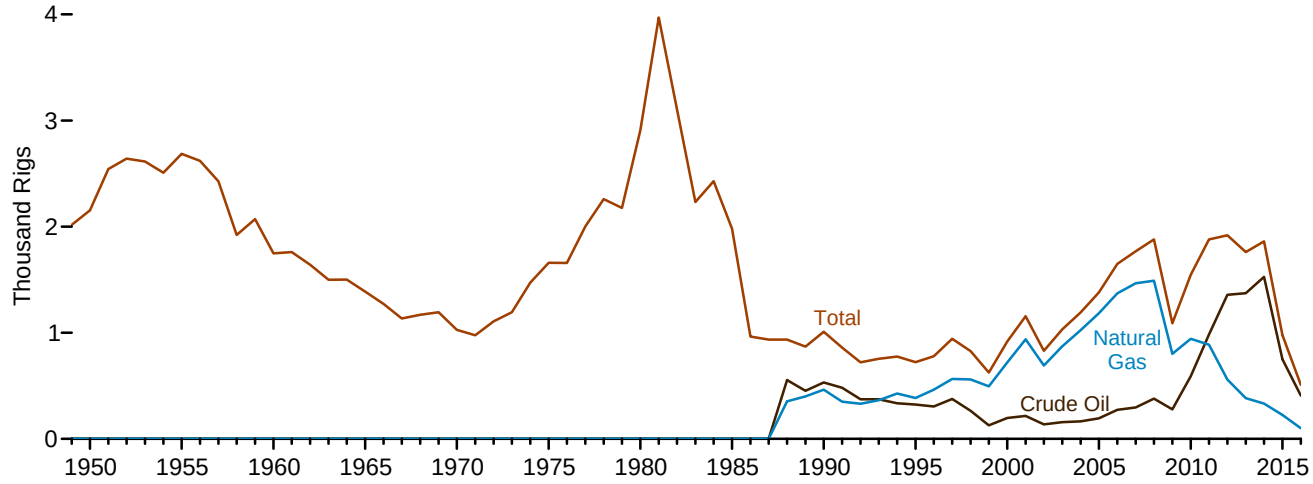
Annual and final monthly data are from the annual EIA Form FPC-14, "Annual Report for Importers and Exporters of Natural Gas," which requires data to be reported by month for the calendar year.

Preliminary monthly data are EIA estimates. For a discussion of estimation procedures, see EIA's *Natural Gas Monthly*. Preliminary data are revised after publication of EIA's *U.S. Imports and Exports of Natural Gas*.

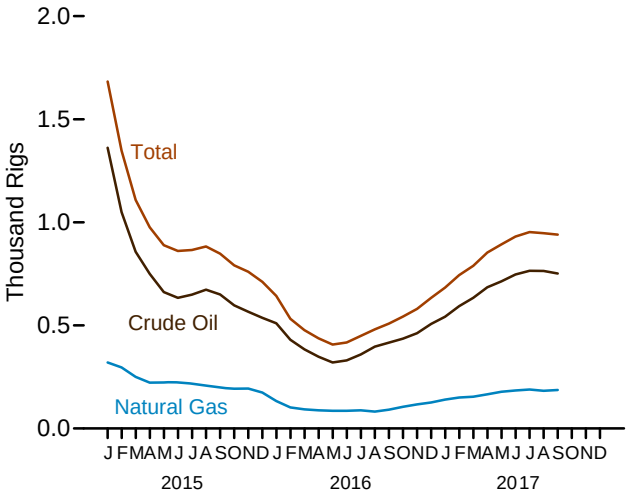
# 5. Crude Oil and Natural Gas Resource Development

## Figure 5.1 Crude Oil and Natural Gas Resource Development Indicators

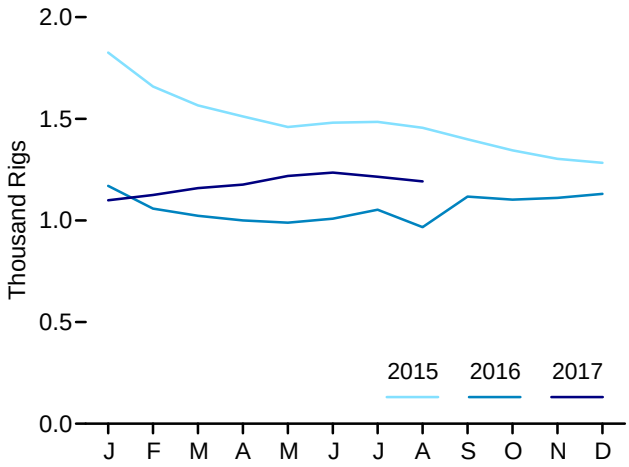
Rotary Rigs in Operation by Type, 1949–2016



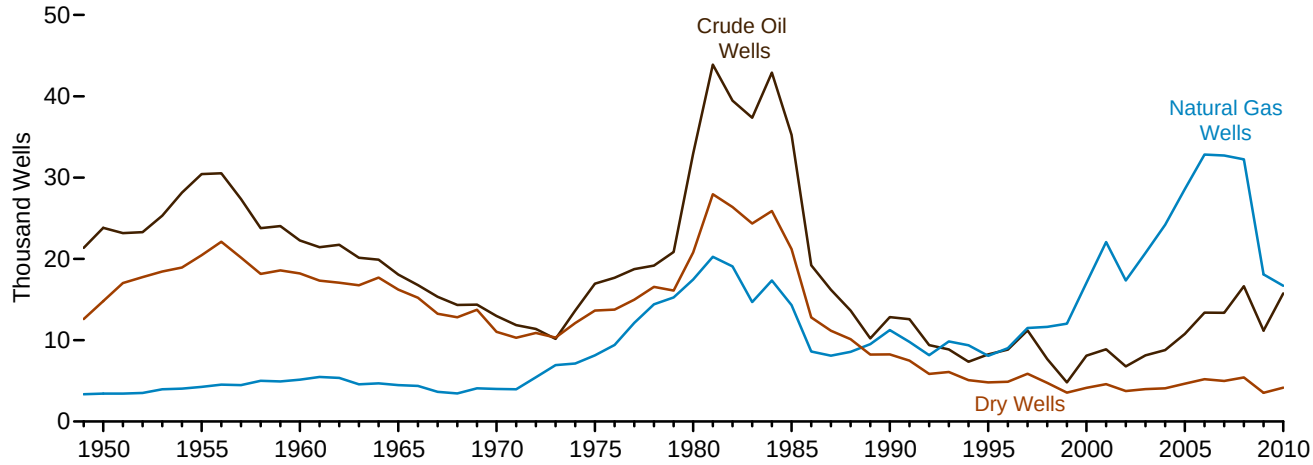

Rotary Rigs in Operation by Type, Monthly




Active Well Service Rig Count, Monthly




Total Wells Drilled by Type, 1949–2010




Web Page: http://www.eia.gov/totalenergy/data/monthly/#crude.
Sources: Tables 5.1 and 5.2.

# Table 5.1 Crude Oil and Natural Gas Drilling Activity Measurements

(Number of Rigs)

| | Rotary Rigs in Operation[a] | | | | | Active Well Service Rig Count[c] |
|---|---|---|---|---|---|---|
| | By Site | | By Type | | | |
| | Onshore | Offshore | Crude Oil | Natural Gas | Total[b] | |
| **1950 Average** | **NA** | **NA** | **NA** | **NA** | **2,154** | **NA** |
| **1955 Average** | **NA** | **NA** | **NA** | **NA** | **2,686** | **NA** |
| **1960 Average** | **NA** | **NA** | **NA** | **NA** | **1,748** | **NA** |
| **1965 Average** | **NA** | **NA** | **NA** | **NA** | **1,388** | **NA** |
| **1970 Average** | **NA** | **NA** | **NA** | **NA** | **1,028** | **NA** |
| **1975 Average** | **1,554** | **106** | **NA** | **NA** | **1,660** | **2,486** |
| **1980 Average** | **2,678** | **231** | **NA** | **NA** | **2,909** | **4,089** |
| **1985 Average** | **1,774** | **206** | **NA** | **NA** | **1,980** | **4,716** |
| **1990 Average** | **902** | **108** | **532** | **464** | **1,010** | **3,658** |
| **1995 Average** | **622** | **101** | **323** | **385** | **723** | **3,041** |
| **2000 Average** | **778** | **140** | **197** | **720** | **918** | **2,692** |
| **2001 Average** | **1,003** | **153** | **217** | **939** | **1,156** | **2,267** |
| **2002 Average** | **717** | **113** | **137** | **691** | **830** | **1,830** |
| **2003 Average** | **924** | **108** | **157** | **872** | **1,032** | **1,967** |
| **2004 Average** | **1,095** | **97** | **165** | **1,025** | **1,192** | **2,064** |
| **2005 Average** | **1,287** | **94** | **194** | **1,184** | **1,381** | **2,222** |
| **2006 Average** | **1,559** | **90** | **274** | **1,372** | **1,649** | **2,364** |
| **2007 Average** | **1,695** | **72** | **297** | **1,466** | **1,768** | **2,388** |
| **2008 Average** | **1,814** | **65** | **379** | **1,491** | **1,879** | **2,515** |
| **2009 Average** | **1,046** | **44** | **278** | **801** | **1,089** | **1,722** |
| **2010 Average** | **1,514** | **31** | **591** | **943** | **1,546** | **1,854** |
| **2011 Average** | **1,846** | **32** | **984** | **887** | **1,879** | **2,075** |
| **2012 Average** | **1,871** | **48** | **1,357** | **558** | **1,919** | **2,113** |
| **2013 Average** | **1,705** | **56** | **1,373** | **383** | **1,761** | **2,064** |
| **2014 Average** | **1,804** | **57** | **1,527** | **333** | **1,862** | **2,024** |
| **2015** January | 1,629 | 53 | 1,362 | 320 | 1,683 | 1,826 |
| February | 1,296 | 52 | 1,050 | 296 | 1,348 | 1,659 |
| March | 1,066 | 43 | 857 | 250 | 1,109 | 1,566 |
| April | 943 | 33 | 750 | 222 | 976 | 1,512 |
| May | 857 | 32 | 662 | 223 | 889 | 1,460 |
| June | 833 | 28 | 634 | 224 | 861 | 1,481 |
| July | 835 | 31 | 649 | 216 | 866 | 1,485 |
| August | 849 | 34 | 673 | 209 | 883 | 1,456 |
| September | 816 | 32 | 650 | 198 | 848 | 1,399 |
| October | 758 | 33 | 597 | 193 | 791 | 1,345 |
| November | 729 | 31 | 566 | 194 | 760 | 1,303 |
| December | 686 | 24 | 537 | 174 | 711 | 1,283 |
| **Average** | **943** | **35** | **750** | **226** | **978** | **1,481** |
| **2016** January | 615 | 28 | 510 | 133 | 643 | 1,170 |
| February | 506 | 26 | 430 | 102 | 532 | 1,058 |
| March | 451 | 27 | 384 | 93 | 477 | 1,023 |
| April | 411 | 26 | 348 | 88 | 437 | 1,000 |
| May | 384 | 24 | 320 | 86 | 407 | 989 |
| June | 396 | 21 | 330 | 86 | 417 | 1,009 |
| July | 429 | 20 | 359 | 88 | 449 | 1,053 |
| August | 464 | 17 | 397 | 82 | 481 | 967 |
| September | 491 | 18 | 416 | 91 | 509 | 1,117 |
| October | 521 | 23 | 436 | 105 | 543 | 1,102 |
| November | 558 | 22 | 462 | 117 | 580 | 1,111 |
| December | 611 | 23 | 507 | 126 | 634 | 1,131 |
| **Average** | **486** | **23** | **408** | **100** | **509** | **1,061** |
| **2017** January | 659 | 24 | 542 | 140 | 683 | 1,099 |
| February | 724 | 20 | 593 | 150 | 744 | 1,125 |
| March | 770 | 19 | 634 | 154 | 789 | 1,159 |
| April | 833 | 20 | 685 | 166 | 853 | 1,176 |
| May | 871 | 22 | 714 | 178 | 893 | 1,219 |
| June | 909 | 22 | 747 | 184 | 931 | 1,235 |
| July | 931 | 22 | 765 | 189 | 953 | 1,215 |
| August | 930 | 17 | 764 | 183 | 947 | 1,192 |
| September | 922 | 18 | 752 | 187 | 940 | R 1,212 |
| October | 901 | 21 | 741 | 180 | 922 | NA |
| **10-Month Average** | **847** | **20** | **695** | **171** | **867** | **NA** |
| **2016 10-Month Average** | **465** | **23** | **392** | **95** | **488** | **1,049** |
| **2015 10-Month Average** | **991** | **37** | **791** | **235** | **1,028** | **1,519** |

[a] Rotary rigs in operation are reported weekly on Fridays. Monthly data are averages of 4- or 5-week reporting periods. Multi-month data are averages of the reported weekly data over the covered months. Annual data are averages of 52- or 53-week reporting periods. Published data are rounded to the nearest whole number.

[b] Sum of rigs drilling for crude oil, rigs drilling for natural gas, and other rigs (not shown) drilling for miscellaneous purposes, such as service wells, injection wells, and stratigraphic tests. Therefore, "Total" values may not equal the sum of "Crude Oil" and "Natural Gas." "Total" values may not equal the sum of "Onshore" and "Offshore" due to independent rounding.

[c] The number of rigs doing true workovers (where tubing is pulled from the well), or doing rod string and pump repair operations, and that are, on average, crewed and working every day of the month.

R=Revised. NA=Not available.

Note: Geographic coverage is the 50 states and the District of Columbia.

Web Page: See http://www.eia.gov/totalenergy/data/monthly/#crude (Excel and CSV files) for all available annual data beginning in 1949 and monthly data beginning in 1973.

Sources: • **Rotary Rigs in Operation:** Baker Hughes, Inc., Houston, TX, "North America Rig Count," used with permission. See http://phx.corporate-ir.net/phoenix.zhtml?c=79687&p=irol-reportsother. • **Active Well Service Rig Count:** Assoc. of Energy Service Companies, Friendswood, TX. See http://www.aesc.net/AESC/Industry_Resources/Rig_Counts/AESC/Industry_Resources/Well_Service_Rig_Count.aspx?hkey=0f7d9987-7819-421e-9c4c-7e7d9323ab3c.

## Table 5.2 Crude Oil and Natural Gas Exploratory and Development Wells

| | Wells Drilled | | | | | | | | | | | | Total Footage Drilled |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Exploratory | | | | Development | | | | Total | | | | |
| | Crude Oil | Natural Gas | Dry | Total | Crude Oil | Natural Gas | Dry | Total | Crude Oil | Natural Gas | Dry | Total | |
| | Number | | | | | | | | | | | | Thousand Feet |
| **1950 Total** | **1,583** | **431** | **8,292** | **10,306** | **22,229** | **3,008** | **6,507** | **31,744** | **23,812** | **3,439** | **14,799** | **42,050** | **157,358** |
| **1955 Total** | **2,236** | **874** | **11,832** | **14,942** | **28,196** | **3,392** | **8,620** | **40,208** | **30,432** | **4,266** | **20,452** | **55,150** | **226,182** |
| **1960 Total** | **1,321** | **868** | **9,515** | **11,704** | **20,937** | **4,281** | **8,697** | **33,915** | **22,258** | **5,149** | **18,212** | **45,619** | **192,176** |
| **1965 Total** | **946** | **515** | **8,005** | **9,466** | **17,119** | **3,967** | **8,221** | **29,307** | **18,065** | **4,482** | **16,226** | **38,773** | **174,882** |
| **1970 Total** | **757** | **477** | **6,162** | **7,396** | **12,211** | **3,534** | **4,869** | **20,614** | **12,968** | **4,011** | **11,031** | **28,010** | **138,556** |
| **1975 Total** | **982** | **1,248** | **7,129** | **9,359** | **15,966** | **6,879** | **6,517** | **29,362** | **16,948** | **8,127** | **13,646** | **38,721** | **180,494** |
| **1980 Total** | **1,777** | **2,099** | **9,081** | **12,957** | **31,182** | **15,362** | **11,704** | **58,248** | **32,959** | **17,461** | **20,785** | **71,205** | **316,943** |
| **1985 Total** | **1,680** | **1,200** | **8,954** | **11,834** | **33,581** | **13,124** | **12,257** | **58,962** | **35,261** | **14,324** | **21,211** | **70,796** | **314,409** |
| **1990 Total** | **778** | **811** | **3,652** | **5,241** | **12,061** | **10,435** | **4,593** | **27,089** | **12,839** | **11,246** | **8,245** | **32,330** | **156,044** |
| **1995 Total** | **570** | **558** | **2,024** | **3,152** | **7,678** | **7,524** | **2,790** | **17,992** | **8,248** | **8,082** | **4,814** | **21,144** | **117,156** |
| **2000 Total** | **288** | **657** | **1,341** | **2,286** | **7,802** | **16,394** | **2,805** | **27,001** | **8,090** | **17,051** | **4,146** | **29,287** | **144,425** |
| **2001 Total** | **357** | **1,052** | **1,733** | **3,142** | **8,531** | **21,020** | **2,865** | **32,416** | **8,888** | **22,072** | **4,598** | **35,558** | **180,141** |
| **2002 Total** | **258** | **844** | **1,282** | **2,384** | **6,517** | **16,498** | **2,472** | **25,487** | **6,775** | **17,342** | **3,754** | **27,871** | **145,159** |
| **2003 Total** | **350** | **997** | **1,297** | **2,644** | **7,779** | **19,725** | **2,685** | **30,189** | **8,129** | **20,722** | **3,982** | **32,833** | **177,239** |
| **2004 Total** | **383** | **1,671** | **1,350** | **3,404** | **8,406** | **22,515** | **2,732** | **33,653** | **8,789** | **24,186** | **4,082** | **37,057** | **204,279** |
| **2005 Total** | **539** | **2,141** | **1,462** | **4,142** | **10,240** | **26,449** | **3,191** | **39,880** | **10,779** | **28,590** | **4,653** | **44,022** | **240,307** |
| **2006 Total** | **646** | **2,456** | **1,547** | **4,649** | **12,739** | **30,382** | **3,659** | **46,780** | **13,385** | **32,838** | **5,206** | **51,429** | **282,675** |
| **2007 Total** | **808** | **2,794** | **1,582** | **5,184** | **12,563** | **29,925** | **3,399** | **45,887** | **13,371** | **32,719** | **4,981** | **51,071** | **301,515** |
| **2008** January | 88 | 208 | 144 | 440 | 1,111 | 2,321 | 272 | 3,704 | 1,199 | 2,529 | 416 | 4,144 | 25,306 |
| February | 82 | 230 | 107 | 419 | 1,080 | 2,261 | 247 | 3,588 | 1,162 | 2,491 | 354 | 4,007 | 24,958 |
| March | 66 | 216 | 127 | 409 | 1,132 | 2,363 | 271 | 3,766 | 1,198 | 2,579 | 398 | 4,175 | 26,226 |
| April | 68 | 189 | 130 | 387 | 1,177 | 2,415 | 281 | 3,873 | 1,245 | 2,604 | 411 | 4,260 | 26,920 |
| May | 88 | 206 | 124 | 418 | 1,317 | 2,449 | 240 | 4,006 | 1,405 | 2,655 | 364 | 4,424 | 27,947 |
| June | 63 | 195 | 139 | 397 | 1,428 | 2,540 | 299 | 4,267 | 1,491 | 2,735 | 438 | 4,664 | 28,739 |
| July | 79 | 163 | 171 | 413 | 1,439 | 2,695 | 344 | 4,478 | 1,518 | 2,858 | 515 | 4,891 | 29,140 |
| August | 67 | 165 | 144 | 376 | 1,448 | 2,735 | 379 | 4,562 | 1,515 | 2,900 | 523 | 4,938 | 28,942 |
| September | 52 | 166 | 164 | 382 | 1,488 | 2,667 | 355 | 4,510 | 1,540 | 2,833 | 519 | 4,892 | 28,960 |
| October | 80 | 243 | 173 | 496 | 1,549 | 2,841 | 373 | 4,763 | 1,629 | 3,084 | 546 | 5,259 | 31,505 |
| November | 97 | 192 | 160 | 449 | 1,361 | 2,418 | 334 | 4,113 | 1,458 | 2,610 | 494 | 4,562 | 29,276 |
| December | 67 | 172 | 132 | 371 | 1,206 | 2,196 | 313 | 3,715 | 1,273 | 2,368 | 445 | 4,086 | 26,222 |
| **Total** | **897** | **2,345** | **1,715** | **4,957** | **15,736** | **29,901** | **3,708** | **49,345** | **16,633** | **32,246** | **5,423** | **54,302** | **334,141** |
| **2009** January | 80 | 171 | 99 | 350 | 1,192 | 2,253 | 250 | 3,695 | 1,272 | 2,424 | 349 | 4,045 | 28,077 |
| February | 62 | 125 | 88 | 275 | 991 | 1,925 | 195 | 3,111 | 1,053 | 2,050 | 283 | 3,386 | 25,440 |
| March | 59 | 146 | 88 | 293 | 867 | 1,771 | 210 | 2,848 | 926 | 1,917 | 298 | 3,141 | 25,304 |
| April | 36 | 68 | 93 | 197 | 755 | 1,396 | 205 | 2,356 | 791 | 1,464 | 298 | 2,553 | 21,406 |
| May | 47 | 90 | 80 | 217 | 584 | 1,136 | 156 | 1,876 | 631 | 1,226 | 236 | 2,093 | 20,055 |
| June | 44 | 91 | 75 | 210 | 804 | 1,297 | 189 | 2,290 | 848 | 1,388 | 264 | 2,500 | 16,301 |
| July | 40 | 100 | 101 | 241 | 789 | 1,188 | 217 | 2,194 | 829 | 1,288 | 318 | 2,435 | 13,543 |
| August | 49 | 84 | 88 | 221 | 867 | 1,372 | 207 | 2,446 | 916 | 1,456 | 295 | 2,667 | 15,970 |
| September | 61 | 71 | 96 | 228 | 945 | 1,170 | 207 | 2,322 | 1,006 | 1,241 | 303 | 2,550 | 15,547 |
| October | 55 | 79 | 78 | 212 | 966 | 1,167 | 222 | 2,355 | 1,021 | 1,246 | 300 | 2,567 | 17,261 |
| November | 38 | 83 | 85 | 206 | 931 | 1,133 | 199 | 2,263 | 969 | 1,216 | 284 | 2,469 | 16,236 |
| December | 34 | 98 | 84 | 216 | 894 | 1,074 | 213 | 2,181 | 928 | 1,172 | 297 | 2,397 | 16,424 |
| **Total** | **605** | **1,206** | **1,055** | **2,866** | **10,585** | **16,882** | **2,470** | **29,937** | **11,190** | **18,088** | **3,525** | **32,803** | **231,562** |
| **2010** January | 55 | 91 | 81 | 227 | 898 | 1,264 | 169 | 2,331 | 953 | 1,355 | 250 | 2,558 | 15,304 |
| February | 44 | 71 | 67 | 182 | 871 | 1,096 | 144 | 2,111 | 915 | 1,167 | 211 | 2,293 | 16,862 |
| March | 59 | 85 | 88 | 232 | 1,062 | 1,224 | 216 | 2,502 | 1,121 | 1,309 | 304 | 2,734 | 15,102 |
| April | 49 | 78 | 77 | 204 | 1,173 | 1,152 | 249 | 2,574 | 1,222 | 1,230 | 326 | 2,778 | 17,904 |
| May | 48 | 107 | 86 | 241 | 1,282 | 1,208 | 255 | 2,745 | 1,330 | 1,315 | 341 | 2,986 | 17,987 |
| June | 61 | 100 | 90 | 251 | 1,385 | 1,250 | 302 | 2,937 | 1,446 | 1,350 | 392 | 3,188 | 19,408 |
| July | 46 | 103 | 105 | 254 | 1,386 | 1,443 | 390 | 3,219 | 1,432 | 1,546 | 495 | 3,473 | 20,847 |
| August | 56 | 104 | 94 | 254 | 1,434 | 1,402 | 314 | 3,150 | 1,490 | 1,506 | 408 | 3,404 | 22,923 |
| September | 57 | 73 | 88 | 218 | 1,374 | 1,358 | 268 | 3,000 | 1,431 | 1,431 | 356 | 3,218 | 23,037 |
| October | 75 | 87 | 117 | 279 | 1,502 | 1,463 | 283 | 3,248 | 1,577 | 1,550 | 400 | 3,527 | 22,123 |
| November | 62 | 114 | 103 | 279 | 1,400 | 1,352 | 263 | 3,015 | 1,462 | 1,466 | 366 | 3,294 | 24,561 |
| December | 57 | 92 | 70 | 219 | 1,317 | 1,379 | 243 | 2,939 | 1,374 | 1,471 | 313 | 3,158 | 23,189 |
| **Total** | **669** | **1,105** | **1,066** | **2,840** | **15,084** | **15,591** | **3,096** | **33,771** | **15,753** | **16,696** | **4,162** | **36,611** | **239,247** |

Notes: • Data are estimates. • For 1960–1969, data are for well completion reports received by the American Petroleum Institute during the reporting year; for all other years, data are for well completions in a given year. • Through 1989, these well counts include only the original drilling of a hole intended to discover or further develop already discovered crude oil or natural gas resources. Other drilling activities, such as drilling an old well deeper, drilling of laterals from the original well, drilling of service and injection wells, and drilling for resources other than crude oil or natural gas are excluded. Beginning in 1990, a new well is defined as the first hole in the ground whether it is lateral or not. Due to the methodology used to estimate ultimate well counts from the available partially reported data, the counts shown on this page are frequently revised. See Note, "Crude Oil and Natural Gas Exploratory and Development Wells," at end of section. • Geographic coverage is the 50 states and the District of Columbia.

Web Page: See http://www.eia.gov/totalenergy/data/monthly/#crude (Excel and CSV files) for all available annual data beginning in 1949 and monthly data beginning in 1973.

Sources: • **1949–1965:** Gulf Publishing Company, *World Oil,* "Forecast-Review" issue. • **1966–1969:** American Petroleum Institute (API), *Quarterly Review of Drilling Statistics for the United States,* annual summaries and monthly reports. • **1970–1989:** U.S. Energy Information Administration (EIA) computations based on well reports submitted to the API. • **1990 forward:** EIA computations based on well reports submitted to IHS, Inc., Denver, CO.

Data for 2011 forward in this table have been removed while EIA evaluates the quality of the data and the estimation methodology.

# Crude Oil and Natural Gas Resource Development

**Note. Crude Oil and Natural Gas Exploratory and Development Wells.** Three well types are considered in the *Monthly Energy Review* (*MER*) drilling statistics: "completed for crude oil," "completed for natural gas," and "dry hole." Wells that productively encounter both crude oil and natural gas are categorized as "completed for crude oil." Both development wells and exploratory wells (new field wildcats, new pool tests, and extension tests) are included in the statistics. All other classes of wells drilled in connection with the search for producible hydrocarbons are excluded. If a lateral is drilled at the same time as the original hole it is not counted separately, but its footage is included.

Prior to the March 1985 MER, drilling statistics consisted of completion data for the above types and classes of wells as reported to the American Petroleum Institute (API) during a given month. Due to time lags between the date of well completion and the date of completion reporting to the API, as-reported well completions proved to be an inaccurate indicator of drilling activity. During 1982, for example, as-reported well completions rose, while the number of actual completions fell. Consequently, the drilling statistics published since the March 1985 MER are U.S. Energy Information Administration (EIA) estimates produced by statistically imputing well counts and footage based on the partial data available from the API. These estimates are subject to continuous revision as new data, some of which pertain to earlier months and years, become available. Additional information about the EIA estimation methodology may be found in "Estimating Well Completions," a feature article published in the March 1985 MER.

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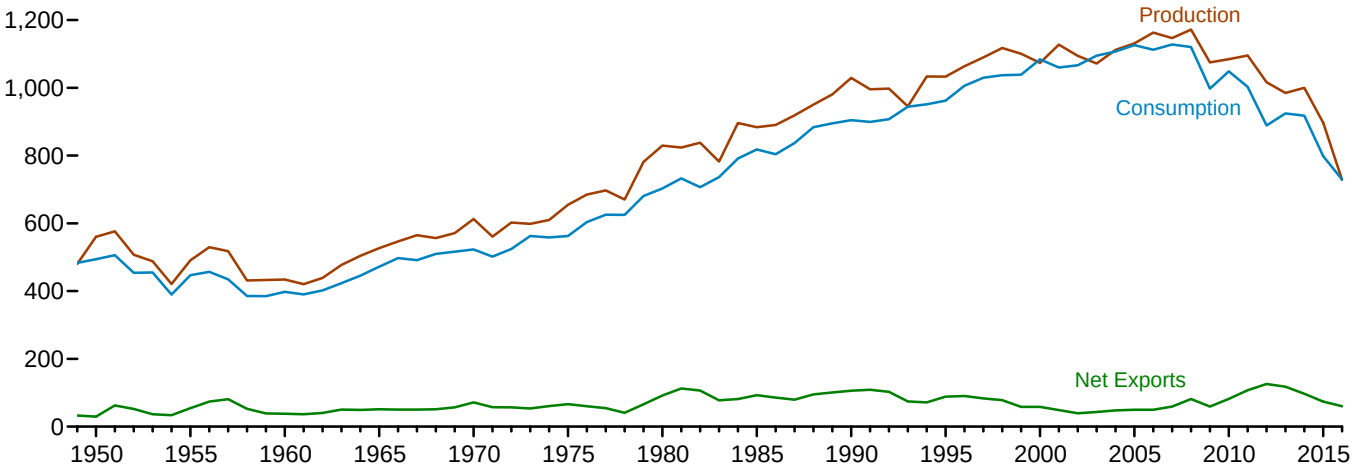
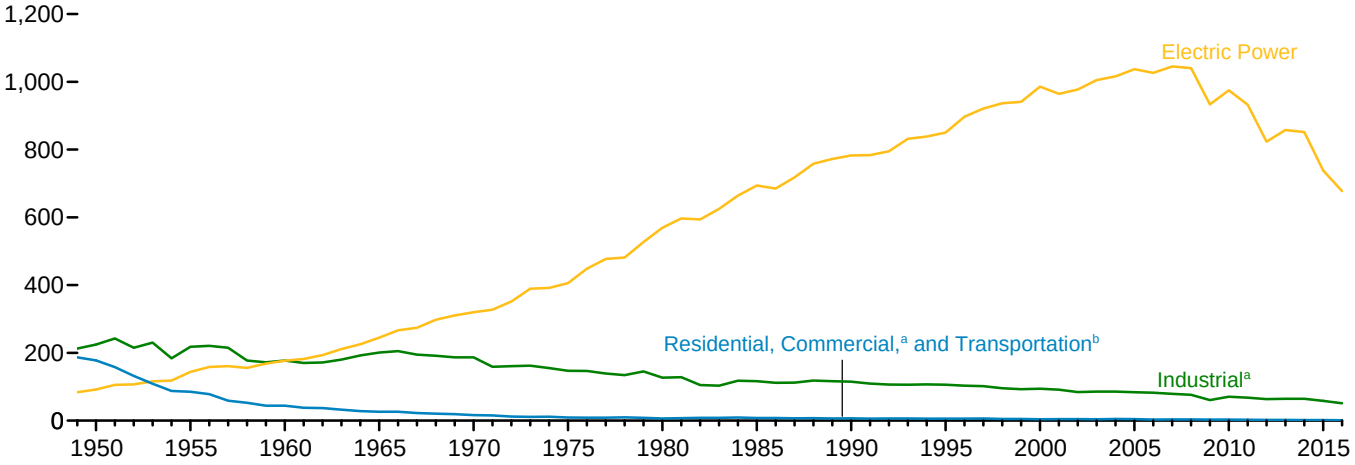
# 6. Coal

**Figure 6.1 Coal**
(Million Short Tons)

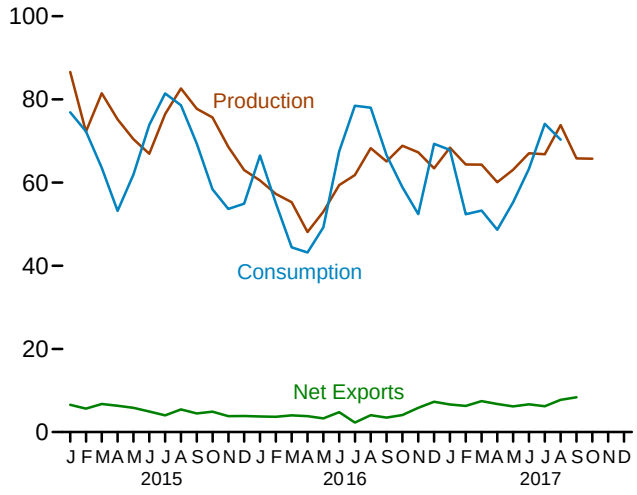
Overview, 1949–2016



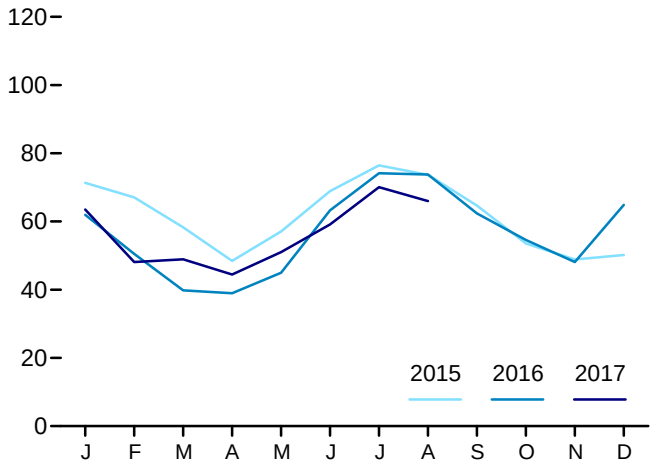

Consumption by Sector, 1949–2016




Overview, Monthly




Electric Power Sector Consumption, Monthly




[a] Includes combined-heat-and-power (CHP) plants and a small number of electricity-only-plants.
[b] For 1978 forward, small amounts of transportation sector use are included in "Industrial."

Web Page: http://www.eia.gov/totalenergy/data/monthly/#coal.
Sources: Tables 6.1–6.2.

## Table 6.1 Coal Overview

(Thousand Short Tons)

| | Production[a] | Waste Coal Supplied[b] | Trade | | | Stock Change[d,e] | Losses and Unaccounted for[e,f] | Consumption |
|---|---|---|---|---|---|---|---|---|
| | | | Imports | Exports | Net Imports[c] | | | |
| **1950 Total** | **560,388** | **NA** | **365** | **29,360** | **-28,995** | **27,829** | **9,462** | **494,102** |
| **1955 Total** | **490,838** | **NA** | **337** | **54,429** | **-54,092** | **-3,974** | **-6,292** | **447,012** |
| **1960 Total** | **434,329** | **NA** | **262** | **37,981** | **-37,719** | **-3,194** | **1,722** | **398,081** |
| **1965 Total** | **526,954** | **NA** | **184** | **51,032** | **-50,848** | **1,897** | **2,244** | **471,965** |
| **1970 Total** | **612,661** | **NA** | **36** | **71,733** | **-71,697** | **11,100** | **6,633** | **523,231** |
| **1975 Total** | **654,641** | **NA** | **940** | **66,309** | **-65,369** | **32,154** | **-5,522** | **562,640** |
| **1980 Total** | **829,700** | **NA** | **1,194** | **91,742** | **-90,548** | **25,595** | **10,827** | **702,730** |
| **1985 Total** | **883,638** | **NA** | **1,952** | **92,680** | **-90,727** | **-27,934** | **2,796** | **818,049** |
| **1990 Total** | **1,029,076** | **3,339** | **2,699** | **105,804** | **-103,104** | **26,542** | **-1,730** | **904,498** |
| **1995 Total** | **1,032,974** | **8,561** | **9,473** | **88,547** | **-79,074** | **-275** | **632** | **962,104** |
| **2000 Total** | **1,073,612** | **9,089** | **12,513** | **58,489** | **-45,976** | **-48,309** | **938** | **1,084,095** |
| **2001 Total** | **1,127,689** | **10,085** | **19,787** | **48,666** | **-28,879** | **41,630** | **7,120** | **1,060,146** |
| **2002 Total** | **1,094,283** | **9,052** | **16,875** | **39,601** | **-22,726** | **10,215** | **4,040** | **1,066,355** |
| **2003 Total** | **1,071,753** | **10,016** | **25,044** | **43,014** | **-17,970** | **-26,659** | **-4,403** | **1,094,861** |
| **2004 Total** | **1,112,099** | **11,299** | **27,280** | **47,998** | **-20,718** | **-11,462** | **6,887** | **1,107,255** |
| **2005 Total** | **1,131,498** | **13,352** | **30,460** | **49,942** | **-19,482** | **-9,702** | **9,092** | **1,125,978** |
| **2006 Total** | **1,162,750** | **14,409** | **36,246** | **49,647** | **-13,401** | **42,642** | **8,824** | **1,112,292** |
| **2007 Total** | **1,146,635** | **14,076** | **36,347** | **59,163** | **-22,816** | **5,812** | **4,085** | **1,127,998** |
| **2008 Total** | **1,171,809** | **14,146** | **34,208** | **81,519** | **-47,311** | **12,354** | **5,740** | **1,120,548** |
| **2009 Total** | **1,074,923** | **13,666** | **22,639** | **59,097** | **-36,458** | **39,668** | **14,985** | **997,478** |
| **2010 Total** | **1,084,368** | **13,651** | **19,353** | **81,716** | **-62,363** | **-13,039** | **182** | **1,048,514** |
| **2011 Total** | **1,095,628** | **13,209** | **13,088** | **107,259** | **-94,171** | **211** | **11,506** | **1,002,948** |
| **2012 Total** | **1,016,458** | **11,196** | **9,159** | **125,746** | **-116,586** | **6,902** | **14,980** | **889,185** |
| **2013 Total** | **984,842** | **11,279** | **8,906** | **117,659** | **-108,753** | **-38,525** | **1,451** | **924,442** |
| **2014 Total** | **1,000,049** | **12,090** | **11,350** | **97,257** | **-85,907** | **-2,601** | **11,101** | **917,731** |
| **2015** January | 86,597 | 1,065 | 1,293 | 7,871 | -6,579 | 2,390 | 1,799 | 76,895 |
| February | 72,251 | 1,001 | 866 | 6,496 | -5,630 | -4,929 | 233 | 72,318 |
| March | 81,476 | 755 | 850 | 7,612 | -6,762 | 4,930 | 6,979 | 63,560 |
| April | 75,209 | 580 | 879 | 7,216 | -6,337 | 13,571 | 2,673 | 53,207 |
| May | 70,415 | 756 | 919 | 6,761 | -5,842 | 5,575 | -2,169 | 61,923 |
| June | 66,933 | 872 | 842 | 5,789 | -4,947 | -6,552 | -4,434 | 73,845 |
| July | 76,476 | 883 | 1,091 | 5,117 | -4,026 | -8,638 | 523 | 81,449 |
| August | 82,623 | 954 | 970 | 6,409 | -5,439 | -3,360 | 2,924 | 78,574 |
| September | 77,724 | 885 | 904 | 5,388 | -4,485 | 5,283 | -529 | 69,369 |
| October | 75,662 | 544 | 854 | 5,744 | -4,889 | 13,278 | -366 | 58,405 |
| November | 68,574 | 840 | 882 | 4,709 | -3,827 | 13,061 | -1,114 | 53,640 |
| December | 63,001 | 834 | 969 | 4,846 | -3,877 | 6,094 | -1,067 | 54,930 |
| **Total** | **896,941** | **9,969** | **11,318** | **73,958** | **-62,640** | **40,704** | **5,452** | **798,115** |
| **2016** January | 60,500 | 938 | 693 | 4,433 | -3,740 | -8,277 | -518 | 66,492 |
| February | 57,263 | 822 | 819 | 4,511 | -3,693 | 532 | -1,175 | 55,036 |
| March | 55,265 | 719 | 1,186 | 5,208 | -4,023 | 5,063 | 2,487 | 44,410 |
| April | 48,115 | 543 | 740 | 4,583 | -3,843 | 2,155 | -536 | 43,196 |
| May | 53,012 | 609 | 910 | 4,209 | -3,298 | -889 | 1,980 | 49,231 |
| June | 59,388 | 747 | 641 | 5,432 | -4,790 | -10,676 | -1,504 | 67,525 |
| July | 61,796 | 861 | 990 | 3,276 | -2,286 | -14,699 | -3,384 | 78,454 |
| August | 68,261 | 851 | 943 | 5,003 | -4,060 | -10,656 | -2,322 | 78,029 |
| September | 65,083 | 685 | 800 | 4,273 | -3,473 | -3,433 | -853 | 66,582 |
| October | 68,851 | 483 | 768 | 4,863 | -4,095 | 4,321 | 2,016 | 58,902 |
| November | 67,272 | 584 | 706 | 6,554 | -5,847 | 9,365 | 216 | 52,429 |
| December | 63,427 | 886 | 652 | 7,926 | -7,274 | -7,922 | -4,356 | 69,316 |
| **Total** | **728,232** | **8,727** | **9,850** | **60,271** | **-50,421** | **-35,115** | **-7,950** | **729,602** |
| **2017** January | 68,378 | 875 | 743 | 7,385 | -6,642 | -6,823 | 1,573 | 67,859 |
| February | 64,354 | 751 | 612 | 6,908 | -6,296 | 4,963 | 1,449 | 52,398 |
| March | 64,301 | 777 | 560 | 8,013 | -7,453 | 2,106 | 2,252 | 53,267 |
| April | 60,077 | 481 | 493 | 7,236 | -6,744 | 2,842 | 2,326 | 48,647 |
| May | 63,066 | 574 | 1,053 | 7,243 | -6,190 | -1,611 | 3,771 | 55,290 |
| June | 67,040 | 688 | 651 | 7,317 | -6,666 | -4,768 | 2,531 | 63,298 |
| July | 66,829 | [F] 835 | 956 | 7,177 | -6,221 | -13,773 | 1,072 | 74,143 |
| August | 73,834 | [RF] 835 | 839 | 8,573 | -7,734 | [R] -4,386 | [R] 990 | [R] 70,331 |
| September | 65,796 | NA | [R] 513 | [R] 8,894 | [R] -8,381 | NA | NA | NA |
| October | 65,754 | NA | NA | NA | NA | NA | NA | NA |
| **10-Month Total** | **659,429** | **NA** | **NA** | **NA** | **NA** | **NA** | **NA** | **NA** |
| **2016 10-Month Total** | **597,533** | **7,257** | **8,491** | **45,791** | **-37,300** | **-36,558** | **-3,810** | **607,858** |
| **2015 10-Month Total** | **765,366** | **8,296** | **9,468** | **64,403** | **-54,935** | **21,548** | **7,633** | **689,545** |

[a] Beginning in 2001, includes a small amount of refuse recovery (coal recaptured from a refuse mine and cleaned to reduce the concentration of noncombustible materials).

[b] Waste coal (including fine coal, coal obtained from a refuse bank or slurry dam, anthracite culm, bituminous gob, and lignite waste) consumed by the electric power and industrial sectors. Beginning in 1989, waste coal supplied is counted as a supply-side item to balance the same amount of waste coal included in "Consumption."

[c] Net imports equal imports minus exports. A minus sign indicates exports are greater than imports.

[d] A negative value indicates a decrease in stocks and a positive value indicates an increase. See Table 6.3 for stocks data coverage.

[e] In 1949, stock change is included in "Losses and Unaccounted for."

[f] The difference between calculated coal supply and disposition, due to coal quantities lost or to data reporting problems.

R=Revised. NA=Not available. F=Forecast.

Notes: • For methodology used to calculate production, consumption, and stocks, see Note 1, "Coal Production," Note 2, "Coal Consumption," and Note 3, "Coal Stocks," at end of section. • Data values preceded by "F" are derived from the U.S. Energy Information Administration's Short-Term Integrated Forecasting System. See Note 4, "Coal Forecast Values," at end of section. • Totals may not equal sum of components due to independent rounding. • Geographic coverage is the 50 states and the District of Columbia.

Web Page: See http://www.eia.gov/totalenergy/data/monthly/#coal (Excel and CSV files) for all available annual data beginning in 1949 and monthly data beginning in 1973.

Sources: See end of section.

## Table 6.2 Coal Consumption by Sector

(Thousand Short Tons)

| | End-Use Sectors | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Commercial | | | Industrial | | | | | | | |
| | | | | | | Other Industrial | | | | | | |
| | Resi-dential | CHP[a] | Other[b] | Total | Coke Plants | CHP[c] | Non-CHP[d] | Total | Total | Trans-portation | Electric Power Sector[e,f] | Total |
| **1950 Total** | **51,562** | **(g)** | **63,021** | **63,021** | **104,014** | **(h)** | **120,623** | **120,623** | **224,637** | **63,011** | **91,871** | **494,102** |
| **1955 Total** | **35,590** | **(g)** | **32,852** | **32,852** | **107,743** | **(h)** | **110,096** | **110,096** | **217,839** | **16,972** | **143,759** | **447,012** |
| **1960 Total** | **24,159** | **(g)** | **16,789** | **16,789** | **81,385** | **(h)** | **96,017** | **96,017** | **177,402** | **3,046** | **176,685** | **398,081** |
| **1965 Total** | **14,635** | **(g)** | **11,041** | **11,041** | **95,286** | **(h)** | **105,560** | **105,560** | **200,846** | **655** | **244,788** | **471,965** |
| **1970 Total** | **9,024** | **(g)** | **7,090** | **7,090** | **96,481** | **(h)** | **90,156** | **90,156** | **186,637** | **298** | **320,182** | **523,231** |
| **1975 Total** | **2,823** | **(g)** | **6,587** | **6,587** | **83,598** | **(h)** | **63,646** | **63,646** | **147,244** | **24** | **405,962** | **562,640** |
| **1980 Total** | **1,355** | **(g)** | **5,097** | **5,097** | **66,657** | **(h)** | **60,347** | **60,347** | **127,004** | **(h)** | **569,274** | **702,730** |
| **1985 Total** | **1,711** | **(g)** | **6,068** | **6,068** | **41,056** | **(h)** | **75,372** | **75,372** | **116,429** | **(h)** | **693,841** | **818,049** |
| **1990 Total** | **1,345** | **1,191** | **4,189** | **5,379** | **38,877** | **27,781** | **48,549** | **76,330** | **115,207** | **(h)** | **[f] 782,567** | **904,498** |
| **1995 Total** | **755** | **1,419** | **3,633** | **5,052** | **33,011** | **29,363** | **43,693** | **73,055** | **106,067** | **(h)** | **850,230** | **962,104** |
| **2000 Total** | **454** | **1,547** | **2,126** | **3,673** | **28,939** | **28,031** | **37,177** | **65,208** | **94,147** | **(h)** | **985,821** | **1,084,095** |
| **2001 Total** | **481** | **1,448** | **2,441** | **3,888** | **26,075** | **25,755** | **39,514** | **65,268** | **91,344** | **(h)** | **964,433** | **1,060,146** |
| **2002 Total** | **533** | **1,405** | **2,506** | **3,912** | **23,656** | **26,232** | **34,515** | **60,747** | **84,403** | **(h)** | **977,507** | **1,066,355** |
| **2003 Total** | **551** | **1,816** | **1,869** | **3,685** | **24,248** | **24,846** | **36,415** | **61,261** | **85,509** | **(h)** | **1,005,116** | **1,094,861** |
| **2004 Total** | **512** | **1,917** | **2,693** | **4,610** | **23,670** | **26,613** | **35,582** | **62,195** | **85,865** | **(h)** | **1,016,268** | **1,107,255** |
| **2005 Total** | **378** | **1,922** | **2,420** | **4,342** | **23,434** | **25,875** | **34,465** | **60,340** | **83,774** | **(h)** | **1,037,485** | **1,125,978** |
| **2006 Total** | **290** | **1,886** | **1,050** | **2,936** | **22,957** | **25,262** | **34,210** | **59,472** | **82,429** | **(h)** | **1,026,636** | **1,112,292** |
| **2007 Total** | **353** | **1,927** | **1,247** | **3,173** | **22,715** | **22,537** | **34,078** | **56,615** | **79,331** | **(h)** | **1,045,141** | **1,127,998** |
| **2008 Total** | **(i)** | **2,021** | **1,485** | **3,506** | **22,070** | **21,902** | **32,491** | **54,393** | **76,463** | **(h)** | **1,040,580** | **1,120,548** |
| **2009 Total** | **(i)** | **1,798** | **1,412** | **3,210** | **15,326** | **19,766** | **25,549** | **45,314** | **60,641** | **(h)** | **933,627** | **997,478** |
| **2010 Total** | **(i)** | **1,720** | **1,361** | **3,081** | **21,092** | **24,638** | **24,650** | **49,289** | **70,381** | **(h)** | **975,052** | **1,048,514** |
| **2011 Total** | **(i)** | **1,668** | **1,125** | **2,793** | **21,434** | **22,319** | **23,919** | **46,238** | **67,671** | **(h)** | **932,484** | **1,002,948** |
| **2012 Total** | **(i)** | **1,450** | **595** | **2,045** | **20,751** | **20,065** | **22,773** | **42,838** | **63,589** | **(h)** | **823,551** | **889,185** |
| **2013 Total** | **(i)** | **1,356** | **595** | **1,951** | **21,474** | **19,761** | **23,294** | **43,055** | **64,529** | **(h)** | **857,962** | **924,442** |
| **2014 Total** | **(i)** | **1,063** | **824** | **1,887** | **21,297** | **19,076** | **23,870** | **42,946** | **64,243** | **(h)** | **851,602** | **917,731** |
| **2015** January | (i) | 97 | 101 | 198 | 1,908 | 1,613 | 1,852 | 3,465 | 5,373 | (h) | 71,323 | 76,895 |
| February | (i) | 97 | 101 | 198 | 1,598 | 1,483 | 1,977 | 3,460 | 5,058 | (h) | 67,061 | 72,318 |
| March | (i) | 83 | 87 | 171 | 1,649 | 1,506 | 1,962 | 3,468 | 5,117 | (h) | 58,272 | 63,560 |
| April | (i) | 54 | 45 | 99 | 1,543 | 1,336 | 1,780 | 3,116 | 4,659 | (h) | 48,449 | 53,207 |
| May | (i) | 50 | 41 | 92 | 1,677 | 1,378 | 1,717 | 3,095 | 4,772 | (h) | 57,060 | 61,923 |
| June | (i) | 61 | 50 | 111 | 1,766 | 1,381 | 1,720 | 3,101 | 4,867 | (h) | 68,867 | 73,845 |
| July | (i) | 64 | 39 | 104 | 1,801 | 1,505 | 1,588 | 3,093 | 4,894 | (h) | 76,452 | 81,449 |
| August | (i) | 58 | 35 | 93 | 1,711 | 1,420 | 1,673 | 3,093 | 4,804 | (h) | 73,678 | 78,574 |
| September | (i) | 51 | 31 | 82 | 1,519 | 1,391 | 1,696 | 3,087 | 4,606 | (h) | 64,682 | 69,369 |
| October | (i) | 52 | 49 | 101 | 1,586 | 1,296 | 1,865 | 3,161 | 4,747 | (h) | 53,557 | 58,405 |
| November | (i) | 59 | 56 | 115 | 1,479 | 1,325 | 1,841 | 3,166 | 4,645 | (h) | 48,879 | 53,640 |
| December | (i) | 72 | 69 | 141 | 1,469 | 1,350 | 1,805 | 3,155 | 4,624 | (h) | 50,165 | 54,930 |
| **Total** | **(i)** | **798** | **706** | **1,503** | **19,708** | **16,984** | **21,475** | **38,459** | **58,167** | **(h)** | **738,444** | **798,115** |
| **2016** January | (i) | 76 | 73 | 148 | 1,328 | 1,503 | 1,543 | 3,046 | 4,374 | (h) | 61,970 | 66,492 |
| February | (i) | 78 | 75 | 153 | 1,361 | 1,395 | 1,639 | 3,034 | 4,395 | (h) | 50,487 | 55,036 |
| March | (i) | 75 | 72 | 147 | 1,434 | 1,370 | 1,672 | 3,042 | 4,475 | (h) | 39,788 | 44,410 |
| April | (i) | 49 | 27 | 76 | 1,324 | 1,006 | 1,806 | 2,812 | 4,136 | (h) | 38,984 | 43,196 |
| May | (i) | 40 | 22 | 62 | 1,367 | 1,149 | 1,671 | 2,820 | 4,187 | (h) | 44,983 | 49,231 |
| June | (i) | 46 | 25 | 71 | 1,405 | 1,212 | 1,594 | 2,806 | 4,211 | (h) | 63,243 | 67,525 |
| July | (i) | 46 | 17 | 63 | 1,433 | 1,234 | 1,588 | 2,822 | 4,255 | (h) | 74,136 | 78,454 |
| August | (i) | 50 | 19 | 69 | 1,395 | 1,234 | 1,574 | 2,808 | 4,203 | (h) | 73,757 | 78,029 |
| September | (i) | 49 | 18 | 67 | 1,336 | 1,053 | 1,759 | 2,812 | 4,148 | (h) | 62,366 | 66,582 |
| October | (i) | 50 | 39 | 89 | 1,335 | 993 | 1,885 | 2,878 | 4,213 | (h) | 54,601 | 58,902 |
| November | (i) | 61 | 48 | 109 | 1,326 | 998 | 1,894 | 2,892 | 4,218 | (h) | 48,102 | 52,429 |
| December | (i) | 71 | 56 | 127 | 1,442 | 1,155 | 1,734 | 2,889 | 4,331 | (h) | 64,858 | 69,316 |
| **Total** | **(i)** | **692** | **490** | **1,182** | **16,485** | **14,302** | **20,359** | **34,661** | **51,146** | **(h)** | **677,275** | **729,602** |
| **2017** January | (i) | 62 | 76 | 138 | 1,431 | 1,288 | 1,526 | 2,813 | 4,244 | (h) | 63,477 | 67,859 |
| February | (i) | 50 | 62 | 112 | 1,368 | 1,085 | 1,739 | 2,824 | 4,191 | (h) | 48,095 | 52,398 |
| March | (i) | 55 | 67 | 122 | 1,438 | 1,143 | 1,663 | 2,806 | 4,244 | (h) | 48,901 | 53,267 |
| April | (i) | 37 | 27 | 64 | 1,441 | 1,024 | 1,677 | 2,701 | 4,141 | (h) | 44,441 | 48,647 |
| May | (i) | 36 | 26 | 62 | 1,482 | 1,071 | 1,635 | 2,706 | 4,189 | (h) | 51,039 | 55,290 |
| June | (i) | 42 | 31 | 72 | 1,402 | 1,083 | 1,631 | 2,714 | 4,116 | (h) | 59,109 | 63,298 |
| July | (i) | 50 | [F] 3 | [F] 52 | [F] 1,468 | 1,038 | [F] 1,518 | [F] 2,556 | [F] 4,024 | (h) | 70,067 | 74,143 |
| August | (i) | 45 | [F] 4 | [F] 49 | [F] 1,721 | 1,058 | [F] 1,542 | [F] 2,600 | [F] 4,321 | (h) | 65,960 | 70,331 |
| **8-Month Total** | **(i)** | **377** | **[E] 296** | **[E] 673** | **[E] 11,750** | **8,789** | **[E] 12,931** | **[E] 21,720** | **[E] 33,470** | **(h)** | **451,089** | **485,233** |
| **2016 8-Month Total** | **(i)** | **460** | **329** | **790** | **11,047** | **10,103** | **13,087** | **23,190** | **34,236** | **(h)** | **447,347** | **482,374** |
| **2015 8-Month Total** | **(i)** | **564** | **501** | **1,065** | **13,655** | **11,622** | **14,268** | **25,890** | **39,545** | **(h)** | **521,161** | **561,771** |

[a] Commercial combined-heat-and-power (CHP) and a small number of commercial electricity-only plants, such as those at hospitals and universities. See Note 2, "Classification of Power Plants Into Energy-Use Sectors," at end of Section 7.

[b] All commercial sector fuel use other than that in "Commercial CHP."

[c] Industrial combined-heat-and-power (CHP) and a small number of industrial electricity-only plants. See Note 2, "Classification of Power Plants Into Energy-Use Sectors," at end of Section 7.

[d] All industrial sector fuel use other than that in "Coke Plants" and "Industrial CHP."

[e] The electric power sector comprises 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.

[f] Through 1988, data are for electric utilities only. Beginning in 1989, data are for electric utilities and independent power producers.

[g] Included in "Commercial Other."

[h] Included in "Industrial Non-CHP."

[i] Beginning in 2008, residential coal consumption data are no longer collected by the U.S. Energy Information Administration (EIA).

E=Estimate. F=Forecast.

Notes: • CHP monthly values are from Table 7.4c; electric power sector monthly values are from Table 7.4b; all other monthly values are estimates derived from collected quarterly and annual data. See Note 2, "Coal Consumption," at end of section. • Data values preceded by "F" are derived from EIA's Short-Term Integrated Forecasting System. See Note 4, "Coal Forecast Values," at end of section. • Totals may not equal sum of components due to independent rounding. • Geographic coverage is the 50 states and the District of Columbia.

Web Page: See http://www.eia.gov/totalenergy/data/monthly/#coal (Excel and CSV files) for all available annual data beginning in 1949 and monthly data beginning in 1973.

Sources: See end of section.

## Table 6.3 Coal Stocks by Sector

(Thousand Short Tons)

| | Producers and Distributors | End-Use Sectors | | | | | Electric Power Sector[c,d] | Total |
|---|---|---|---|---|---|---|---|---|
| | | Residential[a] and Commercial | Industrial | | | Total | | |
| | | | Coke Plants | Other[b] | Total | | | |
| **1950 Year** | **NA** | **2,462** | **16,809** | **26,182** | **42,991** | **45,453** | **31,842** | **77,295** |
| **1955 Year** | **NA** | **998** | **13,422** | **15,880** | **29,302** | **30,300** | **41,391** | **71,691** |
| **1960 Year** | **NA** | **666** | **11,122** | **11,637** | **22,759** | **23,425** | **51,735** | **75,160** |
| **1965 Year** | **NA** | **353** | **10,640** | **13,122** | **23,762** | **24,115** | **54,525** | **78,640** |
| **1970 Year** | **NA** | **300** | **9,045** | **11,781** | **20,826** | **21,126** | **71,908** | **93,034** |
| **1975 Year** | **12,108** | **233** | **8,797** | **8,529** | **17,326** | **17,559** | **110,724** | **140,391** |
| **1980 Year** | **24,379** | **NA** | **9,067** | **11,951** | **21,018** | **21,018** | **183,010** | **228,407** |
| **1985 Year** | **33,133** | **NA** | **3,420** | **10,438** | **13,857** | **13,857** | **156,376** | **203,367** |
| **1990 Year** | **33,418** | **NA** | **3,329** | **8,716** | **12,044** | **12,044** | **156,166** | **201,629** |
| **1995 Year** | **34,444** | **NA** | **2,632** | **5,702** | **8,334** | **8,334** | **126,304** | **169,083** |
| **2000 Year** | **31,905** | **NA** | **1,494** | **4,587** | **6,081** | **6,081** | **102,296** | **140,282** |
| **2001 Year** | **35,900** | **NA** | **1,510** | **6,006** | **7,516** | **7,516** | **138,496** | **181,912** |
| **2002 Year** | **43,257** | **NA** | **1,364** | **5,792** | **7,156** | **7,156** | **141,714** | **192,127** |
| **2003 Year** | **38,277** | **NA** | **905** | **4,718** | **5,623** | **5,623** | **121,567** | **165,468** |
| **2004 Year** | **41,151** | **NA** | **1,344** | **4,842** | **6,186** | **6,186** | **106,669** | **154,006** |
| **2005 Year** | **34,971** | **NA** | **2,615** | **5,582** | **8,196** | **8,196** | **101,137** | **144,304** |
| **2006 Year** | **36,548** | **NA** | **2,928** | **6,506** | **9,434** | **9,434** | **140,964** | **186,946** |
| **2007 Year** | **33,977** | **NA** | **1,936** | **5,624** | **7,560** | **7,560** | **151,221** | **192,758** |
| **2008 Year** | **34,688** | **498** | **2,331** | **6,007** | **8,338** | **8,836** | **161,589** | **205,112** |
| **2009 Year** | **47,718** | **529** | **1,957** | **5,109** | **7,066** | **7,595** | **189,467** | **244,780** |
| **2010 Year** | **49,820** | **552** | **1,925** | **4,525** | **6,451** | **7,003** | **174,917** | **231,740** |
| **2011 Year** | **51,897** | **603** | **2,610** | **4,455** | **7,065** | **7,668** | **172,387** | **231,951** |
| **2012 Year** | **46,157** | **583** | **2,522** | **4,475** | **6,997** | **7,581** | **185,116** | **238,853** |
| **2013 Year** | **45,652** | **495** | **2,200** | **4,097** | **6,297** | **6,792** | **147,884** | **200,328** |
| **2014 Year** | **38,894** | **449** | **2,640** | **4,196** | **6,836** | **7,285** | **151,548** | **197,727** |
| **2015** January | 38,817 | 429 | 2,471 | 4,010 | 6,482 | 6,911 | 154,390 | 200,117 |
| February | 39,581 | 408 | 2,303 | 3,825 | 6,128 | 6,536 | 149,071 | 195,189 |
| March | 39,610 | 388 | 2,135 | 3,639 | 5,775 | 6,162 | 154,347 | 200,119 |
| April | 40,226 | 387 | 2,299 | 3,714 | 6,013 | 6,400 | 167,063 | 213,690 |
| May | 39,817 | 386 | 2,463 | 3,789 | 6,252 | 6,639 | 172,809 | 219,265 |
| June | 39,399 | 386 | 2,627 | 3,864 | 6,491 | 6,877 | 166,437 | 212,713 |
| July | 38,993 | 388 | 2,756 | 3,999 | 6,755 | 7,143 | 157,938 | 204,074 |
| August | 37,353 | 390 | 2,884 | 4,135 | 7,019 | 7,410 | 155,952 | 200,714 |
| September | 36,213 | 392 | 3,013 | 4,271 | 7,284 | 7,676 | 162,109 | 205,997 |
| October | 36,233 | 393 | 2,754 | 4,308 | 7,062 | 7,455 | 175,588 | 219,276 |
| November | 36,509 | 394 | 2,495 | 4,345 | 6,840 | 7,233 | 188,595 | 232,337 |
| **December** | **35,871** | **394** | **2,236** | **4,382** | **6,618** | **7,012** | **195,548** | **238,431** |
| **2016** January | F 35,935 | 373 | 2,129 | 4,231 | 6,360 | 6,733 | 187,486 | 230,154 |
| February | F 36,656 | 353 | 2,022 | 4,080 | 6,102 | 6,455 | 187,575 | 230,686 |
| March | F 37,304 | 332 | 1,914 | 3,930 | 5,844 | 6,176 | 192,269 | 235,750 |
| April | F 37,808 | 334 | 1,877 | 3,895 | 5,772 | 6,105 | 193,991 | 237,904 |
| May | F 37,549 | 336 | 1,839 | 3,860 | 5,699 | 6,035 | 193,432 | 237,016 |
| June | F 37,127 | 337 | 1,802 | 3,825 | 5,626 | 5,964 | 183,248 | 226,339 |
| July | F 36,287 | 348 | 1,755 | 3,786 | 5,540 | 5,889 | 169,465 | 211,640 |
| August | F 34,719 | 359 | 1,707 | 3,747 | 5,454 | 5,814 | 160,452 | 200,985 |
| September | F 33,574 | 370 | 1,660 | 3,708 | 5,368 | 5,739 | 158,238 | 197,551 |
| October | F 33,417 | 367 | 1,665 | 3,684 | 5,349 | 5,716 | 162,739 | 201,873 |
| November | F 33,336 | 364 | 1,670 | 3,659 | 5,329 | 5,694 | 172,208 | 211,238 |
| **December** | F **33,699** | **361** | **1,675** | **3,635** | **5,310** | **5,671** | **163,946** | **203,316** |
| **2017** January | F 33,706 | 352 | 1,579 | 3,497 | 5,076 | 5,428 | 157,359 | 196,493 |
| February | F 34,286 | 344 | 1,483 | 3,358 | 4,842 | 5,185 | 161,985 | 201,456 |
| March | F 34,719 | 335 | 1,388 | 3,220 | 4,607 | 4,942 | 163,900 | 203,561 |
| April | F 35,115 | 332 | 1,467 | 3,254 | 4,721 | 5,052 | 166,236 | 206,404 |
| May | F 34,720 | 330 | 1,547 | 3,272 | 4,819 | 5,149 | 164,924 | 204,793 |
| June | F 34,240 | 328 | 1,626 | 3,291 | 4,917 | 5,245 | 160,540 | 200,025 |
| July | F 33,246 | F 306 | F 1,656 | F 2,961 | F 4,617 | F 4,922 | 148,084 | 186,252 |
| August | F 32,040 | F 283 | F 1,693 | F 3,721 | F 5,414 | F 5,697 | 144,129 | 181,866 |

[a] Through 1979, data are for the residential and commercial sectors. Beginning in 2008, data are for the commercial sector only.

[b] Through 1979, data are for manufacturing plants and the transportation sector. For 1980–2007, data are for manufacturing plants only. Beginning in 2008, data are for manufacturing plants and coal transformation/processing plants.

[c] The electric power sector comprises 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.

[d] Excludes waste coal. Through 1998, data are for electric utilities only. Beginning in 1999, data are for electric utilities and independent power producers.

NA=Not available. F=Forecast.

Notes: • Stocks are at end of period. • Electric power sector monthly values are from Table 7.5; producers and distributors monthly values are estimates derived from collected annual data; all other monthly values are estimates derived from collected quarterly values. • Data values preceded by "F" are derived from the U.S. Energy Information Administration's Short-Term Integrated Forecasting System. See Note 4, "Coal Forecast Values," at end of section. • Totals may not equal sum of components due to independent rounding. • Geographic coverage is the 50 states and the District of Columbia.

Web Page: See http://www.eia.gov/totalenergy/data/monthly/#coal (Excel and CSV files) for all available annual data beginning in 1949 and monthly data beginning in 1973.

Sources: See end of section.

# Coal

**Note 1. Coal Production.** Preliminary monthly estimates of national coal production are the sum of weekly estimates developed by the U.S. Energy Information Administration (EIA) and published in the *Weekly Coal Production* report. When a week extends into a new month, production is allocated on a daily basis and added to the appropriate month. Weekly estimates are based on Association of American Railroads (AAR) data showing the number of railcars loaded with coal during the week by Class I and certain other railroads.

Through 2001, the weekly coal production model converted AAR data into short tons of coal by using the average number of short tons of coal per railcar loaded reported in the "Quarterly Freight Commodity Statistics" from the Surface Transportation Board. If an average coal tonnage per railcar loaded was not available for a specific railroad, the national average was used. To derive the estimate of total weekly production, the total rail tonnage for the week was divided by the ratio of quarterly production shipped by rail and total quarterly production. Data for the corresponding quarter of previous years were used to derive this ratio. This method ensured that the seasonal variations were preserved in the production estimates.

From 2002 through 2014, the weekly coal production model used statistical auto regressive methods to estimate national coal production as a function of railcar loadings of coal, heating degree-days, and cooling degree-days. On Thursday of each week, EIA received from the AAR data for the previous week. The latest weekly national data for heating degree-days and cooling degree-days were obtained from the National Oceanic and Atmospheric Administration's Climate Prediction Center.

Beginning in 2015, the revised weekly coal production model uses statistical auto regressive methods to estimate national coal production as a function of railcar loadings of coal. EIA receives AAR data on Thursday of each week for prior week car loadings. The weekly coal model is run and a national level coal production estimate is obtained. From there, state-level estimates are calculated using historical state production share. The state estimates are then aggregated to various regional-level estimates. The weekly coal model is refit every quarter after preliminary coal data are available.

When preliminary quarterly data become available, the monthly and weekly estimates are adjusted to conform to the quarterly figures. The adjustment procedure uses historical state-level production data, the methodology for which can be seen in the documentation located at http://www.eia.gov/coal/production/weekly/. Initial estimates of annual production published in January of the following year are based on preliminary production data covering the first nine months (three quarters) and weekly/monthly estimates for the fourth quarter. All quarterly, monthly, and weekly production figures are adjusted to conform to the final annual production data published in the *Monthly Energy Review* in the fall of the following year.

**Note 2. Coal Consumption.** Forecast data (designated by an "F") are derived from forecasted values shown in EIA's *Short-Term Energy Outlook* (DOE/EIA-0202) table titled "U.S. Coal Supply, Consumption, and Inventories." The monthly estimates are based on the quarterly values, which are released in March, June, September, and December. The estimates are revised quarterly as collected data become available from the data sources. Sector-specific information follows.

Residential and Commercial—Through 2007, coal consumption by the residential and commercial sectors is reported to EIA for the two sectors combined; EIA estimates the amount consumed by the sectors individually. To create the estimates, it is first assumed that an occupied coal-heated housing unit consumes fuel at the same Btu rate as an oil-heated housing unit. Then, for the years in which data are available on the number of occupied housing units by heating source (1973–1981 and subsequent odd-numbered years), residential consumption of coal is estimated using the following steps: a ratio is created of the number of occupied housing units heated by coal to the number of occupied housing units heated by oil; that ratio is then multiplied by the Btu quantity of oil consumed by the residential sector to derive an estimate of the Btu quantity of coal consumed by the residential sector; and, finally, the amount estimated as the residential sector consumption is subtracted from the residential and commercial sectors' combined consumption to derive the commercial sector's estimated consumption. Beginning in 2008, residential coal consumption data are not collected by EIA, and commercial coal consumption data are taken directly from reported data.

Industrial Coke Plants—Through 1979, monthly coke plant consumption data were taken directly from reported data. For 1980–1987, coke plant consumption estimates were derived by proportioning reported quarterly data by using the ratios of monthly-to-quarterly consumption data in 1979, the last year in which monthly data were reported. Beginning in 1988, monthly coke plant consumption estimates are derived from the reported quarterly data by using monthly ratios of raw steel production data from the American Iron and Steel Institute. The ratios are the monthly raw steel production from open hearth and basic oxygen process furnaces as a proportion of the quarterly production from those kinds of furnaces. Coal coke consumption values also include the relativity small amount consumed for non-combustion use (See Tables 1.11a and 1.11b).

Industrial Other—Through 1977, monthly consumption data for the other industrial sector (all industrial users minus coke plants) were derived by using reported data to modify baseline consumption figures from the most recent U.S. Census Bureau Annual Survey of Manufactures or Census

of Manufactures. For 1978 and 1979, monthly estimates were derived from data reported on Forms EIA-3 and EIA-6. For 1980–1987, monthly figures were estimated by proportioning quarterly data by using the ratios of monthly-to-quarterly consumption data in 1979, the last year in which monthly data were reported on Form EIA-3. Beginning in 1988, monthly consumption for the other industrial sector is estimated from reported quarterly data by using ratios derived from industrial production indices published by the Board of Governors of the Federal Reserve System. Indices for six major industry groups are used as the basis for calculating the ratios: food manufacturing, which is North American Industry Classification System (NAICS) code 311; paper manufacturing, NAICS 322; chemical manufacturing, NAICS 325; petroleum and coal products, NAICS 324; nonmetallic mineral products manufacturing, NAICS 327; and primary metal manufacturing, NAICS 331. The monthly ratios are computed as the monthly sum of the weighted indices as a proportion of the quarterly sum of the weighted indices by using the 1977 proportion as the weights. Through 2007, quarterly consumption data for the other industrial sector were derived by adding beginning stocks at manufacturing plants to current receipts and subtracting ending stocks at manufacturing plants. In this calculation, current receipts are the greater of either reported receipts from manufacturing plants (Form EIA-3) or reported shipments to the other industrial sector (Form EIA-6), thereby ensuring that agriculture, forestry, fishing, and construction consumption data were included where appropriate. Beginning in 2008, quarterly consumption totals for other industrial coal include data for manufacturing and mining only. Over time, surveyed coal consumption data for agriculture, forestry, fishing, and construction dwindled to about 20–30 thousand short tons annually. Therefore, in 2008, EIA consolidated its programs by eliminating agriculture, forestry, fishing, and construction as surveyed sectors.

Electric Power Sector—Monthly consumption data for electric power plants are taken directly from reported data.

**Note 3. Coal Stocks.** Coal stocks data are reported by major end-use sector. Forecast data (designated by an "F") are derived from forecasted values shown in EIA's *Short-Term Energy Outlook* (DOE/EIA-0202) table titled "U.S. Coal Supply, Consumption, and Inventories." The monthly estimates are based on the quarterly values (released in March, June, September, and December) or annual values. The estimates are revised as collected data become available from the data sources. Sector-specific information follows.

Producers and Distributors—Through 1997, quarterly stocks at producers and distributors were taken directly from reported data. Monthly data were estimated by using one-third of the current quarterly change to indicate the monthly change in stocks. Beginning in 1998, end-of-year stocks are taken from reported data. Monthly stocks are estimated by a model.

Residential and Commercial—Through 1979, stock estimates for the residential and commercial sector were taken directly from reported data. For 1980–2007, stock estimates were not collected. Beginning in 2008, quarterly commercial (excluding residential) stocks data are collected on Form EIA-3 (data for "Commercial and Institutional Coal Users").

Industrial Coke Plants—Through 1979, monthly stocks at coke plants were taken directly from reported data. Beginning in 1980, coke plant stocks are estimated by using one-third of the current quarterly change to indicate the monthly change in stocks. Quarterly stocks are taken directly from data reported on Form EIA-5.

Industrial Other—Through 1977, stocks for the other industrial sector were derived by using reported data to modify baseline figures from a one-time Bureau of Mines survey of consumers. For 1978–1982, monthly estimates were derived by judgmentally proportioning reported quarterly data based on representative seasonal patterns of supply and demand. Beginning in 1983, other industrial coal stocks are estimated as indicated above for coke plants. Quarterly stocks are taken directly from data reported on Form EIA-3 and therefore include only manufacturing industries; data for agriculture, forestry, fishing, mining, and construction stocks are not available.

Electric Power Sector—Monthly stocks data at electric power plants are taken directly from reported data.

**Note 4. Coal Forecast Values**. Data values preceded by "F" in this section are forecast values. They are derived from EIA's Short-Term Integrated Forecasting System (STIFS). The model is driven primarily by data and assumptions about key macroeconomic variables, the world oil price, and weather. The coal forecast relies on other variables as well, such as alternative fuel prices (natural gas and oil) and power generation by sources other than fossil fuels, including nuclear and hydroelectric power. Each month, EIA staff review the model output and make adjustments, if appropriate, based on their knowledge of developments in the coal industry.

The STIFS model results are published monthly in EIA's *Short-Term Energy Outlook*, which is accessible on the Web at http://www.eia.gov/forecasts/steo/.

## Table 6.1 Sources

**Production**

1949–September 1977: U.S. Department of the Interior, Bureau of Mines, *Minerals Yearbook* and *Minerals Industry Surveys*.

October 1977 forward: U.S. Energy Information Administration (EIA), *Weekly Coal Production*.

**Waste Coal Supplied**
1989–1997: EIA, Form EIA-867, "Annual Nonutility Power Producer Report."
1998–2000: EIA, Form EIA-860B, "Annual Electric Generator Report—Nonutility."
2001–2003: EIA, Form EIA-906, "Power Plant Report," and Form EIA-3, "Quarterly Coal Consumption and Quality Report—Manufacturing Plants," and predecessor forms.
2004–2007: EIA, Form EIA-906, "Power Plant Report," Form EIA-920, "Combined Heat and Power Plant Report," and Form EIA-3, "Quarterly Coal Consumption and Quality Report—Manufacturing Plants," and predecessor forms.
2008 forward: EIA, Form EIA-923, "Power Plant Operations Report," and Form EIA-3, "Quarterly Survey of Industrial, Commercial, and Institutional Coal Users" (formerly called, "Quarterly Survey of Non-Electric Sector Coal Data"); and, for forecast values, EIA, Short-Term Integrated Forecasting System.

**Imports and Exports**
1949 forward: U.S. Department of Commerce, U.S. Census Bureau, Monthly Reports IM 145 (Imports) and EM 545 (Exports).

**Stock Change**
1950 forward: Calculated from data in Table 6.3.

**Losses and Unaccounted for**
1949 forward: Calculated as the sum of production, imports, and waste coal supplied, minus exports, stock change, and consumption.

**Consumption**
1949 forward: Table 6.2.

## Table 6.2 Sources

**Residential and Commercial Total**
Through 2007, coal consumption by the residential and commercial sectors combined is reported to the U.S. Energy Information Administration (EIA). EIA estimates the sectors individually using the method described in Note 2, "Consumption," at the end of Section 6. Data for the residential and commercial sectors combined are from:

1949–1976: U.S. Department of the Interior (DOI), Bureau of Mines (BOM), *Minerals Yearbook*.
January–September 1977: DOI, BOM, Form 6-1400, "Monthly Coal Report, Retail Dealers—Upper Lake Docks." October 1977–1979: EIA, Form EIA-2, "Monthly Coal Report, Retail Dealers—Upper Lake Docks."
1980–1997: EIA, Form EIA-6, "Coal Distribution Report," quarterly.
1998–2007: DOI, Mine Safety and Health Administration, Form 7000-2, "Quarterly Coal Consumption and Quality Report—Coke Plants."

**Commercial Total**
Beginning in 2008, coal consumption by the commercial (excluding residential) sector is reported to EIA. Data for total commercial consumption are from:

2008 forward: EIA, Form EIA-3, "Quarterly Survey of Industrial, Commercial, and Institutional Coal Users" (formerly called, "Quarterly Survey of Non-Electric Sector Coal Data"); and, for forecast values, EIA, Short-Term Integrated Forecasting System (STIFS).

**Commercial CHP**
1989 forward: Table 7.4c.

**Commercial Other**
1949 forward: Calculated as "Commercial Total" minus "Commercial CHP."

**Industrial Coke Plants**
1949–September 1977: DOI, BOM, *Minerals Yearbook* and *Minerals Industry Surveys*.
October 1977–1980: EIA, Form EIA-5/5A, "Coke and Coal Chemicals—Monthly/Annual Supplement."
1981–1984: EIA, Form EIA-5/5A, "Coke Plant Report—Quarterly/Annual Supplement."
1985 forward: EIA, Form EIA–5, "Quarterly Coal Consumption and Quality Report—Coke Plants"; and, for forecast values, EIA, STIFS.

**Other Industrial Total**
1949–September 1977: DOI, BOM, *Minerals Yearbook* and *Minerals Industry Surveys*.
October 1977–1979: EIA, Form EIA-3, "Quarterly Coal Consumption and Quality Report—Manufacturing Plants," and predecessor forms.
1980–1997: EIA, Form EIA-3, "Quarterly Coal Consumption and Quality Report—Manufacturing Plants," and predecessor forms and Form EIA-6, "Coal Distribution Report," quarterly.
1998–2007: EIA, Form EIA-3, "Quarterly Coal Consumption and Quality Report—Manufacturing Plants," and predecessor forms, Form EIA-6A, "Coal Distribution Report," annual, and Form EIA-7A, "Coal Production Report," annual.
2008 forward: EIA, Form EIA-3, "Quarterly Survey of Industrial, Commercial, and Institutional Coal Users" (formerly called, "Quarterly Survey of Non-Electric Sector Coal Data") and Form EIA-7A, "Coal Production Report," annual; and, for forecast values, EIA, STIFS.

**Other Industrial CHP**
1989 forward: Table 7.4c.

**Other Industrial Non-CHP**
1949 forward: Calculated as "Other Industrial Total" minus "Other Industrial CHP."

**Transportation**
1949–1976: DOI, BOM, *Minerals Yearbook*.

January–September 1977: DOI, BOM, Form 6-1400, "Monthly Coal Report, Retail Dealers—Upper Lake Docks."
October–December 1977: EIA, Form EIA-6, "Coal Distribution Report," quarterly.

**Electric Power**
1949 forward: Table 7.4b.

## Table 6.3 Sources

**Producers and Distributors**
1973–1979: U.S. Department of the Interior (DOI), Bureau of Mines (BOM), Form 6-1419Q, "Distribution of Bituminous Coal and Lignite Shipments."
1980–1997: U.S. Energy Information Administration (EIA), Form EIA-6, "Coal Distribution Report," quarterly.
1998–2007: EIA, Form EIA-6A, "Coal Distribution Report," annual.
2008 forward: EIA, Form EIA-3, "Quarterly Survey of Industrial, Commercial, and Institutional Coal Users" (formerly called, "Quarterly Survey of Non-Electric Sector Coal Data"); (data for "Commercial and Institutional Coal Users"); and, for forecast values, EIA.

**Residential and Commercial**
1949–1976: DOI, BOM, *Minerals Yearbook*.
January–September 1977: DOI, BOM, Form 6-1400, "Monthly Coal Report, Retail Dealers—Upper Lake Docks."
October 1977–1979: EIA, Form EIA-2, "Monthly Coal Report, Retail Dealers—Upper Lake Docks."
2008 forward: EIA, Form EIA-3, "Quarterly Survey of Industrial, Commercial, and Institutional Coal Users" (formely called "Quarterly Survey of Non-Electric Coal Data); and, for forecast values, EIA, STIFS.

**Industrial Coke Plants**
1949–September 1977: DOI, BOM, *Minerals Yearbook* and *Minerals Industry Surveys*.
October 1977–1980: EIA, Form EIA-5/5A, "Coke and Coal Chemicals—Monthly/Annual."
1981–1984: EIA, Form EIA-5/5A, "Coke Plant Report—Quarterly/Annual Supplement."
1985 forward: EIA, Form EIA-5, "Quarterly Coal Consumption and Quality Report—Coke Plants" and, for forecast values, EIA, STIFS.

**Industrial Other**
1949–September 1977: DOI, BOM, *Minerals Yearbook* and *Minerals Industry Surveys*.
October 1977–2007: EIA, Form EIA-3, "Quarterly Coal Consumption and Quality Report—Manufacturing Plants," and predecessor forms.
2008 forward: EIA, Form EIA-3, "Quarterly Survey of Industrial, Commercial, and Institutional Coal Users" (formerly called, "Quarterly Survey of Non-Electric Sector Coal Data"); and, for forecast values, EIA, STIFS.

**Electric Power**
1949 forward: Table 7.5.

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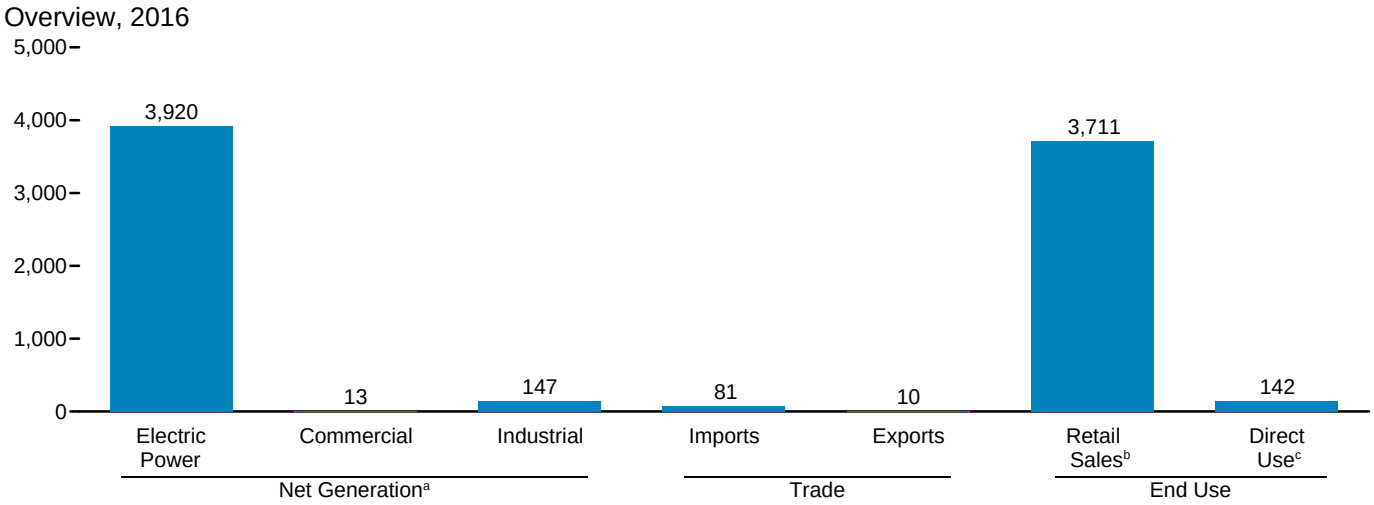
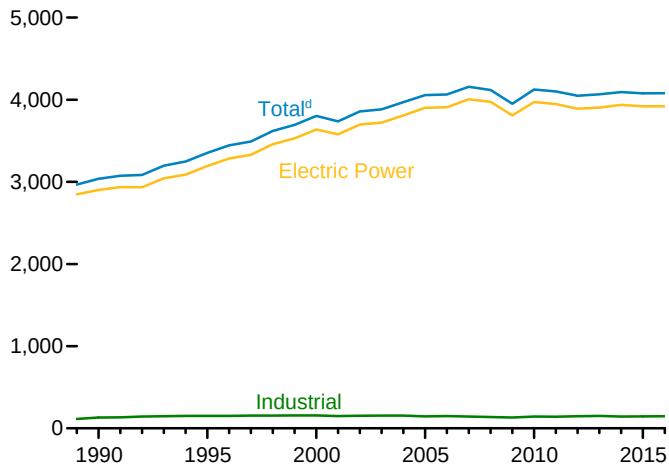
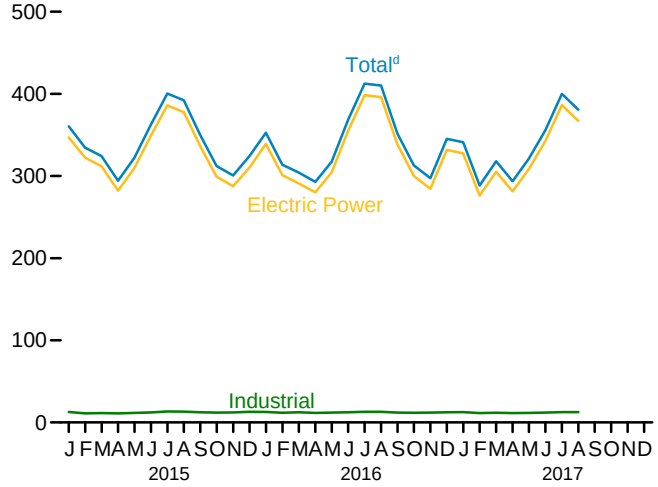
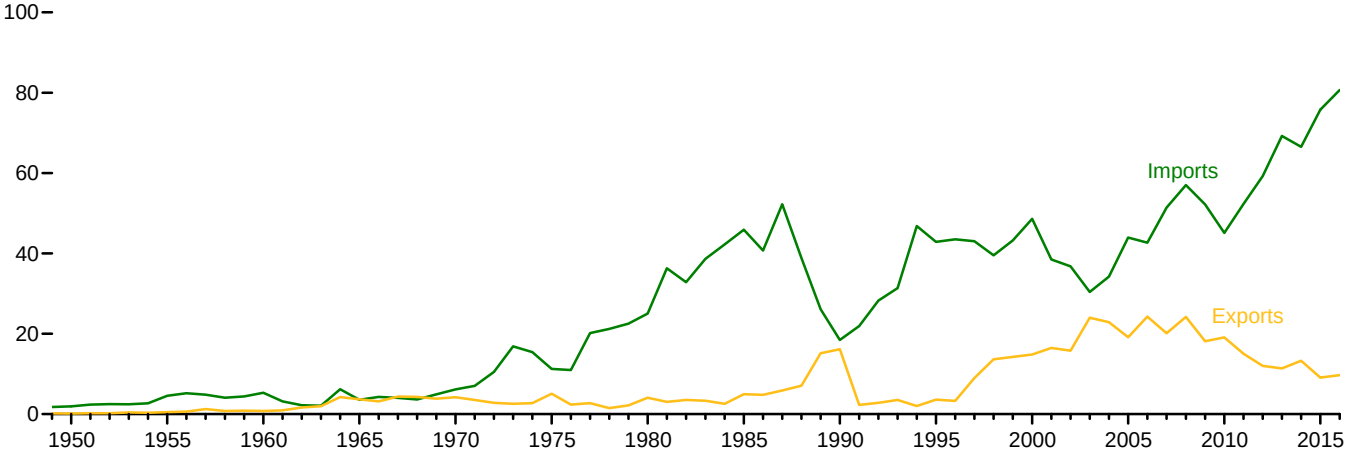
# 7. Electricity

## Figure 7.1 Electricity Overview
(Billion Kilowatthours)




[a] Data are for utility-scale facilities.
[b] Electricity retail sales to ultimate customers reported by electric utilities and other energy service providers.
[c] See "Direct Use" in Glossary.
[d] Includes commercial sector.
Web Page: http://www.eia.gov/totalenergy/data/monthly/#electricity.
Source: Table 7.1.

## Table 7.1 Electricity Overview

(Billion Kilowatthours)

| | Net Generation[a] | | | | Trade | | | T&D Losses[f] and Unaccounted for[g] | End Use | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Electric Power Sector[b] | Commercial Sector[c] | Industrial Sector[d] | Total | Imports[e] | Exports[e] | Net Imports[e] | | Retail Sales[h] | Direct Use[i] | Total |
| **1950 Total** | **329** | **NA** | **5** | **334** | **2** | **(s)** | **2** | **44** | **291** | **NA** | **291** |
| **1955 Total** | **547** | **NA** | **3** | **550** | **5** | **(s)** | **4** | **58** | **497** | **NA** | **497** |
| **1960 Total** | **756** | **NA** | **4** | **759** | **5** | **1** | **5** | **76** | **688** | **NA** | **688** |
| **1965 Total** | **1,055** | **NA** | **3** | **1,058** | **4** | **4** | **(s)** | **104** | **954** | **NA** | **954** |
| **1970 Total** | **1,532** | **NA** | **3** | **1,535** | **6** | **4** | **2** | **145** | **1,392** | **NA** | **1,392** |
| **1975 Total** | **1,918** | **NA** | **3** | **1,921** | **11** | **5** | **6** | **180** | **1,747** | **NA** | **1,747** |
| **1980 Total** | **2,286** | **NA** | **3** | **2,290** | **25** | **4** | **21** | **216** | **2,094** | **NA** | **2,094** |
| **1985 Total** | **2,470** | **NA** | **3** | **2,473** | **46** | **5** | **41** | **190** | **2,324** | **NA** | **2,324** |
| **1990 Total** | **2,901** | **6** | **[c] 131** | **3,038** | **18** | **16** | **2** | **203** | **2,713** | **125** | **2,837** |
| **1995 Total** | **3,194** | **8** | **151** | **3,353** | **43** | **4** | **39** | **229** | **3,013** | **151** | **3,164** |
| **2000 Total** | **3,638** | **8** | **157** | **3,802** | **49** | **15** | **34** | **244** | **3,421** | **171** | **3,592** |
| **2001 Total** | **3,580** | **7** | **149** | **3,737** | **39** | **16** | **22** | **202** | **3,394** | **163** | **3,557** |
| **2002 Total** | **3,698** | **7** | **153** | **3,858** | **37** | **16** | **21** | **248** | **3,465** | **166** | **3,632** |
| **2003 Total** | **3,721** | **7** | **155** | **3,883** | **30** | **24** | **6** | **228** | **3,494** | **168** | **3,662** |
| **2004 Total** | **3,808** | **8** | **154** | **3,971** | **34** | **23** | **11** | **266** | **3,547** | **168** | **3,716** |
| **2005 Total** | **3,902** | **8** | **145** | **4,055** | **44** | **19** | **25** | **269** | **3,661** | **150** | **3,811** |
| **2006 Total** | **3,908** | **8** | **148** | **4,065** | **43** | **24** | **18** | **266** | **3,670** | **147** | **3,817** |
| **2007 Total** | **4,005** | **8** | **143** | **4,157** | **51** | **20** | **31** | **298** | **3,765** | **126** | **3,890** |
| **2008 Total** | **3,974** | **8** | **137** | **4,119** | **57** | **24** | **33** | **286** | **3,734** | **132** | **3,866** |
| **2009 Total** | **3,810** | **8** | **132** | **3,950** | **52** | **18** | **34** | **261** | **3,597** | **127** | **3,724** |
| **2010 Total** | **3,972** | **9** | **144** | **4,125** | **45** | **19** | **26** | **264** | **3,755** | **132** | **3,887** |
| **2011 Total** | **3,948** | **10** | **142** | **4,100** | **52** | **15** | **37** | **255** | **3,750** | **133** | **3,883** |
| **2012 Total** | **3,890** | **11** | **146** | **4,048** | **59** | **12** | **47** | **263** | **3,695** | **138** | **3,832** |
| **2013 Total** | **3,904** | **12** | **150** | **4,066** | **69** | **11** | **58** | **256** | **3,725** | **143** | **3,868** |
| **2014 Total** | **3,937** | **13** | **144** | **4,094** | **67** | **13** | **53** | **244** | **3,765** | **139** | **3,903** |
| **2015** January | 347 | 1 | 13 | 360 | 6 | 1 | 5 | 24 | 330 | [E] 12 | 342 |
| February | 322 | 1 | 11 | 334 | 6 | 1 | 4 | 21 | 307 | [E] 11 | 317 |
| March | 312 | 1 | 11 | 324 | 7 | 1 | 6 | 13 | 305 | [E] 11 | 316 |
| April | 282 | 1 | 11 | 294 | 7 | 1 | 6 | 14 | 275 | [E] 11 | 286 |
| May | 310 | 1 | 12 | 322 | 7 | 1 | 6 | 29 | 288 | [E] 11 | 299 |
| June | 349 | 1 | 12 | 362 | 7 | 1 | 6 | 30 | 326 | [E] 12 | 338 |
| July | 386 | 1 | 13 | 400 | 7 | 1 | 6 | 31 | 363 | [E] 13 | 376 |
| August | 378 | 1 | 13 | 392 | 7 | 1 | 7 | 24 | 362 | [E] 13 | 375 |
| September | 337 | 1 | 12 | 350 | 7 | 1 | 6 | 11 | 333 | [E] 12 | 345 |
| October | 299 | 1 | 12 | 312 | 5 | 1 | 5 | 9 | 296 | [E] 12 | 308 |
| November | 288 | 1 | 12 | 301 | 6 | 1 | 5 | 18 | 276 | [E] 12 | 288 |
| December | 310 | 1 | 13 | 324 | 6 | 1 | 5 | 20 | 297 | [E] 12 | 310 |
| **Total** | **3,919** | **13** | **146** | **4,078** | **76** | **9** | **67** | **244** | **3,759** | **141** | **3,900** |
| **2016** January | 339 | 1 | 13 | 353 | 7 | 1 | 6 | 30 | 317 | [E] 12 | 329 |
| February | 301 | 1 | 12 | 314 | 6 | 1 | 5 | 14 | 293 | [E] 11 | 305 |
| March | 291 | 1 | 12 | 304 | 6 | 1 | 5 | 16 | 282 | [E] 12 | 294 |
| April | 280 | 1 | 12 | 293 | 5 | 1 | 4 | 20 | 266 | [E] 11 | 277 |
| May | 304 | 1 | 12 | 317 | 6 | 1 | 5 | 30 | 281 | [E] 12 | 292 |
| June | 355 | 1 | 12 | 368 | 7 | 1 | 7 | 38 | 325 | [E] 12 | 337 |
| July | 398 | 1 | 13 | 412 | 8 | 1 | 7 | 40 | 367 | [E] 13 | 380 |
| August | 396 | 1 | 13 | 410 | 8 | 1 | 7 | 29 | 376 | [E] 13 | 388 |
| September | 339 | 1 | 12 | 352 | 7 | 1 | 6 | 13 | 332 | [E] 12 | 344 |
| October | 300 | 1 | 12 | 313 | 6 | 1 | 5 | 15 | 292 | [E] 11 | 303 |
| November | 284 | 1 | 12 | 297 | 7 | 1 | 6 | 19 | 273 | [E] 12 | 284 |
| December | 332 | 1 | 12 | 345 | 7 | 1 | 6 | 34 | 306 | [E] 12 | 318 |
| **Total** | **3,920** | **13** | **147** | **4,079** | **81** | **10** | **71** | **297** | **3,711** | **[E] 142** | **3,853** |
| **2017** January | 328 | 1 | 12 | 341 | 6 | 1 | 5 | 19 | 314 | [E] 12 | 327 |
| February | 276 | 1 | 11 | 288 | 4 | 1 | 3 | 8 | 273 | [E] 11 | 284 |
| March | 305 | 1 | 12 | 318 | 5 | 1 | 4 | 22 | 288 | [E] 12 | 299 |
| April | 281 | 1 | 11 | 294 | 5 | 1 | 4 | 18 | 269 | [E] 11 | 279 |
| May | 309 | 1 | 12 | 321 | 5 | 1 | 4 | 25 | 289 | [E] 11 | 300 |
| June | 343 | 1 | 12 | 356 | 6 | 1 | 5 | 25 | 324 | [E] 12 | 335 |
| July | 386 | 1 | 13 | 400 | [F] 7 | [F] 1 | [F] 6 | 32 | 362 | [E] 12 | 374 |
| August | 367 | 1 | 13 | 381 | [F] 6 | [F] 1 | [F] 6 | 18 | 356 | [E] 12 | 368 |
| **8-Month Total** | **2,595** | **8** | **96** | **2,699** | **[E] 44** | **[E] 8** | **[E] 36** | **169** | **2,474** | **[E] 93** | **2,566** |
| **2016 8-Month Total** | **2,665** | **9** | **98** | **2,772** | **54** | **7** | **47** | **217** | **2,507** | **[E] 95** | **2,603** |
| **2015 8-Month Total** | **2,686** | **8** | **96** | **2,790** | **52** | **6** | **46** | **186** | **2,557** | **[E] 93** | **2,650** |

[a] Electricity net generation at utility-scale facilities. Does not include distributed (small-scale) solar photovoltaic (PV) generation shown on Table 10.6. See Note 1, "Coverage of Electricity Statistics," at end of section.

[b] 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.

[c] Commercial combined-heat-and-power (CHP) and commercial electricity-only plants.

[d] Industrial combined-heat-and-power (CHP) and industrial electricity-only plants. Through 1988, data are for industrial hydroelectric power only.

[e] Electricity transmitted across U.S. borders. Net imports equal imports minus exports.

[f] Transmission and distribution losses (electricity losses that occur between the point of generation and delivery to the customer). See Note 1, "Electrical System Energy Losses," at end of Section 2.

[g] Data collection frame differences and nonsampling error.

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

[i] Use of electricity that is 1) self-generated, 2) produced by either the same entity that consumes the power or an affiliate, and 3) used in direct support of a service or industrial process located within the same facility or group of facilities that house the generating equipment. Direct use is exclusive of station use.

E=Estimate. NA=Not available. F=Forecast. (s)=Less than 0.5 billion kilowatthours.

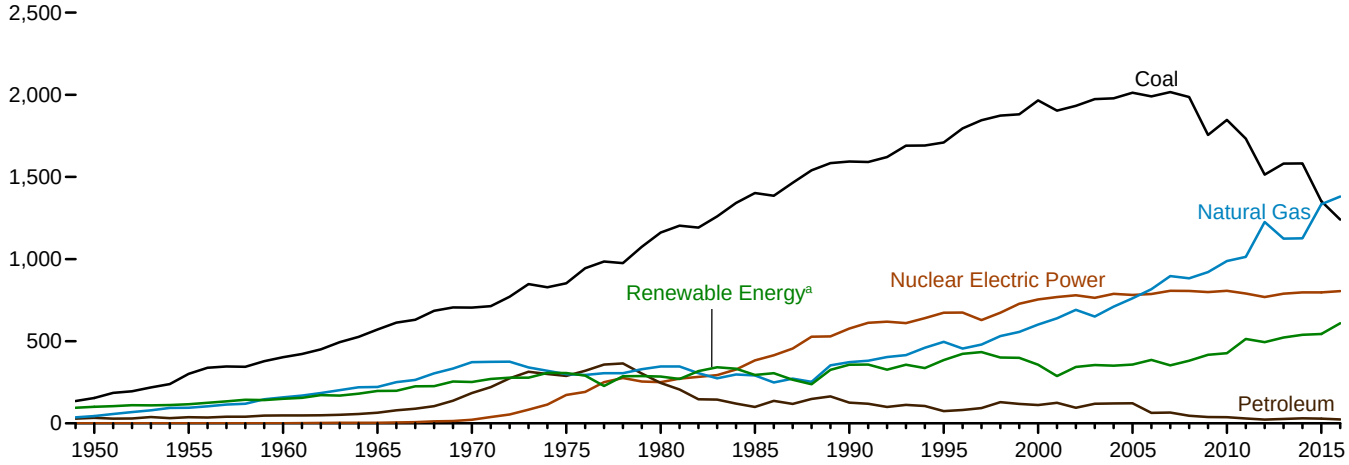
Notes: • See Note 1, "Coverage of Electricity Statistics," and Note 2, "Classification of Power Plants Into Energy-Use Sectors," at end of section. • Data values preceded by "F" are derived from the U.S. Energy Information Administration's Short-Term Integrated Forecasting System. See Note 3, "Electricity Forecast Values," at end of section. • Totals may not equal sum of components due to independent rounding. • Geographic coverage is the 50 states and the District of Columbia.

Web Page: See http://www.eia.gov/totalenergy/data/monthly/#electricity (Excel and CSV files) for all available annual data beginning in 1949 and monthly data beginning in 1973.

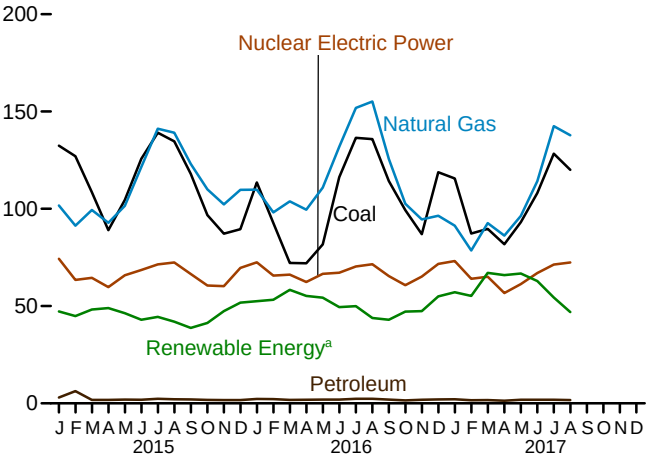
Sources: See end of section.

## Figure 7.2 Electricity Net Generation
(Billion Kilowatthours)

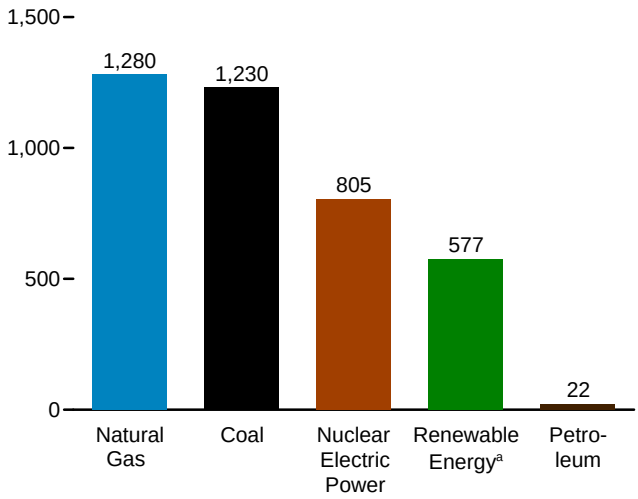
Total (All Sectors), Major Sources, 1949–2016



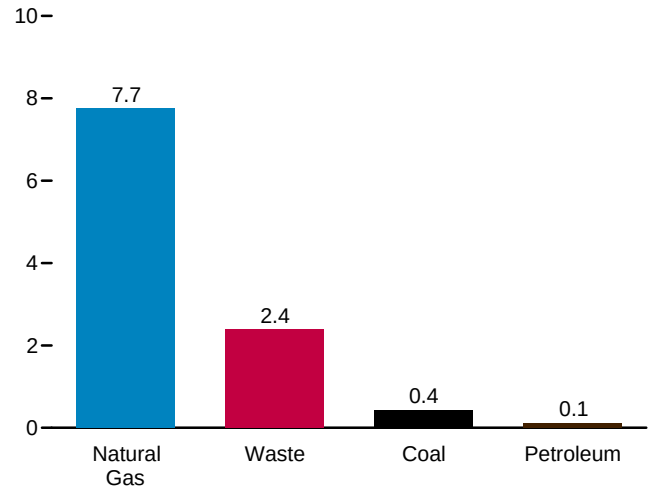

Total (All Sectors), Major Sources, Monthly



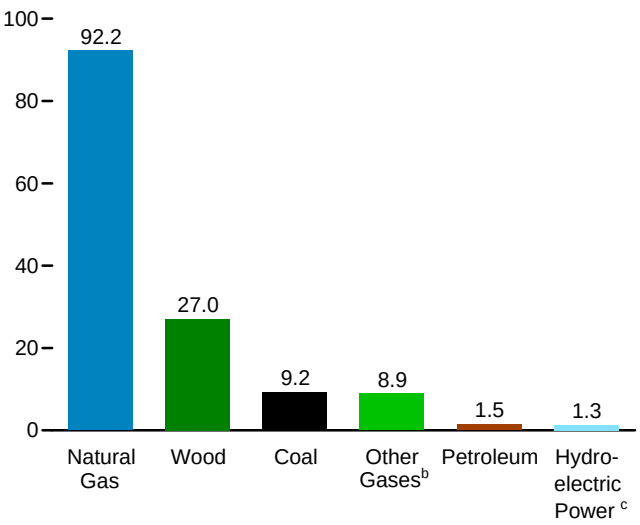

Electric Power Sector, Major Sources, 2016




Commercial Sector, Major Sources, 2016




Industrial Sector, Major Sources, 2016




[a] Conventional hydroelectric power, wood, waste, geothermal, solar, and wind.
[b] Blast furnace gas, and other manufactured and waste gases derived from fossil fuels.
[c] Conventional hydroelectric power.
Note: Data are for utility-scale facilities.
Web Page: http://www.eia.gov/totalenergy/data/monthly/#electricity.
Sources: Tables 7.2a–7.2c.

## Table 7.2a Electricity Net Generation: Total (All Sectors)

(Sum of Tables 7.2b and 7.2c; Million Kilowatthours)

| | Fossil Fuels | | | | | | Renewable Energy | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | Biomass | | | | | | |
| | Coal[a] | Petroleum[b] | Natural Gas[c] | Other Gases[d] | Nuclear Electric Power | Hydroelectric Pumped Storage[e] | Conventional Hydroelectric Power[f] | Wood[g] | Waste[h] | Geothermal | Solar[i] | Wind | Total[j] |
| **1950 Total** | **154,520** | **33,734** | **44,559** | **NA** | **0** | **( [f] )** | **100,885** | **390** | **NA** | **NA** | **NA** | **NA** | **334,088** |
| **1955 Total** | **301,363** | **37,138** | **95,285** | **NA** | **0** | **( [f] )** | **116,236** | **276** | **NA** | **NA** | **NA** | **NA** | **550,299** |
| **1960 Total** | **403,067** | **47,987** | **157,970** | **NA** | **518** | **( [f] )** | **149,440** | **140** | **NA** | **33** | **NA** | **NA** | **759,156** |
| **1965 Total** | **570,926** | **64,801** | **221,559** | **NA** | **3,657** | **( [f] )** | **196,984** | **269** | **NA** | **189** | **NA** | **NA** | **1,058,386** |
| **1970 Total** | **704,394** | **184,183** | **372,890** | **NA** | **21,804** | **( [f] )** | **250,957** | **136** | **220** | **525** | **NA** | **NA** | **1,535,111** |
| **1975 Total** | **852,786** | **289,095** | **299,778** | **NA** | **172,505** | **( [f] )** | **303,153** | **18** | **174** | **3,246** | **NA** | **NA** | **1,920,755** |
| **1980 Total** | **1,161,562** | **245,994** | **346,240** | **NA** | **251,116** | **( [f] )** | **279,182** | **275** | **158** | **5,073** | **NA** | **NA** | **2,289,600** |
| **1985 Total** | **1,402,128** | **100,202** | **291,946** | **NA** | **383,691** | **( [f] )** | **284,311** | **743** | **640** | **9,325** | **11** | **6** | **2,473,002** |
| **1990 Total**[k] | **1,594,011** | **126,460** | **372,765** | **10,383** | **576,862** | **-3,508** | **292,866** | **32,522** | **13,260** | **15,434** | **367** | **2,789** | **3,037,827** |
| **1995 Total** | **1,709,426** | **74,554** | **496,058** | **13,870** | **673,402** | **-2,725** | **310,833** | **36,521** | **20,405** | **13,378** | **497** | **3,164** | **3,353,487** |
| **2000 Total** | **1,966,265** | **111,221** | **601,038** | **13,955** | **753,893** | **-5,539** | **275,573** | **37,595** | **23,131** | **14,093** | **493** | **5,593** | **3,802,105** |
| **2001 Total** | **1,903,956** | **124,880** | **639,129** | **9,039** | **768,826** | **-8,823** | **216,961** | **35,200** | **14,548** | **13,741** | **543** | **6,737** | **3,736,644** |
| **2002 Total** | **1,933,130** | **94,567** | **691,006** | **11,463** | **780,064** | **-8,743** | **264,329** | **38,665** | **15,044** | **14,491** | **555** | **10,354** | **3,858,452** |
| **2003 Total** | **1,973,737** | **119,406** | **649,908** | **15,600** | **763,733** | **-8,535** | **275,806** | **37,529** | **15,812** | **14,424** | **534** | **11,187** | **3,883,185** |
| **2004 Total** | **1,978,301** | **121,145** | **710,100** | **15,252** | **788,528** | **-8,488** | **268,417** | **38,117** | **15,421** | **14,811** | **575** | **14,144** | **3,970,555** |
| **2005 Total** | **2,012,873** | **122,225** | **760,960** | **13,464** | **781,986** | **-6,558** | **270,321** | **38,856** | **15,420** | **14,692** | **550** | **17,811** | **4,055,423** |
| **2006 Total** | **1,990,511** | **64,166** | **816,441** | **14,177** | **787,219** | **-6,558** | **289,246** | **38,762** | **16,099** | **14,568** | **508** | **26,589** | **4,064,702** |
| **2007 Total** | **2,016,456** | **65,739** | **896,590** | **13,453** | **806,425** | **-6,896** | **247,510** | **39,014** | **16,525** | **14,637** | **612** | **34,450** | **4,156,745** |
| **2008 Total** | **1,985,801** | **46,243** | **882,981** | **11,707** | **806,208** | **-6,288** | **254,831** | **37,300** | **17,734** | **14,840** | **864** | **55,363** | **4,119,388** |
| **2009 Total** | **1,755,904** | **38,937** | **920,979** | **10,632** | **798,855** | **-4,627** | **273,445** | **36,050** | **18,443** | **15,009** | **891** | **73,886** | **3,950,331** |
| **2010 Total** | **1,847,290** | **37,061** | **987,697** | **11,313** | **806,968** | **-5,501** | **260,203** | **37,172** | **18,917** | **15,219** | **1,212** | **94,652** | **4,125,060** |
| **2011 Total** | **1,733,430** | **30,182** | **1,013,689** | **11,566** | **790,204** | **-6,421** | **319,355** | **37,449** | **19,222** | **15,316** | **1,818** | **120,177** | **4,100,141** |
| **2012 Total** | **1,514,043** | **23,190** | **1,225,894** | **11,898** | **769,331** | **-4,950** | **276,240** | **37,799** | **19,823** | **15,562** | **4,327** | **140,822** | **4,047,765** |
| **2013 Total** | **1,581,115** | **27,164** | **1,124,836** | **12,853** | **789,016** | **-4,681** | **268,565** | **40,028** | **20,830** | **15,775** | **9,036** | **167,840** | **4,065,964** |
| **2014 Total** | **1,581,710** | **30,232** | **1,126,609** | **12,022** | **797,166** | **-6,174** | **259,367** | **42,340** | **21,650** | **15,877** | **17,691** | **181,655** | **4,093,606** |
| **2015** January | 132,451 | 2,973 | 101,687 | 1,246 | 74,270 | -551 | 24,138 | 3,717 | 1,725 | 1,362 | 1,155 | 15,162 | 360,455 |
| February | 126,977 | 6,321 | 91,315 | 1,025 | 63,461 | -456 | 22,286 | 3,372 | 1,524 | 1,260 | 1,484 | 14,922 | 334,476 |
| March | 108,488 | 1,778 | 99,423 | 1,091 | 64,547 | -409 | 24,281 | 3,457 | 1,712 | 1,394 | 2,072 | 15,308 | 324,192 |
| April | 88,989 | 1,728 | 92,806 | 979 | 59,784 | -214 | 22,471 | 3,246 | 1,729 | 1,272 | 2,379 | 17,867 | 294,133 |
| May | 104,585 | 1,939 | 101,516 | 1,099 | 65,827 | -370 | 20,125 | 3,338 | 1,799 | 1,390 | 2,504 | 17,151 | 322,087 |
| June | 125,673 | 1,860 | 121,478 | 1,118 | 68,516 | -398 | 20,414 | 3,496 | 1,784 | 1,302 | 2,558 | 13,421 | 362,409 |
| July | 139,100 | 2,304 | 141,119 | 1,235 | 71,412 | -513 | 21,014 | 3,806 | 1,989 | 1,357 | 2,627 | 13,675 | 400,419 |
| August | 134,670 | 2,133 | 139,084 | 1,196 | 72,415 | -626 | 19,122 | 3,788 | 1,921 | 1,344 | 2,688 | 13,080 | 392,116 |
| September | 117,986 | 2,034 | 123,036 | 1,210 | 66,476 | -544 | 16,094 | 3,450 | 1,805 | 1,203 | 2,217 | 13,972 | 350,122 |
| October | 96,759 | 1,771 | 110,005 | 906 | 60,571 | -443 | 16,630 | 3,252 | 1,843 | 1,323 | 1,910 | 16,380 | 312,112 |
| November | 87,227 | 1,710 | 102,236 | 902 | 60,264 | -285 | 19,338 | 3,418 | 1,902 | 1,334 | 1,730 | 19,682 | 300,653 |
| December | 89,495 | 1,697 | 109,777 | 1,110 | 69,634 | -281 | 23,166 | 3,587 | 1,969 | 1,377 | 1,570 | 20,098 | 324,427 |
| **Total** | **1,352,398** | **28,249** | **1,333,482** | **13,117** | **797,178** | **-5,091** | **249,080** | **41,929** | **21,703** | **15,918** | **24,893** | **190,719** | **4,077,601** |
| **2016** January | 113,551 | 2,296 | 109,787 | 1,263 | 72,525 | -312 | 25,426 | 3,615 | 1,931 | 1,471 | 1,516 | 18,531 | 352,745 |
| February | 92,719 | 2,140 | 98,190 | 1,169 | 65,638 | -399 | 24,150 | 3,394 | 1,713 | 1,372 | 2,443 | 20,204 | 313,749 |
| March | 72,138 | 1,766 | 103,791 | 1,241 | 66,149 | -384 | 27,025 | 3,381 | 1,810 | 1,460 | 2,713 | 21,979 | 304,168 |
| April | 72,022 | 1,831 | 99,561 | 1,149 | 62,365 | -452 | 25,475 | 2,909 | 1,819 | 1,340 | 2,949 | 20,745 | 292,836 |
| May | 81,728 | 1,924 | 110,901 | 977 | 66,576 | -321 | 25,362 | 3,173 | 1,929 | 1,476 | 3,603 | 18,795 | 317,337 |
| June | 116,227 | 1,945 | 131,883 | 1,085 | 67,175 | -497 | 22,902 | 3,414 | 1,829 | 1,364 | 3,610 | 16,318 | 368,418 |
| July | 136,504 | 2,318 | 151,860 | 1,066 | 70,349 | -784 | 21,247 | 3,652 | 1,910 | 1,424 | 4,097 | 17,595 | 412,450 |
| August | 135,811 | 2,360 | 155,117 | 1,102 | 71,526 | -902 | 19,359 | 3,650 | 1,908 | 1,444 | 3,948 | 13,561 | 410,113 |
| September | 114,282 | 1,924 | 125,639 | 1,050 | 65,448 | -715 | 16,281 | 3,369 | 1,763 | 1,451 | 3,683 | 16,430 | 351,769 |
| October | 99,338 | 1,552 | 102,625 | 891 | 60,733 | -561 | 17,249 | 3,105 | 1,752 | 1,489 | 3,193 | 20,380 | 312,828 |
| November | 87,000 | 1,839 | 94,529 | 1,001 | 65,179 | -607 | 18,815 | 3,257 | 1,773 | 1,507 | 2,700 | 19,342 | 297,427 |
| December | 118,790 | 2,011 | 96,412 | 1,007 | 71,662 | -753 | 22,538 | 3,584 | 1,932 | 1,620 | 2,299 | 22,991 | 345,238 |
| **Total** | **1,240,108** | **23,906** | **1,380,295** | **13,000** | **805,327** | **-6,686** | **265,829** | **40,504** | **22,068** | **17,417** | **36,754** | **226,872** | **4,079,079** |
| **2017** January | 115,549 | 2,120 | 91,325 | 1,115 | 73,121 | -418 | 27,704 | 3,451 | 1,891 | 1,541 | 2,206 | 20,350 | 341,072 |
| February | 87,267 | 1,623 | 78,581 | 1,152 | 64,053 | -504 | 24,611 | 3,308 | 1,676 | 1,369 | 2,562 | 21,692 | 288,414 |
| March | 89,648 | 1,716 | 92,638 | 1,206 | 65,093 | -517 | 30,198 | 3,504 | 1,763 | 1,533 | 4,474 | 25,599 | 317,934 |
| April | 81,789 | 1,332 | 86,234 | 1,084 | 56,743 | -437 | 29,236 | 3,254 | 1,661 | 1,503 | 4,816 | 25,403 | 293,679 |
| May | 93,125 | 1,841 | 96,354 | 1,163 | 61,309 | -423 | 32,122 | 3,321 | 1,746 | 1,422 | 5,816 | 22,326 | 321,202 |
| June | 108,109 | 1,891 | 114,215 | 1,153 | 67,011 | -568 | 30,674 | 3,399 | 1,704 | 1,387 | 6,272 | 19,429 | 355,774 |
| July | 128,342 | 1,814 | 142,436 | 1,231 | 71,314 | -759 | 26,223 | 3,711 | 1,746 | 1,504 | 5,544 | 15,711 | 400,022 |
| August | 120,005 | 1,721 | 137,781 | 1,335 | 72,384 | -638 | 21,406 | 3,693 | 1,777 | 1,493 | 5,427 | 13,094 | 380,697 |
| **8-Month Total** | **823,835** | **14,056** | **839,564** | **9,440** | **531,029** | **-4,264** | **222,175** | **27,642** | **13,964** | **11,750** | **37,117** | **163,604** | **2,698,794** |
| **2016 8-Month Total** | **820,699** | **16,581** | **961,089** | **9,050** | **542,304** | **-4,050** | **190,947** | **27,189** | **14,848** | **11,351** | **24,879** | **147,728** | **2,771,816** |
| **2015 8-Month Total** | **960,932** | **21,036** | **888,428** | **8,989** | **540,233** | **-3,538** | **173,852** | **28,221** | **14,184** | **10,681** | **17,467** | **120,587** | **2,790,287** |

[a] Anthracite, bituminous coal, subbituminous coal, lignite, waste coal, and coal synfuel.

[b] Distillate fuel oil, residual fuel oil, petroleum coke, jet fuel, kerosene, other petroleum, waste oil, and, beginning in 2011, propane.

[c] Natural gas, plus a small amount of supplemental gaseous fuels.

[d] Blast furnace gas, and other manufactured and waste gases derived from fossil fuels. Through 2010, also includes propane gas.

[e] Pumped storage facility production minus energy used for pumping.

[f] Through 1989, hydroelectric pumped storage is included in "Conventional Hydroelectric Power."

[g] Wood and wood-derived fuels.

[h] Municipal solid waste from biogenic sources, landfill gas, sludge waste, agricultural byproducts, and other biomass. Through 2000, also includes non-renewable waste (municipal solid waste from non-biogenic sources, and tire-derived fuels).

[i] Electricity net generation from solar thermal and photovoltaic (PV) energy at utility-scale facilities. Does not include distributed (small-scale) solar photovoltaic generation. See Table 10.6.

[j] Includes batteries, chemicals, hydrogen, pitch, purchased steam, sulfur, miscellaneous technologies, and, beginning in 2001, non-renewable waste (municipal solid waste from non-biogenic sources, and tire-derived fuels).

[k] Through 1988, all data except hydroelectric are for electric utilities only; hydroelectric data through 1988 include industrial plants as well as electric utilities. Beginning in 1989, data are for electric utilities, independent power producers, commercial plants, and industrial plants.

NA=Not available.

Notes: • Data are for utility-scale facilities. See Note 1, "Coverage of Electricity Statistics," at end of section. • Totals may not equal sum of components due to independent rounding. • Geographic coverage is the 50 states and the District of Columbia.

Web Page: See http://www.eia.gov/totalenergy/data/monthly/#electricity (Excel and CSV files) for all available annual data beginning in 1949 and monthly data beginning in 1973.

Sources: See end of section, “Table 7.2b Sources” and “Table 7.2c Sources.”

## Table 7.2b Electricity Net Generation: Electric Power Sector

(Subset of Table 7.2a; Million Kilowatthours)

| | Fossil Fuels | | | | | | Renewable Energy | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | Biomass | | | | | | |
| | Coal[a] | Petroleum[b] | Natural Gas[c] | Other Gases[d] | Nuclear Electric Power | Hydroelectric Pumped Storage[e] | Conventional Hydroelectric Power[f] | Wood[g] | Waste[h] | Geothermal | Solar[i] | Wind | Total[j] |
| **1950 Total** | **154,520** | **33,734** | **44,559** | **NA** | **0** | **( f )** | **95,938** | **390** | **NA** | **NA** | **NA** | **NA** | **329,141** |
| **1955 Total** | **301,363** | **37,138** | **95,285** | **NA** | **0** | **( f )** | **112,975** | **276** | **NA** | **NA** | **NA** | **NA** | **547,038** |
| **1960 Total** | **403,067** | **47,987** | **157,970** | **NA** | **518** | **( f )** | **145,833** | **140** | **NA** | **33** | **NA** | **NA** | **755,549** |
| **1965 Total** | **570,926** | **64,801** | **221,559** | **NA** | **3,657** | **( f )** | **193,851** | **269** | **NA** | **189** | **NA** | **NA** | **1,055,252** |
| **1970 Total** | **704,394** | **184,183** | **372,890** | **NA** | **21,804** | **( f )** | **247,714** | **136** | **220** | **525** | **NA** | **NA** | **1,531,868** |
| **1975 Total** | **852,786** | **289,095** | **299,778** | **NA** | **172,505** | **( f )** | **300,047** | **18** | **174** | **3,246** | **NA** | **NA** | **1,917,649** |
| **1980 Total** | **1,161,562** | **245,994** | **346,240** | **NA** | **251,116** | **( f )** | **276,021** | **275** | **158** | **5,073** | **NA** | **NA** | **2,286,439** |
| **1985 Total** | **1,402,128** | **100,202** | **291,946** | **NA** | **383,691** | **( f )** | **281,149** | **743** | **640** | **9,325** | **11** | **6** | **2,469,841** |
| **1990 Total**[k] | **1,572,109** | **118,864** | **309,486** | **621** | **576,862** | **-3,508** | **289,753** | **7,032** | **11,500** | **15,434** | **367** | **2,789** | **2,901,322** |
| **1995 Total** | **1,686,056** | **68,146** | **419,179** | **1,927** | **673,402** | **-2,725** | **305,410** | **7,597** | **17,986** | **13,378** | **497** | **3,164** | **3,194,230** |
| **2000 Total** | **1,943,111** | **105,192** | **517,978** | **2,028** | **753,893** | **-5,539** | **271,338** | **8,916** | **20,307** | **14,093** | **493** | **5,593** | **3,637,529** |
| **2001 Total** | **1,882,826** | **119,149** | **554,940** | **586** | **768,826** | **-8,823** | **213,749** | **8,294** | **12,944** | **13,741** | **543** | **6,737** | **3,580,053** |
| **2002 Total** | **1,910,613** | **89,733** | **607,683** | **1,970** | **780,064** | **-8,743** | **260,491** | **9,009** | **13,145** | **14,491** | **555** | **10,354** | **3,698,458** |
| **2003 Total** | **1,952,714** | **113,697** | **567,303** | **2,647** | **763,733** | **-8,535** | **271,512** | **9,528** | **13,808** | **14,424** | **534** | **11,187** | **3,721,159** |
| **2004 Total** | **1,957,188** | **114,678** | **627,172** | **3,568** | **788,528** | **-8,488** | **265,064** | **9,736** | **13,062** | **14,811** | **575** | **14,144** | **3,808,360** |
| **2005 Total** | **1,992,054** | **116,482** | **683,829** | **3,777** | **781,986** | **-6,558** | **267,040** | **10,570** | **13,031** | **14,692** | **550** | **17,811** | **3,902,192** |
| **2006 Total** | **1,969,737** | **59,708** | **734,417** | **4,254** | **787,219** | **-6,558** | **286,254** | **10,341** | **13,927** | **14,568** | **508** | **26,589** | **3,908,077** |
| **2007 Total** | **1,998,390** | **61,306** | **814,752** | **4,042** | **806,425** | **-6,896** | **245,843** | **10,711** | **14,294** | **14,637** | **612** | **34,450** | **4,005,343** |
| **2008 Total** | **1,968,838** | **42,881** | **802,372** | **3,200** | **806,208** | **-6,288** | **253,096** | **10,638** | **15,379** | **14,840** | **864** | **55,363** | **3,974,349** |
| **2009 Total** | **1,741,123** | **35,811** | **841,006** | **3,058** | **798,855** | **-4,627** | **271,506** | **10,738** | **15,954** | **15,009** | **891** | **73,886** | **3,809,837** |
| **2010 Total** | **1,827,738** | **34,679** | **901,389** | **2,967** | **806,968** | **-5,501** | **258,455** | **11,446** | **16,376** | **15,219** | **1,206** | **94,636** | **3,972,386** |
| **2011 Total** | **1,717,891** | **28,202** | **926,290** | **2,939** | **790,204** | **-6,421** | **317,531** | **10,733** | **15,989** | **15,316** | **1,727** | **120,121** | **3,948,186** |
| **2012 Total** | **1,500,557** | **20,072** | **1,132,791** | **2,984** | **769,331** | **-4,950** | **273,859** | **11,050** | **16,555** | **15,562** | **4,164** | **140,749** | **3,890,358** |
| **2013 Total** | **1,567,722** | **24,510** | **1,028,949** | **4,322** | **789,016** | **-4,681** | **265,058** | **12,302** | **16,918** | **15,775** | **8,724** | **167,742** | **3,903,715** |
| **2014 Total** | **1,568,774** | **28,043** | **1,033,172** | **3,358** | **797,166** | **-6,174** | **258,046** | **15,027** | **17,602** | **15,877** | **17,304** | **181,496** | **3,937,003** |
| **2015** January | 131,431 | 2,789 | 93,450 | 394 | 74,270 | -551 | 24,014 | 1,307 | 1,411 | 1,362 | 1,134 | 15,146 | 346,758 |
| February | 126,024 | 6,074 | 84,207 | 329 | 63,461 | -456 | 22,179 | 1,234 | 1,261 | 1,260 | 1,459 | 14,908 | 322,473 |
| March | 107,471 | 1,644 | 92,110 | 327 | 64,547 | -409 | 24,148 | 1,227 | 1,393 | 1,394 | 2,037 | 15,293 | 311,741 |
| April | 88,147 | 1,570 | 85,828 | 290 | 59,784 | -214 | 22,331 | 1,025 | 1,402 | 1,272 | 2,338 | 17,850 | 282,197 |
| May | 103,672 | 1,794 | 94,124 | 338 | 65,827 | -370 | 19,995 | 1,093 | 1,483 | 1,390 | 2,456 | 17,136 | 309,552 |
| June | 124,677 | 1,723 | 113,390 | 299 | 68,516 | -398 | 20,297 | 1,244 | 1,473 | 1,302 | 2,512 | 13,410 | 349,067 |
| July | 138,060 | 2,185 | 132,266 | 311 | 71,412 | -513 | 20,896 | 1,365 | 1,639 | 1,357 | 2,579 | 13,666 | 385,889 |
| August | 133,651 | 2,013 | 130,314 | 331 | 72,415 | -626 | 19,030 | 1,410 | 1,587 | 1,344 | 2,639 | 13,070 | 377,856 |
| September | 117,005 | 1,899 | 114,792 | 331 | 66,476 | -544 | 16,015 | 1,201 | 1,481 | 1,203 | 2,178 | 13,961 | 336,618 |
| October | 95,872 | 1,657 | 102,022 | 229 | 60,571 | -443 | 16,513 | 1,047 | 1,509 | 1,323 | 1,875 | 16,364 | 299,168 |
| November | 86,362 | 1,583 | 94,132 | 234 | 60,264 | -285 | 19,202 | 1,157 | 1,565 | 1,334 | 1,702 | 19,663 | 287,551 |
| December | 88,622 | 1,575 | 101,022 | 304 | 69,634 | -281 | 23,017 | 1,254 | 1,620 | 1,377 | 1,545 | 20,080 | 310,423 |
| **Total** | **1,340,993** | **26,505** | **1,237,656** | **3,715** | **797,178** | **-5,091** | **247,636** | **14,563** | **17,823** | **15,918** | **24,456** | **190,547** | **3,919,294** |
| **2016** January | 112,632 | 2,163 | 101,394 | 370 | 72,525 | -312 | 25,285 | 1,235 | 1,603 | 1,471 | 1,491 | 18,513 | 339,004 |
| February | 91,856 | 2,013 | 90,441 | 341 | 65,638 | -399 | 24,014 | 1,200 | 1,423 | 1,372 | 2,395 | 20,184 | 301,047 |
| March | 71,255 | 1,651 | 95,645 | 373 | 66,149 | -384 | 26,873 | 1,148 | 1,461 | 1,460 | 2,664 | 21,957 | 290,840 |
| April | 71,279 | 1,717 | 91,696 | 330 | 62,365 | -452 | 25,339 | 859 | 1,501 | 1,340 | 2,903 | 20,724 | 280,203 |
| May | 80,966 | 1,779 | 102,698 | 296 | 66,576 | -321 | 25,226 | 953 | 1,629 | 1,476 | 3,547 | 18,776 | 304,263 |
| June | 115,375 | 1,817 | 123,467 | 365 | 67,175 | -497 | 22,791 | 1,139 | 1,558 | 1,364 | 3,545 | 16,301 | 355,036 |
| July | 135,589 | 2,172 | 143,001 | 345 | 70,349 | -784 | 21,140 | 1,289 | 1,595 | 1,424 | 4,024 | 17,578 | 398,363 |
| August | 134,907 | 2,209 | 146,199 | 346 | 71,526 | -902 | 19,266 | 1,315 | 1,610 | 1,444 | 3,886 | 13,548 | 396,003 |
| September | 113,529 | 1,799 | 117,270 | 369 | 65,448 | -715 | 16,217 | 1,160 | 1,502 | 1,451 | 3,624 | 16,415 | 338,670 |
| October | 98,633 | 1,429 | 94,516 | 246 | 60,733 | -561 | 17,166 | 920 | 1,474 | 1,489 | 3,145 | 20,362 | 300,141 |
| November | 86,365 | 1,723 | 86,158 | 361 | 65,179 | -607 | 18,744 | 973 | 1,498 | 1,507 | 2,660 | 19,324 | 284,484 |
| December | 118,054 | 1,855 | 87,834 | 327 | 71,662 | -753 | 22,411 | 1,235 | 1,643 | 1,620 | 2,273 | 22,969 | 331,793 |
| **Total** | **1,230,442** | **22,325** | **1,280,317** | **4,066** | **805,327** | **-6,686** | **264,470** | **13,425** | **18,496** | **17,417** | **36,157** | **226,653** | **3,919,849** |
| **2017** January | 114,723 | 1,991 | 82,815 | 364 | 73,121 | -418 | 27,569 | 1,098 | 1,583 | 1,541 | 2,182 | 20,333 | 327,533 |
| February | 86,553 | 1,513 | 71,031 | 344 | 64,053 | -504 | 24,488 | 1,076 | 1,397 | 1,369 | 2,533 | 21,675 | 276,093 |
| March | 88,929 | 1,581 | 84,713 | 382 | 65,093 | -517 | 30,047 | 1,230 | 1,463 | 1,533 | 4,425 | 25,576 | 305,033 |
| April | 81,166 | 1,236 | 78,659 | 302 | 56,743 | -437 | 29,090 | 1,082 | 1,388 | 1,503 | 4,764 | 25,382 | 281,440 |
| May | 92,455 | 1,724 | 88,636 | 358 | 61,309 | -423 | 31,963 | 1,158 | 1,459 | 1,422 | 5,745 | 22,307 | 308,695 |
| June | 107,371 | 1,764 | 106,198 | 346 | 67,011 | -568 | 30,526 | 1,153 | 1,430 | 1,387 | 6,193 | 19,413 | 342,812 |
| July | 127,596 | 1,684 | 133,957 | 394 | 71,314 | -759 | 26,081 | 1,282 | 1,471 | 1,504 | 5,473 | 15,699 | 386,312 |
| August | 119,261 | 1,591 | 129,467 | 393 | 72,384 | -638 | 21,274 | 1,222 | 1,495 | 1,493 | 5,362 | 13,084 | 367,019 |
| **8-Month Total** | **818,054** | **13,084** | **775,476** | **2,883** | **531,029** | **-4,264** | **221,038** | **9,302** | **11,686** | **11,750** | **36,677** | **163,468** | **2,594,937** |
| **2016 8-Month Total** | **813,860** | **15,519** | **894,540** | **2,764** | **542,304** | **-4,050** | **189,933** | **9,138** | **12,379** | **11,351** | **24,455** | **147,581** | **2,664,760** |
| **2015 8-Month Total** | **953,133** | **19,792** | **825,689** | **2,618** | **540,233** | **-3,538** | **172,889** | **9,905** | **11,647** | **10,681** | **17,156** | **120,479** | **2,685,534** |

[a] Anthracite, bituminous coal, subbituminous coal, lignite, waste coal, and coal synfuel.

[b] Distillate fuel oil, residual fuel oil, petroleum coke, jet fuel, kerosene, other petroleum, waste oil, and, beginning in 2011, propane.

[c] Natural gas, plus a small amount of supplemental gaseous fuels.

[d] Blast furnace gas, and other manufactured and waste gases derived from fossil fuels. Through 2010, also includes propane gas.

[e] Pumped storage facility production minus energy used for pumping.

[f] Through 1989, hydroelectric pumped storage is included in "Conventional Hydroelectric Power."

[g] Wood and wood-derived fuels.

[h] Municipal solid waste from biogenic sources, landfill gas, sludge waste, agricultural byproducts, and other biomass. Through 2000, also includes non-renewable waste (municipal solid waste from non-biogenic sources, and tire-derived fuels).

[i] Electricity net generation from solar thermal and photovoltaic (PV) energy at utility-scale facilities. Does not include distributed (small-scale) solar photovoltaic generation. See Table 10.6.

[j] Includes batteries, chemicals, hydrogen, pitch, purchased steam, sulfur, miscellaneous technologies, and, beginning in 2001, non-renewable waste (municipal solid waste from non-biogenic sources, and tire-derived fuels).

[k] Through 1988, data are for electric utilities only. Beginning in 1989, data are for electric utilites and independent power producers.

NA=Not available.

Notes: • Data are for utility-scale facilities. See Note 1, "Coverage of Electricity Statistics," at end of section. • The electric power sector comprises 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. • Totals may not equal sum of components due to independent rounding. • Geographic coverage is the 50 states and the District of Columbia.

Web Page: See http://www.eia.gov/totalenergy/data/monthly/#electricity (Excel and CSV files) for all available annual data beginning in 1949 and monthly data beginning in 1973.

Sources: See end of section.

# Table 7.2c Electricity Net Generation: Commercial and Industrial Sectors

(Subset of Table 7.2a; Million Kilowatthours)

| | Commercial Sector[a] | | | | | Industrial Sector[b] | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Biomass | | | | | | | Biomass | | |
| | Coal[c] | Petroleum[d] | Natural Gas[e] | Waste[f] | Total[g] | Coal[c] | Petroleum[d] | Natural Gas[e] | Other Gases[h] | Hydroelectric Power[i] | Wood[j] | Waste[f] | Total[k] |
| **1950 Total** | **NA** | **NA** | **NA** | **NA** | **NA** | **NA** | **NA** | **NA** | **NA** | **4,946** | **NA** | **NA** | **4,946** |
| **1955 Total** | **NA** | **NA** | **NA** | **NA** | **NA** | **NA** | **NA** | **NA** | **NA** | **3,261** | **NA** | **NA** | **3,261** |
| **1960 Total** | **NA** | **NA** | **NA** | **NA** | **NA** | **NA** | **NA** | **NA** | **NA** | **3,607** | **NA** | **NA** | **3,607** |
| **1965 Total** | **NA** | **NA** | **NA** | **NA** | **NA** | **NA** | **NA** | **NA** | **NA** | **3,134** | **NA** | **NA** | **3,134** |
| **1970 Total** | **NA** | **NA** | **NA** | **NA** | **NA** | **NA** | **NA** | **NA** | **NA** | **3,244** | **NA** | **NA** | **3,244** |
| **1975 Total** | **NA** | **NA** | **NA** | **NA** | **NA** | **NA** | **NA** | **NA** | **NA** | **3,106** | **NA** | **NA** | **3,106** |
| **1980 Total** | **NA** | **NA** | **NA** | **NA** | **NA** | **NA** | **NA** | **NA** | **NA** | **3,161** | **NA** | **NA** | **3,161** |
| **1985 Total** | **NA** | **NA** | **NA** | **NA** | **NA** | **NA** | **NA** | **NA** | **NA** | **3,161** | **NA** | **NA** | **3,161** |
| **1990 Total** | **796** | **589** | **3,272** | **812** | **5,837** | **21,107** | **7,008** | **60,007** | **9,641** | **2,975** | **25,379** | **949** | **130,830** |
| **1995 Total** | **998** | **379** | **5,162** | **1,519** | **8,232** | **22,372** | **6,030** | **71,717** | **11,943** | **5,304** | **28,868** | **900** | **151,025** |
| **2000 Total** | **1,097** | **432** | **4,262** | **1,985** | **7,903** | **22,056** | **5,597** | **78,798** | **11,927** | **4,135** | **28,652** | **839** | **156,673** |
| **2001 Total** | **995** | **438** | **4,434** | **1,007** | **7,416** | **20,135** | **5,293** | **79,755** | **8,454** | **3,145** | **26,888** | **596** | **149,175** |
| **2002 Total** | **992** | **431** | **4,310** | **1,053** | **7,415** | **21,525** | **4,403** | **79,013** | **9,493** | **3,825** | **29,643** | **846** | **152,580** |
| **2003 Total** | **1,206** | **423** | **3,899** | **1,289** | **7,496** | **19,817** | **5,285** | **78,705** | **12,953** | **4,222** | **27,988** | **715** | **154,530** |
| **2004 Total** | **1,340** | **499** | **3,969** | **1,562** | **8,270** | **19,773** | **5,967** | **78,959** | **11,684** | **3,248** | **28,367** | **797** | **153,925** |
| **2005 Total** | **1,353** | **375** | **4,249** | **1,657** | **8,492** | **19,466** | **5,368** | **72,882** | **9,687** | **3,195** | **28,271** | **733** | **144,739** |
| **2006 Total** | **1,310** | **235** | **4,355** | **1,599** | **8,371** | **19,464** | **4,223** | **77,669** | **9,923** | **2,899** | **28,400** | **572** | **148,254** |
| **2007 Total** | **1,371** | **189** | **4,257** | **1,599** | **8,273** | **16,694** | **4,243** | **77,580** | **9,411** | **1,590** | **28,287** | **631** | **143,128** |
| **2008 Total** | **1,261** | **142** | **4,188** | **1,534** | **7,926** | **15,703** | **3,219** | **76,421** | **8,507** | **1,676** | **26,641** | **821** | **137,113** |
| **2009 Total** | **1,096** | **163** | **4,225** | **1,748** | **8,165** | **13,686** | **2,963** | **75,748** | **7,574** | **1,868** | **25,292** | **740** | **132,329** |
| **2010 Total** | **1,111** | **124** | **4,725** | **1,672** | **8,592** | **18,441** | **2,258** | **81,583** | **8,343** | **1,668** | **25,706** | **869** | **144,082** |
| **2011 Total** | **1,049** | **89** | **5,487** | **2,315** | **10,080** | **14,490** | **1,891** | **81,911** | **8,624** | **1,799** | **26,691** | **917** | **141,875** |
| **2012 Total** | **883** | **196** | **6,603** | **2,319** | **11,301** | **12,603** | **2,922** | **86,500** | **8,913** | **2,353** | **26,725** | **948** | **146,107** |
| **2013 Total** | **839** | **124** | **7,154** | **2,567** | **12,234** | **12,554** | **2,531** | **88,733** | **8,531** | **3,463** | **27,691** | **1,346** | **150,015** |
| **2014 Total** | **595** | **255** | **7,227** | **2,681** | **12,520** | **12,341** | **1,934** | **86,209** | **8,664** | **1,282** | **27,239** | **1,367** | **144,083** |
| **2015** January | 56 | 24 | 564 | 209 | 981 | 964 | 161 | 7,674 | 852 | 121 | 2,404 | 105 | 12,717 |
| February | 59 | 73 | 499 | 183 | 932 | 894 | 174 | 6,609 | 696 | 105 | 2,132 | 80 | 11,071 |
| March | 52 | 12 | 560 | 213 | 977 | 965 | 123 | 6,753 | 764 | 130 | 2,226 | 106 | 11,475 |
| April | 38 | 9 | 513 | 216 | 931 | 804 | 149 | 6,465 | 690 | 138 | 2,218 | 112 | 11,005 |
| May | 32 | 11 | 583 | 221 | 1,013 | 881 | 135 | 6,809 | 761 | 127 | 2,239 | 95 | 11,522 |
| June | 45 | 10 | 662 | 222 | 1,098 | 951 | 128 | 7,426 | 819 | 114 | 2,251 | 89 | 12,244 |
| July | 44 | 12 | 769 | 242 | 1,238 | 995 | 107 | 8,084 | 925 | 115 | 2,434 | 108 | 13,292 |
| August | 39 | 12 | 760 | 234 | 1,206 | 980 | 108 | 8,010 | 864 | 90 | 2,377 | 101 | 13,054 |
| September | 33 | 8 | 716 | 230 | 1,145 | 947 | 127 | 7,528 | 879 | 77 | 2,245 | 94 | 12,359 |
| October | 34 | 7 | 643 | 218 | 1,049 | 853 | 107 | 7,340 | 678 | 114 | 2,201 | 116 | 11,894 |
| November | 35 | 6 | 583 | 222 | 992 | 830 | 121 | 7,521 | 668 | 133 | 2,259 | 115 | 12,110 |
| December | 41 | 7 | 617 | 226 | 1,033 | 832 | 115 | 8,137 | 806 | 145 | 2,331 | 122 | 12,970 |
| **Total** | **509** | **191** | **7,471** | **2,637** | **12,595** | **10,896** | **1,552** | **88,355** | **9,401** | **1,410** | **27,318** | **1,243** | **145,712** |
| **2016** January | 43 | 12 | 648 | 216 | 1,057 | 876 | 122 | 7,746 | 893 | 136 | 2,373 | 112 | 12,684 |
| February | 47 | 14 | 550 | 188 | 944 | 817 | 113 | 7,198 | 828 | 131 | 2,187 | 101 | 11,758 |
| March | 44 | 6 | 595 | 230 | 1,043 | 839 | 108 | 7,551 | 868 | 147 | 2,230 | 119 | 12,284 |
| April | 29 | 8 | 615 | 206 | 1,022 | 713 | 106 | 7,250 | 819 | 131 | 2,045 | 112 | 11,611 |
| May | 26 | 8 | 650 | 202 | 1,055 | 736 | 138 | 7,554 | 681 | 130 | 2,219 | 98 | 12,018 |
| June | 28 | 7 | 694 | 181 | 1,079 | 824 | 122 | 7,723 | 720 | 105 | 2,266 | 90 | 12,303 |
| July | 30 | 10 | 763 | 209 | 1,204 | 884 | 136 | 8,095 | 721 | 101 | 2,356 | 105 | 12,883 |
| August | 33 | 14 | 781 | 203 | 1,212 | 870 | 137 | 8,137 | 756 | 87 | 2,323 | 94 | 12,898 |
| September | 34 | 7 | 675 | 182 | 1,065 | 718 | 118 | 7,695 | 681 | 60 | 2,201 | 78 | 12,034 |
| October | 36 | 8 | 583 | 191 | 969 | 669 | 115 | 7,526 | 646 | 80 | 2,181 | 87 | 11,718 |
| November | 39 | 8 | 591 | 184 | 961 | 595 | 109 | 7,781 | 641 | 68 | 2,281 | 91 | 11,982 |
| December | 45 | 11 | 605 | 189 | 981 | 691 | 145 | 7,973 | 680 | 123 | 2,343 | 101 | 12,464 |
| **Total** | **436** | **112** | **7,750** | **2,382** | **12,593** | **9,231** | **1,469** | **92,227** | **8,934** | **1,300** | **27,007** | **1,190** | **146,637** |
| **2017** January | 40 | 19 | 662 | 208 | 1,060 | 786 | 111 | 7,848 | 751 | 132 | 2,344 | 100 | 12,479 |
| February | 31 | 10 | 576 | 186 | 931 | 683 | 100 | 6,975 | 808 | 120 | 2,224 | 92 | 11,389 |
| March | 35 | 13 | 638 | 197 | 1,045 | 684 | 122 | 7,287 | 825 | 136 | 2,272 | 103 | 11,856 |
| April | 22 | 8 | 529 | 180 | 903 | 601 | 87 | 7,046 | 781 | 131 | 2,167 | 93 | 11,335 |
| May | 23 | 10 | 573 | 203 | 1,006 | 646 | 107 | 7,145 | 805 | 143 | 2,156 | 84 | 11,500 |
| June | 24 | 9 | 635 | 196 | 1,050 | 714 | 119 | 7,382 | 808 | 133 | 2,240 | 78 | 11,912 |
| July | 29 | 11 | 680 | 196 | 1,102 | 717 | 119 | 7,798 | 837 | 130 | 2,421 | 78 | 12,608 |
| August | 27 | 12 | 696 | 201 | 1,116 | 717 | 118 | 7,617 | 942 | 118 | 2,464 | 82 | 12,563 |
| **8-Month Total** | **232** | **91** | **4,989** | **1,568** | **8,214** | **5,549** | **881** | **59,099** | **6,557** | **1,043** | **18,290** | **709** | **95,643** |
| **2016 8-Month Total** | **281** | **79** | **5,296** | **1,637** | **8,617** | **6,558** | **982** | **61,253** | **6,286** | **969** | **18,000** | **833** | **98,440** |
| **2015 8-Month Total** | **365** | **162** | **4,910** | **1,740** | **8,375** | **7,434** | **1,082** | **57,829** | **6,370** | **940** | **18,281** | **796** | **96,378** |

[a] Commercial combined-heat-and-power (CHP) and commercial electricity-only plants.

[b] Industrial combined-heat-and-power (CHP) and industrial electricity-only plants.

[c] Anthracite, bituminous coal, subbituminous coal, lignite, waste coal, and coal synfuel.

[d] Distillate fuel oil, residual fuel oil, petroleum coke, jet fuel, kerosene, other petroleum, waste oil, and, beginning in 2011, propane.

[e] Natural gas, plus a small amount of supplemental gaseous fuels.

[f] Municipal solid waste from biogenic sources, landfill gas, sludge waste, agricultural byproducts, and other biomass. Through 2000, also includes non-renewable waste (municipal solid waste from non-biogenic sources, and tire-derived fuels).

[g] Includes a small amount of conventional hydroelectric power, other gases, solar photovoltaic (PV) energy, wind, wood, and other, which are not separately displayed. Does not include distributed (small-scale) solar photovoltaic generation. shown on Table 10.6.

[h] Blast furnace gas, and other manufactured and waste gases derived from fossil fuels. Through 2010, also includes propane gas.

[i] Conventional hydroelectric power.

[j] Wood and wood-derived fuels.

[k] Includes photovoltaic (PV) energy, wind, batteries, chemicals, hydrogen, pitch, purchased steam, sulfur, miscellaneous technologies, and, beginning in 2001, non-renewable waste (municipal solid waste from non-biogenic sources, and tire-derived fuels). Does not include distributed (small-scale) solar photovoltaic generation shown on Table 10.6.

NA=Not available.

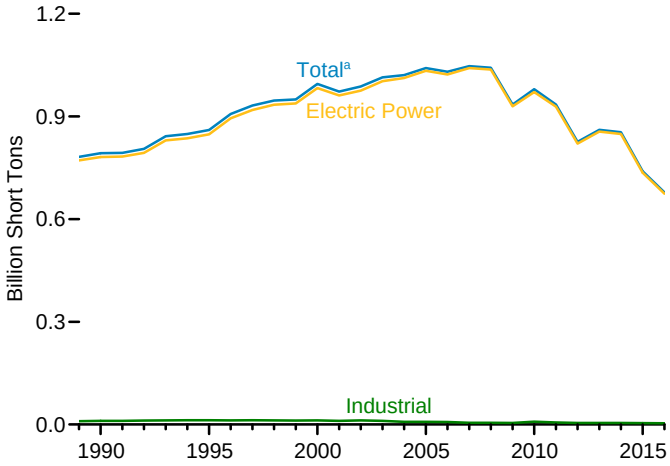
Notes: • Data are for utility-scale facilities. See Note 1, "Coverage of Electricity Statistics," at end of section. • See Note 2, "Classification of Power Plants Into Energy-Use Sectors," at end of section. • Totals may not equal sum of components due to independent rounding. • Geographic coverage is the 50 states and the District of Columbia.

Web Page: See http://www.eia.gov/totalenergy/data/monthly/#electricity (Excel and CSV files) for all available annual data beginning in 1949 and monthly data beginning in 1973.

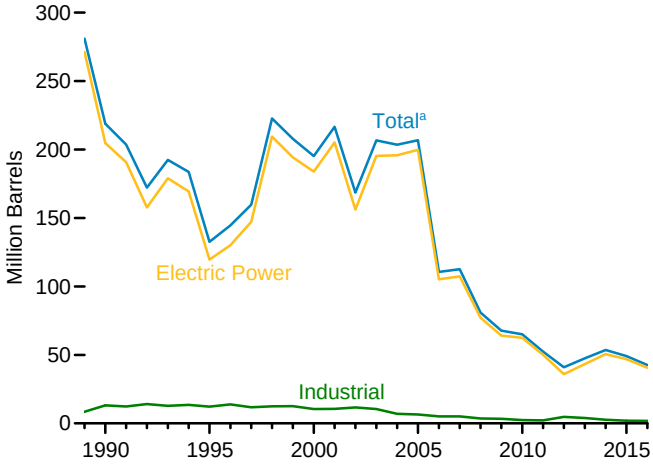
Sources: See end of section.

## Figure 7.3 Consumption of Selected Combustible Fuels for Electricity Generation

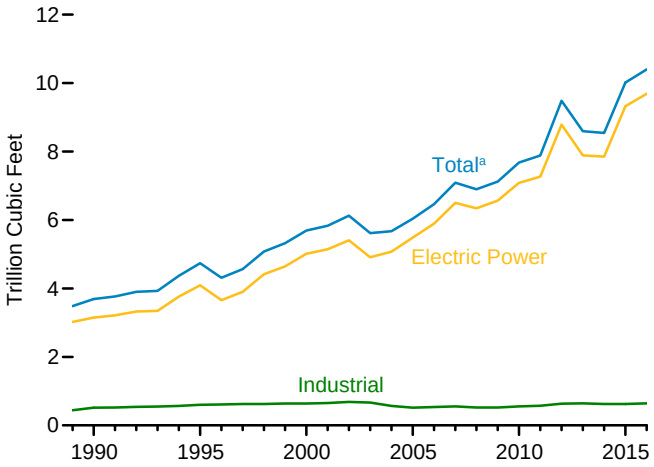
Coal by Sector, 1989–2016



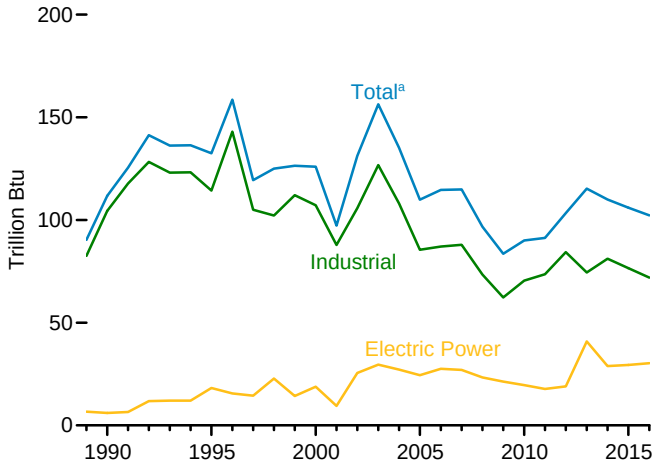

Petroleum by Sector, 1989–2016



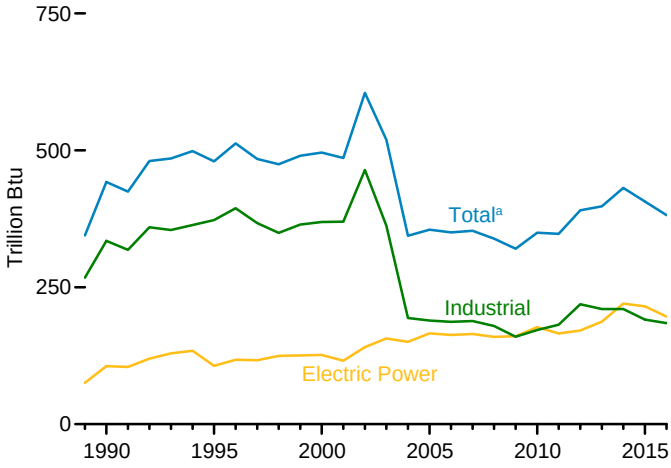

Natural Gas by Sector, 1989–2016



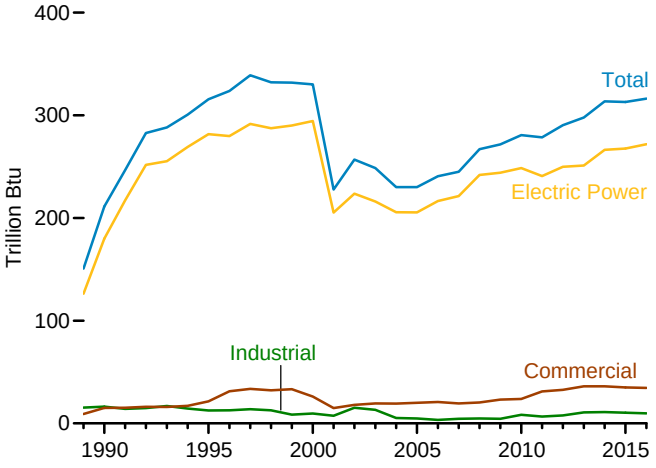

Other Gases[b] by Sector, 1989–2016




Wood by Sector, 1989–2016




Waste by Sector, 1989–2016




[a] Includes commercial sector.
[b] Blast furnace gas, and other manufactured and waste gases derived from fossil fuels. Through 2010, also includes propane gas.

Note: Data are for utility-scale facilities.
Web Page: http://www.eia.gov/totalenergy/data/monthly/#electricity.
Sources: Tables 7.3a–7.3c.

## Table 7.3a Consumption of Combustible Fuels for Electricity Generation: Total (All Sectors) (Sum of Tables 7.3b and 7.3c)

| | Coal[a] | Petroleum | | | | | Natural Gas[f] | Other Gases[g] | Biomass | | Other[j] |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Distillate Fuel Oil[b] | Residual Fuel Oil[c] | Other Liquids[d] | Petroleum Coke[e] | Total[e] | | | Wood[h] | Waste[i] | |
| | Thousand Short Tons | Thousand Barrels | | | Thousand Short Tons | Thousand Barrels | Billion Cubic Feet | Trillion Btu | | | |
| **1950 Total** | **91,871** | **5,423** | **69,998** | **NA** | **NA** | **75,421** | **629** | **NA** | **5** | **NA** | **NA** |
| **1955 Total** | **143,759** | **5,412** | **69,862** | **NA** | **NA** | **75,274** | **1,153** | **NA** | **3** | **NA** | **NA** |
| **1960 Total** | **176,685** | **3,824** | **84,371** | **NA** | **NA** | **88,195** | **1,725** | **NA** | **2** | **NA** | **NA** |
| **1965 Total** | **244,788** | **4,928** | **110,274** | **NA** | **NA** | **115,203** | **2,321** | **NA** | **3** | **NA** | **NA** |
| **1970 Total** | **320,182** | **24,123** | **311,381** | **NA** | **636** | **338,686** | **3,932** | **NA** | **1** | **2** | **NA** |
| **1975 Total** | **405,962** | **38,907** | **467,221** | **NA** | **70** | **506,479** | **3,158** | **NA** | **(s)** | **2** | **NA** |
| **1980 Total** | **569,274** | **29,051** | **391,163** | **NA** | **179** | **421,110** | **3,682** | **NA** | **3** | **2** | **NA** |
| **1985 Total** | **693,841** | **14,635** | **158,779** | **NA** | **231** | **174,571** | **3,044** | **NA** | **8** | **7** | **NA** |
| **1990 Total**[k] | **792,457** | **18,143** | **190,652** | **437** | **1,914** | **218,800** | **3,692** | **112** | **442** | **211** | **36** |
| **1995 Total** | **860,594** | **19,615** | **95,507** | **680** | **3,355** | **132,578** | **4,738** | **133** | **480** | **316** | **42** |
| **2000 Total** | **994,933** | **31,675** | **143,381** | **1,450** | **3,744** | **195,228** | **5,691** | **126** | **496** | **330** | **46** |
| **2001 Total** | **972,691** | **31,150** | **165,312** | **855** | **3,871** | **216,672** | **5,832** | **97** | **486** | **228** | **160** |
| **2002 Total** | **987,583** | **23,286** | **109,235** | **1,894** | **6,836** | **168,597** | **6,126** | **131** | **605** | **257** | **191** |
| **2003 Total** | **1,014,058** | **29,672** | **142,518** | **2,947** | **6,303** | **206,653** | **5,616** | **156** | **519** | **249** | **193** |
| **2004 Total** | **1,020,523** | **20,163** | **142,088** | **2,856** | **7,677** | **203,494** | **5,675** | **135** | **344** | **230** | **183** |
| **2005 Total** | **1,041,448** | **20,651** | **141,518** | **2,968** | **8,330** | **206,785** | **6,036** | **110** | **355** | **230** | **173** |
| **2006 Total** | **1,030,556** | **13,174** | **58,473** | **2,174** | **7,363** | **110,634** | **6,462** | **115** | **350** | **241** | **172** |
| **2007 Total** | **1,046,795** | **15,683** | **63,833** | **2,917** | **6,036** | **112,615** | **7,089** | **115** | **353** | **245** | **168** |
| **2008 Total** | **1,042,335** | **12,832** | **38,191** | **2,822** | **5,417** | **80,932** | **6,896** | **97** | **339** | **267** | **172** |
| **2009 Total** | **934,683** | **12,658** | **28,576** | **2,328** | **4,821** | **67,668** | **7,121** | **84** | **320** | **272** | **170** |
| **2010 Total** | **979,684** | **14,050** | **23,997** | **2,056** | **4,994** | **65,071** | **7,680** | **90** | **350** | **281** | **184** |
| **2011 Total** | **934,938** | **11,231** | **14,251** | **1,844** | **5,012** | **52,387** | **7,884** | **91** | **348** | **279** | **205** |
| **2012 Total** | **825,734** | **9,285** | **11,755** | **1,565** | **3,675** | **40,977** | **9,485** | **103** | **390** | **290** | **204** |
| **2013 Total** | **860,729** | **9,784** | **11,766** | **1,681** | **4,852** | **47,492** | **8,596** | **115** | **398** | **298** | **200** |
| **2014 Total** | **853,634** | **14,465** | **14,704** | **2,363** | **4,412** | **53,593** | **8,544** | **110** | **431** | **314** | **200** |
| **2015** January | 71,384 | 1,294 | 1,718 | 281 | 402 | 5,301 | 745 | 10 | 36 | 25 | 17 |
| February | 67,136 | 3,732 | 4,102 | 755 | 413 | 10,655 | 676 | 8 | 33 | 22 | 15 |
| March | 58,367 | 851 | 805 | 129 | 275 | 3,160 | 736 | 8 | 34 | 25 | 16 |
| April | 48,543 | 638 | 762 | 122 | 300 | 3,020 | 692 | 8 | 31 | 25 | 16 |
| May | 57,153 | 841 | 714 | 143 | 339 | 3,394 | 766 | 9 | 32 | 26 | 17 |
| June | 68,982 | 785 | 823 | 137 | 306 | 3,277 | 922 | 9 | 34 | 26 | 17 |
| July | 76,570 | 741 | 1,091 | 163 | 409 | 4,039 | 1,084 | 10 | 37 | 29 | 19 |
| August | 73,810 | 706 | 961 | 134 | 388 | 3,740 | 1,065 | 10 | 37 | 28 | 18 |
| September | 64,823 | 643 | 830 | 183 | 376 | 3,538 | 930 | 9 | 34 | 26 | 17 |
| October | 53,659 | 636 | 759 | 146 | 300 | 3,041 | 825 | 7 | 31 | 26 | 17 |
| November | 48,943 | 804 | 840 | 76 | 260 | 3,019 | 767 | 7 | 33 | 27 | 17 |
| December | 50,224 | 768 | 718 | 94 | 276 | 2,961 | 807 | 9 | 35 | 28 | 18 |
| **Total** | **739,594** | **12,438** | **14,124** | **2,363** | **4,044** | **49,145** | **10,017** | **106** | **407** | **313** | **204** |
| **2016** January | 62,048 | 1,190 | 979 | 160 | 341 | 4,037 | 803 | 10 | 34 | 27 | 16 |
| February | 50,567 | 837 | 1,091 | 183 | 329 | 3,753 | 717 | 9 | 33 | 25 | 14 |
| March | 39,857 | 660 | 593 | 113 | 366 | 3,198 | 775 | 10 | 33 | 26 | 15 |
| April | 38,989 | 617 | 610 | 91 | 390 | 3,268 | 754 | 9 | 27 | 27 | 16 |
| May | 45,036 | 799 | 658 | 108 | 371 | 3,421 | 839 | 8 | 29 | 27 | 17 |
| June | 63,326 | 694 | 772 | 111 | 382 | 3,488 | 1,007 | 8 | 32 | 26 | 17 |
| July | 74,241 | 812 | 1,255 | 138 | 403 | 4,220 | 1,179 | 9 | 34 | 27 | 17 |
| August | 73,868 | 795 | 1,196 | 205 | 422 | 4,304 | 1,191 | 9 | 35 | 28 | 17 |
| September | 62,428 | 631 | 781 | 120 | 383 | 3,450 | 951 | 8 | 32 | 25 | 16 |
| October | 54,634 | 623 | 846 | 97 | 246 | 2,798 | 776 | 7 | 29 | 27 | 16 |
| November | 48,126 | 787 | 651 | 122 | 304 | 3,079 | 701 | 8 | 30 | 25 | 16 |
| December | 64,883 | 905 | 807 | 187 | 337 | 3,586 | 706 | 8 | 34 | 27 | 16 |
| **Total** | **678,005** | **9,351** | **10,238** | **1,636** | **4,275** | **42,601** | **10,400** | **102** | **382** | **316** | **193** |
| **2017** January | 63,542 | 1,018 | 792 | 172 | 362 | 3,790 | 678 | 9 | 32 | 27 | 16 |
| February | 48,155 | 780 | 676 | 103 | 266 | 2,890 | 585 | 9 | 31 | 24 | 14 |
| March | 48,915 | 843 | 699 | 110 | 276 | 3,033 | 701 | 9 | 33 | 26 | 15 |
| April | 44,455 | 728 | 650 | 109 | 154 | 2,259 | 648 | 9 | 30 | 24 | 15 |
| May | 51,082 | 825 | 765 | 109 | 321 | 3,304 | 732 | 9 | 31 | 25 | 16 |
| June | 59,206 | 692 | 826 | 152 | 344 | 3,388 | 871 | 9 | 31 | 25 | 16 |
| July | 70,150 | 706 | 749 | 374 | 333 | 3,493 | 1,090 | 10 | 34 | 25 | 17 |
| August | 66,047 | 683 | 842 | 129 | 286 | 3,083 | 1,045 | 11 | 35 | 26 | 17 |
| **8-Month Total** | **451,552** | **6,274** | **5,998** | **1,256** | **2,342** | **25,240** | **6,349** | **75** | **257** | **202** | **126** |
| **2016 8-Month Total** | **447,933** | **6,405** | **7,154** | **1,110** | **3,004** | **29,688** | **7,266** | **71** | **257** | **212** | **130** |
| **2015 8-Month Total** | **521,945** | **9,587** | **10,977** | **1,864** | **2,832** | **36,586** | **6,687** | **73** | **274** | **205** | **135** |

[a] Anthracite, bituminous coal, subbituminous coal, lignite, waste coal, and coal synfuel.

[b] Fuel oil nos. 1, 2, and 4. For 1949–1979, data are for gas turbine and internal combustion plant use of petroleum. For 1980–2000, electric utility data also include small amounts of kerosene and jet fuel.

[c] Fuel oil nos. 5 and 6. For 1949–1979, data are for steam plant use of petroleum. For 1980–2000, electric utility data also include a small amount of fuel oil no. 4.

[d] Jet fuel, kerosene, other petroleum liquids, waste oil, and, beginning in 2011, propane.

[e] Petroleum coke is converted from short tons to barrels by multiplying by 5.

[f] Natural gas, plus a small amount of supplemental gaseous fuels.

[g] Blast furnace gas, and other manufactured and waste gases derived from fossil fuels. Through 2010, also includes propane gas.

[h] Wood and wood-derived fuels.

[i] Municipal solid waste from biogenic sources, landfill gas, sludge waste, agricultural byproducts, and other biomass. Through 2000, also includes non-renewable waste (municipal solid waste from non-biogenic sources, and tire-derived fuels).

[j] Batteries, chemicals, hydrogen, pitch, purchased steam, sulfur, miscellaneous technologies, and, beginning in 2001, non-renewable waste (municipal solid waste from non-biogenic sources, and tire-derived fuels).

[k] Through 1988, data are for electric utilities only. Beginning in 1989, data are for electric utilities, independent power producers, commercial plants, and industrial plants.

NA=Not available. (s)=Less than 0.5 trillion Btu.

Notes: • Data are for utility-scale facilities. See Note 1, "Coverage of Electricity Statistics," at end of section. • Data are for fuels consumed to produce electricity. Data also include fuels consumed to produce useful thermal output at a small number of electric utility combined-heat-and-power (CHP) plants. • Totals may not equal sum of components due to independent rounding. • Geographic coverage is the 50 states and the District of Columbia.

Web Page: See http://www.eia.gov/totalenergy/data/monthly/#electricity (Excel and CSV files) for all available annual data beginning in 1949 and monthly data beginning in 1973.

Sources: See "Table 7.3b Sources" at end of section and sources for Table 7.3c.

## Table 7.3b Consumption of Combustible Fuels for Electricity Generation: Electric Power Sector (Subset of Table 7.3a)

| | Coal[a] | Petroleum | | | | | Natural Gas[f] | Other Gases[g] | Biomass | | Other[j] |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Distillate Fuel Oil[b] | Residual Fuel Oil[c] | Other Liquids[d] | Petroleum Coke[e] | Total[e] | | | Wood[h] | Waste[i] | |
| | Thousand Short Tons | Thousand Barrels | | | Thousand Short Tons | Thousand Barrels | Billion Cubic Feet | Trillion Btu | | | |
| **1950 Total** | **91,871** | **5,423** | **69,998** | **NA** | **NA** | **75,421** | **629** | **NA** | **5** | **NA** | **NA** |
| **1955 Total** | **143,759** | **5,412** | **69,862** | **NA** | **NA** | **75,274** | **1,153** | **NA** | **3** | **NA** | **NA** |
| **1960 Total** | **176,685** | **3,824** | **84,371** | **NA** | **NA** | **88,195** | **1,725** | **NA** | **2** | **NA** | **NA** |
| **1965 Total** | **244,788** | **4,928** | **110,274** | **NA** | **NA** | **115,203** | **2,321** | **NA** | **3** | **NA** | **NA** |
| **1970 Total** | **320,182** | **24,123** | **311,381** | **NA** | **636** | **338,686** | **3,932** | **NA** | **1** | **2** | **NA** |
| **1975 Total** | **405,962** | **38,907** | **467,221** | **NA** | **70** | **506,479** | **3,158** | **NA** | **(s)** | **2** | **NA** |
| **1980 Total** | **569,274** | **29,051** | **391,163** | **NA** | **179** | **421,110** | **3,682** | **NA** | **3** | **2** | **NA** |
| **1985 Total** | **693,841** | **14,635** | **158,779** | **NA** | **231** | **174,571** | **3,044** | **NA** | **8** | **7** | **NA** |
| **1990 Total**[k] | **781,301** | **16,394** | **183,285** | **25** | **1,008** | **204,745** | **3,147** | **6** | **106** | **180** | **(s)** |
| **1995 Total** | **847,854** | **18,066** | **88,895** | **441** | **2,452** | **119,663** | **4,094** | **18** | **106** | **282** | **2** |
| **2000 Total** | **982,713** | **29,722** | **138,047** | **403** | **3,155** | **183,946** | **5,014** | **19** | **126** | **294** | **1** |
| **2001 Total** | **961,523** | **29,056** | **159,150** | **374** | **3,308** | **205,119** | **5,142** | **9** | **116** | **205** | **109** |
| **2002 Total** | **975,251** | **21,810** | **104,577** | **1,243** | **5,705** | **156,154** | **5,408** | **25** | **141** | **224** | **137** |
| **2003 Total** | **1,003,036** | **27,441** | **137,361** | **1,937** | **5,719** | **195,336** | **4,909** | **30** | **156** | **216** | **136** |
| **2004 Total** | **1,012,459** | **18,793** | **138,831** | **2,511** | **7,135** | **195,809** | **5,075** | **27** | **150** | **206** | **131** |
| **2005 Total** | **1,033,567** | **19,450** | **138,337** | **2,591** | **7,877** | **199,760** | **5,485** | **24** | **166** | **205** | **116** |
| **2006 Total** | **1,022,802** | **12,578** | **56,347** | **1,783** | **6,905** | **105,235** | **5,891** | **28** | **163** | **216** | **117** |
| **2007 Total** | **1,041,346** | **15,135** | **62,072** | **2,496** | **5,523** | **107,316** | **6,502** | **27** | **165** | **221** | **117** |
| **2008 Total** | **1,036,891** | **12,318** | **37,222** | **2,608** | **5,000** | **77,149** | **6,342** | **23** | **159** | **242** | **122** |
| **2009 Total** | **929,692** | **11,848** | **27,768** | **2,110** | **4,485** | **64,151** | **6,567** | **21** | **160** | **244** | **115** |
| **2010 Total** | **971,245** | **13,677** | **23,560** | **1,848** | **4,679** | **62,477** | **7,085** | **20** | **177** | **249** | **116** |
| **2011 Total** | **928,857** | **10,961** | **13,861** | **1,655** | **4,726** | **50,105** | **7,265** | **18** | **166** | **241** | **133** |
| **2012 Total** | **820,762** | **9,000** | **11,292** | **1,339** | **2,861** | **35,937** | **8,788** | **19** | **171** | **250** | **132** |
| **2013 Total** | **855,546** | **9,511** | **11,322** | **1,488** | **4,189** | **43,265** | **7,888** | **41** | **187** | **251** | **130** |
| **2014 Total** | **848,803** | **14,052** | **14,132** | **2,157** | **4,039** | **50,537** | **7,849** | **29** | **220** | **266** | **127** |
| **2015** January | 71,028 | 1,253 | 1,685 | 258 | 369 | 5,040 | 686 | 3 | 19 | 21 | 10 |
| February | 66,799 | 3,610 | 4,052 | 730 | 388 | 10,333 | 625 | 2 | 18 | 19 | 10 |
| March | 57,999 | 824 | 778 | 113 | 255 | 2,988 | 684 | 2 | 18 | 21 | 10 |
| April | 48,230 | 615 | 742 | 96 | 271 | 2,811 | 642 | 2 | 16 | 21 | 10 |
| May | 56,820 | 818 | 699 | 110 | 320 | 3,225 | 712 | 3 | 17 | 22 | 11 |
| June | 68,609 | 763 | 807 | 106 | 288 | 3,115 | 863 | 2 | 18 | 22 | 11 |
| July | 76,179 | 715 | 1,077 | 142 | 392 | 3,894 | 1,019 | 2 | 20 | 25 | 12 |
| August | 73,431 | 682 | 947 | 112 | 369 | 3,589 | 1,001 | 3 | 20 | 24 | 11 |
| September | 64,452 | 624 | 822 | 162 | 355 | 3,383 | 870 | 3 | 17 | 22 | 11 |
| October | 53,331 | 616 | 749 | 123 | 284 | 2,907 | 768 | 2 | 15 | 23 | 11 |
| November | 48,636 | 787 | 829 | 57 | 240 | 2,872 | 709 | 2 | 17 | 23 | 11 |
| December | 49,919 | 749 | 706 | 76 | 258 | 2,821 | 744 | 3 | 19 | 24 | 11 |
| **Total** | **735,433** | **12,056** | **13,893** | **2,086** | **3,789** | **46,978** | **9,322** | **29** | **215** | **268** | **127** |
| **2016** January | 61,716 | 1,162 | 962 | 146 | 319 | 3,863 | 744 | 3 | 18 | 23 | 11 |
| February | 50,256 | 811 | 1,076 | 163 | 311 | 3,605 | 662 | 3 | 18 | 21 | 10 |
| March | 39,538 | 643 | 583 | 103 | 346 | 3,060 | 717 | 3 | 17 | 21 | 10 |
| April | 38,725 | 596 | 599 | 82 | 369 | 3,123 | 698 | 2 | 13 | 23 | 11 |
| May | 44,767 | 777 | 649 | 72 | 348 | 3,239 | 781 | 2 | 14 | 23 | 11 |
| June | 63,007 | 674 | 762 | 88 | 360 | 3,326 | 946 | 3 | 17 | 23 | 11 |
| July | 73,902 | 786 | 1,244 | 108 | 381 | 4,043 | 1,116 | 3 | 18 | 23 | 11 |
| August | 73,526 | 763 | 1,185 | 179 | 399 | 4,123 | 1,127 | 3 | 19 | 24 | 11 |
| September | 62,149 | 610 | 774 | 97 | 361 | 3,287 | 891 | 3 | 17 | 22 | 10 |
| October | 54,376 | 598 | 836 | 58 | 233 | 2,658 | 719 | 2 | 14 | 23 | 10 |
| November | 47,898 | 761 | 641 | 101 | 286 | 2,934 | 641 | 2 | 14 | 22 | 10 |
| December | 64,620 | 876 | 795 | 148 | 317 | 3,402 | 645 | 2 | 18 | 24 | 11 |
| **Total** | **674,481** | **9,058** | **10,105** | **1,346** | **4,031** | **40,662** | **9,688** | **30** | **196** | **272** | **127** |
| **2017** January | 63,226 | 977 | 777 | 149 | 345 | 3,629 | 615 | 3 | 16 | 23 | 11 |
| February | 47,876 | 756 | 665 | 81 | 253 | 2,768 | 529 | 3 | 16 | 21 | 9 |
| March | 48,644 | 813 | 685 | 92 | 257 | 2,876 | 643 | 3 | 18 | 22 | 10 |
| April | 44,222 | 704 | 639 | 94 | 143 | 2,150 | 592 | 2 | 15 | 21 | 10 |
| May | 50,826 | 799 | 756 | 90 | 306 | 3,173 | 676 | 3 | 16 | 22 | 10 |
| June | 58,928 | 668 | 815 | 133 | 325 | 3,240 | 812 | 3 | 16 | 22 | 11 |
| July | 69,861 | 676 | 741 | 346 | 315 | 3,335 | 1,029 | 3 | 18 | 22 | 11 |
| August | 65,763 | 652 | 833 | 111 | 269 | 2,942 | 985 | 3 | 18 | 22 | 11 |
| **8-Month Total** | **449,345** | **6,045** | **5,910** | **1,095** | **2,213** | **24,114** | **5,882** | **22** | **133** | **174** | **82** |
| **2016 8-Month Total** | **445,437** | **6,213** | **7,059** | **942** | **2,834** | **28,381** | **6,792** | **21** | **134** | **182** | **85** |
| **2015 8-Month Total** | **519,094** | **9,280** | **10,788** | **1,668** | **2,652** | **34,995** | **6,231** | **20** | **147** | **175** | **84** |

[a] Anthracite, bituminous coal, subbituminous coal, lignite, waste coal, and coal synfuel.

[b] Fuel oil nos. 1, 2, and 4. For 1949–1979, data are for gas turbine and internal combustion plant use of petroleum. For 1980–2000, electric utility data also include small amounts of kerosene and jet fuel.

[c] Fuel oil nos. 5 and 6. For 1949–1979, data are for steam plant use of petroleum. For 1980–2000, electric utility data also include a small amount of fuel oil no. 4.

[d] Jet fuel, kerosene, other petroleum liquids, waste oil, and, beginning in 2011, propane.

[e] Petroleum coke is converted from short tons to barrels by multiplying by 5.

[f] Natural gas, plus a small amount of supplemental gaseous fuels.

[g] Blast furnace gas, and other manufactured and waste gases derived from fossil fuels. Through 2010, also includes propane gas.

[h] Wood and wood-derived fuels.

[i] Municipal solid waste from biogenic sources, landfill gas, sludge waste, agricultural byproducts, and other biomass. Through 2000, also includes non-renewable waste (municipal solid waste from non-biogenic sources, and tire-derived fuels).

[j] Batteries, chemicals, hydrogen, pitch, purchased steam, sulfur, miscellaneous technologies, and, beginning in 2001, non-renewable waste (municipal solid waste from non-biogenic sources, and tire-derived fuels).

[k] Through 1988, data are for electric utilities only. Beginning in 1989, data are for electric utilities and independent power producers.

NA=Not available. (s)=Less than 0.5 trillion Btu.

Notes: • Data are for utility-scale facilities. See Note 1, "Coverage of Electricity Statistics," at end of section. • Data are for fuels consumed to produce electricity. Data also include fuels consumed to produce useful thermal output at a small number of electric utility combined-heat-and-power (CHP) plants. • The electric power sector comprises 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. • Totals may not equal sum of components due to independent rounding. • Geographic coverage is the 50 states and the District of Columbia.

Web Page: See http://www.eia.gov/totalenergy/data/monthly/#electricity (Excel and CSV files) for all available annual data beginning in 1949 and monthly data beginning in 1973.

Sources: See end of section.

# Table 7.3c Consumption of Selected Combustible Fuels for Electricity Generation: Commercial and Industrial Sectors (Subset of Table 7.3a)

| | Commercial Sector[a] | | | | Industrial Sector[b] | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Biomass | | | | | Biomass | | |
| | Coal[c] | Petroleum[d] | Natural Gas[e] | Waste[f] | Coal[c] | Petroleum[d] | Natural Gas[e] | Other Gases[g] | Wood[h] | Waste[f] | Other[i] |
| | Thousand Short Tons | Thousand Barrels | Billion Cubic Feet | Trillion Btu | Thousand Short Tons | Thousand Barrels | Billion Cubic Feet | Trillion Btu | | | |
| **1990 Total** | **417** | **953** | **28** | **15** | **10,740** | **13,103** | **517** | **104** | **335** | **16** | **36** |
| **1995 Total** | **569** | **649** | **43** | **21** | **12,171** | **12,265** | **601** | **114** | **373** | **13** | **40** |
| **2000 Total** | **514** | **823** | **37** | **26** | **11,706** | **10,459** | **640** | **107** | **369** | **10** | **45** |
| **2001 Total** | **532** | **1,023** | **36** | **15** | **10,636** | **10,530** | **654** | **88** | **370** | **7** | **44** |
| **2002 Total** | **477** | **834** | **33** | **18** | **11,855** | **11,608** | **685** | **106** | **464** | **15** | **43** |
| **2003 Total** | **582** | **894** | **38** | **19** | **10,440** | **10,424** | **668** | **127** | **362** | **13** | **46** |
| **2004 Total** | **377** | **766** | **33** | **19** | **7,687** | **6,919** | **566** | **108** | **194** | **5** | **41** |
| **2005 Total** | **377** | **585** | **34** | **20** | **7,504** | **6,440** | **518** | **85** | **189** | **5** | **46** |
| **2006 Total** | **347** | **333** | **35** | **21** | **7,408** | **5,066** | **536** | **87** | **187** | **3** | **45** |
| **2007 Total** | **361** | **258** | **34** | **19** | **5,089** | **5,041** | **554** | **88** | **188** | **4** | **41** |
| **2008 Total** | **369** | **166** | **33** | **20** | **5,075** | **3,617** | **520** | **73** | **179** | **5** | **39** |
| **2009 Total** | **317** | **190** | **34** | **23** | **4,674** | **3,328** | **520** | **62** | **160** | **4** | **42** |
| **2010 Total** | **314** | **172** | **39** | **24** | **8,125** | **2,422** | **555** | **70** | **172** | **8** | **55** |
| **2011 Total** | **347** | **137** | **47** | **31** | **5,735** | **2,145** | **572** | **74** | **182** | **7** | **57** |
| **2012 Total** | **307** | **279** | **63** | **33** | **4,665** | **4,761** | **633** | **84** | **219** | **8** | **54** |
| **2013 Total** | **513** | **335** | **67** | **36** | **4,670** | **3,892** | **642** | **74** | **210** | **11** | **50** |
| **2014 Total** | **202** | **462** | **72** | **36** | **4,629** | **2,594** | **623** | **81** | **210** | **11** | **54** |
| **2015** January | 18 | 34 | 5 | 3 | 338 | 227 | 54 | 7 | 17 | 1 | 5 |
| February | 19 | 95 | 5 | 3 | 318 | 228 | 46 | 6 | 15 | 1 | 4 |
| March | 17 | 19 | 5 | 3 | 351 | 153 | 48 | 6 | 15 | 1 | 4 |
| April | 12 | 15 | 5 | 3 | 302 | 194 | 45 | 6 | 15 | 1 | 4 |
| May | 10 | 15 | 6 | 3 | 323 | 154 | 49 | 6 | 16 | 1 | 5 |
| June | 14 | 14 | 6 | 3 | 359 | 148 | 53 | 7 | 16 | 1 | 5 |
| July | 14 | 16 | 7 | 3 | 376 | 129 | 57 | 8 | 17 | 1 | 6 |
| August | 12 | 18 | 7 | 3 | 368 | 133 | 57 | 7 | 17 | 1 | 5 |
| September | 10 | 9 | 7 | 3 | 360 | 146 | 54 | 7 | 16 | 1 | 5 |
| October | 11 | 8 | 6 | 3 | 317 | 127 | 51 | 5 | 16 | 1 | 5 |
| November | 12 | 8 | 5 | 3 | 295 | 139 | 53 | 5 | 16 | 1 | 5 |
| December | 14 | 9 | 6 | 3 | 292 | 131 | 57 | 6 | 16 | 1 | 5 |
| **Total** | **163** | **260** | **70** | **35** | **3,999** | **1,907** | **625** | **77** | **191** | **10** | **58** |
| **2016** January | 14 | 14 | 6 | 3 | 319 | 160 | 53 | 7 | 16 | 1 | 4 |
| February | 15 | 15 | 5 | 3 | 296 | 133 | 50 | 7 | 15 | 1 | 3 |
| March | 14 | 8 | 5 | 3 | 304 | 131 | 52 | 7 | 15 | 1 | 4 |
| April | 11 | 10 | 5 | 3 | 254 | 135 | 50 | 7 | 14 | 1 | 4 |
| May | 9 | 11 | 6 | 3 | 260 | 171 | 53 | 5 | 15 | 1 | 4 |
| June | 10 | 9 | 6 | 3 | 310 | 153 | 54 | 6 | 16 | 1 | 4 |
| July | 11 | 11 | 7 | 3 | 328 | 165 | 57 | 6 | 16 | 1 | 4 |
| August | 12 | 15 | 7 | 3 | 330 | 166 | 57 | 6 | 16 | 1 | 4 |
| September | 12 | 10 | 6 | 3 | 267 | 153 | 54 | 6 | 15 | 1 | 4 |
| October | 13 | 11 | 5 | 3 | 246 | 129 | 52 | 5 | 15 | 1 | 4 |
| November | 13 | 11 | 5 | 3 | 215 | 134 | 55 | 5 | 16 | 1 | 4 |
| December | 15 | 14 | 6 | 3 | 249 | 169 | 56 | 6 | 16 | 1 | 4 |
| **Total** | **148** | **139** | **69** | **35** | **3,376** | **1,800** | **644** | **72** | **185** | **10** | **48** |
| **2017** January | 16 | 31 | 6 | 3 | 300 | 130 | 56 | 6 | 16 | 1 | 4 |
| February | 12 | 16 | 5 | 3 | 267 | 106 | 50 | 7 | 15 | 1 | 3 |
| March | 12 | 22 | 6 | 3 | 259 | 135 | 52 | 7 | 15 | 1 | 4 |
| April | 8 | 14 | 5 | 3 | 225 | 96 | 51 | 6 | 15 | 1 | 4 |
| May | 8 | 16 | 5 | 3 | 249 | 114 | 50 | 7 | 15 | 1 | 4 |
| June | 8 | 15 | 6 | 3 | 270 | 133 | 53 | 7 | 15 | 1 | 4 |
| July | 10 | 18 | 6 | 3 | 279 | 139 | 55 | 7 | 16 | 1 | 5 |
| August | 9 | 20 | 6 | 3 | 275 | 121 | 54 | 8 | 17 | 1 | 5 |
| **8-Month Total** | **84** | **152** | **46** | **22** | **2,124** | **974** | **421** | **54** | **124** | **6** | **31** |
| **2016 8-Month Total** | **95** | **93** | **47** | **23** | **2,400** | **1,214** | **428** | **51** | **123** | **7** | **32** |
| **2015 8-Month Total** | **116** | **226** | **46** | **23** | **2,735** | **1,365** | **410** | **53** | **127** | **7** | **38** |

[a] Commercial combined-heat-and-power (CHP) and commercial electricity-only plants.
[b] Industrial combined-heat-and-power (CHP) and industrial electricity-only plants.
[c] Anthracite, bituminous coal, subbituminous coal, lignite, waste coal, and coal synfuel.
[d] Distillate fuel oil, residual fuel oil, petroleum coke, jet fuel, kerosene, other petroleum, waste oil, and, beginning in 2011, propane.
[e] Natural gas, plus a small amount of supplemental gaseous fuels.
[f] Municipal solid waste from biogenic sources, landfill gas, sludge waste, agricultural byproducts, and other biomass. Through 2000, also includes non-renewable waste (municipal solid waste from non-biogenic sources, and tire-derived fuels).
[g] Blast furnace gas, and other manufactured and waste gases derived from fossil fuels. Through 2010, also includes propane gas.
[h] Wood and wood-derived fuels.
[i] Batteries, chemicals, hydrogen, pitch, purchased steam, sulfur, miscellaneous technologies, and, beginning in 2001, non-renewable waste (municipal solid waste from non-biogenic sources, and tire-derived fuels).

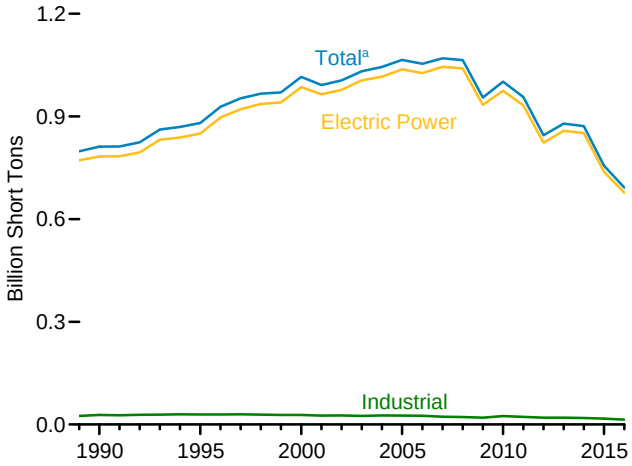
Notes: • Data are for utility-scale facilities. See Note 1, "Coverage of Electricity Statistics," at end of section. • See Note 2, "Classification of Power Plants Into Energy-Use Sectors," at end of section. • Data are for fuels consumed to produce electricity. Through 1988, data are not available. • Totals may not equal sum of components due to independent rounding. • Geographic coverage is the 50 states and the District of Columbia.

Web Page: See http://www.eia.gov/totalenergy/data/monthly/#electricity (Excel and CSV files) for all available annual and monthly data beginning in 1989.

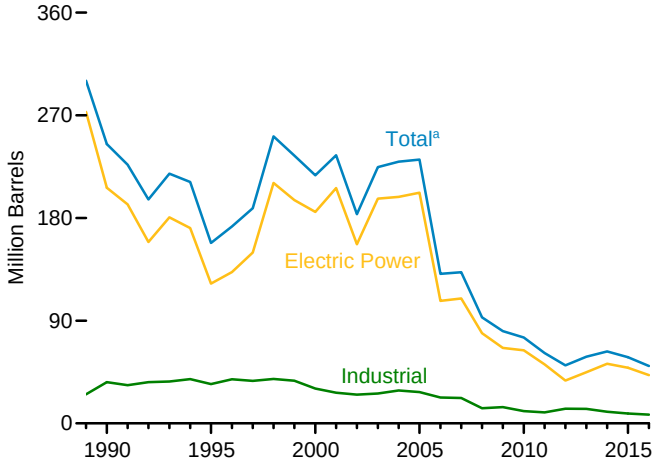
Sources: • **1989–1997:** U.S. Energy Information Administration (EIA), Form EIA-867, "Annual Nonutility Power Producer Report." • **1998–2000:** EIA, Form EIA-860B, "Annual Electric Generator Report—Nonutility." • **2001–2003:** EIA, Form EIA-906, "Power Plant Report." • **2004–2007:** EIA, Form EIA-906, "Power Plant Report," and Form EIA-920, "Combined Heat and Power Plant Report." • **2008 forward:** EIA, Form EIA-923, "Power Plant Operations Report."

## Figure 7.4 Consumption of Selected Combustible Fuels for Electricity Generation and Useful Thermal Output

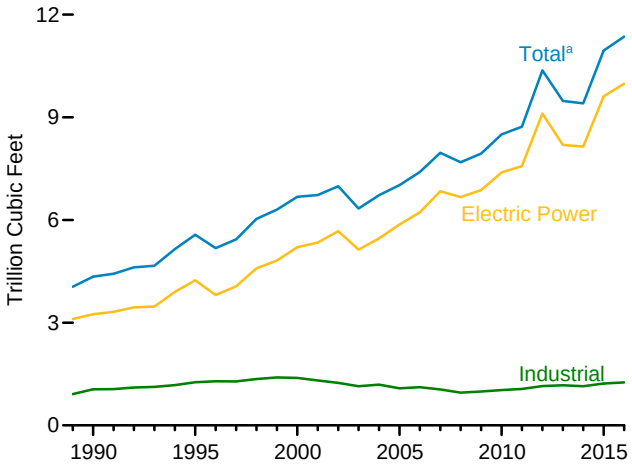
Coal by Sector, 1989–2016



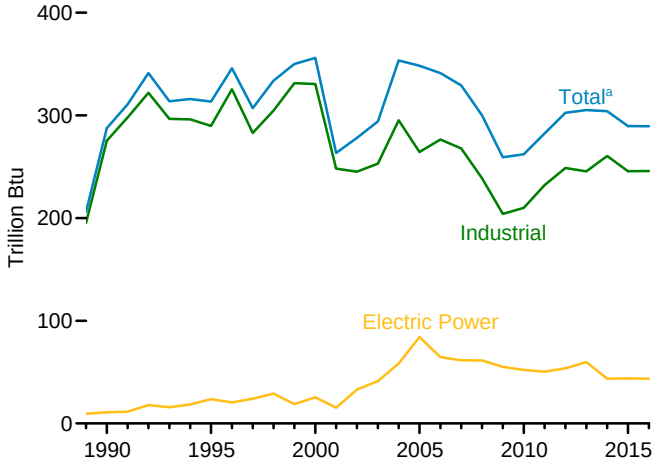

Petroleum by Sector, 1989–2016



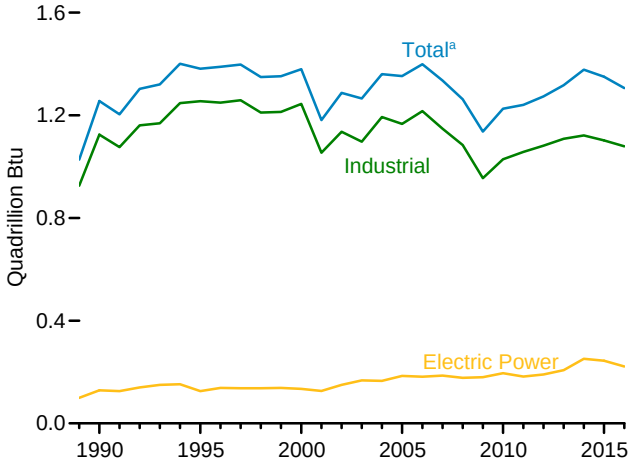

Natural Gas by Sector, 1989–2016



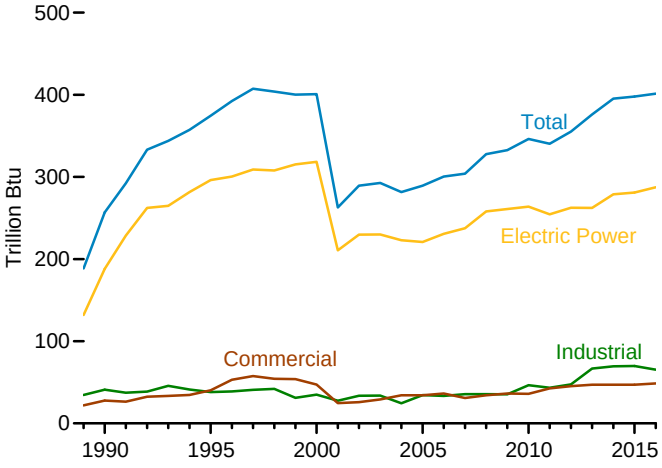

Other Gases[b] by Sector, 1989–2016




Wood by Sector, 1989–2016




Waste by Sector, 1989–2016




[a] Includes commercial sector.
[b] Blast furnace gas, and other manufactured and waste gases derived from fossil fuels. Through 2010, also includes propane gas.

Note: Data are for utility-scale facilities.
Web Page: http://www.eia.gov/totalenergy/data/monthly/#electricity.
Sources: Tables 7.4a–7.4c.

## Table 7.4a Consumption of Combustible Fuels for Electricity Generation and Useful Thermal Output: Total (All Sectors) (Sum of Tables 7.4b and 7.4c)

| | Coal[a] | Petroleum | | | | | Natural Gas[f] | Other Gases[g] | Biomass | | Other[j] |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Distillate Fuel Oil[b] | Residual Fuel Oil[c] | Other Liquids[d] | Petroleum Coke[e] | Total[e] | | | Wood[h] | Waste[i] | |
| | Thousand Short Tons | Thousand Barrels | | | Thousand Short Tons | Thousand Barrels | Billion Cubic Feet | Trillion Btu | | | |
| **1950 Total** | **91,871** | **5,423** | **69,998** | **NA** | **NA** | **75,421** | **629** | **NA** | **5** | **NA** | **NA** |
| **1955 Total** | **143,759** | **5,412** | **69,862** | **NA** | **NA** | **75,274** | **1,153** | **NA** | **3** | **NA** | **NA** |
| **1960 Total** | **176,685** | **3,824** | **84,371** | **NA** | **NA** | **88,195** | **1,725** | **NA** | **2** | **NA** | **NA** |
| **1965 Total** | **244,788** | **4,928** | **110,274** | **NA** | **NA** | **115,203** | **2,321** | **NA** | **3** | **NA** | **NA** |
| **1970 Total** | **320,182** | **24,123** | **311,381** | **NA** | **636** | **338,686** | **3,932** | **NA** | **1** | **2** | **NA** |
| **1975 Total** | **405,962** | **38,907** | **467,221** | **NA** | **70** | **506,479** | **3,158** | **NA** | **(s)** | **2** | **NA** |
| **1980 Total** | **569,274** | **29,051** | **391,163** | **NA** | **179** | **421,110** | **3,682** | **NA** | **3** | **2** | **NA** |
| **1985 Total** | **693,841** | **14,635** | **158,779** | **NA** | **231** | **174,571** | **3,044** | **NA** | **8** | **7** | **NA** |
| **1990 Total**[k] | **811,538** | **20,194** | **209,081** | **1,332** | **2,832** | **244,765** | **4,346** | **288** | **1,256** | **257** | **86** |
| **1995 Total** | **881,012** | **21,697** | **112,168** | **1,322** | **4,590** | **158,140** | **5,572** | **313** | **1,382** | **374** | **97** |
| **2000 Total** | **1,015,398** | **34,572** | **156,673** | **2,904** | **4,669** | **217,494** | **6,677** | **356** | **1,380** | **401** | **109** |
| **2001 Total** | **991,635** | **33,724** | **177,137** | **1,418** | **4,532** | **234,940** | **6,731** | **263** | **1,182** | **263** | **229** |
| **2002 Total** | **1,005,144** | **24,749** | **118,637** | **3,257** | **7,353** | **183,409** | **6,986** | **278** | **1,287** | **289** | **252** |
| **2003 Total** | **1,031,778** | **31,825** | **152,859** | **4,576** | **7,067** | **224,593** | **6,337** | **294** | **1,266** | **293** | **262** |
| **2004 Total** | **1,044,798** | **23,520** | **157,478** | **4,764** | **8,721** | **229,364** | **6,727** | **353** | **1,360** | **282** | **254** |
| **2005 Total** | **1,065,281** | **24,446** | **156,915** | **4,270** | **9,113** | **231,193** | **7,021** | **348** | **1,353** | **289** | **237** |
| **2006 Total** | **1,053,783** | **14,655** | **69,846** | **3,396** | **8,622** | **131,005** | **7,404** | **341** | **1,399** | **300** | **247** |
| **2007 Total** | **1,069,606** | **17,042** | **74,616** | **4,237** | **7,299** | **132,389** | **7,962** | **329** | **1,336** | **304** | **239** |
| **2008 Total** | **1,064,503** | **14,137** | **43,477** | **3,765** | **6,314** | **92,948** | **7,689** | **300** | **1,263** | **328** | **212** |
| **2009 Total** | **955,190** | **14,800** | **33,672** | **3,218** | **5,828** | **80,830** | **7,938** | **259** | **1,137** | **333** | **228** |
| **2010 Total** | **1,001,411** | **15,247** | **26,944** | **2,777** | **6,053** | **75,231** | **8,502** | **262** | **1,226** | **346** | **237** |
| **2011 Total** | **956,470** | **11,735** | **16,877** | **2,540** | **6,092** | **61,610** | **8,724** | **282** | **1,241** | **340** | **261** |
| **2012 Total** | **845,066** | **9,945** | **13,571** | **2,185** | **5,021** | **50,805** | **10,371** | **302** | **1,273** | **355** | **252** |
| **2013 Total** | **879,078** | **10,277** | **14,199** | **2,212** | **6,338** | **58,378** | **9,479** | **305** | **1,318** | **376** | **236** |
| **2014 Total** | **871,741** | **15,107** | **16,615** | **2,908** | **5,695** | **63,106** | **9,410** | **304** | **1,378** | **395** | **236** |
| **2015** January | 73,033 | 1,354 | 1,913 | 350 | 510 | 6,169 | 824 | 28 | 121 | 33 | 19 |
| February | 68,640 | 3,892 | 4,468 | 824 | 513 | 11,747 | 749 | 23 | 109 | 29 | 17 |
| March | 59,861 | 889 | 981 | 176 | 376 | 3,926 | 817 | 24 | 111 | 33 | 19 |
| April | 49,840 | 665 | 912 | 184 | 406 | 3,790 | 765 | 23 | 109 | 32 | 19 |
| May | 58,488 | 863 | 866 | 201 | 435 | 4,107 | 839 | 24 | 112 | 32 | 20 |
| June | 70,309 | 807 | 964 | 193 | 398 | 3,952 | 997 | 25 | 111 | 32 | 20 |
| July | 78,021 | 780 | 1,241 | 206 | 490 | 4,674 | 1,166 | 26 | 117 | 35 | 22 |
| August | 75,156 | 727 | 1,101 | 176 | 475 | 4,379 | 1,148 | 26 | 118 | 34 | 21 |
| September | 66,124 | 663 | 959 | 234 | 475 | 4,229 | 1,008 | 25 | 111 | 32 | 20 |
| October | 54,904 | 660 | 903 | 203 | 384 | 3,684 | 904 | 22 | 106 | 34 | 20 |
| November | 50,264 | 829 | 973 | 121 | 365 | 3,750 | 845 | 21 | 110 | 35 | 20 |
| December | 51,587 | 796 | 855 | 140 | 362 | 3,603 | 889 | 24 | 116 | 37 | 21 |
| **Total** | **756,226** | **12,924** | **16,136** | **3,008** | **5,188** | **58,009** | **10,952** | **290** | **1,351** | **398** | **237** |
| **2016** January | 63,549 | 1,231 | 1,142 | 201 | 420 | 4,675 | 889 | 25 | 117 | 34 | 18 |
| February | 51,960 | 878 | 1,218 | 239 | 416 | 4,413 | 795 | 23 | 108 | 32 | 17 |
| March | 41,233 | 683 | 720 | 147 | 474 | 3,922 | 855 | 27 | 108 | 34 | 18 |
| April | 40,039 | 643 | 738 | 118 | 461 | 3,804 | 831 | 25 | 100 | 35 | 19 |
| May | 46,171 | 825 | 779 | 169 | 445 | 3,997 | 917 | 23 | 105 | 33 | 19 |
| June | 64,502 | 724 | 891 | 158 | 461 | 4,079 | 1,085 | 25 | 109 | 33 | 19 |
| July | 75,416 | 857 | 1,396 | 191 | 488 | 4,885 | 1,261 | 25 | 112 | 35 | 19 |
| August | 75,041 | 834 | 1,340 | 254 | 506 | 4,958 | 1,275 | 26 | 113 | 34 | 20 |
| September | 63,469 | 657 | 895 | 166 | 448 | 3,959 | 1,029 | 23 | 105 | 31 | 18 |
| October | 55,643 | 656 | 985 | 156 | 359 | 3,590 | 852 | 24 | 103 | 32 | 18 |
| November | 49,162 | 817 | 760 | 166 | 381 | 3,648 | 778 | 21 | 109 | 33 | 18 |
| December | 66,084 | 937 | 933 | 254 | 433 | 4,287 | 790 | 24 | 117 | 35 | 19 |
| **Total** | **692,269** | **9,743** | **11,798** | **2,219** | **5,291** | **50,216** | **11,357** | **289** | **1,306** | **401** | **222** |
| **2017** January | 64,827 | 1,058 | 940 | 235 | 436 | 4,410 | 764 | 25 | 113 | 36 | 19 |
| February | 49,230 | 803 | 782 | 148 | 332 | 3,395 | 663 | 25 | 104 | 32 | 17 |
| March | 50,099 | 870 | 796 | 148 | 363 | 3,630 | 785 | 26 | 113 | 35 | 18 |
| April | 45,502 | 751 | 785 | 150 | 229 | 2,830 | 725 | 24 | 104 | 32 | 18 |
| May | 52,146 | 859 | 895 | 160 | 403 | 3,931 | 809 | 26 | 106 | 31 | 18 |
| June | 60,235 | 718 | 968 | 194 | 439 | 4,074 | 948 | 25 | 109 | 29 | 19 |
| July | 71,155 | 731 | 875 | 436 | 420 | 4,140 | 1,171 | 27 | 115 | 30 | 20 |
| August | 67,063 | 713 | 975 | 172 | 376 | 3,737 | 1,124 | 27 | 115 | 31 | 20 |
| **8-Month Total** | **460,256** | **6,501** | **7,016** | **1,643** | **2,998** | **30,148** | **6,989** | **205** | **879** | **257** | **148** |
| **2016 8-Month Total** | **457,911** | **6,675** | **8,224** | **1,478** | **3,671** | **34,732** | **7,908** | **197** | **873** | **270** | **149** |
| **2015 8-Month Total** | **533,347** | **9,976** | **12,446** | **2,310** | **3,602** | **42,744** | **7,306** | **198** | **908** | **260** | **157** |

[a] Anthracite, bituminous coal, subbituminous coal, lignite, waste coal, and coal synfuel.

[b] Fuel oil nos. 1, 2, and 4. For 1949–1979, data are for gas turbine and internal combustion plant use of petroleum. For 1980–2000, electric utility data also include small amounts of kerosene and jet fuel.

[c] Fuel oil nos. 5 and 6. For 1949–1979, data are for steam plant use of petroleum. For 1980–2000, electric utility data also include a small amount of fuel oil no. 4.

[d] Jet fuel, kerosene, other petroleum liquids, waste oil, and, beginning in 2011, propane.

[e] Petroleum coke is converted from short tons to barrels by multiplying by 5.

[f] Natural gas, plus a small amount of supplemental gaseous fuels.

[g] Blast furnace gas, and other manufactured and waste gases derived from fossil fuels. Through 2010, also includes propane gas.

[h] Wood and wood-derived fuels.

[i] Municipal solid waste from biogenic sources, landfill gas, sludge waste, agricultural byproducts, and other biomass. Through 2000, also includes non-renewable waste (municipal solid waste from non-biogenic sources, and tire-derived fuels).

[j] Batteries, chemicals, hydrogen, pitch, purchased steam, sulfur, miscellaneous technologies, and, beginning in 2001, non-renewable waste (municipal solid waste from non-biogenic sources, and tire-derived fuels).

[k] Through 1988, data are for electric utilities only. Beginning in 1989, data are for electric utilities, independent power producers, commercial plants, and industrial plants.

NA=Not available. (s)=Less than 0.5 trillion Btu.

Notes: • Data are for utility-scale facilities. See Note 1, "Coverage of Electricity Statistics," at end of section. • Totals may not equal sum of components due to independent rounding. • Geographic coverage is the 50 states and the District of Columbia.

Web Page: See http://www.eia.gov/totalenergy/data/monthly/#electricity (Excel and CSV files) for all available annual data beginning in 1949 and monthly data beginning in 1973.

Sources: See "Table 7.4b Sources" at end of section and sources for Table 7.4c.

## Table 7.4b Consumption of Combustible Fuels for Electricity Generation and Useful Thermal Output: Electric Power Sector (Subset of Table 7.4a)

| | Coal[a] | Petroleum | | | | | Natural Gas[f] | Other Gases[g] | Biomass | | Other[j] |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Distillate Fuel Oil[b] | Residual Fuel Oil[c] | Other Liquids[d] | Petroleum Coke[e] | Total[e] | | | Wood[h] | Waste[i] | |
| | Thousand Short Tons | Thousand Barrels | | | Thousand Short Tons | Thousand Barrels | Billion Cubic Feet | Trillion Btu | | | |
| **1950 Total** | **91,871** | **5,423** | **69,998** | **NA** | **NA** | **75,421** | **629** | **NA** | **5** | **NA** | **NA** |
| **1955 Total** | **143,759** | **5,412** | **69,862** | **NA** | **NA** | **75,274** | **1,153** | **NA** | **3** | **NA** | **NA** |
| **1960 Total** | **176,685** | **3,824** | **84,371** | **NA** | **NA** | **88,195** | **1,725** | **NA** | **2** | **NA** | **NA** |
| **1965 Total** | **244,788** | **4,928** | **110,274** | **NA** | **NA** | **115,203** | **2,321** | **NA** | **3** | **NA** | **NA** |
| **1970 Total** | **320,182** | **24,123** | **311,381** | **NA** | **636** | **338,686** | **3,932** | **NA** | **1** | **2** | **NA** |
| **1975 Total** | **405,962** | **38,907** | **467,221** | **NA** | **70** | **506,479** | **3,158** | **NA** | **(s)** | **2** | **NA** |
| **1980 Total** | **569,274** | **29,051** | **391,163** | **NA** | **179** | **421,110** | **3,682** | **NA** | **3** | **2** | **NA** |
| **1985 Total** | **693,841** | **14,635** | **158,779** | **NA** | **231** | **174,571** | **3,044** | **NA** | **8** | **7** | **NA** |
| **1990 Total**[k] | **782,567** | **16,567** | **184,915** | **26** | **1,008** | **206,550** | **3,245** | **11** | **129** | **188** | **(s)** |
| **1995 Total** | **850,230** | **18,553** | **90,023** | **499** | **2,674** | **122,447** | **4,237** | **24** | **125** | **296** | **2** |
| **2000 Total** | **985,821** | **30,016** | **138,513** | **454** | **3,275** | **185,358** | **5,206** | **25** | **134** | **318** | **1** |
| **2001 Total** | **964,433** | **29,274** | **159,504** | **377** | **3,427** | **206,291** | **5,342** | **15** | **126** | **211** | **113** |
| **2002 Total** | **977,507** | **21,876** | **104,773** | **1,267** | **5,816** | **156,996** | **5,672** | **33** | **150** | **230** | **143** |
| **2003 Total** | **1,005,116** | **27,632** | **138,279** | **2,026** | **5,799** | **196,932** | **5,135** | **41** | **167** | **230** | **140** |
| **2004 Total** | **1,016,268** | **19,107** | **139,816** | **2,713** | **7,372** | **198,498** | **5,464** | **58** | **165** | **223** | **138** |
| **2005 Total** | **1,037,485** | **19,675** | **139,409** | **2,685** | **8,083** | **202,184** | **5,869** | **84** | **185** | **221** | **123** |
| **2006 Total** | **1,026,636** | **12,646** | **57,345** | **1,870** | **7,101** | **107,365** | **6,222** | **65** | **182** | **231** | **125** |
| **2007 Total** | **1,045,141** | **15,327** | **63,086** | **2,594** | **5,685** | **109,431** | **6,841** | **61** | **186** | **237** | **124** |
| **2008 Total** | **1,040,580** | **12,547** | **38,241** | **2,670** | **5,119** | **79,056** | **6,668** | **61** | **177** | **258** | **131** |
| **2009 Total** | **933,627** | **12,035** | **28,782** | **2,210** | **4,611** | **66,081** | **6,873** | **55** | **180** | **261** | **124** |
| **2010 Total** | **975,052** | **13,790** | **24,503** | **1,877** | **4,777** | **64,055** | **7,387** | **52** | **196** | **264** | **124** |
| **2011 Total** | **932,484** | **11,021** | **14,803** | **1,658** | **4,837** | **51,667** | **7,574** | **50** | **182** | **255** | **143** |
| **2012 Total** | **823,551** | **9,080** | **12,203** | **1,339** | **2,974** | **37,495** | **9,111** | **54** | **190** | **262** | **143** |
| **2013 Total** | **857,962** | **9,598** | **12,283** | **1,489** | **4,285** | **44,794** | **8,191** | **60** | **207** | **262** | **139** |
| **2014 Total** | **851,602** | **14,235** | **15,132** | **2,208** | **4,132** | **52,235** | **8,146** | **44** | **251** | **279** | **137** |
| **2015** January | 71,323 | 1,272 | 1,754 | 276 | 379 | 5,198 | 711 | 4 | 22 | 23 | 11 |
| February | 67,061 | 3,683 | 4,182 | 748 | 397 | 10,599 | 648 | 4 | 21 | 20 | 10 |
| March | 58,272 | 831 | 857 | 117 | 264 | 3,126 | 709 | 3 | 21 | 22 | 11 |
| April | 48,449 | 619 | 819 | 97 | 281 | 2,941 | 664 | 3 | 18 | 22 | 11 |
| May | 57,060 | 821 | 777 | 111 | 330 | 3,360 | 734 | 4 | 18 | 23 | 11 |
| June | 68,867 | 766 | 883 | 106 | 298 | 3,248 | 886 | 3 | 21 | 23 | 12 |
| July | 76,452 | 727 | 1,167 | 142 | 402 | 4,044 | 1,046 | 3 | 22 | 26 | 12 |
| August | 73,678 | 685 | 1,033 | 113 | 378 | 3,723 | 1,027 | 4 | 23 | 25 | 12 |
| September | 64,682 | 626 | 910 | 162 | 363 | 3,516 | 895 | 4 | 20 | 23 | 11 |
| October | 53,557 | 618 | 845 | 124 | 292 | 3,049 | 792 | 3 | 17 | 24 | 11 |
| November | 48,879 | 790 | 911 | 57 | 252 | 3,020 | 732 | 3 | 19 | 25 | 11 |
| December | 50,165 | 753 | 792 | 77 | 268 | 2,964 | 769 | 4 | 21 | 25 | 12 |
| **Total** | **738,444** | **12,193** | **14,929** | **2,131** | **3,907** | **48,787** | **9,613** | **44** | **244** | **281** | **136** |
| **2016** January | 61,970 | 1,169 | 1,042 | 147 | 329 | 4,002 | 771 | 4 | 21 | 25 | 12 |
| February | 50,487 | 821 | 1,130 | 174 | 321 | 3,729 | 686 | 3 | 21 | 23 | 11 |
| March | 39,788 | 647 | 662 | 108 | 357 | 3,201 | 743 | 4 | 20 | 23 | 11 |
| April | 38,984 | 600 | 675 | 83 | 376 | 3,235 | 721 | 3 | 15 | 25 | 12 |
| May | 44,983 | 781 | 730 | 72 | 354 | 3,356 | 806 | 3 | 16 | 24 | 12 |
| June | 63,243 | 679 | 836 | 89 | 368 | 3,446 | 971 | 4 | 19 | 24 | 12 |
| July | 74,136 | 792 | 1,324 | 109 | 389 | 4,172 | 1,142 | 4 | 20 | 24 | 12 |
| August | 73,757 | 769 | 1,274 | 179 | 408 | 4,263 | 1,155 | 4 | 21 | 25 | 12 |
| September | 62,366 | 614 | 858 | 98 | 370 | 3,421 | 915 | 4 | 18 | 23 | 11 |
| October | 54,601 | 603 | 919 | 58 | 244 | 2,798 | 741 | 3 | 15 | 24 | 11 |
| November | 48,102 | 764 | 716 | 101 | 295 | 3,058 | 664 | 4 | 17 | 23 | 11 |
| December | 64,858 | 886 | 877 | 155 | 326 | 3,549 | 669 | 4 | 20 | 25 | 12 |
| **Total** | **677,275** | **9,126** | **11,043** | **1,374** | **4,137** | **42,230** | **9,984** | **44** | **222** | **287** | **137** |
| **2017** January | 63,477 | 985 | 861 | 162 | 354 | 3,778 | 639 | 4 | 19 | 25 | 12 |
| February | 48,095 | 759 | 731 | 85 | 262 | 2,888 | 550 | 4 | 18 | 22 | 10 |
| March | 48,901 | 816 | 730 | 92 | 267 | 2,974 | 667 | 4 | 20 | 24 | 11 |
| April | 44,441 | 707 | 718 | 94 | 152 | 2,279 | 614 | 4 | 18 | 22 | 10 |
| May | 51,039 | 803 | 835 | 90 | 316 | 3,306 | 697 | 4 | 19 | 23 | 11 |
| June | 59,109 | 671 | 902 | 135 | 334 | 3,378 | 834 | 4 | 19 | 23 | 11 |
| July | 70,067 | 678 | 830 | 349 | 324 | 3,477 | 1,052 | 4 | 21 | 23 | 12 |
| August | 65,960 | 654 | 919 | 112 | 279 | 3,081 | 1,008 | 4 | 20 | 23 | 12 |
| **8-Month Total** | **451,089** | **6,072** | **6,527** | **1,120** | **2,289** | **25,162** | **6,061** | **31** | **154** | **184** | **89** |
| **2016 8-Month Total** | **447,347** | **6,260** | **7,673** | **961** | **2,902** | **29,404** | **6,995** | **29** | **151** | **192** | **92** |
| **2015 8-Month Total** | **521,161** | **9,404** | **11,472** | **1,711** | **2,730** | **36,238** | **6,426** | **29** | **166** | **184** | **90** |

[a] Anthracite, bituminous coal, subbituminous coal, lignite, waste coal, and coal synfuel.

[b] Fuel oil nos. 1, 2, and 4. For 1949–1979, data are for gas turbine and internal combustion plant use of petroleum. For 1980–2000, electric utility data also include small amounts of kerosene and jet fuel.

[c] Fuel oil nos. 5 and 6. For 1949–1979, data are for steam plant use of petroleum. For 1980–2000, electric utility data also include a small amount of fuel oil no. 4.

[d] Jet fuel, kerosene, other petroleum liquids, waste oil, and, beginning in 2011, propane.

[e] Petroleum coke is converted from short tons to barrels by multiplying by 5.

[f] Natural gas, plus a small amount of supplemental gaseous fuels.

[g] Blast furnace gas, and other manufactured and waste gases derived from fossil fuels. Through 2010, also includes propane gas.

[h] Wood and wood-derived fuels.

[i] Municipal solid waste from biogenic sources, landfill gas, sludge waste, agricultural byproducts, and other biomass. Through 2000, also includes non-renewable waste (municipal solid waste from non-biogenic sources, and tire-derived fuels).

[j] Batteries, chemicals, hydrogen, pitch, purchased steam, sulfur, miscellaneous technologies, and, beginning in 2001, non-renewable waste (municipal solid waste from non-biogenic sources, and tire-derived fuels).

[k] Through 1988, data are for electric utilities only. Beginning in 1989, data are for electric utilities and independent power producers.

NA=Not available. (s)=Less than 0.5 trillion Btu.

Notes: • Data are for utility-scale facilities. See Note 1, "Coverage of Electricity Statistics," at end of section. • The electric power sector comprises 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. • Totals may not equal sum of components due to independent rounding. • Geographic coverage is the 50 states and the District of Columbia.

Web Page: See http://www.eia.gov/totalenergy/data/monthly/#electricity (Excel and CSV files) for all available annual data beginning in 1949 and monthly data beginning in 1973.

Sources: See end of section.

# Table 7.4c Consumption of Selected Combustible Fuels for Electricity Generation and Useful Thermal Output: Commercial and Industrial Sectors (Subset of Table 7.4a)

| | Commercial Sector[a] | | | | Industrial Sector[b] | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Biomass | | | | | Biomass | | |
| | Coal[c] | Petroleum[d] | Natural Gas[e] | Waste[f] | Coal[c] | Petroleum[d] | Natural Gas[e] | Other Gases[g] | Wood[h] | Waste[f] | Other[i] |
| | Thousand Short Tons | Thousand Barrels | Billion Cubic Feet | Trillion Btu | Thousand Short Tons | Thousand Barrels | Billion Cubic Feet | Trillion Btu | | | |
| **1990 Total** | **1,191** | **2,056** | **46** | **28** | **27,781** | **36,159** | **1,055** | **275** | **1,125** | **41** | **86** |
| **1995 Total** | **1,419** | **1,245** | **78** | **40** | **29,363** | **34,448** | **1,258** | **290** | **1,255** | **38** | **95** |
| **2000 Total** | **1,547** | **1,615** | **85** | **47** | **28,031** | **30,520** | **1,386** | **331** | **1,244** | **35** | **108** |
| **2001 Total** | **1,448** | **1,832** | **79** | **25** | **25,755** | **26,817** | **1,310** | **248** | **1,054** | **27** | **101** |
| **2002 Total** | **1,405** | **1,250** | **74** | **26** | **26,232** | **25,163** | **1,240** | **245** | **1,136** | **34** | **92** |
| **2003 Total** | **1,816** | **1,449** | **58** | **29** | **24,846** | **26,212** | **1,144** | **253** | **1,097** | **34** | **103** |
| **2004 Total** | **1,917** | **2,009** | **72** | **34** | **26,613** | **28,857** | **1,191** | **295** | **1,193** | **24** | **94** |
| **2005 Total** | **1,922** | **1,630** | **68** | **34** | **25,875** | **27,380** | **1,084** | **264** | **1,166** | **34** | **94** |
| **2006 Total** | **1,886** | **935** | **68** | **36** | **25,262** | **22,706** | **1,115** | **277** | **1,216** | **33** | **102** |
| **2007 Total** | **1,927** | **752** | **70** | **31** | **22,537** | **22,207** | **1,050** | **268** | **1,148** | **36** | **98** |
| **2008 Total** | **2,021** | **671** | **66** | **34** | **21,902** | **13,222** | **955** | **239** | **1,084** | **35** | **60** |
| **2009 Total** | **1,798** | **521** | **76** | **36** | **19,766** | **14,228** | **990** | **204** | **955** | **35** | **82** |
| **2010 Total** | **1,720** | **437** | **86** | **36** | **24,638** | **10,740** | **1,029** | **210** | **1,029** | **47** | **91** |
| **2011 Total** | **1,668** | **333** | **87** | **43** | **22,319** | **9,610** | **1,063** | **232** | **1,057** | **43** | **94** |
| **2012 Total** | **1,450** | **457** | **111** | **45** | **20,065** | **12,853** | **1,149** | **249** | **1,082** | **47** | **81** |
| **2013 Total** | **1,356** | **887** | **118** | **47** | **19,761** | **12,697** | **1,170** | **246** | **1,109** | **67** | **69** |
| **2014 Total** | **1,063** | **758** | **119** | **47** | **19,076** | **10,112** | **1,145** | **260** | **1,122** | **70** | **72** |
| **2015** January | 97 | 88 | 10 | 4 | 1,613 | 884 | 103 | 23 | 98 | 6 | 6 |
| February | 97 | 221 | 9 | 3 | 1,483 | 926 | 92 | 20 | 87 | 5 | 5 |
| March | 83 | 53 | 9 | 4 | 1,506 | 746 | 99 | 21 | 90 | 6 | 5 |
| April | 54 | 39 | 8 | 4 | 1,336 | 810 | 93 | 20 | 90 | 6 | 6 |
| May | 50 | 34 | 9 | 4 | 1,378 | 713 | 95 | 20 | 93 | 5 | 6 |
| June | 61 | 28 | 10 | 4 | 1,381 | 676 | 101 | 21 | 90 | 5 | 6 |
| July | 64 | 32 | 11 | 4 | 1,505 | 599 | 109 | 22 | 95 | 5 | 7 |
| August | 58 | 42 | 11 | 4 | 1,420 | 614 | 110 | 22 | 95 | 5 | 7 |
| September | 51 | 22 | 11 | 4 | 1,391 | 691 | 102 | 21 | 90 | 5 | 6 |
| October | 52 | 20 | 10 | 4 | 1,296 | 616 | 102 | 18 | 88 | 7 | 6 |
| November | 59 | 23 | 9 | 4 | 1,325 | 707 | 103 | 18 | 91 | 7 | 6 |
| December | 72 | 20 | 10 | 4 | 1,350 | 618 | 110 | 20 | 94 | 7 | 6 |
| **Total** | **798** | **622** | **116** | **47** | **16,984** | **8,600** | **1,222** | **246** | **1,103** | **70** | **73** |
| **2016** January | 76 | 41 | 10 | 4 | 1,503 | 632 | 107 | 21 | 95 | 5 | 5 |
| February | 78 | 41 | 9 | 4 | 1,395 | 643 | 100 | 19 | 87 | 5 | 4 |
| March | 75 | 23 | 10 | 5 | 1,370 | 698 | 103 | 23 | 88 | 6 | 5 |
| April | 49 | 21 | 9 | 4 | 1,006 | 547 | 100 | 22 | 85 | 6 | 5 |
| May | 40 | 20 | 9 | 4 | 1,149 | 622 | 102 | 19 | 89 | 5 | 5 |
| June | 46 | 17 | 10 | 4 | 1,212 | 617 | 104 | 21 | 90 | 6 | 5 |
| July | 46 | 28 | 11 | 4 | 1,234 | 684 | 108 | 21 | 92 | 6 | 5 |
| August | 50 | 25 | 11 | 4 | 1,234 | 669 | 109 | 22 | 91 | 5 | 5 |
| September | 49 | 18 | 10 | 4 | 1,053 | 520 | 104 | 19 | 86 | 5 | 5 |
| October | 50 | 20 | 9 | 4 | 993 | 771 | 102 | 21 | 87 | 4 | 4 |
| November | 61 | 20 | 9 | 4 | 998 | 570 | 106 | 18 | 92 | 5 | 4 |
| December | 71 | 35 | 10 | 4 | 1,155 | 704 | 112 | 20 | 96 | 6 | 4 |
| **Total** | **692** | **310** | **117** | **49** | **14,302** | **7,676** | **1,257** | **246** | **1,080** | **65** | **56** |
| **2017** January | 62 | 71 | 11 | 4 | 1,288 | 562 | 114 | 21 | 94 | 7 | 5 |
| February | 50 | 46 | 10 | 4 | 1,085 | 460 | 102 | 21 | 85 | 6 | 5 |
| March | 55 | 56 | 10 | 4 | 1,143 | 600 | 108 | 23 | 92 | 7 | 5 |
| April | 37 | 29 | 9 | 4 | 1,024 | 522 | 103 | 20 | 86 | 6 | 5 |
| May | 36 | 39 | 9 | 4 | 1,071 | 586 | 103 | 22 | 87 | 4 | 5 |
| June | 42 | 31 | 10 | 4 | 1,083 | 664 | 104 | 21 | 90 | 3 | 5 |
| July | 50 | 36 | 10 | 4 | 1,038 | 627 | 109 | 23 | 94 | 3 | 6 |
| August | 45 | 51 | 10 | 4 | 1,058 | 606 | 105 | 23 | 94 | 4 | 6 |
| **8-Month Total** | **377** | **359** | **79** | **31** | **8,789** | **4,626** | **848** | **174** | **722** | **41** | **40** |
| **2016 8-Month Total** | **460** | **216** | **79** | **32** | **10,103** | **5,112** | **834** | **167** | **718** | **45** | **38** |
| **2015 8-Month Total** | **564** | **537** | **77** | **31** | **11,622** | **5,968** | **804** | **169** | **739** | **45** | **48** |

[a] Commercial combined-heat-and-power (CHP) and commercial electricity-only plants.

[b] Industrial combined-heat-and-power (CHP) and industrial electricity-only plants.

[c] Anthracite, bituminous coal, subbituminous coal, lignite, waste coal, and coal synfuel.

[d] Distillate fuel oil, residual fuel oil, petroleum coke, jet fuel, kerosene, other petroleum, waste oil, and, beginning in 2011, propane.

[e] Natural gas, plus a small amount of supplemental gaseous fuels.

[f] Municipal solid waste from biogenic sources, landfill gas, sludge waste, agricultural byproducts, and other biomass. Through 2000, also includes non-renewable waste (municipal solid waste from non-biogenic sources, and tire-derived fuels).

[g] Blast furnace gas, and other manufactured and waste gases derived from fossil fuels. Through 2010, also includes propane gas.

[h] Wood and wood-derived fuels.

[i] Batteries, chemicals, hydrogen, pitch, purchased steam, sulfur, miscellaneous technologies, and, beginning in 2001, non-renewable waste (municipal solid waste from non-biogenic sources, and tire-derived fuels).

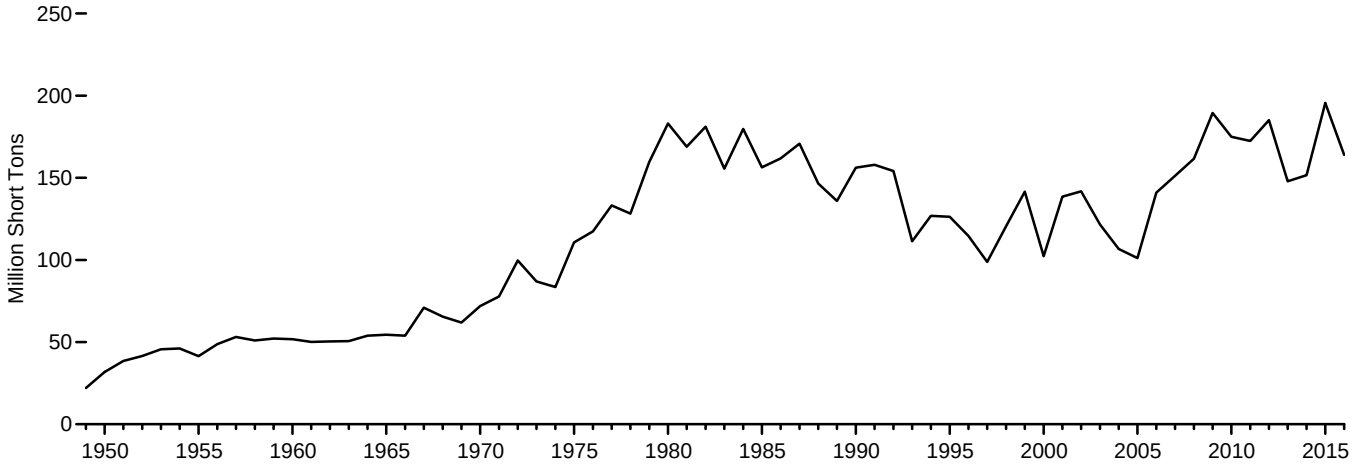
Notes: • Data are for utility-scale facilities. See Note 1, "Coverage of Electricity Statistics," at end of section. • See Note 2, "Classification of Power Plants Into Energy-Use Sectors," at end of section. • Totals may not equal sum of components due to independent rounding. • Geographic coverage is the 50 states and the District of Columbia.

Web Page: See http://www.eia.gov/totalenergy/data/monthly/#electricity (Excel and CSV files) for all available annual and monthly data beginning in 1989.

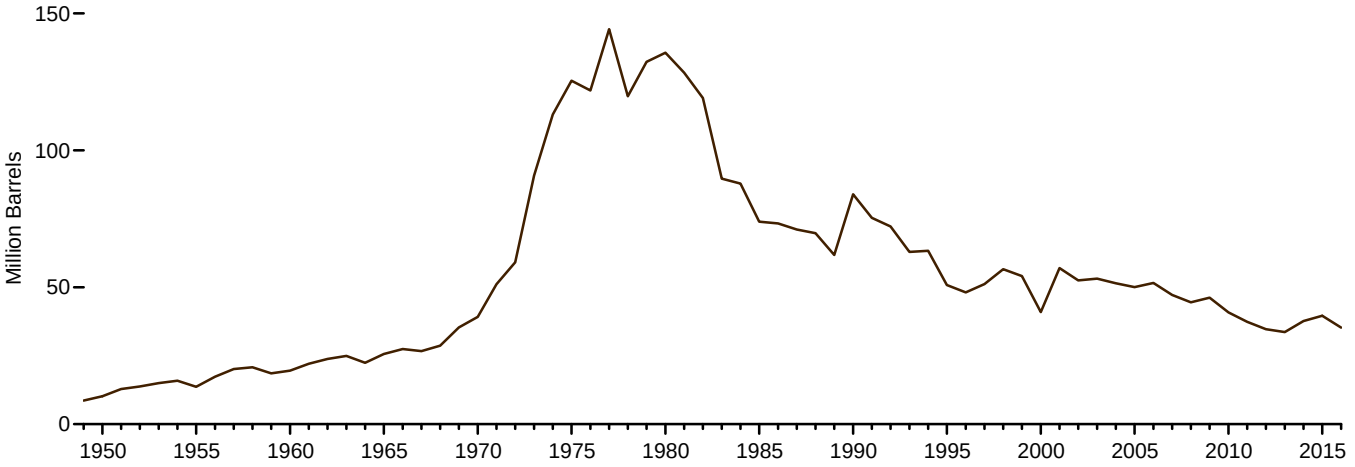
Sources: • **1989–1997:** U.S. Energy Information Administration (EIA), Form EIA-867, "Annual Nonutility Power Producer Report." • **1998–2000:** EIA, Form EIA-860B, "Annual Electric Generator Report—Nonutility." • **2001–2003:** EIA, Form EIA-906, "Power Plant Report." • **2004–2007:** EIA, Form EIA-906, "Power Plant Report," and Form EIA-920, "Combined Heat and Power Plant Report." • **2008 forward:** EIA, Form EIA-923, "Power Plant Operations Report."

## Figure 7.5 Stocks of Coal and Petroleum: Electric Power Sector

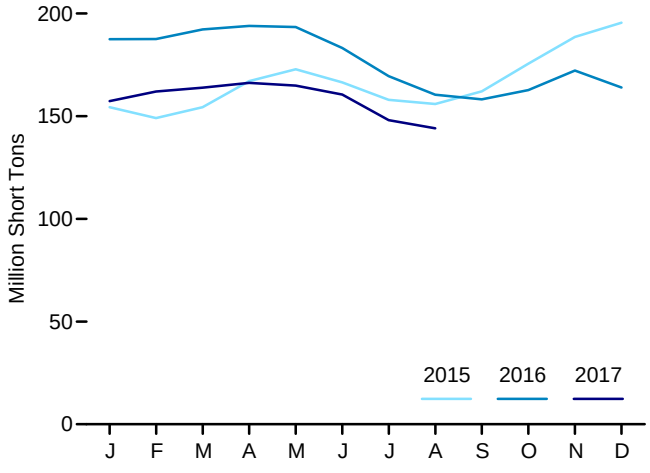
Coal, 1949–2016



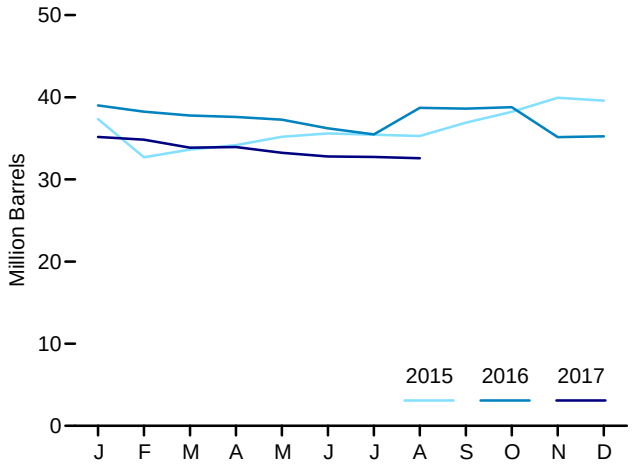

Total Petroleum, 1949–2016




Coal, Monthly




Total Petroleum, Monthly




Note: Data are for utility-scale facilities.
Web Page: http://www.eia.gov/totalenergy/data/monthly/#electricity.
Source: Table 7.5.

# Table 7.5 Stocks of Coal and Petroleum: Electric Power Sector

| | Coal[a] | Petroleum | | | | |
|---|---|---|---|---|---|---|
| | | Distillate Fuel Oil[b] | Residual Fuel Oil[c] | Other Liquids[d] | Petroleum Coke[e] | Total[e,f] |
| | Thousand Short Tons | Thousand Barrels | | | Thousand Short Tons | Thousand Barrels |
| **1950 Year** | **31,842** | **NA** | **NA** | **NA** | **NA** | **10,201** |
| **1955 Year** | **41,391** | **NA** | **NA** | **NA** | **NA** | **13,671** |
| **1960 Year** | **51,735** | **NA** | **NA** | **NA** | **NA** | **19,572** |
| **1965 Year** | **54,525** | **NA** | **NA** | **NA** | **NA** | **25,647** |
| **1970 Year** | **71,908** | **NA** | **NA** | **NA** | **239** | **39,151** |
| **1975 Year** | **110,724** | **16,432** | **108,825** | **NA** | **31** | **125,413** |
| **1980 Year** | **183,010** | **30,023** | **105,351** | **NA** | **52** | **135,635** |
| **1985 Year** | **156,376** | **16,386** | **57,304** | **NA** | **49** | **73,933** |
| **1990 Year** | **156,166** | **16,471** | **67,030** | **NA** | **94** | **83,970** |
| **1995 Year** | **126,304** | **15,392** | **35,102** | **NA** | **65** | **50,821** |
| **2000 Year**[g] | **102,296** | **15,127** | **24,748** | **NA** | **211** | **40,932** |
| **2001 Year** | **138,496** | **20,486** | **34,594** | **NA** | **390** | **57,031** |
| **2002 Year** | **141,714** | **17,413** | **25,723** | **800** | **1,711** | **52,490** |
| **2003 Year** | **121,567** | **19,153** | **25,820** | **779** | **1,484** | **53,170** |
| **2004 Year** | **106,669** | **19,275** | **26,596** | **879** | **937** | **51,434** |
| **2005 Year** | **101,137** | **18,778** | **27,624** | **1,012** | **530** | **50,062** |
| **2006 Year** | **140,964** | **18,013** | **28,823** | **1,380** | **674** | **51,583** |
| **2007 Year** | **151,221** | **18,395** | **24,136** | **1,902** | **554** | **47,203** |
| **2008 Year** | **161,589** | **17,761** | **21,088** | **1,955** | **739** | **44,498** |
| **2009 Year** | **189,467** | **17,886** | **19,068** | **2,257** | **1,394** | **46,181** |
| **2010 Year** | **174,917** | **16,758** | **16,629** | **2,319** | **1,019** | **40,800** |
| **2011 Year** | **172,387** | **16,649** | **15,491** | **2,707** | **508** | **37,387** |
| **2012 Year** | **185,116** | **16,433** | **12,999** | **2,792** | **495** | **34,698** |
| **2013 Year** | **147,884** | **16,068** | **12,926** | **2,679** | **390** | **33,622** |
| **2014 Year** | **151,548** | **18,309** | **12,764** | **2,432** | **827** | **37,643** |
| **2015** January | 154,390 | 18,216 | 12,207 | 2,473 | 892 | 37,355 |
| February | 149,071 | 16,459 | 9,798 | 2,188 | 850 | 32,697 |
| March | 154,347 | 16,996 | 10,251 | 2,289 | 818 | 33,626 |
| April | 167,063 | 17,167 | 10,152 | 2,294 | 912 | 34,173 |
| May | 172,809 | 17,357 | 10,518 | 2,309 | 999 | 35,180 |
| June | 166,437 | 17,513 | 10,570 | 2,358 | 1,031 | 35,598 |
| July | 157,938 | 17,519 | 10,263 | 2,337 | 1,064 | 35,442 |
| August | 155,952 | 17,712 | 10,087 | 2,345 | 1,029 | 35,286 |
| September | 162,109 | 18,286 | 10,766 | 2,339 | 1,102 | 36,898 |
| October | 175,588 | 18,596 | 11,492 | 2,375 | 1,151 | 38,217 |
| November | 188,595 | 18,738 | 12,310 | 2,440 | 1,290 | 39,937 |
| **December** | **195,548** | **17,955** | **12,566** | **2,363** | **1,340** | **39,586** |
| **2016** January | 187,486 | 17,783 | 12,275 | 2,338 | 1,320 | 38,997 |
| February | 187,575 | 17,457 | 11,880 | 2,300 | 1,323 | 38,254 |
| March | 192,269 | 17,341 | 11,948 | 2,290 | 1,240 | 37,778 |
| April | 193,991 | 17,394 | 12,187 | 2,114 | 1,181 | 37,599 |
| May | 193,432 | 17,497 | 12,309 | 2,118 | 1,071 | 37,281 |
| June | 183,248 | 17,419 | 12,151 | 2,117 | 905 | 36,214 |
| July | 169,465 | 17,189 | 11,886 | 2,115 | 858 | 35,480 |
| August | 160,452 | 21,082 | 11,644 | 2,097 | 780 | 38,721 |
| September | 158,238 | 21,019 | 11,662 | 2,087 | 768 | 38,606 |
| October | 162,739 | 21,107 | 11,519 | 2,097 | 812 | 38,785 |
| November | 172,208 | 17,032 | 11,826 | 2,124 | 833 | 35,145 |
| **December** | **163,946** | **17,057** | **11,670** | **2,153** | **872** | **35,239** |
| **2017** January | 157,359 | 17,065 | 11,839 | 2,125 | 827 | 35,164 |
| February | 161,985 | 16,767 | 11,701 | 2,081 | 859 | 34,844 |
| March | 163,900 | 15,561 | 12,036 | 1,852 | 882 | 33,858 |
| April | 166,236 | 15,492 | 11,825 | 1,852 | 952 | 33,931 |
| May | 164,924 | 15,391 | 11,575 | 1,814 | 892 | 33,240 |
| June | 160,540 | 15,181 | 11,462 | 1,804 | 869 | 32,791 |
| July | 148,084 | 15,350 | 11,258 | 1,785 | 866 | 32,724 |
| August | 144,129 | 15,237 | 11,099 | 1,742 | 900 | 32,576 |

[a] Anthracite, bituminous coal, subbituminous coal, and lignite; excludes waste coal.

[b] Fuel oil nos. 1, 2 and 4. For 1973–1979, data are for gas turbine and internal combustion plant stocks of petroleum. For 1980–2000, electric utility data also include small amounts of kerosene and jet fuel.

[c] Fuel oil nos. 5 and 6. For 1973–1979, data are for steam plant stocks of petroleum. For 1980–2000, electric utility data also include a small amount of fuel oil no. 4.

[d] Jet fuel and kerosene. Through 2003, data also include a small amount of waste oil.

[e] Petroleum coke is converted from short tons to barrels by multiplying by 5.

[f] Distillate fuel oil and residual fuel oil. Beginning in 1970, also includes petroleum coke. Beginning in 2002, also includes other liquids.

[g] Through 1998, data are for electric utilities only. Beginning in 1999, data are for electric utilities and independent power producers.

NA=Not available.

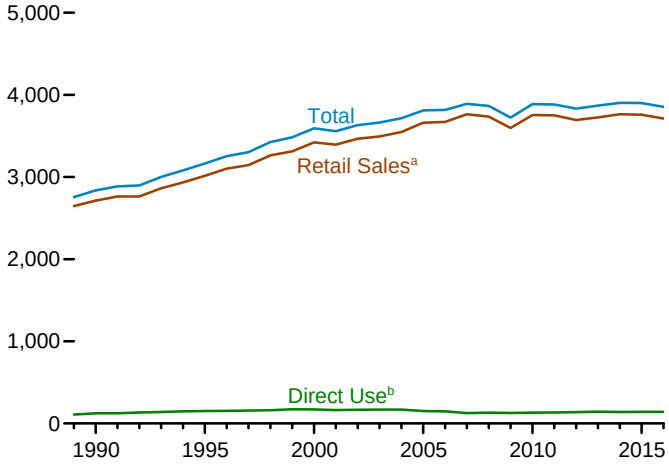
Notes: • Data are for utility-scale facilities. See Note 1, "Coverage of Electricity Statistics," at end of section. • The electric power sector comprises electricity-only and combined-heat-and-power (CHP) plants within the NAICS 22 category whose primary business is to sell electricity, or electricity and heat, to the public. • Stocks are at end of period. • Totals may not equal sum of components due to independent rounding. • Geographic coverage is the 50 states and the District of Columbia.

Web Page: See http://www.eia.gov/totalenergy/data/monthly/#electricity (Excel and CSV files) for all available annual data beginning in 1949 and monthly data beginning in 1973.

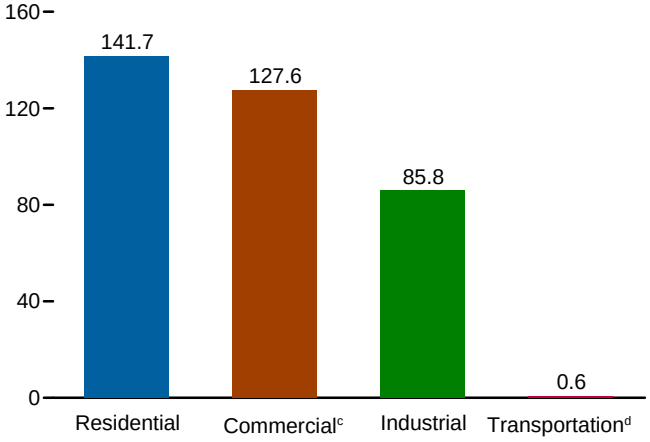
Sources: • **1949–September 1977:** Federal Power Commission, Form FPC-4, "Monthly Power Plant Report." • **October 1977–1981:** Federal Energy Regulatory Commission, Form FPC-4, "Monthly Power Plant Report." • **1982–1988:** U.S. Energy Information Administration (EIA), Form EIA-759, "Monthly Power Plant Report." • **1989–1997:** EIA, Form EIA-759, "Monthly Power Plant Report," and Form EIA-867, "Annual Nonutility Power Producer Report." • **1998–2000:** EIA, Form EIA-759, "Monthly Power Plant Report," and Form EIA-860B, "Annual Electric Generator Report—Nonutility." • **2001–2003:** EIA, Form EIA-906, "Power Plant Report." • **2004–2007:** EIA, Form EIA-906, "Power Plant Report," and Form EIA-920, "Combined Heat and Power Plant Report." • **2008 forward:** EIA, Form EIA-923, "Power Plant Operations Report."

## Figure 7.6 Electricity End Use
(Billion Kilowatthours)

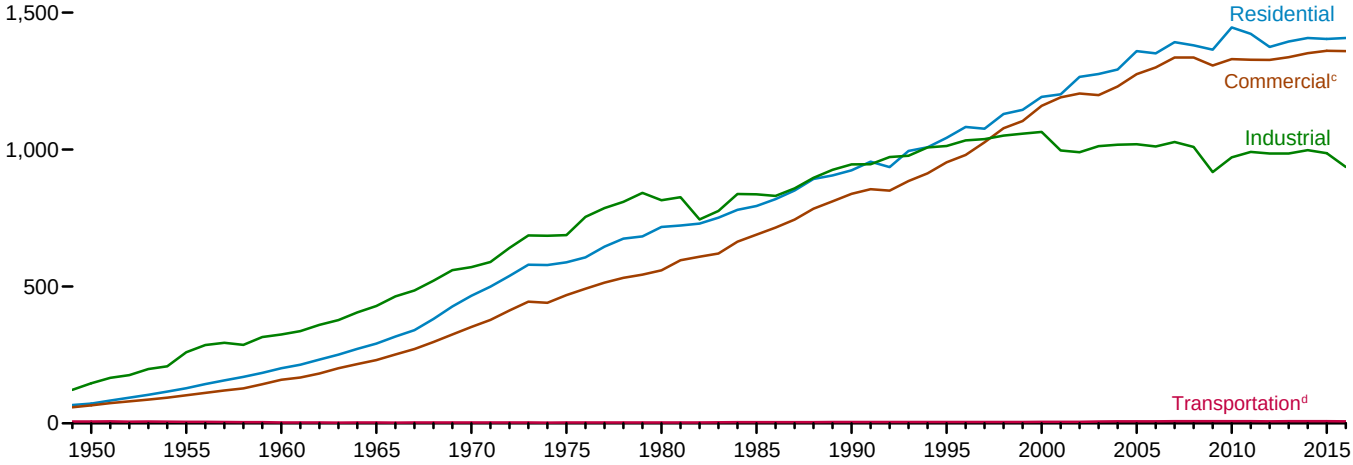
### Electricity End Use Overview, 1989–2016



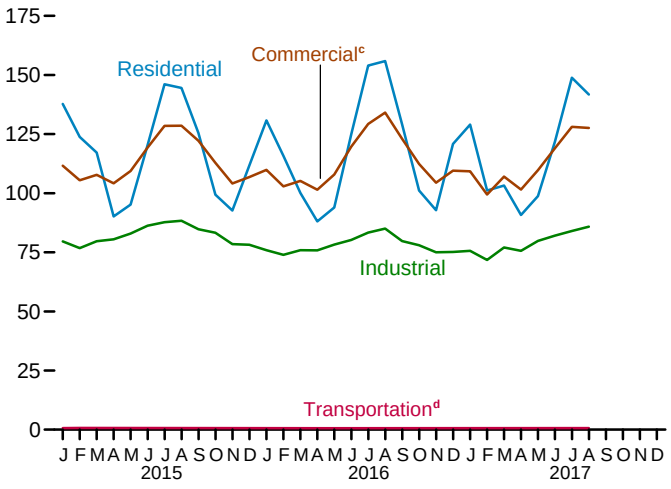

### Retail Sales[a] by Sector, August 2017



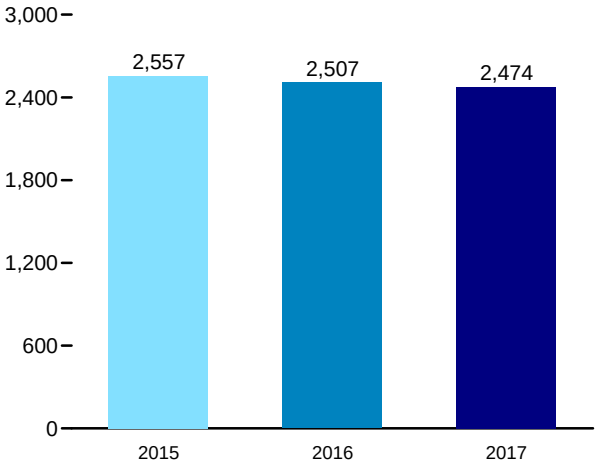

### Retail Sales[a] by Sector, 1949–2016




### Retail Sales[a] by Sector, Monthly




### Retail Sales[a] Total, January–August




[a] Electricity retail sales to ultimate customers reported by utilities and other energy service providers.
[b] See "Direct Use" in Glossary.
[c] Commercial sector, including public street and highway lighting, interdepartmental sales, and other sales to public authorites.
[d] Transportation sector, including sales to railroads and railways.
Web Page: http://www.eia.gov/totalenergy/data/monthly/#electricity.
Source: Table 7.6.

# Table 7.6 Electricity End Use

(Million Kilowatthours)

| | Retail Sales[a] | | | | | | |
|---|---|---|---|---|---|---|---|
| | Residential | Commercial[b] | Industrial[c] | Transportation[d] | Total Retail Sales[e] | Direct Use[f] | Total End Use[g] |
| **1950 Total** | **72,200** | [E] **65,971** | **146,479** | [E] **6,793** | **291,443** | **NA** | **291,443** |
| **1955 Total** | **128,401** | [E] **102,547** | **259,974** | [E] **5,826** | **496,748** | **NA** | **496,748** |
| **1960 Total** | **201,463** | [E] **159,144** | **324,402** | [E] **3,066** | **688,075** | **NA** | **688,075** |
| **1965 Total** | **291,013** | [E] **231,126** | **428,727** | [E] **2,923** | **953,789** | **NA** | **953,789** |
| **1970 Total** | **466,291** | [E] **352,041** | **570,854** | [E] **3,115** | **1,392,300** | **NA** | **1,392,300** |
| **1975 Total** | **588,140** | [E] **468,296** | **687,680** | [E] **2,974** | **1,747,091** | **NA** | **1,747,091** |
| **1980 Total** | **717,495** | **558,643** | **815,067** | **3,244** | **2,094,449** | **NA** | **2,094,449** |
| **1985 Total** | **793,934** | **689,121** | **836,772** | **4,147** | **2,323,974** | **NA** | **2,323,974** |
| **1990 Total** | **924,019** | **838,263** | **945,522** | **4,751** | **2,712,555** | **124,529** | **2,837,084** |
| **1995 Total** | **1,042,501** | **953,117** | **1,012,693** | **4,975** | **3,013,287** | **150,677** | **3,163,963** |
| **2000 Total** | **1,192,446** | **1,159,347** | **1,064,239** | **5,382** | **3,421,414** | **170,943** | **3,592,357** |
| **2001 Total** | **1,201,607** | **1,190,518** | **996,609** | **5,724** | **3,394,458** | **162,649** | **3,557,107** |
| **2002 Total** | **1,265,180** | **1,204,531** | **990,238** | **5,517** | **3,465,466** | **166,184** | **3,631,650** |
| **2003 Total** | **1,275,824** | **1,198,728** | **1,012,373** | **6,810** | **3,493,734** | **168,295** | **3,662,029** |
| **2004 Total** | **1,291,982** | **1,230,425** | **1,017,850** | **7,224** | **3,547,479** | **168,470** | **3,715,949** |
| **2005 Total** | **1,359,227** | **1,275,079** | **1,019,156** | **7,506** | **3,660,969** | **150,016** | **3,810,984** |
| **2006 Total** | **1,351,520** | **1,299,744** | **1,011,298** | **7,358** | **3,669,919** | **146,927** | **3,816,845** |
| **2007 Total** | **1,392,241** | **1,336,315** | **1,027,832** | **8,173** | **3,764,561** | **125,670** | **3,890,231** |
| **2008 Total** | **1,380,662** | **1,336,133** | **1,009,516** | **7,653** | **3,733,965** | **132,197** | **3,866,161** |
| **2009 Total** | **1,364,758** | **1,306,853** | **917,416** | **7,768** | **3,596,795** | **126,938** | **3,723,733** |
| **2010 Total** | **1,445,708** | **1,330,199** | **971,221** | **7,712** | **3,754,841** | **131,910** | **3,886,752** |
| **2011 Total** | **1,422,801** | **1,328,057** | **991,316** | **7,672** | **3,749,846** | **132,754** | **3,882,600** |
| **2012 Total** | **1,374,515** | **1,327,101** | **985,714** | **7,320** | **3,694,650** | **137,657** | **3,832,306** |
| **2013 Total** | **1,394,812** | **1,337,079** | **985,352** | **7,625** | **3,724,868** | **143,462** | **3,868,330** |
| **2014 Total** | **1,407,208** | **1,352,158** | **997,576** | **7,758** | **3,764,700** | **138,574** | **3,903,274** |
| **2015** January | 137,765 | 111,620 | 79,609 | 673 | 329,666 | [E] 12,214 | 341,881 |
| February | 123,838 | 105,482 | 76,749 | 699 | 306,768 | [E] 10,703 | 317,472 |
| March | 117,167 | 107,796 | 79,709 | 679 | 305,352 | [E] 11,103 | 316,455 |
| April | 90,199 | 104,168 | 80,489 | 620 | 275,475 | [E] 10,644 | 286,119 |
| May | 95,161 | 109,406 | 82,916 | 609 | 288,091 | [E] 11,178 | 299,268 |
| June | 120,300 | 119,270 | 86,218 | 609 | 326,397 | [E] 11,897 | 338,294 |
| July | 146,038 | 128,504 | 87,747 | 648 | 362,938 | [E] 12,956 | 375,894 |
| August | 144,515 | 128,519 | 88,373 | 625 | 362,032 | [E] 12,716 | 374,748 |
| September | 125,417 | 122,195 | 84,730 | 615 | 332,958 | [E] 12,042 | 345,000 |
| October | 99,349 | 112,821 | 83,249 | 636 | 296,055 | [E] 11,542 | 307,598 |
| November | 92,678 | 104,140 | 78,495 | 604 | 275,917 | [E] 11,684 | 287,600 |
| December | 111,670 | 106,829 | 78,224 | 619 | 297,344 | [E] 12,488 | 309,831 |
| **Total** | **1,404,096** | **1,360,752** | **986,508** | **7,637** | **3,758,992** | **141,168** | **3,900,160** |
| **2016** January | 130,764 | 109,870 | 75,892 | 660 | 317,186 | [E] 12,253 | 329,439 |
| February | 115,820 | 102,877 | 73,909 | 647 | 293,253 | [E] 11,327 | 304,580 |
| March | 100,123 | 105,180 | 75,907 | 610 | 281,819 | [E] 11,885 | 293,704 |
| April | 88,107 | 101,464 | 75,801 | 595 | 265,967 | [E] 11,265 | 277,232 |
| May | 93,981 | 107,900 | 78,246 | 582 | 280,708 | [E] 11,658 | 292,367 |
| June | 124,888 | 119,673 | 80,234 | 632 | 325,427 | [E] 11,933 | 337,360 |
| July | 153,976 | 129,265 | 83,369 | 648 | 367,258 | [E] 12,561 | 379,819 |
| August | 155,851 | 134,078 | 85,061 | 632 | 375,622 | [E] 12,583 | 388,205 |
| September | 129,111 | 122,961 | 79,719 | 637 | 332,428 | [E] 11,680 | 344,109 |
| October | 101,137 | 112,346 | 77,960 | 613 | 292,056 | [E] 11,313 | 303,370 |
| November | 92,797 | 104,454 | 75,048 | 592 | 272,891 | [E] 11,542 | 284,432 |
| December | 120,840 | 109,548 | 75,124 | 652 | 306,163 | [E] 11,989 | 318,153 |
| **Total** | **1,407,394** | **1,359,617** | **936,269** | **7,499** | **3,710,779** | [E] **141,990** | **3,852,769** |
| **2017** January | 128,997 | 109,225 | 75,596 | 666 | 314,483 | [E] 12,073 | 326,556 |
| February | 101,141 | 99,478 | 71,741 | 636 | 272,996 | [E] 10,987 | 283,982 |
| March | 103,210 | 106,991 | 77,018 | 644 | 287,863 | [E] 11,504 | 299,367 |
| April | 90,780 | 101,566 | 75,624 | 590 | 268,560 | [E] 10,914 | 279,474 |
| May | 98,757 | 109,757 | 79,838 | 583 | 288,934 | [E] 11,152 | 300,086 |
| June | 121,778 | 119,028 | 82,083 | 619 | 323,508 | [E] 11,559 | 335,067 |
| July | 148,865 | 128,049 | 84,027 | 630 | 361,570 | [E] 12,226 | 373,795 |
| August | 141,745 | 127,617 | 85,816 | 641 | 355,819 | [E] 12,198 | 368,017 |
| **8-Month Total** | **935,272** | **901,711** | **631,741** | **5,009** | **2,473,732** | [E] **92,612** | **2,566,345** |
| **2016 8-Month Total** | **963,509** | **910,307** | **628,418** | **5,005** | **2,507,240** | [E] **95,465** | **2,602,705** |
| **2015 8-Month Total** | **974,983** | **914,765** | **661,809** | **5,162** | **2,556,719** | [E] **93,412** | **2,650,131** |

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

[b] Commercial sector, including public street and highway lighting, interdepartmental sales, and other sales to public authorities.

[c] Industrial sector. Through 2002, excludes agriculture and irrigation; beginning in 2003, includes agriculture and irrigation.

[d] Transportation sector, including sales to railroads and railways.

[e] The sum of "Residential," "Commercial," "Industrial," and "Transportation."

[f] Use of electricity that is 1) self-generated, 2) produced by either the same entity that consumes the power or an affiliate, and 3) used in direct support of a service or industrial process located within the same facility or group of facilities that house the generating equipment. Direct use is exclusive of station use.

[g] The sum of "Total Retail Sales" and "Direct Use."

E=Estimate. NA=Not available.

Notes: • See Note 1, "Coverage of Electricity Statistics," at end of section.
• Totals may not equal sum of components due to independent rounding.
• Geographic coverage is the 50 states and the District of Columbia.

Web Page: See http://www.eia.gov/totalenergy/data/monthly/#electricity (Excel and CSV files) for all available annual data beginning in 1949 and monthly data beginning in 1973.

Sources: See end of section.

# Electricity

**Note 1. Coverage of Electricity Statistics.** Data in Section 7 cover the following:

Through 1984, data for electric utilities also include institutions (such as universities) and military facilities that generated electricity primarily for their own use; beginning in 1985, data for electric utilities exclude institutions and military facilities. Beginning in 1989, data for the commercial sector include institutions and military facilities.

The generation, consumption, and stocks data in Section 7 are for utility-scale facilities—those with a combined generation nameplate capacity of 1 megawatt or more. Data exclude distributed (small-scale) facilities—those with a combined generator nameplate capacity of less than 1 megawatt. For data on distributed solar photovoltaic (PV) generation in the residential, commercial, and industrial sectors, see Table 10.6.

**Note 2. Classification of Power Plants Into Energy-Use Sectors.** The U.S. Energy Information Administration (EIA) classifies power plants (both electricity-only and combined-heat-and-power plants) into energy-use sectors based on the North American Industry Classification System (NAICS), which replaced the Standard Industrial Classification (SIC) system in 1997. Plants with a NAICS code of 22 are assigned to the Electric Power Sector. Those with NAICS codes beginning with 11 (agriculture, forestry, fishing, and hunting); 21 (mining, including oil and gas extraction); 23 (construction); 31–33 (manufacturing); 2212 (natural gas distribution); and 22131 (water supply and irrigation systems) are assigned to the Industrial Sector. Those with all other codes are assigned to the Commercial Sector. Form EIA-860, "Annual Electric Generator Report," asks respondents to indicate the primary purpose of the facility by assigning a NAICS code from the list at

http://www.eia.gov/survey/form/eia_860/instructions.pdf.

**Note 3. Electricity Forecast Values.** Data values preceded by "F" in this section are forecast values. They are derived from EIA's Short-Term Integrated Forecasting System (STIFS). STIFS is driven primarily by data and assumptions about key macroeconomic variables, energy prices, and weather. The electricity forecast relies on additional variables such as alternative fuel prices (natural gas and oil) and power generation by sources other than fossil fuels, including nuclear, renewables, and hydroelectric power. Each month, EIA staff review the model output and make adjustments, if appropriate, based on their knowledge of developments in the electricity industry.

The STIFS model results are published monthly in EIA's Short-Term Energy Outlook, which is accessible on the Web at http://www.eia.gov/forecasts/steo/.

## Table 7.1 Sources

### Net Generation, Electric Power Sector
1949 forward: Table 7.2b.

### Net Generation, Commercial and Industrial Sectors
1949 forward: Table 7.2c.

### Trade
1949–September 1977: Unpublished Federal Power Commission data.
October 1977–1980: Unpublished Economic Regulatory Administration (ERA) data.
1981: U.S. Department of Energy (DOE), Office of Energy Emergency Operations, "Report on Electric Energy Exchanges with Canada and Mexico for Calendar Year 1981," April 1982 (revised June 1982).
1982 and 1983: DOE, ERA, *Electricity Exchanges Across International Borders*.
1984–1986: DOE, ERA, *Electricity Transactions Across International Borders*.
1987 and 1988: DOE, ERA, Form ERA-781R, "Annual Report of International Electrical Export/Import Data."
1989: DOE, Fossil Energy, Form FE-781R, "Annual Report of International Electrical Export/Import Data."
1990–2000: National Energy Board of Canada; and DOE, Office of Electricity Delivery and Energy Reliability, Form FE-781R, "Annual Report of International Electrical Export/Import Data."
2001–May 2011: National Energy Board of Canada; DOE, Office of Electricity Delivery and Energy Reliability, Form OE-781R, "Monthly Electricity Imports and Exports Report," and predecessor form; and California Independent System Operator.
June 2011–2016: National Energy Board of Canada; California Independent System Operator; and EIA estimates for Texas transfers.
2017: EIA, Form EIA-111, "Quarterly Electricity Imports and Exports Report" as of October 24, 2017.

### T&D Losses and Unaccounted for
1949 forward: Calculated as the sum of total net generation and imports minus end use and exports.

### End Use
1949 forward: Table 7.6.

## Table 7.2b Sources

1949–September 1977: Federal Power Commission, Form FPC-4, "Monthly Power Plant Report."
October 1977–1981: Federal Energy Regulatory Commission, Form FPC-4, "Monthly Power Plant Report."
1982–1988: U.S. Energy Information Administration (EIA), Form EIA-759, "Monthly Power Plant Report."

1989–1997: EIA, Form EIA-759, "Monthly Power Plant Report," and Form EIA-867, "Annual Nonutility Power Producer Report."
1998–2000: EIA, Form EIA-759, "Monthly Power Plant Report," and Form EIA-860B, "Annual Electric Generator Report—Nonutility."
2001–2003: EIA, Form EIA-906, "Power Plant Report."
2004–2007: EIA, Form EIA-906, "Power Plant Report," and Form EIA-920, "Combined Heat and Power Plant Report."
2008 forward: EIA, Form EIA-923, "Power Plant Operations Report" as of October 24, 2017.

## Table 7.2c Sources

**Industrial Sector, Hydroelectric Power, 1949–1988**
1949–September 1977: Federal Power Commission (FPC), Form FPC-4, "Monthly Power Plant Report," for plants with generating capacity exceeding 10 megawatts, and FPC, Form FPC-12C, "Industrial Electric Generating Capacity," for all other plants.
October 1977–1978: Federal Energy Regulatory Commission (FERC), Form FPC-4, "Monthly Power Plant Report," for plants with generating capacity exceeding 10 megawatts, and FERC, Form FPC-12C, "Industrial Electric Generating Capacity," for all other plants.
1979: FERC, Form FPC-4, "Monthly Power Plant Report," for plants with generating capacity exceeding 10 megawatts, and U.S. Energy Information Administration (EIA) estimates for all other plants.
1980–1988: Estimated by EIA as the average generation over the 6-year period of 1974–1979.

**All Data, 1989 Forward**
1989–1997: EIA, Form EIA-867, "Annual Nonutility Power Producer Report."
1998–2000: EIA, Form EIA-860B, "Annual Electric Generator Report—Nonutility."
2001–2003: EIA, Form EIA-906, "Power Plant Report."
2004–2007: EIA, Form EIA-906, "Power Plant Report," and Form EIA-920, "Combined Heat and Power Plant Report."
2008 forward: EIA, Form EIA-923, "Power Plant Operations Report" as of October 24, 2017.

## Table 7.3b Sources

1949–September 1977: Federal Power Commission, Form FPC-4, "Monthly Power Plant Report."
October 1977–1981: Federal Energy Regulatory Commission, Form FPC-4, "Monthly Power Plant Report."
1982–1988: U.S. Energy Information Administration (EIA), Form EIA-759, "Monthly Power Plant Report."
1989–1997: EIA, Form EIA-759, "Monthly Power Plant Report," and Form EIA-867, "Annual Nonutility Power Producer Report."
1998–2000: EIA, Form EIA-759, "Monthly Power Plant Report," and Form EIA-860B, "Annual Electric Generator Report—Nonutility."
2001–2003: EIA, Form EIA-906, "Power Plant Report."
2004–2007: EIA, Form EIA-906, "Power Plant Report," and Form EIA-920, "Combined Heat and Power Plant Report."
2008 forward: EIA, Form EIA-923, "Power Plant Operations Report" as of October 24, 2017.

## Table 7.4b Sources

1949–September 1977: Federal Power Commission, Form FPC-4, "Monthly Power Plant Report."
October 1977–1981: Federal Energy Regulatory Commission, Form FPC-4, "Monthly Power Plant Report."
1982–1988: U.S. Energy Information Administration (EIA), Form EIA-759, "Monthly Power Plant Report."
1989–1997: EIA, Form EIA-759, "Monthly Power Plant Report," and Form EIA-867, "Annual Nonutility Power Producer Report."
1998–2000: EIA, Form EIA-759, "Monthly Power Plant Report," and Form EIA-860B, "Annual Electric Generator Report—Nonutility."
2001–2003: EIA, Form EIA-906, "Power Plant Report."
2004–2007: EIA, Form EIA-906, "Power Plant Report," and Form EIA-920, "Combined Heat and Power Plant Report."
2008 forward: EIA, Form EIA-923, "Power Plant Operations Report" as of October 24, 2017.

## Table 7.6 Sources

**Retail Sales, Residential and Industrial**
1949–September 1977: Federal Power Commission, Form FPC-5, "Monthly Statement of Electric Operating Revenue and Income."
October 1977–February 1980: Federal Energy Regulatory Commission (FERC), Form FPC-5, "Monthly Statement of Electric Operating Revenue and Income."
March 1980–1982: FERC, Form FPC-5, "Electric Utility Company Monthly Statement."
1983: U.S. Energy Information Administration (EIA), Form EIA-826, "Electric Utility Company Monthly Statement."
1984–2003: EIA, Form EIA-861, "Annual Electric Utility Report."
2004 forward: EIA, *Electric Power Monthly* (*EPM*), October 2017, Table 5.1.

**Retail Sales, Commercial**
1949–2002: Data are estimates. See estimation methodology at http://www.eia.gov/state/seds/sep_use/notes/use_elec.pdf.
2003: EIA, Form EIA-861, "Annual Electric Utility Report."
2004 forward: EIA, EPM, October 2017, Table 5.1.

**Retail Sales, Transportation**
1949–2002: Data are estimates. See estimation methodology at http://www.eia.gov/state/seds/sep_use/notes/use_elec.pdf.
2003: EIA, Form EIA-861, "Annual Electric Utility Report."
2004 forward: EIA, EPM, October 2017, Table 5.1.

**Direct Use, Annual**

1989–1997: EIA, Form EIA-867, "Annual Nonutility Power Producer Report."

1998–2000: EIA, Form EIA-860B, "Annual Electric Generator Report—Nonutility."

2001–2015: EIA, *Electric Power Annual 2015*, November 2016, Table 2.2.

2016: Sum of monthly estimates.

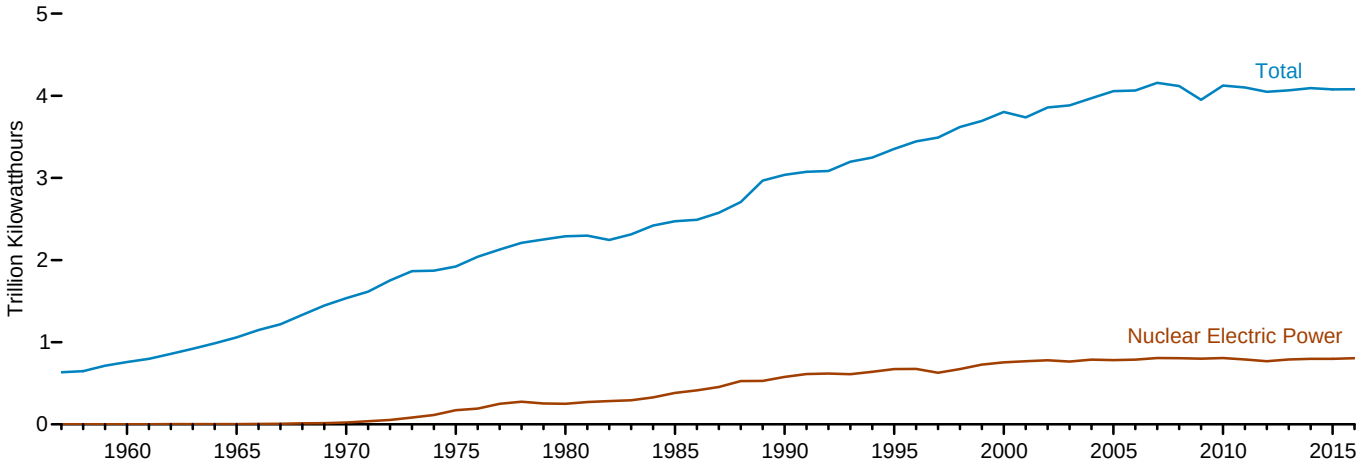
**Direct Use, Monthly**

1989 forward: Annual shares are calculated as annual direct use divided by annual commercial and industrial net generation (on Table 7.1). Then monthly direct use estimates are calculated as the annual share multiplied by the monthly commercial and industrial net generation values. For 2016 and 2017, the 2015 annual share is used.

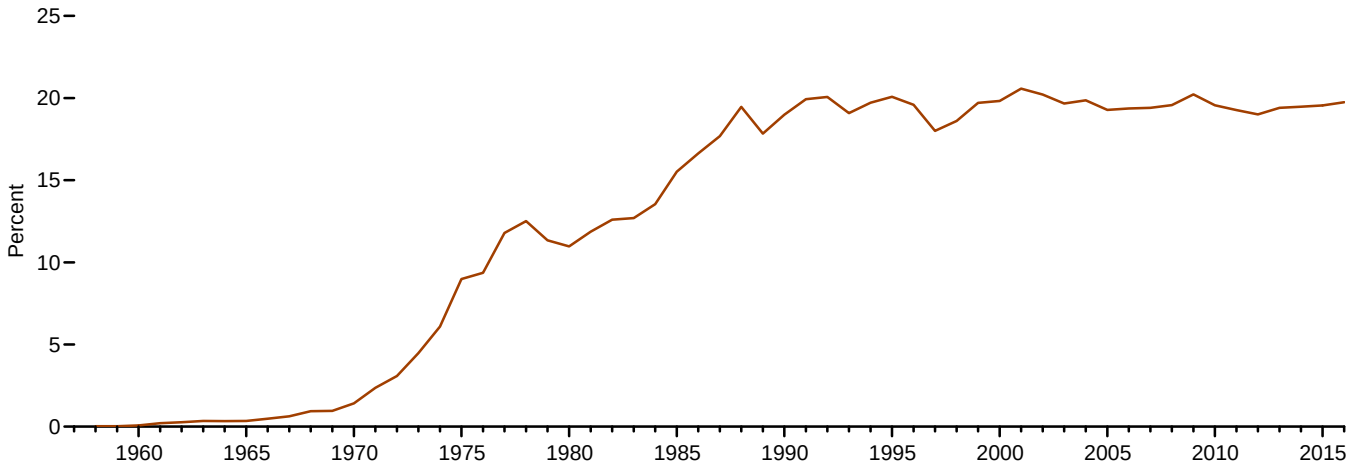
# 8. Nuclear Energy

## Figure 8.1 Nuclear Energy Overview

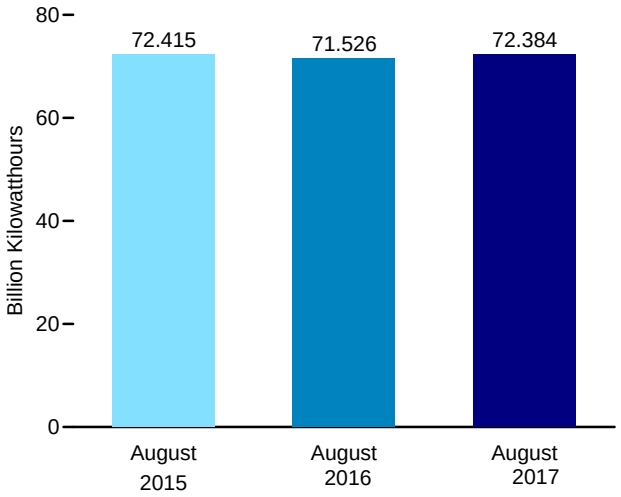
Electricity Net Generation, 1957–2016



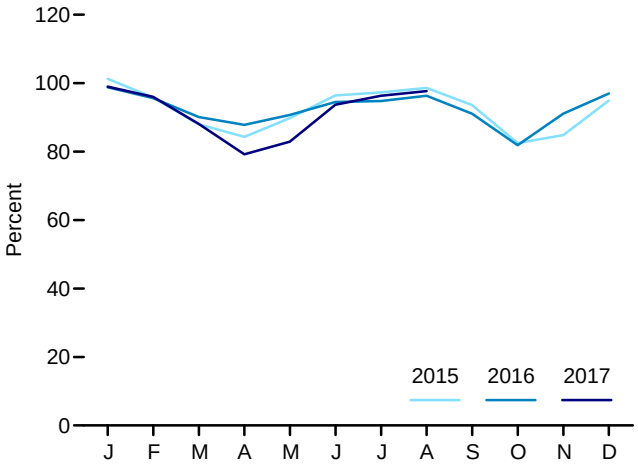

Nuclear Share of Electricity Net Generation, 1957–2016




Nuclear Electricity Net Generation




Capacity Factor, Monthly




Web Page: http://www.eia.gov/totalenergy/data/monthly/#nuclear.
Sources: Tables 7.2a and 8.1.

## Table 8.1 Nuclear Energy Overview

| | Total Operable Units[a,b] | Net Summer Capacity of Operable Units[b,c] | Nuclear Electricity Net Generation | Nuclear Share of Electricity Net Generation | Capacity Factor[d] |
|---|---|---|---|---|---|
| | Number | Million Kilowatts | Million Kilowatthours | Percent | |
| **1957 Total** | **1** | **0.055** | **10** | **(s)** | **NA** |
| **1960 Total** | **3** | **.411** | **518** | **.1** | **NA** |
| **1965 Total** | **13** | **.793** | **3,657** | **.3** | **NA** |
| **1970 Total** | **20** | **7.004** | **21,804** | **1.4** | **NA** |
| **1975 Total** | **57** | **37.267** | **172,505** | **9.0** | **55.9** |
| **1980 Total** | **71** | **51.810** | **251,116** | **11.0** | **56.3** |
| **1985 Total** | **96** | **79.397** | **383,691** | **15.5** | **58.0** |
| **1990 Total** | **112** | **99.624** | **576,862** | **19.0** | **66.0** |
| **1995 Total** | **109** | **99.515** | **673,402** | **20.1** | **77.4** |
| **2000 Total** | **104** | **97.860** | **753,893** | **19.8** | **88.1** |
| **2001 Total** | **104** | **98.159** | **768,826** | **20.6** | **89.4** |
| **2002 Total** | **104** | **98.657** | **780,064** | **20.2** | **90.3** |
| **2003 Total** | **104** | **99.209** | **763,733** | **19.7** | **87.9** |
| **2004 Total** | **104** | **99.628** | **788,528** | **19.9** | **90.1** |
| **2005 Total** | **104** | **99.988** | **781,986** | **19.3** | **89.3** |
| **2006 Total** | **104** | **100.334** | **787,219** | **19.4** | **89.6** |
| **2007 Total** | **104** | **100.266** | **806,425** | **19.4** | **91.8** |
| **2008 Total** | **104** | **100.755** | **806,208** | **19.6** | **[d] 91.1** |
| **2009 Total** | **104** | **101.004** | **798,855** | **20.2** | **90.3** |
| **2010 Total** | **104** | **101.167** | **806,968** | **19.6** | **91.1** |
| **2011 Total** | **104** | **[c] 101.419** | **790,204** | **19.3** | **89.1** |
| **2012 Total** | **104** | **101.885** | **769,331** | **19.0** | **86.1** |
| **2013 Total** | **100** | **99.240** | **789,016** | **19.4** | **89.9** |
| **2014 Total** | **99** | **98.569** | **797,166** | **19.5** | **91.7** |
| **2015** January | 99 | 98.533 | 74,270 | 20.6 | 101.3 |
| February | 99 | 98.533 | 63,461 | 19.0 | 95.8 |
| March | 99 | 98.533 | 64,547 | 19.9 | 88.0 |
| April | 99 | 98.533 | 59,784 | 20.3 | 84.3 |
| May | 99 | 98.533 | 65,827 | 20.4 | 89.8 |
| June | 99 | 98.672 | 68,516 | 18.9 | 96.4 |
| July | 99 | 98.672 | 71,412 | 17.8 | 97.3 |
| August | 99 | 98.672 | 72,415 | 18.5 | 98.6 |
| September | 99 | 98.672 | 66,476 | 19.0 | 93.6 |
| October | 99 | 98.672 | 60,571 | 19.4 | 82.5 |
| November | 99 | 98.672 | 60,264 | 20.0 | 84.8 |
| December | 99 | 98.672 | 69,634 | 21.5 | 94.9 |
| **Total** | **99** | **98.672** | **797,178** | **19.6** | **92.3** |
| **2016** January | 99 | [E] 98.672 | 72,525 | 20.6 | [E] 98.8 |
| February | 99 | [E] 98.672 | 65,638 | 20.9 | [E] 95.6 |
| March | 99 | [E] 98.672 | 66,149 | 21.7 | [E] 90.1 |
| April | 99 | [E] 98.672 | 62,365 | 21.3 | [E] 87.8 |
| May | 99 | [E] 98.672 | 66,576 | 21.0 | [E] 90.7 |
| June | 99 | [E] 99.794 | 67,175 | 18.2 | [E] 94.5 |
| July | 100 | [E] 99.794 | 70,349 | 17.1 | [E] 94.8 |
| August | 100 | [E] 99.794 | 71,526 | 17.4 | [E] 96.3 |
| September | 100 | [E] 99.794 | 65,448 | 18.6 | [E] 91.1 |
| October | 99 | [E] 99.316 | 60,733 | 19.4 | [E] 81.9 |
| November | 99 | [E] 99.316 | 65,179 | 21.9 | [E] 91.1 |
| December | 99 | [E] 99.316 | 71,662 | 20.8 | [E] 97.0 |
| **Total** | **99** | **[E] 99.316** | **805,327** | **19.7** | **[E] 92.5** |
| **2017** January | 99 | [E] 99.316 | 73,121 | 21.4 | [E] 99.0 |
| February | 99 | [E] 99.328 | 64,053 | 22.2 | [E] 96.0 |
| March | 99 | [E] 99.331 | 65,093 | 20.5 | [E] 88.1 |
| April | 99 | [E] 99.467 | 56,743 | 19.3 | [E] 79.2 |
| May | 99 | [E] 99.455 | 61,309 | 19.1 | [E] 82.9 |
| June | 99 | [E] 99.370 | 67,011 | 18.8 | [E] 93.7 |
| July | 99 | [E] 99.491 | 71,314 | 17.8 | [E] 96.3 |
| August | 99 | [E] 99.582 | 72,384 | 19.0 | [E] 97.7 |
| **8-Month Total** | **99** | **[E] 99.582** | **531,029** | **19.7** | **[E] 91.6** |
| **2016 8-Month Total** | **100** | **[E] 99.794** | **542,304** | **19.6** | **[E] 93.6** |
| **2015 8-Month Total** | **99** | **98.672** | **540,233** | **19.4** | **94.0** |

[a] Total of nuclear generating units holding full-power licenses, or equivalent permission to operate, at end of period. See Note 1, "Operable Nuclear Reactors," at end of section.

[b] At end of period.

[c] For the definition of "Net Summer Capacity," see Note 2, "Nuclear Capacity," at end of section. Beginning in 2011, monthly capacity values are estimated in two steps: 1) uprates and derates reported on Form EIA-860M are added to specific months; and 2) the difference between the resulting year-end capacity (from data reported on Form EIA-860M) and final capacity (reported on Form EIA-860) is allocated to the month of January.

[d] Beginning in 2008, capacity factor data are calculated using a new methodology. For an explanation of the method of calculating the capacity factor, see Note 2, "Nuclear Capacity," at end of section.

E=Estimate. NA=Not available. (s)=Less than 0.05%.

Notes: • For a discussion of nuclear reactor unit coverage, see Note 1, "Operable Nuclear Reactors," at end of section. • Nuclear electricity net generation totals may not equal sum of components due to independent rounding. • Geographic coverage is the 50 states and the District of Columbia.

Web Page: See http://www.eia.gov/totalenergy/data/monthly/#nuclear (Excel and CSV files) for all available annual data beginning in 1957 and monthly data beginning in 1973.

Sources: See end of section.

# Nuclear Energy

**Note 1. Operable Nuclear Reactors.** A reactor is defined as operable when it possesses a full-power license from the Nuclear Regulatory Commission or its predecessor, the Atomic Energy Commission, or equivalent permission to operate, at the end of the year or month shown. The definition includes units retaining full-power licenses during long, non-routine shutdowns that for a time rendered them unable to generate electricity.

| Year | Retirements | Openings and Restarts |
|---|---|---|
| **2007** | | Browns Ferry 1[a] (AL) |
| **2008** | | |
| **2009** | | |
| **2010** | | |
| **2011** | | |
| **2012** | | |
| **2013** | Kewaunee (WI); San Onofre 2 and 3 (CA); Crystal River 3[b] (FL) | |
| **2014** | Vermont Yankee (VT) | |
| **2015** | | |
| **2016** | Fort Calhoun (NE) | Watts Bar 2 (TN) |

[a] Restarted after long-term shutdown from 1986 to 2006, but counted as operable for those years.

[b] Official 2013 retirement for reactor closed in 2009.

Note: "Opening" refers to the plant's commercial operations date.

Source: International Atomic Energy Agency, Power Reactor Information System database. See https://www.iaea.org/PRIS/CountryStatistics/CountryDetails.aspx?current=US.

**Note 2. Nuclear Capacity.** Nuclear generating units may have more than one type of net capacity rating, including the following:

(a) Net Summer Capacity—The steady hourly output that generating equipment is expected to supply to system load, exclusive of auxiliary power, as demonstrated by test at the time of summer peak demand. Auxiliary power of a typical nuclear power plant is about 5% of gross generation.

(b) Net Design Capacity or Net Design Electrical Rating (DER)—The nominal net electrical output of a unit, specified by the utility and used for plant design.

Through 2007, the monthly capacity factors are calculated as the monthly nuclear electricity net generation divided by the maximum possible nuclear electricity net generation for that month. The maximum possible nuclear electricity net generation is the number of hours in the month (assuming 24-hour days, with no adjustment for changes to or from Daylight Savings Time) multiplied by the net summer capacity of operable nuclear generating units at the end of the month. That fraction is then multiplied by 100 to obtain a percentage. Annual capacity factors are calculated as the annual nuclear electricity net generation divided by the annual maximum possible nuclear electricity net generation (the sum of the monthly values for maximum possible nuclear electricity net generation). For the methodology used to calculate capacity factors beginning in 2008, see U.S. Energy Information Administration, *Electric Power Monthly*, Appendix C notes on "Average Capacity Factors."

## Table 8.1 Sources

**Total Operable Units** and **Net Summer Capacity of Operable Units**
1957–1982: Compiled from various sources, primarily U.S. Department of Energy, Office of Nuclear Reactor Programs, "U.S. Central Station Nuclear Electric Generating Units: Significant Milestones."
1983 forward: U.S. Energy Information Administration (EIA), Form EIA-860, "Annual Electric Generator Report," and predecessor forms; Form EIA-860M, "Monthly Update to the Annual Electric Generator Report"; and monthly updates as appropriate. See https://www.eia.gov/nuclear/generation/index.html for a list of operable units.

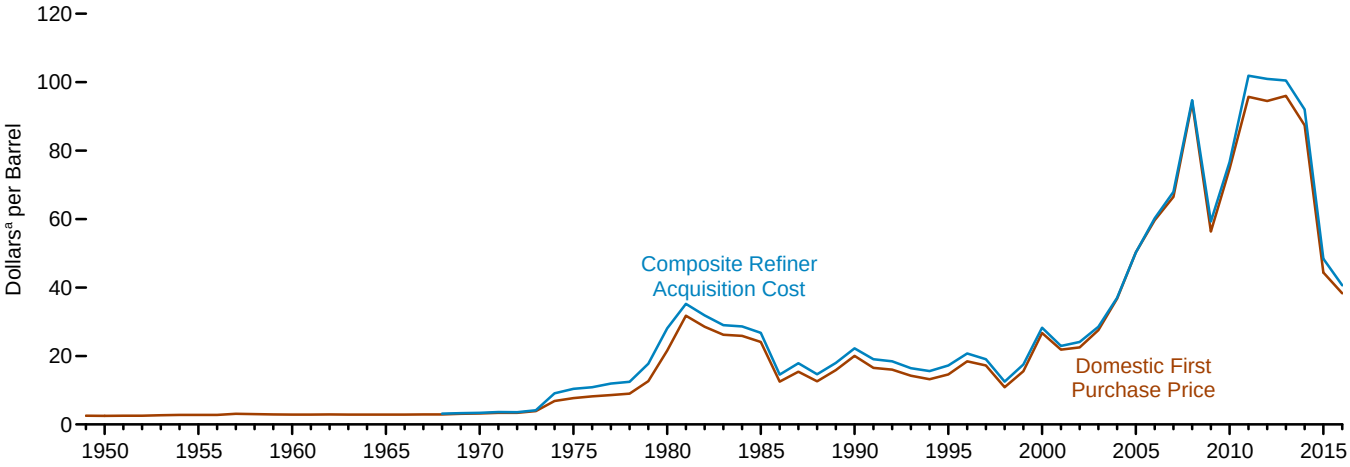
**Nuclear Electricity Net Generation** and **Nuclear Share of Electricity Net Generation**
1957 forward: Table 7.2a.

**Capacity Factor**
1973–2007: Calculated by EIA using the method described above in Note 2.
2008 forward: EIA, Form EIA-860, "Annual Electric Generator Report"; Form EIA-860M, "Monthly Update to the Annual Electric Generator Report"; and Form EIA-923, "Power Plant Operations Report."

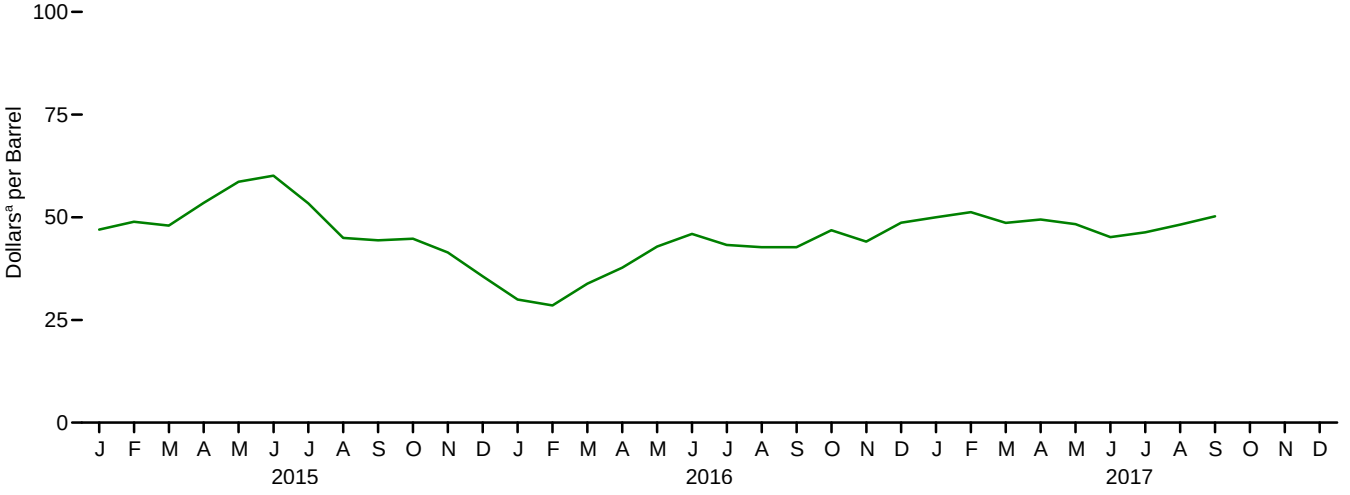
# 9. Energy Prices

## Figure 9.1 Petroleum Prices

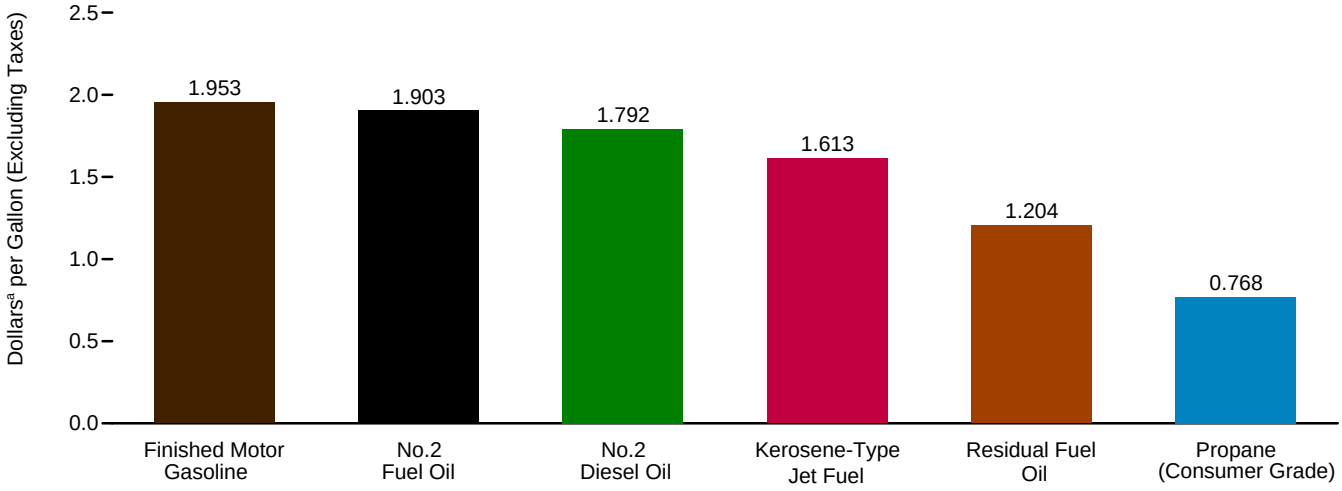
Crude Oil Prices, 1949–2016




Composite Refiner Acquisition Cost, Monthly




Refiner Prices to End Users: Selected Products, August 2017




[a] Prices are not adjusted for inflation. See "Nominal Dollars" in Glossary.

Web Page: http://www.eia.gov/totalenergy/data/monthly/#prices.
Sources: Tables 9.1, 9.5, and 9.7.

## Table 9.1 Crude Oil Price Summary

(Dollars[a] per Barrel)

| | Domestic First Purchase Price[c] | F.O.B. Cost of Imports[d] | Landed Cost of Imports[e] | Refiner Acquisition Cost[b] | | |
|---|---|---|---|---|---|---|
| | | | | Domestic | Imported | Composite |
| **1950 Average** | **2.51** | **NA** | **NA** | **NA** | **NA** | **NA** |
| **1955 Average** | **2.77** | **NA** | **NA** | **NA** | **NA** | **NA** |
| **1960 Average** | **2.88** | **NA** | **NA** | **NA** | **NA** | **NA** |
| **1965 Average** | **2.86** | **NA** | **NA** | **NA** | **NA** | **NA** |
| **1970 Average** | **3.18** | **NA** | **NA** | E **3.46** | E **2.96** | E **3.40** |
| **1975 Average** | **7.67** | **11.18** | **12.70** | **8.39** | **13.93** | **10.38** |
| **1980 Average** | **21.59** | **32.37** | **33.67** | **24.23** | **33.89** | **28.07** |
| **1985 Average** | **24.09** | **25.84** | **26.67** | **26.66** | **26.99** | **26.75** |
| **1990 Average** | **20.03** | **20.37** | **21.13** | **22.59** | **21.76** | **22.22** |
| **1995 Average** | **14.62** | **15.69** | **16.78** | **17.33** | **17.14** | **17.23** |
| **2000 Average** | **26.72** | **26.27** | **27.53** | **29.11** | **27.70** | **28.26** |
| **2001 Average** | **21.84** | **20.46** | **21.82** | **24.33** | **22.00** | **22.95** |
| **2002 Average** | **22.51** | **22.63** | **23.91** | **24.65** | **23.71** | **24.10** |
| **2003 Average** | **27.56** | **25.86** | **27.69** | **29.82** | **27.71** | **28.53** |
| **2004 Average** | **36.77** | **33.75** | **36.07** | **38.97** | **35.90** | **36.98** |
| **2005 Average** | **50.28** | **47.60** | **49.29** | **52.94** | **48.86** | **50.24** |
| **2006 Average** | **59.69** | **57.03** | **59.11** | **62.62** | **59.02** | **60.24** |
| **2007 Average** | **66.52** | **66.36** | **67.97** | **69.65** | **67.04** | **67.94** |
| **2008 Average** | **94.04** | **90.32** | **93.33** | **98.47** | **92.77** | **94.74** |
| **2009 Average** | **56.35** | **57.78** | **60.23** | **59.49** | **59.17** | **59.29** |
| **2010 Average** | **74.71** | **74.19** | **76.50** | **78.01** | **75.86** | **76.69** |
| **2011 Average** | **95.73** | **101.66** | **102.92** | **100.71** | **102.63** | **101.87** |
| **2012 Average** | **94.52** | **99.78** | **101.00** | **100.72** | **101.09** | **100.93** |
| **2013 Average** | **95.99** | **96.56** | **96.99** | **102.91** | **98.11** | **100.49** |
| **2014 Average** | **87.39** | **85.65** | **88.16** | **94.05** | **89.56** | **92.02** |
| **2015** January | 43.06 | 40.16 | 44.42 | 48.90 | 44.74 | 47.00 |
| February | 44.35 | 43.94 | 47.32 | 50.23 | 47.18 | 48.92 |
| March | 42.66 | 43.64 | 47.25 | 48.60 | 47.22 | 47.99 |
| April | 49.30 | 48.42 | 52.00 | 54.86 | 51.62 | 53.51 |
| May | 54.38 | 54.05 | 57.17 | 59.48 | 57.51 | 58.65 |
| June | 55.88 | 53.83 | 56.73 | 61.06 | 58.89 | 60.12 |
| July | 47.70 | 45.88 | 49.79 | 54.15 | 52.42 | 53.40 |
| August | 39.98 | 37.17 | 41.39 | 46.30 | 43.23 | 44.97 |
| September | 41.60 | 36.90 | 40.02 | 46.68 | 41.12 | 44.38 |
| October | 42.34 | 37.21 | 40.38 | 47.02 | 42.03 | 44.77 |
| November | 38.19 | 33.56 | 37.13 | 43.30 | 39.05 | 41.43 |
| December | 32.26 | 28.23 | 31.56 | 37.76 | 33.16 | 35.63 |
| **Average** | **44.39** | **41.91** | **45.38** | **49.94** | **46.38** | **48.39** |
| **2016** January | 27.02 | 23.67 | 27.36 | 32.17 | 27.48 | 29.99 |
| February | 25.52 | 24.68 | 27.04 | 30.28 | 26.66 | 28.53 |
| March | 31.87 | 29.74 | 32.06 | 35.29 | 32.24 | 33.82 |
| April | 35.59 | 32.73 | 35.43 | 39.30 | 35.90 | 37.71 |
| May | 41.02 | 38.31 | 40.73 | 44.77 | 40.88 | 42.88 |
| June | 43.96 | 41.92 | 43.55 | 47.57 | 44.13 | 45.96 |
| July | 40.71 | 38.76 | 41.05 | 44.88 | 41.48 | 43.26 |
| August | 40.46 | 38.26 | 40.40 | 44.18 | 41.21 | 42.70 |
| September | 40.55 | 38.28 | 40.81 | 44.47 | 40.86 | 42.73 |
| October | 45.00 | 42.36 | 43.97 | 48.66 | 44.76 | 46.85 |
| November | 41.65 | 40.12 | 42.59 | 46.10 | 41.80 | 44.06 |
| December | 47.12 | 44.52 | 46.74 | 50.45 | 46.72 | 48.66 |
| **Average** | **38.29** | **36.37** | **38.56** | **42.41** | **38.75** | **40.66** |
| **2017** January | 48.19 | 44.63 | 47.05 | 51.81 | 48.12 | 49.99 |
| February | 49.41 | 45.88 | 48.10 | 53.15 | 49.38 | 51.24 |
| March | 46.39 | 44.08 | 46.22 | 50.60 | 46.53 | 48.65 |
| April | 47.23 | 43.58 | 46.00 | 51.34 | 47.47 | 49.47 |
| May | 45.19 | 43.74 | 46.13 | 49.58 | 46.94 | 48.34 |
| June | 42.19 | R 41.35 | R 43.82 | 46.17 | 43.93 | 45.17 |
| July | R 43.42 | R 42.04 | R 44.65 | R 47.44 | R 45.02 | R 46.32 |
| August | R 44.96 | R 44.57 | R 46.30 | R 48.71 | R 47.61 | R 48.19 |
| September | NA | NA | NA | E 50.48 | E 49.90 | E 50.23 |

[a] Prices are not adjusted for inflation. See "Nominal Dollars" in Glossary.
[b] See Note 1, "Crude Oil Refinery Acquisition Costs," at end of section.
[c] See Note 2, "Crude Oil Domestic First Purchase Prices," at end of section.
[d] See Note 3, "Crude Oil F.O.B. Costs," at end of section.
[e] See Note 4, "Crude Oil Landed Costs," at end of section.
R=Revised. NA=Not available. E=Estimate.

Notes: • Domestic first purchase prices and refinery acquisition costs for the current two months are preliminary. F.O.B. and landed costs for the current three months are preliminary. • Through 1980, F.O.B. and landed costs reflect the period of reporting; beginning in 1981, they reflect the period of loading. • Annual averages are the averages of the monthly prices, weighted by volume. • Geographic coverage is the 50 states, the District of Columbia, Puerto Rico, the Virgin Islands, and all U.S. Territories and Possessions.

Web Page: See http://www.eia.gov/totalenergy/data/monthly/#prices (Excel and CSV files) for all available annual data beginning in 1949 and monthly data beginning in 1973.

Sources: See end of section.

## Table 9.2 F.O.B. Costs of Crude Oil Imports From Selected Countries

(Dollars[a] per Barrel)

| | Selected Countries | | | | | | | Persian Gulf Nations[b] | Total OPEC[c] | Total Non-OPEC[c] |
|---|---|---|---|---|---|---|---|---|---|---|
| | Angola | Colombia | Mexico | Nigeria | Saudi Arabia | United Kingdom | Venezuela | | | |
| **1973 Average**[d] | **W** | **W** | **–** | **7.81** | **3.25** | **–** | **5.39** | **3.68** | **5.43** | **4.80** |
| **1975 Average** | **10.97** | **–** | **11.44** | **11.82** | **10.87** | **–** | **11.04** | **10.88** | **11.34** | **10.62** |
| **1980 Average** | **33.45** | **W** | **31.06** | **35.93** | **28.17** | **34.36** | **24.81** | **28.92** | **32.21** | **32.85** |
| **1985 Average** | **26.30** | **–** | **25.33** | **28.04** | **22.04** | **27.64** | **23.64** | **23.31** | **25.67** | **25.96** |
| **1990 Average** | **20.23** | **20.75** | **19.26** | **22.46** | **20.36** | **23.43** | **19.55** | **18.54** | **20.40** | **20.32** |
| **1995 Average** | **16.58** | **16.73** | **15.64** | **17.40** | **W** | **16.94** | **13.86** | **W** | **15.36** | **16.02** |
| **2000 Average** | **27.90** | **29.04** | **25.39** | **28.70** | **24.62** | **27.21** | **24.45** | **24.72** | **25.56** | **26.77** |
| **2001 Average** | **23.25** | **24.25** | **18.89** | **24.85** | **18.98** | **23.30** | **18.01** | **18.89** | **19.73** | **21.04** |
| **2002 Average** | **24.09** | **24.64** | **21.60** | **25.38** | **23.92** | **24.50** | **20.13** | **23.38** | **22.18** | **22.93** |
| **2003 Average** | **28.22** | **28.89** | **24.83** | **29.40** | **25.03** | **28.76** | **23.81** | **25.17** | **25.36** | **26.21** |
| **2004 Average** | **37.26** | **37.73** | **31.55** | **38.71** | **34.08** | **37.30** | **31.78** | **33.08** | **33.95** | **33.58** |
| **2005 Average** | **52.48** | **51.89** | **43.00** | **55.95** | **47.96** | **54.48** | **46.39** | **47.21** | **49.60** | **45.79** |
| **2006 Average** | **62.23** | **59.77** | **52.91** | **65.69** | **56.09** | **66.03** | **55.80** | **56.02** | **59.18** | **55.35** |
| **2007 Average** | **67.80** | **67.93** | **61.35** | **76.64** | **W** | **69.96** | **64.10** | **69.93** | **69.58** | **62.69** |
| **2008 Average** | **95.66** | **91.17** | **84.61** | **102.06** | **93.03** | **96.33** | **88.06** | **91.44** | **93.15** | **87.15** |
| **2009 Average** | **57.07** | **57.90** | **56.47** | **64.61** | **57.87** | **65.63** | **55.58** | **59.53** | **58.53** | **57.16** |
| **2010 Average** | **78.18** | **72.56** | **72.46** | **80.83** | **76.44** | **W** | **70.30** | **75.65** | **75.23** | **73.24** |
| **2011 Average** | **111.82** | **100.21** | **100.90** | **115.35** | **107.08** | **–** | **97.23** | **106.47** | **105.34** | **98.49** |
| **2012 Average** | **111.23** | **106.43** | **101.84** | **114.51** | **106.65** | **–** | **100.15** | **105.45** | **104.39** | **95.71** |
| **2013 Average** | **107.71** | **101.24** | **98.40** | **110.06** | **101.16** | **W** | **97.52** | **100.62** | **100.57** | **93.67** |
| **2014 Average** | **W** | **80.75** | **86.55** | **W** | **95.60** | **–** | **84.51** | **94.03** | **89.76** | **82.95** |
| **2015** January | – | 42.49 | 41.19 | – | 48.14 | – | 37.99 | 52.21 | 42.64 | 38.89 |
| February | W | 50.79 | 48.12 | W | 47.92 | – | 45.85 | 47.70 | 47.31 | 42.43 |
| March | W | 47.25 | 46.89 | – | 50.64 | – | 43.51 | 49.75 | 45.54 | 42.63 |
| April | W | 54.95 | 50.49 | – | 58.95 | – | 49.03 | 53.33 | 50.55 | 47.41 |
| May | W | 56.30 | 56.80 | – | 61.80 | – | 51.99 | 59.55 | 54.95 | 53.59 |
| June | W | 56.42 | 56.78 | – | 58.31 | – | 50.34 | 58.57 | 54.06 | 53.70 |
| July | W | 46.62 | 50.71 | – | W | – | 44.44 | 50.42 | 46.61 | 45.55 |
| August | W | 42.35 | 40.40 | – | 43.38 | – | 35.47 | 43.01 | 38.21 | 36.62 |
| September | W | W | 40.50 | – | 44.50 | – | 36.23 | 43.87 | 39.81 | 35.06 |
| October | W | 41.56 | 40.18 | – | 42.51 | – | 37.77 | 40.68 | 39.33 | 36.02 |
| November | – | W | 36.16 | – | 39.87 | – | 31.68 | 38.17 | 33.98 | 33.30 |
| December | W | 28.98 | 30.12 | W | 34.75 | – | 24.91 | 33.79 | 29.35 | 27.57 |
| **Average** | **W** | **47.52** | **44.90** | **W** | **47.53** | **–** | **40.73** | **46.95** | **43.25** | **41.19** |
| **2016** January | W | W | 24.12 | W | 26.24 | – | 20.73 | 25.73 | 25.05 | 22.66 |
| February | W | 24.91 | 24.50 | 37.83 | 27.46 | – | 22.57 | 26.58 | 27.01 | 23.35 |
| March | 35.33 | 30.47 | 29.01 | W | 34.14 | – | 27.31 | 32.32 | 31.37 | 28.35 |
| April | W | 33.57 | 30.79 | W | 37.13 | – | 29.07 | 35.67 | 34.08 | 31.92 |
| May | W | 39.00 | 39.04 | W | 42.44 | W | 36.65 | 40.55 | 40.51 | 37.04 |
| June | 49.56 | 41.64 | 42.27 | 48.79 | 45.16 | – | 39.33 | 43.77 | 43.73 | 40.22 |
| July | 45.00 | 36.91 | 39.99 | W | 42.11 | – | 35.69 | 40.91 | 39.61 | 38.09 |
| August | W | 36.80 | 38.73 | W | 42.48 | – | 37.56 | 40.44 | 40.44 | 36.78 |
| September | W | 40.36 | 38.44 | W | 42.31 | – | 36.95 | 40.37 | 40.01 | 37.18 |
| October | W | 40.59 | 42.91 | W | 47.10 | – | 40.38 | 45.17 | 44.66 | 40.37 |
| November | W | 39.80 | 39.55 | W | 42.50 | W | 38.39 | 41.40 | 42.31 | 38.33 |
| December | W | 45.27 | 45.34 | W | 48.79 | W | 44.75 | 47.95 | 47.44 | 42.34 |
| **Average** | **42.68** | **35.28** | **36.22** | **46.20** | **39.30** | **W** | **34.71** | **38.76** | **38.51** | **34.81** |
| **2017** January | – | 47.92 | 45.50 | W | W | – | 45.94 | 47.61 | 47.30 | 43.27 |
| February | W | 46.97 | 45.91 | W | 51.21 | – | 45.69 | 50.06 | 49.11 | 43.63 |
| March | W | 46.05 | 42.10 | W | 48.54 | – | 42.47 | 47.83 | 46.85 | 41.73 |
| April | W | 46.76 | 44.32 | W | 50.00 | W | 43.59 | 48.93 | 47.09 | 41.47 |
| May | W | 44.70 | 44.85 | W | 47.95 | – | 41.08 | 47.14 | 45.58 | 42.66 |
| June | W | 41.30 | 41.86 | 48.88 | R 45.41 | – | 39.16 | R 44.41 | R 43.52 | 40.28 |
| July | W | R 44.44 | R 44.33 | R 50.26 | 46.73 | – | R 41.72 | 45.79 | R 45.34 | R 40.37 |
| August | W | 47.16 | 46.15 | 51.45 | 48.75 | – | 45.25 | 47.40 | 47.89 | 42.18 |

[a] Prices are not adjusted for inflation. See "Nominal Dollars" in Glossary.

[b] Bahrain, Iran, Iraq, Kuwait, Qatar, Saudi Arabia, United Arab Emirates, and the Neutral Zone (between Kuwait and Saudi Arabia).

[c] See "Organization of the Petroleum Exporting Countries (OPEC)" in Glossary for exact years of each country's membership. On this table, "Total OPEC" for all years includes Algeria, Iran, Iraq, Kuwait, Libya, Nigeria, Qatar, Saudi Arabia, United Arab Emirates, and Venezuela; Angola is included in "Total OPEC" 2007 forward; Gabon is included in "Total OPEC" 1974–1995 and July 2016 forward; Ecuador is included in "Total OPEC" 1973–1992 and 2008 forward; Indonesia is included in "Total OPEC" 1973–2008 and 2016.

[d] Based on October, November, and December data only.

R=Revised. – =No data reported. W=Value withheld to avoid disclosure of individual company data.

Notes: • The Free on Board (F.O.B.) cost at the country of origin excludes all costs related to insurance and transportation. See "F.O.B. (Free on Board)" in Glossary, and Note 3, "Crude Oil F.O.B. Costs," at end of section. • Values for the current two months are preliminary. • Through 1980, prices reflect the period of reporting; beginning in 1981, prices reflect the period of loading. • Annual averages are averages of the monthly prices, including prices not published, weighted by volume. • Cargoes that are purchased on a "netback" basis, or under similar contractual arrangements whereby the actual purchase price is not established at the time the crude oil is acquired for importation into the United States, are not included in the published data until the actual prices have been determined and reported. • U.S. geographic coverage is the 50 states and the District of Columbia.

Web Page: See http://www.eia.gov/totalenergy/data/monthly/#prices (Excel and CSV files) for all available annual and monthly data beginning in 1973.

Sources: See end of section.

## Table 9.3 Landed Costs of Crude Oil Imports From Selected Countries

(Dollars[a] per Barrel)

| | Selected Countries | | | | | | | | Persian Gulf Nations[b] | Total OPEC[c] | Total Non-OPEC[c] |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Angola | Canada | Colombia | Mexico | Nigeria | Saudi Arabia | United Kingdom | Venezuela | | | |
| **1973 Average**[d] | **W** | **5.33** | **W** | **–** | **9.08** | **5.37** | **–** | **5.99** | **5.91** | **6.85** | **5.64** |
| **1975 Average** | **11.81** | **12.84** | **–** | **12.61** | **12.70** | **12.50** | **–** | **12.36** | **12.64** | **12.70** | **12.70** |
| **1980 Average** | **34.76** | **30.11** | **W** | **31.77** | **37.15** | **29.80** | **35.68** | **25.92** | **30.59** | **33.56** | **33.99** |
| **1985 Average** | **27.39** | **25.71** | **–** | **25.63** | **28.96** | **24.72** | **28.36** | **24.43** | **25.50** | **26.86** | **26.53** |
| **1990 Average** | **21.51** | **20.48** | **22.34** | **19.64** | **23.33** | **21.82** | **22.65** | **20.31** | **20.55** | **21.23** | **20.98** |
| **1995 Average** | **17.66** | **16.65** | **17.45** | **16.19** | **18.25** | **16.84** | **17.91** | **14.81** | **16.78** | **16.61** | **16.95** |
| **2000 Average** | **29.57** | **26.69** | **29.68** | **26.03** | **30.04** | **26.58** | **29.26** | **26.05** | **26.77** | **27.29** | **27.80** |
| **2001 Average** | **25.13** | **20.72** | **25.88** | **19.37** | **26.55** | **20.98** | **25.32** | **19.81** | **20.73** | **21.52** | **22.17** |
| **2002 Average** | **25.43** | **22.98** | **25.28** | **22.09** | **26.45** | **24.77** | **26.35** | **21.93** | **24.13** | **23.83** | **23.97** |
| **2003 Average** | **30.14** | **26.76** | **30.55** | **25.48** | **31.07** | **27.50** | **30.62** | **25.70** | **27.54** | **27.70** | **27.68** |
| **2004 Average** | **39.62** | **34.51** | **39.03** | **32.25** | **40.95** | **37.11** | **39.28** | **33.79** | **36.53** | **36.84** | **35.29** |
| **2005 Average** | **54.31** | **44.73** | **53.42** | **43.47** | **57.55** | **50.31** | **55.28** | **47.87** | **49.68** | **51.36** | **47.31** |
| **2006 Average** | **64.85** | **53.90** | **62.13** | **53.76** | **68.26** | **59.19** | **67.44** | **57.37** | **58.92** | **61.21** | **57.14** |
| **2007 Average** | **71.27** | **60.38** | **70.91** | **62.31** | **78.01** | **70.78** | **72.47** | **66.13** | **69.83** | **71.14** | **63.96** |
| **2008 Average** | **98.18** | **90.00** | **93.43** | **85.97** | **104.83** | **94.75** | **96.95** | **90.76** | **93.59** | **95.49** | **90.59** |
| **2009 Average** | **61.32** | **57.60** | **58.50** | **57.35** | **68.01** | **62.14** | **63.87** | **57.78** | **62.15** | **61.90** | **58.58** |
| **2010 Average** | **80.61** | **72.80** | **74.25** | **72.86** | **83.14** | **79.29** | **80.29** | **72.43** | **78.60** | **78.28** | **74.68** |
| **2011 Average** | **114.05** | **89.92** | **102.57** | **101.21** | **116.43** | **108.83** | **118.45** | **100.14** | **108.01** | **107.84** | **98.64** |
| **2012 Average** | **114.95** | **84.24** | **107.07** | **102.45** | **116.88** | **108.15** | **W** | **101.58** | **107.74** | **107.56** | **95.05** |
| **2013 Average** | **110.81** | **84.41** | **103.00** | **99.06** | **112.87** | **102.60** | **111.23** | **99.34** | **102.53** | **102.98** | **91.99** |
| **2014 Average** | **99.25** | **81.30** | **88.29** | **87.48** | **102.16** | **94.91** | **W** | **86.88** | **95.30** | **93.10** | **84.67** |
| **2015** January | W | 40.45 | 45.47 | 41.68 | W | 50.12 | – | 40.08 | 53.01 | 48.17 | 42.31 |
| February | W | 42.39 | 53.40 | 48.29 | W | 52.44 | – | 47.93 | 52.20 | 51.44 | 44.86 |
| March | W | 41.71 | 51.25 | 47.62 | W | 55.23 | W | 45.90 | 54.30 | 51.13 | 44.82 |
| April | W | 46.67 | 57.48 | 52.13 | – | 59.92 | W | 52.17 | 56.99 | 55.39 | 49.79 |
| May | 60.84 | 54.06 | 59.92 | 57.32 | W | 62.06 | W | 53.78 | 60.92 | 59.11 | 55.97 |
| June | 61.45 | 55.42 | 58.21 | 57.46 | W | 58.40 | – | 52.43 | 58.17 | 56.79 | 56.69 |
| July | 53.22 | 47.98 | 51.58 | 51.25 | W | 51.62 | – | 46.74 | 51.93 | 50.45 | 49.42 |
| August | 54.02 | 38.29 | 43.87 | 41.94 | – | 45.24 | W | 38.75 | 45.70 | 43.17 | 40.41 |
| September | 53.46 | 35.29 | 42.87 | 40.71 | W | 44.89 | – | 37.91 | 44.94 | 43.31 | 37.82 |
| October | 47.49 | 37.64 | 42.37 | 40.67 | W | 42.09 | W | 39.55 | 41.81 | 41.57 | 39.41 |
| November | 47.56 | 35.67 | 39.70 | 36.73 | W | 39.62 | – | 33.79 | 39.43 | 37.86 | 36.68 |
| December | 38.54 | 30.25 | 32.50 | 30.54 | W | 34.13 | W | 26.73 | 34.33 | 32.60 | 30.91 |
| **Average** | **51.73** | **41.99** | **49.53** | **45.51** | **54.70** | **49.78** | **W** | **42.87** | **49.43** | **47.44** | **44.09** |
| **2016** January | 34.83 | 26.32 | 26.23 | 24.82 | W | 30.96 | – | 21.64 | 30.85 | 28.94 | 26.33 |
| February | 33.04 | 24.62 | 26.32 | 25.19 | 39.44 | 31.86 | W | 23.49 | 30.91 | 29.63 | 25.43 |
| March | 36.68 | 29.31 | 33.38 | 29.65 | 42.86 | 36.19 | W | 28.83 | 34.84 | 34.02 | 30.35 |
| April | 40.91 | 34.19 | 36.71 | 31.91 | W | 39.75 | – | 31.20 | 38.00 | 36.80 | 34.42 |
| May | 49.14 | 38.43 | 42.28 | 39.67 | W | 43.46 | W | 38.14 | 42.56 | 42.48 | 39.55 |
| June | 49.06 | 41.97 | 43.88 | 42.50 | 51.05 | 45.90 | – | 40.04 | 44.70 | 44.70 | 42.65 |
| July | 47.04 | 39.41 | 40.90 | 40.30 | 48.46 | 43.80 | W | 37.00 | 42.77 | 41.78 | 40.48 |
| August | 49.43 | 37.84 | 40.78 | 39.34 | 50.20 | 43.67 | W | 38.66 | 42.74 | 42.46 | 39.01 |
| September | 46.15 | 38.62 | 43.43 | 38.86 | 49.91 | 44.22 | – | 38.11 | 43.31 | 42.62 | 39.60 |
| October | 48.88 | 41.79 | 43.44 | 43.44 | W | 46.95 | – | 41.61 | 45.50 | 45.65 | 42.64 |
| November | 49.08 | 39.81 | 42.97 | 40.20 | 52.80 | 47.04 | W | 39.53 | 45.68 | 44.98 | 40.52 |
| December | 53.63 | 43.34 | 48.83 | 45.84 | 55.62 | 50.38 | W | 45.69 | 49.38 | 49.07 | 44.83 |
| **Average** | **44.65** | **36.27** | **38.86** | **36.64** | **48.11** | **42.14** | **W** | **35.50** | **41.20** | **40.54** | **37.09** |
| **2017** January | – | 44.70 | 49.17 | 46.35 | 54.74 | 50.40 | W | 47.53 | 49.35 | 49.22 | 45.77 |
| February | W | 44.97 | 49.66 | 46.57 | 54.42 | 52.34 | – | 46.28 | 51.09 | 50.57 | 46.26 |
| March | W | 43.00 | 48.29 | 42.97 | W | 50.36 | W | 43.91 | 49.61 | 48.93 | 43.96 |
| April | W | 43.05 | 48.38 | 44.65 | W | 50.18 | W | 44.55 | 49.04 | 48.47 | 44.31 |
| May | W | 44.26 | 45.86 | 45.51 | 51.83 | 49.06 | W | 43.50 | 47.26 | 47.30 | 45.25 |
| June | R 50.74 | 41.75 | 44.89 | R 42.36 | 50.36 | R 47.88 | W | R 40.88 | R 46.76 | R 45.71 | 42.67 |
| July | R 50.20 | R 41.57 | R 46.72 | R 45.04 | R 50.91 | R 47.64 | – | R 42.23 | R 46.90 | R 46.59 | 43.34 |
| August | W | 43.39 | 48.17 | 46.74 | 52.39 | 49.45 | – | 45.81 | 47.84 | 48.43 | 45.15 |

[a] Prices are not adjusted for inflation. See "Nominal Dollars" in Glossary.

[b] Bahrain, Iran, Iraq, Kuwait, Qatar, Saudi Arabia, United Arab Emirates, and the Neutral Zone (between Kuwait and Saudi Arabia).

[c] See "Organization of the Petroleum Exporting Countries (OPEC)" in Glossary for exact years of each country's membership. On this table, "Total OPEC" for all years includes Algeria, Iran, Iraq, Kuwait, Libya, Nigeria, Qatar, Saudi Arabia, United Arab Emirates, and Venezuela; Angola is included in "Total OPEC" 2007 forward; Gabon is included in "Total OPEC" 1974–1995 and July 2016 forward; Ecuador is included in "Total OPEC" 1973–1992 and 2008 forward; Indonesia is included in "Total OPEC" 1973–2008 and 2016.

[d] Based on October, November, and December data only.

R=Revised. – =No data reported. W=Value withheld to avoid disclosure of individual company data.

Notes: • See "Landed Costs" in Glossary, and Note 4, "Crude Oil Landed Costs," at end of section. • Values for the current two months are preliminary. • Through 1980, prices reflect the period of reporting; beginning in 1981, prices reflect the period of loading. • Annual averages are averages of the monthly prices, including prices not published, weighted by volume. • Cargoes that are purchased on a "netback" basis, or under similar contractual arrangements whereby the actual purchase price is not established at the time the crude oil is acquired for importation into the United States, are not included in the published data until the actual prices have been determined and reported. • U.S. geographic coverage is the 50 states and the District of Columbia.

Web Page: See http://www.eia.gov/totalenergy/data/monthly/#prices (Excel and CSV files) for all available annual and monthly data beginning in 1973.

Sources: • **October 1973–September 1977:** Federal Energy Administration, Form FEA-F701-M-0, "Transfer Pricing Report." • **October 1977–December 1977:** U.S. Energy Information Administration (EIA), Form FEA-F701-M-0, "Transfer Pricing Report." • **1978–2007:** EIA, *Petroleum Marketing Annual 2008,* Table 22. • **2008 forward:** EIA, *Petroleum Marketing Monthly,* November 2017, Table 22.

# Table 9.4 Retail Motor Gasoline and On-Highway Diesel Fuel Prices

(Dollars[a] per Gallon, Including Taxes)

| | Platt's / Bureau of Labor Statistics Data | | | | U.S. Energy Information Administration Data | | | |
|---|---|---|---|---|---|---|---|---|
| | Motor Gasoline by Grade | | | | Regular Motor Gasoline by Area Type | | | |
| | Leaded Regular | Unleaded Regular | Unleaded Premium[b] | All Grades[c] | Conventional Gasoline Areas[d] | Reformulated Gasoline Areas[e] | All Areas | On-Highway Diesel Fuel |
| **1950 Average** | **0.268** | **NA** | **NA** | **NA** | – – | – – | – – | – – |
| **1955 Average** | **.291** | **NA** | **NA** | **NA** | – – | – – | – – | – – |
| **1960 Average** | **.311** | **NA** | **NA** | **NA** | – – | – – | – – | – – |
| **1965 Average** | **.312** | **NA** | **NA** | **NA** | – – | – – | – – | – – |
| **1970 Average** | **.357** | **NA** | **NA** | **NA** | – – | – – | – – | – – |
| **1975 Average** | **.567** | **NA** | **NA** | **NA** | – – | – – | – – | – – |
| **1980 Average** | **1.191** | **1.245** | **NA** | **1.221** | – – | – – | – – | – – |
| **1985 Average** | **1.115** | **1.202** | **1.340** | **1.196** | – – | – – | – – | – – |
| **1990 Average** | **1.149** | **1.164** | **1.349** | **1.217** | **NA** | **NA** | **NA** | **NA** |
| **1995 Average** | **– –** | **1.147** | **1.336** | **1.205** | **1.103** | **1.163** | **1.111** | **1.109** |
| **2000 Average** | **– –** | **1.510** | **1.693** | **1.563** | **1.462** | **1.543** | **1.484** | **1.491** |
| **2001 Average** | **– –** | **1.461** | **1.657** | **1.531** | **1.384** | **1.498** | **1.420** | **1.401** |
| **2002 Average** | **– –** | **1.358** | **1.556** | **1.441** | **1.313** | **1.408** | **1.345** | **1.319** |
| **2003 Average** | **– –** | **1.591** | **1.777** | **1.638** | **1.516** | **1.655** | **1.561** | **1.509** |
| **2004 Average** | **– –** | **1.880** | **2.068** | **1.923** | **1.812** | **1.937** | **1.852** | **1.810** |
| **2005 Average** | **– –** | **2.295** | **2.491** | **2.338** | **2.240** | **2.335** | **2.270** | **2.402** |
| **2006 Average** | **– –** | **2.589** | **2.805** | **2.635** | **2.533** | **2.654** | **2.572** | **2.705** |
| **2007 Average** | **– –** | **2.801** | **3.033** | **2.849** | **2.767** | **2.857** | **2.796** | **2.885** |
| **2008 Average** | **– –** | **3.266** | **3.519** | **3.317** | **3.213** | **3.314** | **3.246** | **3.803** |
| **2009 Average** | **– –** | **2.350** | **2.607** | **2.401** | **2.315** | **2.433** | **2.353** | **2.467** |
| **2010 Average** | **– –** | **2.788** | **3.047** | **2.836** | **2.742** | **2.864** | **2.782** | **2.992** |
| **2011 Average** | **– –** | **3.527** | **3.792** | **3.577** | **3.476** | **3.616** | **3.521** | **3.840** |
| **2012 Average** | **– –** | **3.644** | **3.922** | **3.695** | **3.552** | **3.757** | **3.618** | **3.968** |
| **2013 Average** | **– –** | **3.526** | **3.843** | **3.584** | **3.443** | **3.635** | **3.505** | **3.922** |
| **2014 Average** | **– –** | **3.367** | **3.713** | **3.425** | **3.299** | **3.481** | **3.358** | **3.825** |
| **2015** January | – – | 2.110 | 2.497 | 2.170 | 2.046 | 2.262 | 2.116 | 2.997 |
| February | – – | 2.249 | 2.621 | 2.308 | 2.152 | 2.351 | 2.216 | 2.858 |
| March | – – | 2.483 | 2.867 | 2.544 | 2.352 | 2.697 | 2.464 | 2.897 |
| April | – – | 2.485 | 2.868 | 2.545 | 2.369 | 2.679 | 2.469 | 2.782 |
| May | – – | 2.775 | 3.166 | 2.832 | 2.578 | 3.014 | 2.718 | 2.888 |
| June | – – | 2.832 | 3.218 | 2.889 | 2.700 | 3.014 | 2.802 | 2.873 |
| July | – – | 2.832 | 3.252 | 2.893 | 2.666 | 3.061 | 2.794 | 2.788 |
| August | – – | 2.679 | 3.120 | 2.745 | 2.522 | 2.876 | 2.636 | 2.595 |
| September | – – | 2.394 | 2.860 | 2.463 | 2.275 | 2.555 | 2.365 | 2.505 |
| October | – – | 2.289 | 2.749 | 2.357 | 2.230 | 2.414 | 2.290 | 2.519 |
| November | – – | 2.185 | 2.640 | 2.249 | 2.088 | 2.304 | 2.158 | 2.467 |
| December | – – | 2.060 | 2.532 | 2.125 | 1.946 | 2.230 | 2.038 | 2.310 |
| **Average** | **– –** | **2.448** | **2.866** | **2.510** | **2.334** | **2.629** | **2.429** | **2.707** |
| **2016** January | – – | 1.967 | 2.455 | 2.034 | 1.843 | 2.170 | 1.949 | 2.143 |
| February | – – | 1.767 | 2.248 | 1.833 | 1.681 | 1.936 | 1.764 | 1.998 |
| March | – – | 1.958 | 2.411 | 2.021 | 1.895 | 2.124 | 1.969 | 2.090 |
| April | – – | 2.134 | 2.585 | 2.196 | 2.027 | 2.293 | 2.113 | 2.152 |
| May | – – | 2.264 | 2.710 | 2.324 | 2.199 | 2.413 | 2.268 | 2.315 |
| June | – – | 2.363 | 2.807 | 2.422 | 2.303 | 2.497 | 2.366 | 2.423 |
| July | – – | 2.225 | 2.702 | 2.287 | 2.157 | 2.411 | 2.239 | 2.405 |
| August | – – | 2.155 | 2.629 | 2.218 | 2.119 | 2.300 | 2.178 | 2.351 |
| September | – – | 2.208 | 2.682 | 2.269 | 2.161 | 2.339 | 2.219 | 2.394 |
| October | – – | 2.243 | 2.719 | 2.304 | 2.186 | 2.382 | 2.249 | 2.454 |
| November | – – | 2.187 | 2.675 | 2.246 | 2.105 | 2.343 | 2.182 | 2.439 |
| December | – – | 2.230 | 2.698 | 2.289 | 2.192 | 2.385 | 2.254 | 2.510 |
| **Average** | **– –** | **2.142** | **2.610** | **2.204** | **2.070** | **2.296** | **2.143** | **2.304** |
| **2017** January | – – | 2.351 | 2.815 | 2.409 | 2.285 | 2.482 | 2.349 | 2.580 |
| February | – – | 2.299 | 2.793 | 2.360 | 2.227 | 2.467 | 2.304 | 2.568 |
| March | – – | 2.323 | 2.827 | 2.386 | 2.243 | 2.498 | 2.325 | 2.554 |
| April | – – | 2.418 | 2.909 | 2.479 | 2.340 | 2.579 | 2.417 | 2.583 |
| May | – – | 2.386 | 2.894 | 2.448 | 2.303 | 2.577 | 2.391 | 2.560 |
| June | – – | 2.337 | 2.859 | 2.400 | 2.257 | 2.536 | 2.347 | 2.511 |
| July | – – | 2.281 | 2.800 | 2.344 | 2.211 | 2.486 | 2.300 | 2.496 |
| August | – – | 2.374 | 2.883 | 2.436 | 2.297 | 2.557 | 2.380 | 2.595 |
| September | – – | 2.630 | 3.120 | 2.688 | 2.570 | 2.802 | 2.645 | 2.785 |
| October | – – | 2.484 | 2.996 | 2.545 | 2.430 | 2.663 | 2.505 | 2.794 |

[a] Prices are not adjusted for inflation. See "Nominal Dollars" in Glossary.

[b] The 1981 average (available in Web file) is based on September through December data only.

[c] Also includes grades of motor gasoline not shown separately.

[d] Any area that does not require the sale of reformulated gasoline.

[e] "Reformulated Gasoline Areas" are ozone nonattainment areas designated by the U.S. Environmental Protection Agency that require the use of reformulated gasoline (RFG). Areas are reclassified each time a shift in or out of an RFG program occurs due to federal or state regulations.

NA=Not available. – – =Not applicable.

Notes: • See Note 5, "Motor Gasoline Prices," at end of section. • See "Motor Gasoline Grades," "Motor Gasoline, Conventional," "Motor Gasoline, Oxygenated," and "Motor Gasoline, Reformulated" in Glossary. • Geographic coverage: for columns 1–4, current coverage is 85 urban areas; for columns 5–7, coverage is the 50 states and the District of Columbia; for column 8, coverage is the 48 contiguous states and the District of Columbia.

Web Page: See http://www.eia.gov/totalenergy/data/monthly/#prices (Excel and CSV files) for all available annual data beginning in 1949 and monthly data beginning in 1973.

Sources: • **Motor Gasoline by Grade, Monthly Data: October 1973 forward**—U.S. Department of Labor, Bureau of Labor Statistics (BLS), *U.S. City Average Gasoline Prices.* • **Motor Gasoline by Grade, Annual Data: 1949–1973**—*Platt's Oil Price Handbook and Oilmanac, 1974,* 51st Edition. **1974 forward**—calculated by the U.S. Energy Information Administration (EIA) as simple averages of the BLS monthly data. • **Regular Motor Gasoline by Area Type:** EIA, calculated as simple averages of weighted weekly estimates from "Weekly U.S. Retail Gasoline Prices, Regular Grade." • **On-Highway Diesel Fuel:** EIA, calculated as simple averages of weighted weekly estimates from "Weekly Retail On-Highway Diesel Prices."

## Table 9.5 Refiner Prices of Residual Fuel Oil

(Dollars[a] per Gallon, Excluding Taxes)

| | Residual Fuel Oil Sulfur Content Less Than or Equal to 1% | | Residual Fuel Oil Sulfur Content Greater Than 1% | | Average | |
|---|---|---|---|---|---|---|
| | Sales for Resale | Sales to End Users | Sales for Resale | Sales to End Users | Sales for Resale | Sales to End Users |
| **1978 Average** | **0.293** | **0.314** | **0.245** | **0.275** | **0.263** | **0.298** |
| **1980 Average** | **.608** | **.675** | **.479** | **.523** | **.528** | **.607** |
| **1985 Average** | **.610** | **.644** | **.560** | **.582** | **.577** | **.610** |
| **1990 Average** | **.472** | **.505** | **.372** | **.400** | **.413** | **.444** |
| **1995 Average** | **.383** | **.436** | **.338** | **.377** | **.363** | **.392** |
| **2000 Average** | **.627** | **.708** | **.512** | **.566** | **.566** | **.602** |
| **2001 Average** | **.523** | **.642** | **.428** | **.492** | **.476** | **.531** |
| **2002 Average** | **.546** | **.640** | **.508** | **.544** | **.530** | **.569** |
| **2003 Average** | **.728** | **.804** | **.588** | **.651** | **.661** | **.698** |
| **2004 Average** | **.764** | **.835** | **.601** | **.692** | **.681** | **.739** |
| **2005 Average** | **1.115** | **1.168** | **.842** | **.974** | **.971** | **1.048** |
| **2006 Average** | **1.202** | **1.342** | **1.085** | **1.173** | **1.136** | **1.218** |
| **2007 Average** | **1.406** | **1.436** | **1.314** | **1.350** | **1.350** | **1.374** |
| **2008 Average** | **1.918** | **2.144** | **1.843** | **1.889** | **1.866** | **1.964** |
| **2009 Average** | **1.337** | **1.413** | **1.344** | **1.306** | **1.342** | **1.341** |
| **2010 Average** | **1.756** | **1.920** | **1.679** | **1.619** | **1.697** | **1.713** |
| **2011 Average** | **2.389** | **2.736** | **2.316** | **2.257** | **2.336** | **2.401** |
| **2012 Average** | **2.548** | **3.025** | **2.429** | **2.433** | **2.457** | **2.592** |
| **2013 Average** | **2.363** | **2.883** | **2.249** | **2.353** | **2.278** | **2.482** |
| **2014 Average** | **2.153** | **2.694** | **1.996** | **2.221** | **2.044** | **2.325** |
| **2015** January | .936 | NA | 1.038 | 1.192 | 1.023 | 1.264 |
| February | 1.150 | NA | 1.124 | 1.342 | 1.126 | 1.376 |
| March | 1.093 | NA | 1.131 | 1.436 | 1.126 | 1.465 |
| April | 1.124 | 1.704 | 1.114 | 1.465 | 1.114 | 1.516 |
| May | 1.198 | NA | 1.242 | 1.443 | 1.234 | 1.543 |
| June | 1.175 | W | 1.239 | 1.474 | 1.233 | 1.549 |
| July | 1.080 | W | 1.130 | 1.245 | 1.122 | 1.363 |
| August | .797 | W | .928 | 1.150 | .918 | 1.207 |
| September | .819 | W | .856 | 1.063 | .852 | 1.107 |
| October | .812 | NA | .840 | 1.041 | .836 | 1.094 |
| November | .766 | W | .791 | 1.001 | .787 | 1.043 |
| December | .552 | W | .639 | .861 | .633 | .919 |
| **Average** | **.971** | **1.529** | **.999** | **1.227** | **.996** | **1.285** |
| **2016** January | .477 | W | .502 | .641 | .499 | .710 |
| February | .475 | NA | .508 | .606 | .504 | .632 |
| March | .582 | NA | .555 | .672 | .558 | .693 |
| April | .633 | W | .614 | .734 | .616 | .782 |
| May | .729 | W | .722 | .868 | .723 | .922 |
| June | .850 | W | .823 | .911 | .825 | .983 |
| July | .876 | W | .834 | .948 | .835 | 1.030 |
| August | .842 | W | .811 | .924 | .815 | .990 |
| September | .846 | W | .855 | 1.059 | .854 | 1.076 |
| October | .961 | W | .935 | 1.091 | .938 | 1.115 |
| November | .920 | NA | .907 | 1.040 | .908 | 1.106 |
| December | 1.024 | W | 1.031 | 1.206 | 1.030 | 1.230 |
| **Average** | **.736** | **1.138** | **.746** | **.897** | **.745** | **.945** |
| **2017** January | 1.099 | W | 1.121 | 1.249 | 1.119 | 1.309 |
| February | 1.174 | W | 1.115 | 1.243 | 1.121 | 1.291 |
| March | 1.103 | W | 1.075 | 1.186 | 1.077 | 1.239 |
| April | 1.038 | W | 1.039 | 1.147 | 1.039 | 1.201 |
| May | .986 | W | 1.047 | 1.153 | 1.043 | 1.213 |
| June | .937 | W | .995 | 1.129 | .991 | 1.195 |
| July | 1.026 | W | 1.040 | 1.154 | 1.039 | 1.211 |
| August | 1.042 | W | 1.081 | 1.142 | 1.079 | 1.204 |

[a] Prices are not adjusted for inflation. See "Nominal Dollars" in Glossary.

NA=Not available. W=Value withheld to avoid disclosure of individual company data.

Notes: • Sales for resale are those made to purchasers other than ultimate consumers. Sales to end users are those made directly to ultimate consumers, including bulk consumers (such as agriculture, industry, and electric utilities) and commercial consumers. • Values for the current month are preliminary. • Through 1982, prices are U.S. Energy Information Administration (EIA) estimates. See Note 6, "Historical Petroleum Prices," at end of section. • Geographic coverage is the 50 states and the District of Columbia.

Web Page: See http://www.eia.gov/totalenergy/data/monthly/#prices (Excel and CSV files) for all available annual data beginning in 1978 and monthly data beginning in 1982.

Sources: • **1978–2007:** EIA, *Petroleum Marketing Annual 2007,* Table 17. • **2008 forward:** EIA, *Petroleum Marketing Monthly,* November 2017, Table 16.

## Table 9.6 Refiner Prices of Petroleum Products for Resale

(Dollars[a] per Gallon, Excluding Taxes)

| | Finished Motor Gasoline[b] | Finished Aviation Gasoline | Kerosene-Type Jet Fuel | Kerosene | No. 2 Fuel Oil | No. 2 Diesel Fuel | Propane (Consumer Grade) |
|---|---|---|---|---|---|---|---|
| **1978 Average** | **0.434** | **0.537** | **0.386** | **0.404** | **0.369** | **0.365** | **0.237** |
| **1980 Average** | **.941** | **1.128** | **.868** | **.864** | **.803** | **.801** | **.415** |
| **1985 Average** | **.835** | **1.130** | **.794** | **.874** | **.776** | **.772** | **.398** |
| **1990 Average** | **.786** | **1.063** | **.773** | **.839** | **.697** | **.694** | **.386** |
| **1995 Average** | **.626** | **.975** | **.539** | **.580** | **.511** | **.538** | **.344** |
| **2000 Average** | **.963** | **1.330** | **.880** | **.969** | **.886** | **.898** | **.595** |
| **2001 Average** | **.886** | **1.256** | **.763** | **.821** | **.756** | **.784** | **.540** |
| **2002 Average** | **.828** | **1.146** | **.716** | **.752** | **.694** | **.724** | **.431** |
| **2003 Average** | **1.002** | **1.288** | **.871** | **.955** | **.881** | **.883** | **.607** |
| **2004 Average** | **1.288** | **1.627** | **1.208** | **1.271** | **1.125** | **1.187** | **.751** |
| **2005 Average** | **1.670** | **2.076** | **1.723** | **1.757** | **1.623** | **1.737** | **.933** |
| **2006 Average** | **1.969** | **2.490** | **1.961** | **2.007** | **1.834** | **2.012** | **1.031** |
| **2007 Average** | **2.182** | **2.758** | **2.171** | **2.249** | **2.072** | **2.203** | **1.194** |
| **2008 Average** | **2.586** | **3.342** | **3.020** | **2.851** | **2.745** | **2.994** | **1.437** |
| **2009 Average** | **1.767** | **2.480** | **1.719** | **1.844** | **1.657** | **1.713** | **.921** |
| **2010 Average** | **2.165** | **2.874** | **2.185** | **2.299** | **2.147** | **2.214** | **1.212** |
| **2011 Average** | **2.867** | **3.739** | **3.014** | **3.065** | **2.907** | **3.034** | **1.467** |
| **2012 Average** | **2.929** | **3.919** | **3.080** | **3.163** | **3.031** | **3.109** | **1.033** |
| **2013 Average** | **2.812** | **3.869** | **2.953** | **3.084** | **2.966** | **3.028** | **1.048** |
| **2014 Average** | **2.618** | **3.687** | **2.763** | **2.882** | **2.741** | **2.812** | **1.165** |
| **2015** January | 1.366 | 2.324 | 1.612 | 1.900 | 1.669 | 1.616 | .713 |
| February | 1.637 | 2.529 | 1.722 | 2.233 | 1.850 | 1.861 | .748 |
| March | 1.770 | 2.801 | 1.731 | 2.098 | 1.847 | 1.815 | .689 |
| April | 1.835 | 2.827 | 1.709 | 1.800 | 1.740 | 1.805 | .566 |
| May | 2.080 | 3.050 | 1.933 | 1.929 | 1.852 | 1.973 | .475 |
| June | 2.121 | 3.259 | 1.813 | 1.871 | 1.813 | 1.881 | .404 |
| July | 2.072 | 3.217 | 1.655 | 1.701 | 1.654 | 1.729 | .405 |
| August | 1.838 | 2.980 | 1.479 | 1.494 | 1.461 | 1.562 | .402 |
| September | 1.609 | 2.586 | 1.443 | 1.509 | 1.438 | 1.551 | .469 |
| October | 1.558 | 2.475 | 1.451 | 1.555 | 1.411 | 1.572 | .524 |
| November | 1.426 | 2.385 | 1.400 | 1.554 | 1.356 | 1.456 | .505 |
| December | 1.356 | 2.252 | 1.207 | 1.275 | 1.126 | 1.176 | .499 |
| **Average** | **1.726** | **2.764** | **1.592** | **1.735** | **1.565** | **1.667** | **.555** |
| **2016** January | 1.187 | 2.122 | 1.022 | 1.183 | .976 | 1.015 | .460 |
| February | 1.046 | 1.908 | 1.017 | 1.155 | .948 | 1.043 | .470 |
| March | 1.335 | 2.230 | 1.100 | 1.208 | 1.070 | 1.189 | .497 |
| April | 1.476 | 2.457 | 1.155 | 1.193 | 1.113 | 1.251 | .458 |
| May | 1.613 | 2.528 | 1.311 | 1.327 | 1.291 | 1.432 | .511 |
| June | 1.643 | 2.591 | 1.428 | 1.445 | 1.404 | 1.531 | .497 |
| July | 1.490 | 2.505 | 1.354 | 1.297 | 1.305 | 1.426 | .476 |
| August | 1.508 | 2.405 | 1.313 | 1.408 | 1.307 | 1.440 | .453 |
| September | 1.514 | 2.506 | 1.366 | 1.402 | 1.341 | 1.471 | .494 |
| October | 1.568 | 2.551 | 1.471 | 1.580 | 1.443 | 1.592 | .608 |
| November | 1.427 | 2.433 | 1.406 | 1.485 | 1.386 | 1.469 | .588 |
| December | 1.585 | 2.462 | 1.511 | 1.685 | 1.507 | 1.606 | .703 |
| **Average** | **1.454** | **2.404** | **1.295** | **1.383** | **1.239** | **1.378** | **.523** |
| **2017** January | 1.627 | 2.614 | 1.561 | 1.761 | 1.560 | 1.636 | .788 |
| February | 1.625 | 2.592 | 1.592 | 1.657 | 1.553 | 1.641 | .792 |
| March | 1.634 | 2.618 | 1.520 | 1.580 | 1.495 | 1.581 | .671 |
| April | 1.723 | 2.724 | 1.545 | 1.572 | 1.499 | 1.627 | .641 |
| May | 1.668 | 2.620 | 1.459 | 1.481 | 1.447 | 1.552 | .631 |
| June | 1.574 | 2.552 | 1.378 | 1.360 | 1.375 | 1.465 | .585 |
| July | [R] 1.621 | 2.608 | 1.436 | 1.468 | [R] 1.392 | [R] 1.533 | .634 |
| August | 1.711 | 2.710 | 1.586 | 1.630 | 1.522 | 1.680 | .742 |

[a] Prices are not adjusted for inflation. See "Nominal Dollars" in Glossary.

[b] See Note 5, "Motor Gasoline Prices," at end of section.

R=Revised.

Notes: • Sales for resale are those made to purchasers other than ultimate consumers. Sales to end users are shown in Table 9.7; they are sales made directly to ultimate consumers, including bulk consumers (such as agriculture, industry, and electric utilities) and residential and commercial consumers. • Values for the current month are preliminary. • Through 1982, prices are U.S. Energy Information Administration (EIA) estimates. See Note 6, "Historical Petroleum Prices," at end of section. • Geographic coverage is the 50 states and the District of Columbia.

Web Page: See http://www.eia.gov/totalenergy/data/monthly/#prices (Excel and CSV files) for all available annual data beginning in 1978 and monthly data beginning in 1982.

Sources: • **1978–2007:** EIA, *Petroleum Marketing Annual 2007,* Table 4. • **2008 forward:** EIA, *Petroleum Marketing Monthly,* November 2017, Table 4.

# Table 9.7 Refiner Prices of Petroleum Products to End Users

(Dollars[a] per Gallon, Excluding Taxes)

| | Finished Motor Gasoline[b] | Finished Aviation Gasoline | Kerosene-Type Jet Fuel | Kerosene | No. 2 Fuel Oil | No. 2 Diesel Fuel | Propane (Consumer Grade) |
|---|---|---|---|---|---|---|---|
| **1978 Average** | **0.484** | **0.516** | **0.387** | **0.421** | **0.400** | **0.377** | **0.335** |
| **1980 Average** | **1.035** | **1.084** | **.868** | **.902** | **.788** | **.818** | **.482** |
| **1985 Average** | **.912** | **1.201** | **.796** | **1.030** | **.849** | **.789** | **.717** |
| **1990 Average** | **.883** | **1.120** | **.766** | **.923** | **.734** | **.725** | **.745** |
| **1995 Average** | **.765** | **1.005** | **.540** | **.589** | **.562** | **.560** | **.492** |
| **2000 Average** | **1.106** | **1.306** | **.899** | **1.123** | **.927** | **.935** | **.603** |
| **2001 Average** | **1.032** | **1.323** | **.775** | **1.045** | **.829** | **.842** | **.506** |
| **2002 Average** | **.947** | **1.288** | **.721** | **.990** | **.737** | **.762** | **.419** |
| **2003 Average** | **1.156** | **1.493** | **.872** | **1.224** | **.933** | **.944** | **.577** |
| **2004 Average** | **1.435** | **1.819** | **1.207** | **1.160** | **1.173** | **1.243** | **.839** |
| **2005 Average** | **1.829** | **2.231** | **1.735** | **1.957** | **1.705** | **1.786** | **1.089** |
| **2006 Average** | **2.128** | **2.682** | **1.998** | **2.244** | **1.982** | **2.096** | **1.358** |
| **2007 Average** | **2.345** | **2.849** | **2.165** | **2.263** | **2.241** | **2.267** | **1.489** |
| **2008 Average** | **2.775** | **3.273** | **3.052** | **3.283** | **2.986** | **3.150** | **1.892** |
| **2009 Average** | **1.888** | **2.442** | **1.704** | **2.675** | **1.962** | **1.834** | **1.220** |
| **2010 Average** | **2.301** | **3.028** | **2.201** | **3.063** | **2.462** | **2.314** | **1.481** |
| **2011 Average** | **3.050** | **3.803** | **3.054** | **3.616** | **3.193** | **3.117** | **1.709** |
| **2012 Average** | **3.154** | **3.971** | **3.104** | **3.843** | **3.358** | **3.202** | **1.139** |
| **2013 Average** | **3.049** | **3.932** | **2.979** | **3.842** | **3.335** | **3.122** | **1.028** |
| **2014 Average** | **2.855** | **3.986** | **2.772** | **W** | **3.329** | **2.923** | **1.097** |
| **2015** January | 1.673 | W | 1.633 | W | NA | 1.819 | .566 |
| February | 1.858 | W | 1.747 | W | 2.204 | 1.979 | .671 |
| March | 2.054 | W | 1.766 | W | 2.141 | 1.962 | .619 |
| April | 2.058 | W | 1.739 | W | NA | 1.939 | .575 |
| May | 2.322 | W | 1.979 | W | 2.308 | 2.090 | .465 |
| June | 2.374 | W | 1.855 | W | 2.321 | 2.021 | .393 |
| July | 2.338 | W | 1.694 | W | 2.207 | 1.913 | .405 |
| August | 2.218 | W | 1.516 | W | 2.046 | 1.737 | .387 |
| September | 1.920 | W | 1.465 | 2.996 | 1.949 | 1.693 | .468 |
| October | 1.849 | W | 1.473 | W | NA | 1.702 | .479 |
| November | 1.711 | W | 1.424 | W | 1.814 | 1.603 | .447 |
| December | 1.604 | W | 1.232 | W | 1.695 | 1.365 | .422 |
| **Average** | **2.003** | **W** | **1.629** | **W** | **2.016** | **1.819** | **.481** |
| **2016** January | 1.505 | W | 1.038 | W | 1.450 | 1.198 | .377 |
| February | 1.332 | W | 1.032 | W | 1.407 | 1.185 | .409 |
| March | 1.552 | W | 1.133 | W | 1.555 | 1.317 | .481 |
| April | 1.725 | W | 1.187 | W | 1.631 | 1.386 | .472 |
| May | 1.869 | W | 1.342 | W | 1.733 | 1.555 | .533 |
| June | 1.961 | W | 1.464 | W | 1.861 | 1.661 | .514 |
| July | 1.804 | W | 1.393 | W | 1.814 | 1.577 | .491 |
| August | 1.754 | W | 1.330 | W | NA | 1.577 | .460 |
| September | 1.788 | W | 1.394 | W | 1.805 | 1.601 | .507 |
| October | 1.819 | W | 1.506 | W | 1.941 | 1.706 | .599 |
| November | 1.759 | W | 1.426 | W | 1.787 | 1.599 | .557 |
| December | 1.849 | W | 1.539 | W | 1.997 | 1.718 | .666 |
| **Average** | **1.730** | **W** | **1.319** | **W** | **1.716** | **1.511** | **.498** |
| **2017** January | 1.900 | W | 1.584 | W | NA | 1.747 | .774 |
| February | 1.862 | W | 1.615 | W | 2.033 | 1.755 | .814 |
| March | 1.904 | W | 1.554 | W | 1.909 | 1.699 | .657 |
| April | 1.997 | W | 1.595 | W | 2.081 | 1.747 | .652 |
| May | 1.963 | W | 1.492 | 2.637 | NA | 1.693 | .650 |
| June | 1.906 | W | 1.434 | 2.600 | 1.739 | 1.618 | .611 |
| July | 1.871 | W | 1.478 | 2.621 | 1.728 | 1.665 | .667 |
| August | 1.953 | W | 1.613 | 2.579 | 1.903 | 1.792 | .768 |

[a] Prices are not adjusted for inflation. See "Nominal Dollars" in Glossary.

[b] See Note 5, "Motor Gasoline Prices," at end of section.

NA=Not available. W=Value withheld to avoid disclosure of individual company data.

Notes: • Sales to end users are those made directly to ultimate consumers, including bulk consumers (such as agriculture, industry, and electric utilities) and residential and commercial consumers. Sales for resale are shown in Table 9.6; they are sales made to purchasers other than ultimate consumers. • Values for the current month are preliminary. • Through 1982, prices are U.S. Energy Information Administration (EIA) estimates. See Note 6, "Historical Petroleum Prices," at end of section. • Geographic coverage is the 50 states and the District of Columbia.

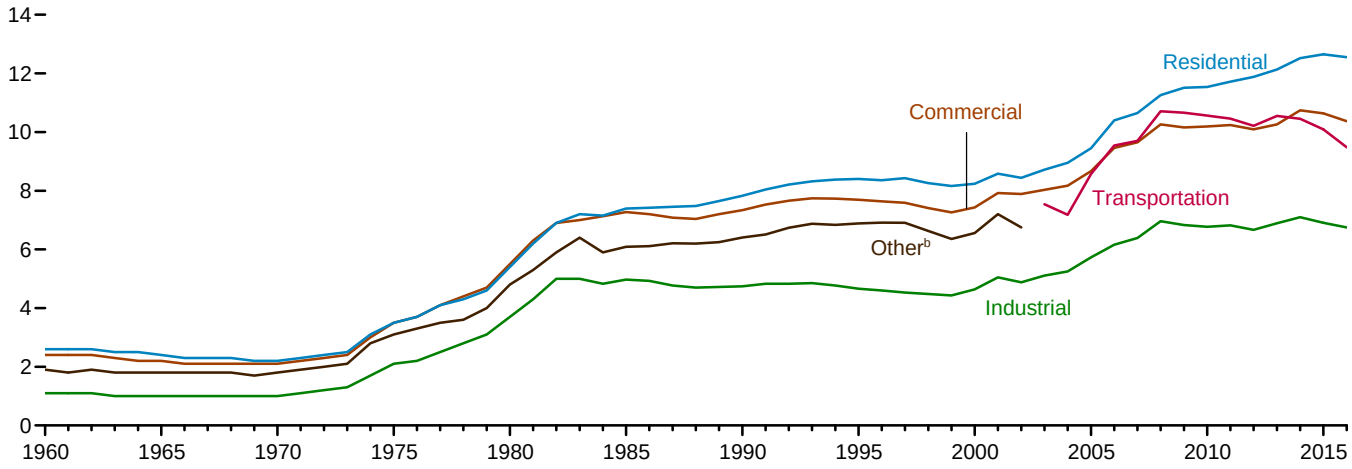
Web Page: See http://www.eia.gov/totalenergy/data/monthly/#prices (Excel and CSV files) for all available annual data beginning in 1978 and monthly data beginning in 1982.

Sources: • **1978–2007:** EIA, *Petroleum Marketing Annual 2007,* Table 2. • **2008 forward:** EIA, *Petroleum Marketing Monthly,* November 2017, Table 2.

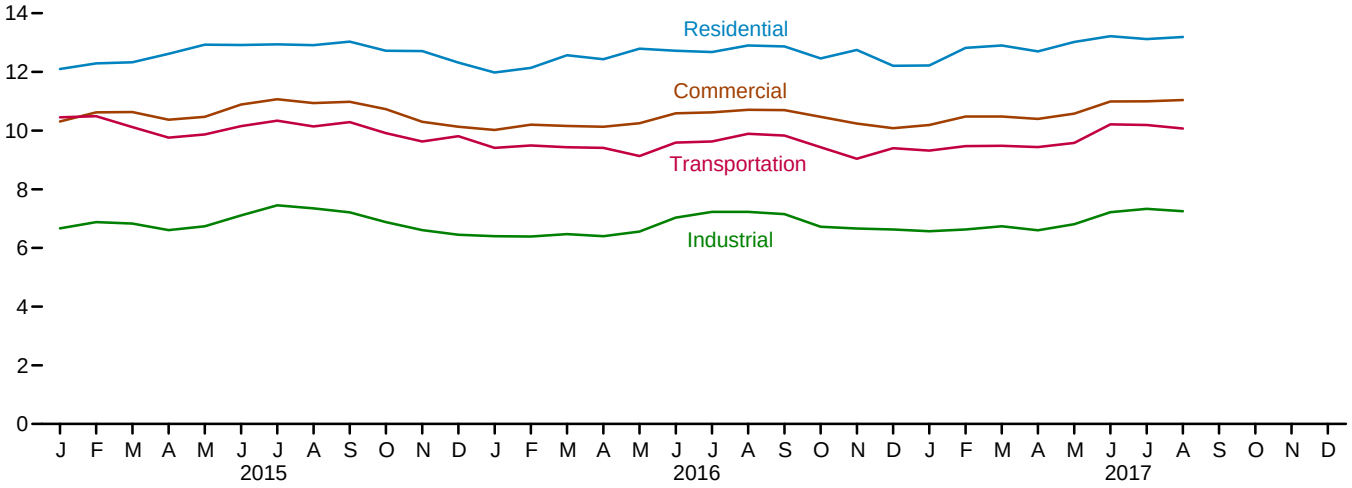
## Figure 9.2 Average Retail Prices of Electricity

(Cents[a] per Kilowatthour)

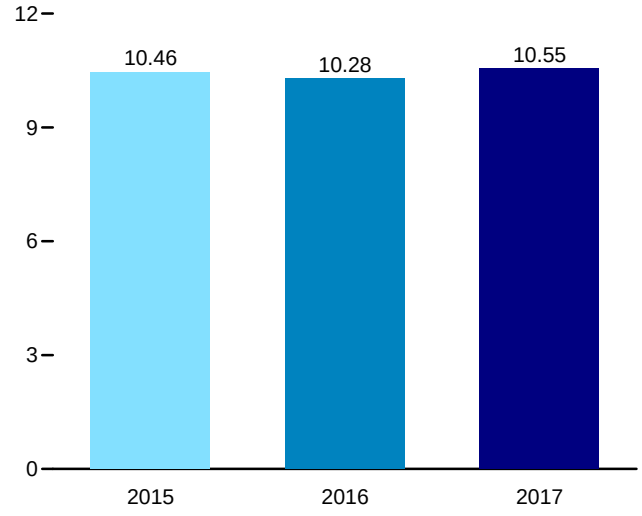
By Sector, 1960–2016



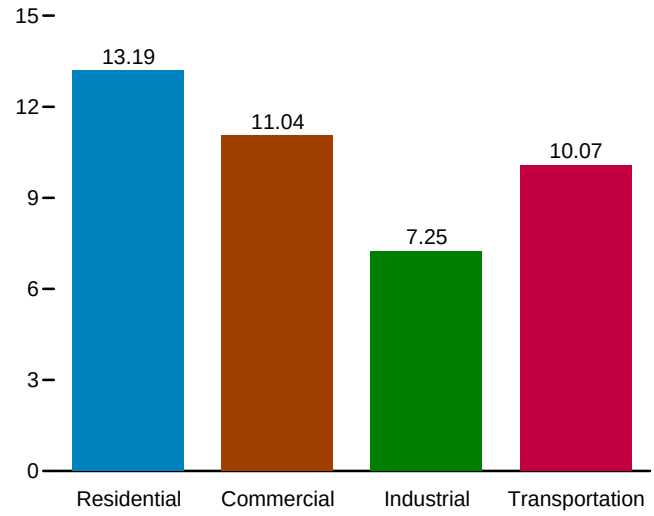

By Sector, Monthly




Total, January–August




By Sector, Aigist 2017




[a] Prices are not adjusted for inflation. See "Nominal Price" in Glossary.

[b] Public street and highway lighting, interdepartmental sales, other sales to public authorities, agricultural and irrigation, and transportation including railroads and railways.

Note: Includes taxes.

Web Page: http://www.eia.gov/totalenergy/data/monthly/#prices.

Source: Table 9.8.

# Table 9.8 Average Retail Prices of Electricity

(Cents[a] per Kilowatthour, Including Taxes)

| | Residential | Commercial[b] | Industrial[c] | Transportation[d] | Other[e] | Total |
|---|---|---|---|---|---|---|
| **1960 Average** | **2.60** | **2.40** | **1.10** | **NA** | **1.90** | **1.80** |
| **1965 Average** | **2.40** | **2.20** | **1.00** | **NA** | **1.80** | **1.70** |
| **1970 Average** | **2.20** | **2.10** | **1.00** | **NA** | **1.80** | **1.70** |
| **1975 Average** | **3.50** | **3.50** | **2.10** | **NA** | **3.10** | **2.90** |
| **1980 Average** | **5.40** | **5.50** | **3.70** | **NA** | **4.80** | **4.70** |
| **1985 Average** | **7.39** | **7.27** | **4.97** | **NA** | **6.09** | **6.44** |
| **1990 Average** | **7.83** | **7.34** | **4.74** | **NA** | **6.40** | **6.57** |
| **1995 Average** | **8.40** | **7.69** | **4.66** | **NA** | **6.88** | **6.89** |
| **2000 Average** | **8.24** | **7.43** | **4.64** | **NA** | **6.56** | **6.81** |
| **2001 Average** | **8.58** | **7.92** | **5.05** | **NA** | **7.20** | **7.29** |
| **2002 Average** | **8.44** | **7.89** | **4.88** | **NA** | **6.75** | **7.20** |
| **2003 Average** | **8.72** | **8.03** | **5.11** | **7.54** | **– –** | **7.44** |
| **2004 Average** | **8.95** | **8.17** | **5.25** | **7.18** | **– –** | **7.61** |
| **2005 Average** | **9.45** | **8.67** | **5.73** | **8.57** | **– –** | **8.14** |
| **2006 Average** | **10.40** | **9.46** | **6.16** | **9.54** | **– –** | **8.90** |
| **2007 Average** | **10.65** | **9.65** | **6.39** | **9.70** | **– –** | **9.13** |
| **2008 Average** | **11.26** | **10.26** | **6.96** | **10.71** | **– –** | **9.74** |
| **2009 Average** | **11.51** | **10.16** | **6.83** | **10.66** | **– –** | **9.82** |
| **2010 Average** | **11.54** | **10.19** | **6.77** | **10.56** | **– –** | **9.83** |
| **2011 Average** | **11.72** | **10.24** | **6.82** | **10.46** | **– –** | **9.90** |
| **2012 Average** | **11.88** | **10.09** | **6.67** | **10.21** | **– –** | **9.84** |
| **2013 Average** | **12.13** | **10.26** | **6.89** | **10.55** | **– –** | **10.07** |
| **2014 Average** | **12.52** | **10.74** | **7.10** | **10.45** | **– –** | **10.44** |
| **2015** January | 12.10 | 10.31 | 6.67 | 10.45 | – – | 10.18 |
| February | 12.29 | 10.62 | 6.88 | 10.49 | – – | 10.36 |
| March | 12.33 | 10.63 | 6.83 | 10.12 | – – | 10.29 |
| April | 12.62 | 10.37 | 6.61 | 9.76 | – – | 10.01 |
| May | 12.93 | 10.47 | 6.74 | 9.87 | – – | 10.21 |
| June | 12.92 | 10.89 | 7.11 | 10.15 | – – | 10.64 |
| July | 12.94 | 11.07 | 7.45 | 10.34 | – – | 10.95 |
| August | 12.91 | 10.94 | 7.35 | 10.14 | – – | 10.85 |
| September | 13.03 | 10.98 | 7.21 | 10.29 | – – | 10.79 |
| October | 12.72 | 10.73 | 6.88 | 9.91 | – – | 10.31 |
| November | 12.71 | 10.30 | 6.61 | 9.63 | – – | 10.05 |
| December | 12.32 | 10.13 | 6.45 | 9.81 | – – | 9.98 |
| **Average** | **12.65** | **10.64** | **6.91** | **10.09** | **– –** | **10.41** |
| **2016** January | 11.98 | 10.02 | 6.40 | 9.41 | – – | 9.96 |
| February | 12.14 | 10.20 | 6.39 | 9.49 | – – | 10.00 |
| March | 12.57 | 10.16 | 6.47 | 9.43 | – – | 10.02 |
| April | 12.43 | 10.13 | 6.40 | 9.41 | – – | 9.83 |
| May | 12.79 | 10.25 | 6.56 | 9.13 | – – | 10.07 |
| June | 12.72 | 10.59 | 7.03 | 9.59 | – – | 10.53 |
| July | 12.68 | 10.62 | 7.23 | 9.63 | – – | 10.71 |
| August | 12.90 | 10.71 | 7.23 | 9.89 | – – | 10.83 |
| September | 12.87 | 10.70 | 7.15 | 9.83 | – – | 10.69 |
| October | 12.46 | 10.47 | 6.72 | 9.43 | – – | 10.15 |
| November | 12.75 | 10.24 | 6.66 | 9.04 | – – | 10.11 |
| December | 12.21 | 10.08 | 6.63 | 9.40 | – – | 10.07 |
| **Average** | **12.55** | **10.37** | **6.75** | **9.48** | **– –** | **10.28** |
| **2017** January | 12.22 | 10.19 | 6.57 | 9.32 | – – | 10.15 |
| February | 12.82 | 10.48 | 6.63 | 9.47 | – – | 10.33 |
| March | 12.90 | 10.48 | 6.74 | 9.48 | – – | 10.34 |
| April | 12.70 | 10.40 | 6.60 | 9.44 | – – | 10.10 |
| May | 13.02 | 10.58 | 6.81 | 9.58 | – – | 10.37 |
| June | 13.22 | 10.99 | 7.22 | 10.21 | – – | 10.87 |
| July | 13.12 | 11.00 | 7.33 | 10.19 | – – | 11.02 |
| August | 13.19 | 11.04 | 7.25 | 10.07 | – – | 10.98 |
| **8-Month Average** | **12.91** | **10.67** | **6.91** | **9.72** | **– –** | **10.55** |
| **2016 8-Month Average** | **12.54** | **10.36** | **6.73** | **9.50** | **– –** | **10.28** |
| **2015 8-Month Average** | **12.63** | **10.68** | **6.97** | **10.18** | **– –** | **10.46** |

[a] Prices are not adjusted for inflation. See "Nominal Price" in Glossary.

[b] Commercial sector. For 1960–2002, prices exclude public street and highway lighting, interdepartmental sales, and other sales to public authorities.

[c] Industrial sector. For 1960–2002, prices exclude agriculture and irrigation.

[d] Transportation sector, including railroads and railways.

[e] Public street and highway lighting, interdepartmental sales, other sales to public authorities, agriculture and irrigation, and transportation including railroads and railways.

NA=Not available. – – =Not applicable.

Notes: • Beginning in 2003, the category "Other" has been replaced by "Transportation," and the categories "Commercial" and "Industrial" have been redefined. • Prices are calculated by dividing revenue by sales. Revenue may not correspond to sales for a particular month because of energy service provider billing and accounting procedures. That lack of correspondence could result in uncharacteristic increases or decreases in the monthly prices. • Prices include state and local taxes, energy or demand charges, customer service charges, environmental surcharges, franchise fees, fuel adjustments, and other miscellaneous charges applied to end-use customers during normal billing operations. Prices do not include deferred charges, credits, or other adjustments, such as fuel or revenue from purchased power, from previous reporting periods. • Through 1979, data are for Classes A and B privately owned electric utilities only. (Class A utilities are those with operating revenues of $2.5 million or more; Class B utilities are those with operating revenues between $1 million and $2.5 million.) For 1980–1982, data are for selected Class A utilities whose electric operating revenues were $100 million or more during the previous year. For 1983, data are for a selected sample of electric utilities. Beginning in 1984, data are for a census of electric utilities. Beginning in 1996, data also include energy service providers selling to retail customers. • See Note 7, "Electricity Retail Prices," at end of section for plant coverage, and for information on preliminary and final values. • Geographic coverage is the 50 states and the District of Columbia.

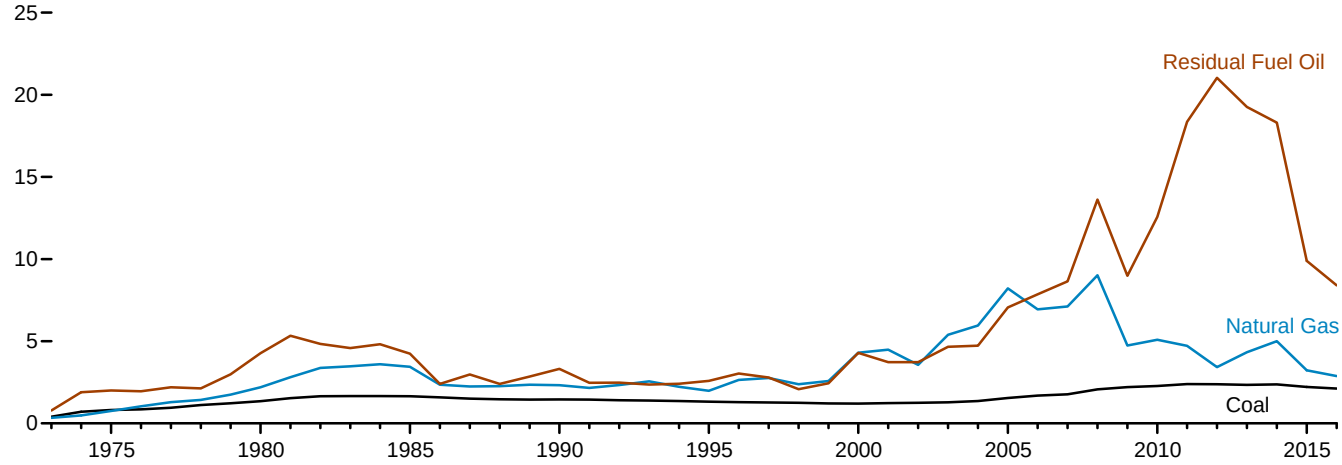
Web Page: See http://www.eia.gov/totalenergy/data/monthly/#prices (Excel and CSV files) for all available annual data beginning in 1960 and monthly data beginning in 1976.

Sources: • **1960–September 1977:** Federal Power Commission, Form FPC-5, "Monthly Statement of Electric Operating Revenues and Income." • **October 1977–February 1980:** Federal Energy Regulatory Commission (FERC), Form FPC-5, "Monthly Statement of Electric Operating Revenues and Income." • **March 1980–1982:** FERC, Form FERC-5, "Electric Utility Company Monthly Statement." • **1983:** U.S. Energy Information Administration (EIA), Form EIA-826, "Electric Utility Company Monthly Statement." • **1984–2010:** EIA, Form EIA-861, "Annual Electric Power Industry Report." • **2011 forward:** EIA, *Electric Power Monthly,* October 2017, Table 5.3.

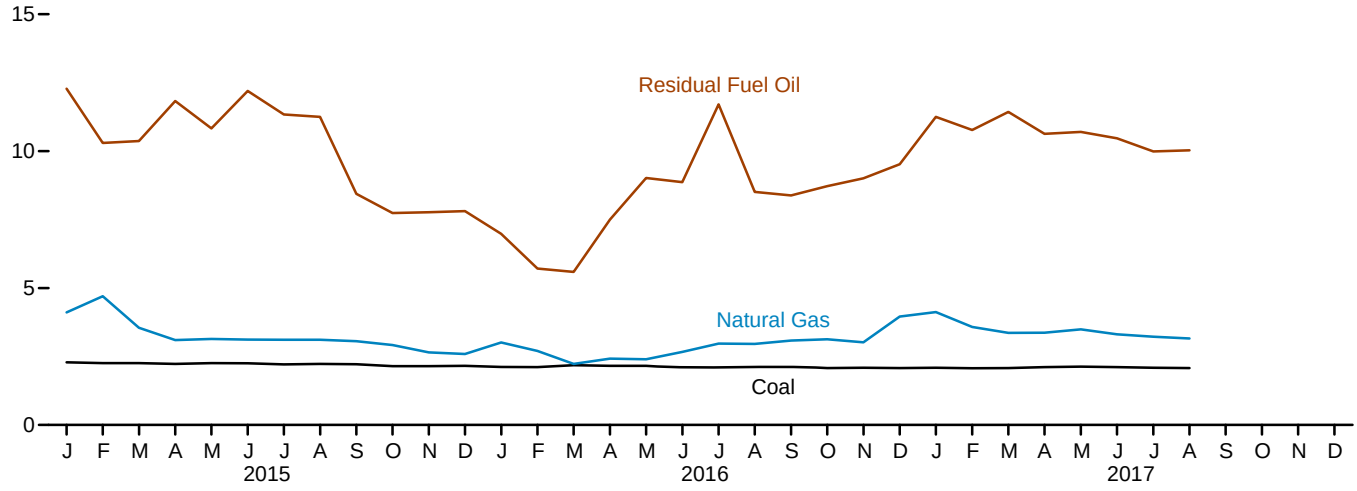
## Figure 9.3 Cost of Fossil-Fuel Receipts at Electric Generating Plants

(Dollars[a] per Million Btu, Including Taxes)

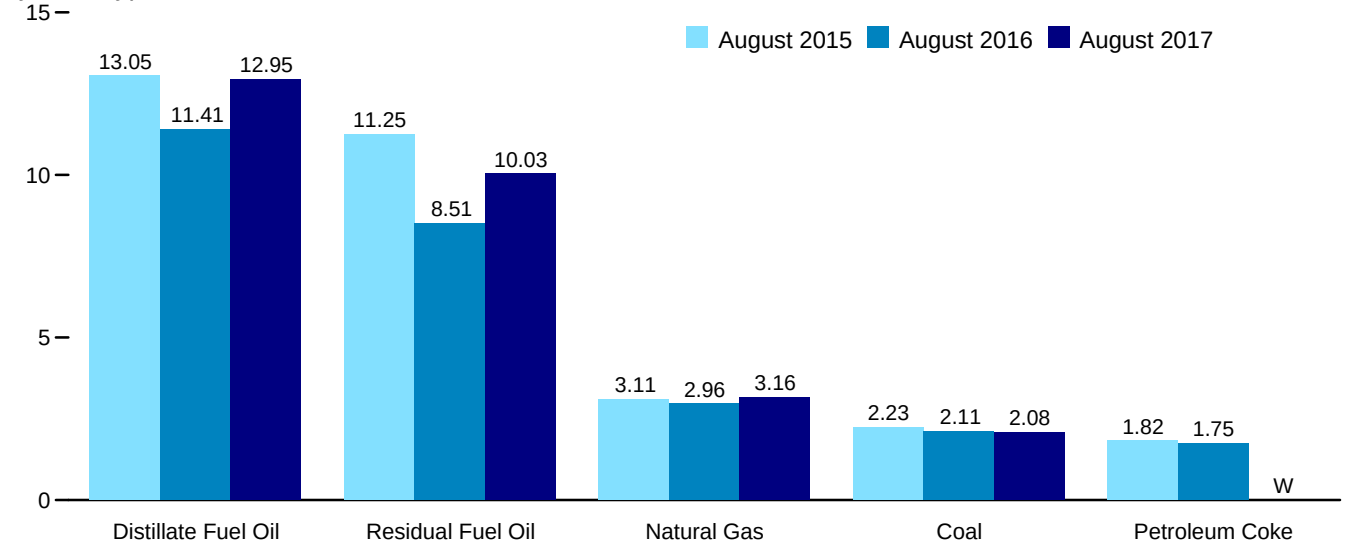
Costs, 1973–2016




Costs, Monthly




By Fuel Type




[a] Prices are not adjusted for inflation. See "Nominal Dollars" in Glossary.
W=Value withheld to avoid disclosure of individual company data.

Web Page: http://www.eia.gov/totalenergy/data/monthly/#prices.
Source: Table 9.9.

# Table 9.9 Cost of Fossil-Fuel Receipts at Electric Generating Plants

(Dollars[a] per Million Btu, Including Taxes)

| | Coal | Petroleum | | | | Natural Gas[e] | All Fossil Fuels[f] |
|---|---|---|---|---|---|---|---|
| | | Residual Fuel Oil[b] | Distillate Fuel Oil[c] | Petroleum Coke | Total[d] | | |
| **1973 Average** | **0.41** | **0.79** | **NA** | **NA** | **0.80** | **0.34** | **0.48** |
| **1975 Average** | **.81** | **2.01** | **NA** | **NA** | **2.02** | **.75** | **1.04** |
| **1980 Average** | **1.35** | **4.27** | **NA** | **NA** | **4.35** | **2.20** | **1.93** |
| **1985 Average** | **1.65** | **4.24** | **NA** | **NA** | **4.32** | **3.44** | **2.09** |
| **1990 Average** | **1.45** | **3.32** | **5.38** | **.80** | **3.35** | **2.32** | **1.69** |
| **1995 Average** | **1.32** | **2.59** | **3.99** | **.65** | **2.57** | **1.98** | **1.45** |
| **2000 Average** | **1.20** | **4.29** | **6.65** | **.58** | **4.18** | **4.30** | **1.74** |
| **2001 Average** | **1.23** | **3.73** | **6.30** | **.78** | **3.69** | **4.49** | **1.73** |
| **2002 Average**[g] | **1.25** | **3.73** | **5.34** | **.78** | **3.34** | **3.56** | **1.86** |
| **2003 Average** | **1.28** | **4.66** | **6.82** | **.72** | **4.33** | **5.39** | **2.28** |
| **2004 Average** | **1.36** | **4.73** | **8.02** | **.83** | **4.29** | **5.96** | **2.48** |
| **2005 Average** | **1.54** | **7.06** | **11.72** | **1.11** | **6.44** | **8.21** | **3.25** |
| **2006 Average** | **1.69** | **7.85** | **13.28** | **1.33** | **6.23** | **6.94** | **3.02** |
| **2007 Average** | **1.77** | **8.64** | **14.85** | **1.51** | **7.17** | **7.11** | **3.23** |
| **2008 Average** | **2.07** | **13.62** | **21.46** | **2.11** | **10.87** | **9.01** | **4.12** |
| **2009 Average** | **2.21** | **8.98** | **13.22** | **1.61** | **7.02** | **4.74** | **3.04** |
| **2010 Average** | **2.27** | **12.57** | **16.61** | **2.28** | **9.54** | **5.09** | **3.26** |
| **2011 Average** | **2.39** | **18.35** | **22.46** | **3.03** | **12.48** | **4.72** | **3.29** |
| **2012 Average** | **2.38** | **21.03** | **23.49** | **2.24** | **12.48** | **3.42** | **2.83** |
| **2013 Average** | **2.34** | **19.26** | **23.03** | **2.18** | **11.57** | **4.33** | **3.09** |
| **2014 Average** | **2.37** | **18.30** | **21.88** | **1.98** | **11.60** | **5.00** | **3.31** |
| **2015** January | 2.29 | 12.28 | 13.37 | 2.00 | 7.07 | 4.11 | 2.92 |
| February | 2.26 | 10.30 | 16.46 | 1.76 | 8.97 | 4.70 | 3.19 |
| March | 2.26 | 10.37 | 15.60 | 2.00 | 8.20 | 3.55 | 2.78 |
| April | 2.23 | 11.83 | 14.82 | 1.96 | 6.85 | 3.10 | 2.58 |
| May | 2.26 | 10.83 | 15.34 | 2.02 | 7.17 | 3.14 | 2.64 |
| June | 2.25 | 12.20 | 15.29 | 1.87 | 7.78 | 3.12 | 2.66 |
| July | 2.21 | 11.34 | 14.37 | 1.90 | 6.03 | 3.11 | 2.63 |
| August | 2.23 | 11.25 | 13.05 | 1.82 | 6.38 | 3.11 | 2.62 |
| September | 2.22 | 8.44 | 12.02 | 1.74 | 5.68 | 3.06 | 2.57 |
| October | 2.15 | 7.74 | 12.44 | 1.83 | 5.75 | 2.92 | 2.47 |
| November | 2.15 | 7.77 | 12.38 | 1.59 | 5.55 | 2.65 | 2.38 |
| December | 2.16 | 7.81 | 10.57 | 1.57 | 4.97 | 2.59 | 2.36 |
| **Average** | **2.22** | **9.89** | **14.06** | **1.84** | **6.74** | **3.23** | **2.65** |
| **2016** January | 2.12 | 6.98 | 8.90 | 1.38 | 4.51 | 3.01 | 2.52 |
| February | 2.11 | 5.71 | 8.78 | 1.30 | 3.63 | 2.70 | 2.37 |
| March | 2.18 | 5.59 | 9.46 | 1.41 | 3.60 | 2.23 | 2.22 |
| April | 2.16 | 7.50 | 9.97 | 1.35 | 4.51 | 2.42 | 2.31 |
| May | 2.16 | 9.02 | 10.75 | 1.32 | 5.67 | 2.40 | 2.31 |
| June | 2.10 | 8.87 | 12.22 | 1.41 | 6.09 | 2.67 | 2.40 |
| July | 2.11 | 11.71 | 12.08 | 1.47 | 6.36 | 2.97 | 2.56 |
| August | 2.11 | 8.51 | 11.41 | 1.75 | 5.21 | 2.96 | 2.53 |
| September | 2.12 | 8.38 | 11.36 | 2.04 | 5.20 | 3.08 | 2.56 |
| October | 2.08 | 8.72 | 11.99 | 1.98 | 5.80 | 3.13 | 2.51 |
| November | 2.09 | 9.01 | 12.11 | 2.26 | 6.17 | 3.02 | 2.47 |
| December | 2.08 | 9.52 | 12.26 | 2.07 | 5.89 | 3.96 | W |
| **Average** | **2.12** | **8.40** | **10.91** | **1.65** | **5.20** | **2.88** | **2.47** |
| **2017** January | 2.09 | 11.25 | 12.95 | 2.14 | 7.68 | 4.12 | 2.83 |
| February | 2.07 | 10.77 | 12.92 | 2.00 | 6.29 | 3.58 | 2.60 |
| March | 2.08 | 11.43 | 12.34 | 2.06 | 7.62 | 3.36 | 2.62 |
| April | 2.11 | 10.63 | 12.99 | 2.00 | 6.95 | 3.37 | 2.61 |
| May | 2.13 | 10.70 | 12.21 | 2.05 | 6.63 | 3.49 | W |
| June | 2.11 | 10.47 | 11.48 | W | 6.08 | 3.31 | W |
| July | 2.09 | 9.99 | 11.79 | W | 5.87 | 3.22 | W |
| August | 2.08 | 10.03 | 12.95 | W | 6.24 | 3.16 | W |
| **8-Month Average** | **2.09** | **10.80** | **12.44** | **W** | **6.72** | **3.42** | **W** |
| **2016 8-Month Average** | **2.13** | **8.15** | **10.40** | **1.43** | **4.92** | **2.70** | **2.42** |
| **2015 8-Month Average** | **2.25** | **11.14** | **14.92** | **1.92** | **7.38** | **3.44** | **2.74** |

[a] Prices are not adjusted for inflation. See "Nominal Dollars" in Glossary.

[b] For 1973–2001, electric utility data are for heavy oil (fuel oil nos. 5 and 6, and small amounts of fuel oil no. 4).

[c] For 1973–2001, electric utility data are for light oil (fuel oil nos. 1 and 2).

[d] For all years, includes residual fuel oil and distillate fuel oil. For 1990 forward, also includes petroleum coke. For 1973–2012, also includes jet fuel, kerosene, and waste oil. For 1983–2012, also includes other petroleum, such as propane and refined motor oil.

[e] Natural gas, plus a small amount of supplemental gaseous fuels. For 1973–2000, data also include a small amount of blast furnace gas and other gases derived from fossil fuels.

[f] Weighted average of costs shown under "Coal," "Petroleum," and "Natural Gas."

[g] Through 2001, data are for electric utilities only. Beginning in 2002, data also include independent power producers, and electric generating plants in the commercial and industrial sectors.

NA=Not available. W=Value withheld to avoid disclosure of individual company data.

Notes: • Receipts are purchases of fuel. • Yearly costs are averages of monthly values, weighted by quantities in Btu. • For this table, there are several breaks in the data series related to what plants and fuels are covered. Beginning in 2013, data cover all regulated generating plants; plus unregulated plants whose total fossil-fueled nameplate generating capacity is 50 megawatts or more for coal, and 200 megawatts or more for natural gas, residual fuel oil, distillate fuel oil, and petroleum coke. For data coverage before 2013, see EIA, *Electric Power Monthly,* Appendix C, Form EIA-923 notes, “Receipts and cost and quality of fossil fuels” section. • Geographic coverage is the 50 states and the District of Columbia.

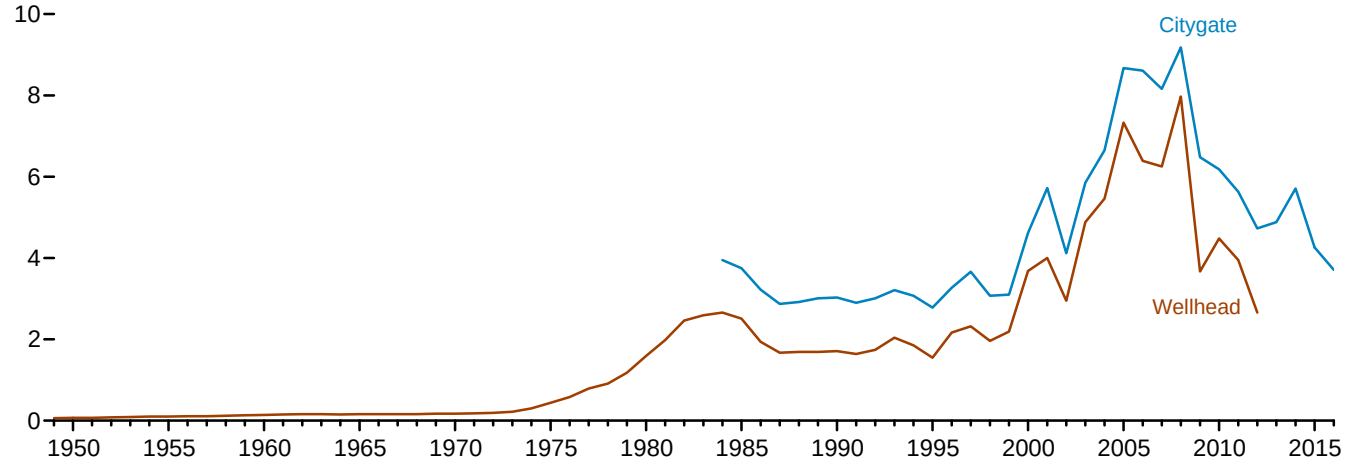
Web Page: See http://www.eia.gov/totalenergy/data/monthly/#prices (Excel and CSV files) for all available annual and monthly data beginning in 1973.

Sources: See end of section.

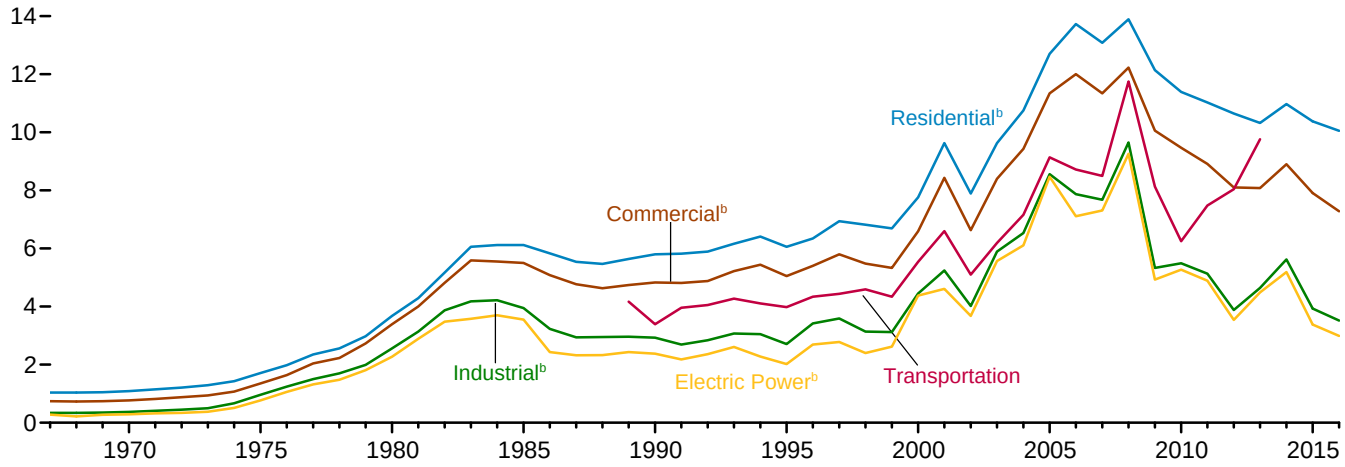
## Figure 9.4 Natural Gas Prices

(Dollars[a] per Thousand Cubic Feet)

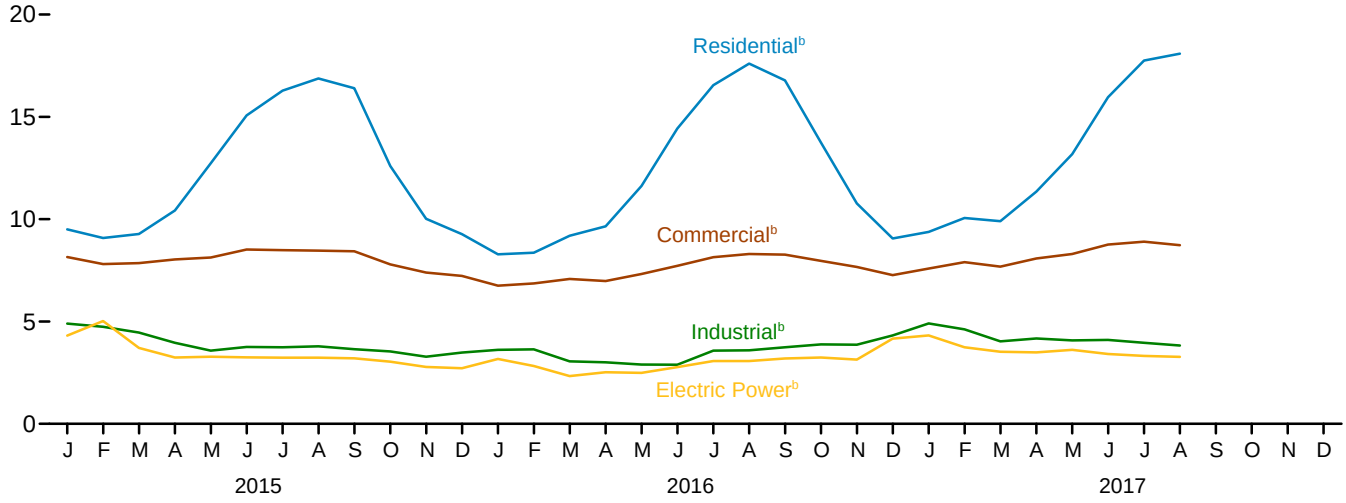
Wellhead and Citygate, 1949–2016




Consuming Sectors, 1967–2016




Consuming Sectors, Monthly




[a] Prices are not adjusted for inflation. See "Nominal Dollars" in Glossary.
[b] Includes taxes.

Web Page: http://www.eia.gov/totalenergy/data/monthly/#prices.
Source: Table 9.10.

## Table 9.10 Natural Gas Prices

(Dollars[a] per Thousand Cubic Feet)

| | Wellhead Price[f] | City-gate Price[g] | Consuming Sectors[b] | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Residential | | Commercial[c] | | Industrial[d] | | Transportation | Electric Power[e] | |
| | | | Price[h] | Percentage of Sector[i] | Price[h] | Percentage of Sector[i] | Price[h] | Percentage of Sector[i] | Vehicle Fuel[j] Price[h] | Price[h] | Percentage of Sector[i,k] |
| **1950 Average** | **0.07** | **NA** | **NA** | **NA** | **NA** | **NA** | **NA** | **NA** | **NA** | **NA** | **NA** |
| **1955 Average** | **.10** | **NA** | **NA** | **NA** | **NA** | **NA** | **NA** | **NA** | **NA** | **NA** | **NA** |
| **1960 Average** | **.14** | **NA** | **NA** | **NA** | **NA** | **NA** | **NA** | **NA** | **NA** | **NA** | **NA** |
| **1965 Average** | **.16** | **NA** | **NA** | **NA** | **NA** | **NA** | **NA** | **NA** | **NA** | **NA** | **NA** |
| **1970 Average** | **.17** | **NA** | **1.09** | **NA** | **.77** | **NA** | **.37** | **NA** | **NA** | **.29** | **NA** |
| **1975 Average** | **.44** | **NA** | **1.71** | **NA** | **1.35** | **NA** | **.96** | **NA** | **NA** | **.77** | **96.1** |
| **1980 Average** | **1.59** | **NA** | **3.68** | **NA** | **3.39** | **NA** | **2.56** | **NA** | **NA** | **2.27** | **96.9** |
| **1985 Average** | **2.51** | **3.75** | **6.12** | **NA** | **5.50** | **NA** | **3.95** | **68.8** | **NA** | **3.55** | **94.0** |
| **1990 Average** | **1.71** | **3.03** | **5.80** | **99.2** | **4.83** | **86.6** | **2.93** | **35.2** | **3.39** | **2.38** | **76.8** |
| **1995 Average** | **1.55** | **2.78** | **6.06** | **99.0** | **5.05** | **76.7** | **2.71** | **24.5** | **3.98** | **2.02** | **71.4** |
| **2000 Average** | **3.68** | **4.62** | **7.76** | **92.6** | **6.59** | **63.9** | **4.45** | **19.8** | **5.54** | **4.38** | **50.5** |
| **2001 Average** | **4.00** | **5.72** | **9.63** | **92.4** | **8.43** | **66.0** | **5.24** | **20.8** | **6.60** | **4.61** | **40.2** |
| **2002 Average** | **2.95** | **4.12** | **7.89** | **97.9** | **6.63** | **77.4** | **4.02** | **22.7** | **5.10** | [e] **3.68** | **83.9** |
| **2003 Average** | **4.88** | **5.85** | **9.63** | **97.5** | **8.40** | **78.2** | **5.89** | **22.1** | **6.19** | **5.57** | **91.2** |
| **2004 Average** | **5.46** | **6.65** | **10.75** | **97.7** | **9.43** | **78.0** | **6.53** | **23.6** | **7.16** | **6.11** | **89.8** |
| **2005 Average** | **7.33** | **8.67** | **12.70** | **98.1** | **11.34** | **82.1** | **8.56** | **24.0** | **9.14** | **8.47** | **91.3** |
| **2006 Average** | **6.39** | **8.61** | **13.73** | **98.1** | **12.00** | **80.8** | **7.87** | **23.4** | **8.72** | **7.11** | **93.4** |
| **2007 Average** | **6.25** | **8.16** | **13.08** | **98.0** | **11.34** | **80.4** | **7.68** | **22.2** | **8.50** | **7.31** | **92.2** |
| **2008 Average** | **7.97** | **9.18** | **13.89** | **97.5** | **12.23** | **79.7** | **9.65** | **20.4** | **11.75** | **9.26** | **101.1** |
| **2009 Average** | **3.67** | **6.48** | **12.14** | **97.4** | **10.06** | **77.8** | **5.33** | **18.8** | **8.13** | **4.93** | **101.1** |
| **2010 Average** | **4.48** | **6.18** | **11.39** | **97.4** | **9.47** | **77.5** | **5.49** | **18.0** | **6.25** | **5.27** | **100.8** |
| **2011 Average** | **3.95** | **5.63** | **11.03** | **96.3** | **8.91** | **67.3** | **5.13** | **16.3** | **7.48** | **4.89** | **101.2** |
| **2012 Average** | [E] **2.66** | **4.73** | **10.65** | **95.8** | **8.10** | **65.2** | **3.88** | **16.2** | **8.04** | **3.54** | **95.5** |
| **2013 Average** | **NA** | **4.88** | **10.32** | **95.7** | **8.08** | **65.8** | **4.64** | **16.6** | **9.76** | **4.49** | **94.9** |
| **2014 Average** | **NA** | **5.71** | **10.97** | **95.5** | **8.90** | **65.8** | **5.62** | **15.9** | **NA** | **5.19** | **94.6** |
| **2015** January | NA | 4.48 | 9.50 | 95.7 | 8.15 | 70.8 | 4.90 | 14.8 | NA | 4.31 | 93.6 |
| February | NA | 4.57 | 9.08 | 95.6 | 7.81 | 71.0 | 4.74 | 15.2 | NA | 5.02 | 93.7 |
| March | NA | 4.35 | 9.28 | 95.4 | 7.85 | 69.9 | 4.46 | 15.4 | NA | 3.71 | 94.4 |
| April | NA | 3.93 | 10.43 | 95.4 | 8.03 | 64.8 | 3.96 | 14.6 | NA | 3.24 | 95.6 |
| May | NA | 4.25 | 12.73 | 95.4 | 8.13 | 61.2 | 3.58 | 15.1 | NA | 3.28 | 95.5 |
| June | NA | 4.44 | 15.07 | 95.5 | 8.52 | 57.9 | 3.76 | 14.6 | NA | 3.25 | 94.9 |
| July | NA | 4.65 | 16.28 | 95.7 | 8.49 | 56.9 | 3.74 | 14.6 | NA | 3.23 | 94.9 |
| August | NA | 4.59 | 16.88 | 95.4 | 8.46 | 55.6 | 3.79 | 14.3 | NA | 3.23 | 94.7 |
| September | NA | 4.56 | 16.40 | 95.8 | 8.43 | 55.8 | 3.65 | 14.5 | NA | 3.20 | 94.4 |
| October | NA | 4.00 | 12.60 | 95.5 | 7.79 | 59.5 | 3.54 | 14.7 | NA | 3.04 | 94.6 |
| November | NA | 3.69 | 10.02 | 96.0 | 7.39 | 63.8 | 3.28 | 14.8 | NA | 2.78 | 94.8 |
| December | NA | 3.75 | 9.27 | 96.0 | 7.23 | 67.6 | 3.48 | 14.9 | NA | 2.72 | 94.2 |
| **Average** | **NA** | **4.26** | **10.38** | **95.6** | **7.91** | **65.7** | **3.93** | **14.8** | **NA** | **3.38** | **94.6** |
| **2016** January | NA | 3.39 | 8.28 | 96.0 | 6.75 | 70.4 | 3.62 | 15.2 | NA | 3.17 | 94.8 |
| February | NA | 3.48 | 8.36 | 95.8 | 6.86 | 69.4 | 3.64 | 15.3 | NA | 2.83 | 95.3 |
| March | NA | 3.49 | 9.19 | 95.6 | 7.08 | 66.7 | 3.05 | 15.3 | NA | 2.33 | 95.7 |
| April | NA | 3.22 | 9.65 | 95.6 | 6.98 | 65.0 | 3.01 | 14.5 | NA | 2.52 | 95.6 |
| May | NA | 3.44 | 11.62 | 95.4 | 7.32 | 60.2 | 2.90 | 14.6 | NA | 2.49 | 95.7 |
| June | NA | 3.84 | 14.43 | 95.7 | 7.72 | 58.0 | 2.89 | 14.6 | NA | 2.77 | 95.4 |
| July | NA | 4.42 | 16.55 | 95.9 | 8.14 | 56.9 | 3.58 | 14.2 | NA | 3.07 | 95.0 |
| August | NA | 4.33 | 17.60 | 95.8 | 8.30 | 54.7 | 3.59 | 14.6 | NA | 3.07 | 95.1 |
| September | NA | 4.60 | 16.78 | 96.0 | 8.27 | 56.2 | 3.74 | 14.6 | NA | 3.19 | 95.6 |
| October | NA | 4.19 | 13.74 | 95.9 | 7.96 | 59.9 | 3.88 | 14.4 | NA | 3.24 | 95.3 |
| November | NA | 3.90 | 10.77 | 96.0 | 7.67 | 63.5 | 3.87 | 14.5 | NA | 3.14 | 95.7 |
| December | NA | 3.96 | 9.06 | 96.0 | 7.27 | 68.2 | 4.32 | 14.7 | NA | 4.16 | 95.7 |
| **Average** | **NA** | **3.71** | **10.05** | **95.8** | **7.28** | **64.8** | **3.52** | **14.7** | **NA** | **2.99** | **95.4** |
| **2017** January | NA | 4.21 | 9.38 | 96.0 | 7.59 | 70.5 | 4.91 | 15.0 | NA | 4.32 | 83.0 |
| February | NA | 4.13 | 10.06 | 95.9 | 7.90 | 69.1 | 4.62 | 15.0 | NA | 3.74 | 84.3 |
| March | NA | 3.83 | 9.90 | 95.7 | 7.68 | 67.9 | 4.03 | 14.9 | NA | 3.52 | 81.5 |
| April | NA | 4.17 | [R] 11.35 | 95.3 | [R] 8.08 | 65.1 | [R] 4.17 | 14.5 | NA | 3.49 | 82.4 |
| May | NA | 4.39 | 13.18 | 95.6 | [R] 8.30 | [R] 61.0 | 4.08 | 13.8 | NA | 3.62 | 82.4 |
| June | NA | [R] 4.78 | 15.96 | 94.5 | 8.76 | [R] 58.1 | 4.10 | 14.4 | NA | 3.41 | 82.1 |
| July | NA | [R] 4.67 | 17.75 | 95.8 | 8.90 | 56.9 | 3.96 | 14.5 | NA | 3.32 | 80.0 |
| August | NA | 4.55 | 18.09 | 95.7 | 8.73 | 55.6 | 3.83 | 14.2 | NA | 3.27 | 81.0 |
| **8-Month Average** | **NA** | **4.21** | **11.05** | **95.7** | **7.99** | **65.5** | **4.23** | **14.5** | **NA** | **3.55** | **81.9** |
| **2016 8-Month Average** | **NA** | **3.54** | **9.75** | **95.8** | **7.13** | **65.3** | **3.30** | **14.8** | **NA** | **2.81** | **95.3** |
| **2015 8-Month Average** | **NA** | **4.42** | **10.29** | **95.5** | **8.05** | **66.7** | **4.15** | **14.8** | **NA** | **3.59** | **94.7** |

[a] Prices are not adjusted for inflation. See "Nominal Dollars" in Glossary.
[b] See Note 8, "Natural Gas Prices," at end of section.
[c] Commercial sector, including 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 Section 7.
[d] Industrial sector, including 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 Section 7.
[e] The electric power sector comprises 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 2001, data are for electric utilities only; beginning in 2002, data also include independent power producers.
[f] See "Natural Gas Wellhead Price" in Glossary.
[g] See "Citygate" in Glossary.
[h] Includes taxes.
[i] The percentage of the sector's consumption in Table 4.3 for which price data are available. For details on how the percentages are derived, see Table 9.10 sources at end of section.
[j] Much of the natural gas delivered for vehicle fuel represents deliveries to fueling stations that are used primarily or exclusively by fleet vehicles. Thus, the prices are often those associated with the cost of gas in the operation of fleet vehicles.
[k] Percentages exceed 100% when reported natural gas receipts are greater than reported natural gas consumption—this can occur when combined-heat-and-power plants report fuel receipts related to non-electric generating activities.

R=Revised. NA=Not available. E=Estimate.

Notes: • Prices are for natural gas, plus a small amount of supplemental gaseous fuels. • Prices are intended to include all taxes. See Note 8, "Natural Gas Prices," at end of section. • Wellhead annual and year-to-date prices are simple averages of the monthly prices; all other annual and year-to-date prices are volume-weighted averages of the monthly prices. • Geographic coverage is the 50 states and the District of Columbia.

Web Page: See http://www.eia.gov/totalenergy/data/monthly/#prices (Excel and CSV files) for all available annual data beginning in 1949 and monthly data beginning in 1976.

Sources: See end of section.

# Energy Prices

**Note 1. Crude Oil Refinery Acquisition Costs.** Beginning with January 1981, refiner acquisition costs of crude oil are from data collected on U.S. Energy Information Administration (EIA) Form EIA-14, "Refiners' Monthly Cost Report." Those costs were previously published from data collected on Economic Regulatory Administration (ERA) Form ERA-49, "Domestic Crude Oil Entitlements Program Refiners Monthly Report." Form ERA-49 was discontinued with the decontrol of crude oil on January 28, 1981. Crude oil purchases and costs are defined for Form EIA-14 in accordance with conventions used for Form ERA-49. The respondents for the two forms are also essentially the same. However, due to possible different interpretations of the filing requirements and a different method for handling prior period adjustments, care must be taken when comparing the data collected on the two forms.

The refiner acquisition cost of crude oil is the average price paid by refiners for crude oil booked into their refineries in accordance with accounting procedures generally accepted and consistently and historically applied by the refiners concerned. Domestic crude oil is that oil produced in the United States or from the outer continental shelf as defined in 43 USC Section 1331. Imported crude oil is either that oil reported on Form ERA-51, "Transfer Pricing Report," or any crude oil that is not domestic oil. The composite cost is the weighted average of domestic and imported crude oil costs.

Crude oil costs and volumes reported on Form ERA-49 excluded unfinished oils but included the Strategic Petroleum Reserve (SPR). Crude oil costs and volumes reported on Federal Energy Administration (FEA) Form FEA-P110-M-1, "Refiners' Monthly Cost Allocation Report," included unfinished oils but excluded SPR. Imported averages derived from Form ERA-49 exclude oil purchased for SPR, whereas the composite averages derived from Form ERA-49 include SPR. None of the prices derived from Form EIA-14 include either unfinished oils or SPR.

**Note 2. Crude Oil Domestic First Purchase Prices.** The average domestic first purchase price represents the average price at which all domestic crude oil is purchased. Crude oil domestic first purchase prices were derived as follows: for 1949–1973, weighted average domestic first purchase values as reported by state agencies and calculated by the Bureau of Mines; for 1974 and 1975, weighted averages of a sample survey of major first purchasers' purchases; for 1976 forward, weighted averages of all first purchasers' purchases. The data series was previously called "Actual Domestic Wellhead Price."

**Note 3. Crude Oil F.O.B. Costs.** F.O.B. literally means "Free on Board." It denotes a transaction whereby the seller makes the product available with an agreement on a given port at a given price; it is the responsibility of the buyer to arrange for the transportation and insurance.

**Note 4. Crude Oil Landed Costs.** The landed cost of imported crude oil from selected countries does not represent the total cost of all imported crude. Prior to April 1975, imported crude costs to U.S. company-owned refineries in the Caribbean were not included in the landed cost, and costs of crude oil from countries that export only small amounts to the United States were also excluded. Beginning in April 1975, however, coverage was expanded to include U.S. company-owned refineries in the Caribbean. Landed costs do not include supplemental fees.

**Note 5. Motor Gasoline Prices.** Several different series of motor gasoline prices are published in this section. U.S. city average retail prices of motor gasoline by grade are calculated monthly by the Bureau of Labor Statistics during the development of the Consumer Price Index (CPI). These prices include all federal, state, and local taxes paid at the time of sale. Prior to 1977, prices were collected in 56 urban areas. From 1978 forward, prices are collected from a new sample of service stations in 85 urban areas selected to represent all urban consumers—about 80 percent of the total U.S. population. The service stations are selected initially, and on a replacement basis, in such a way that they represent the purchasing habits of the CPI population. Service stations in the current sample include those providing all types of service (i.e., full-, mini-, and self-serve).

Regular motor gasoline prices by area type are determined by EIA in a weekly survey of retail motor gasoline outlets (Form EIA-878, "Motor Gasoline Price Survey"). Prices include all federal, state, and local taxes paid at the time of sale. A representative sample of outlets by geographic area and size is randomly selected from a sampling frame of approximately 115,000 retail motor gasoline outlets. Monthly and annual prices are simple averages of weighted weekly estimates from "Weekly U.S. Retail Gasoline Prices, Regular Grade." For more information on the survey methodology, see EIA, *Weekly Petroleum Status Report*, Appendix B, "Weekly Petroleum Price Surveys" section.

Refiner prices of finished motor gasoline for resale and to end users are determined by EIA in a monthly survey of refiners and gas plant operators (Form EIA-782A). The prices do not include any federal, state, or local taxes paid at the time of sale. Estimates of prices prior to January 1983 are based on Form FEA-P302-M-1/EIA-460, "Petroleum Industry Monthly Report for Product Prices," and also exclude all federal, state, or local taxes paid at the time of sale. Sales for resale are those made to purchasers who are other-than-ultimate consumers. Sales to end users are sales made directly to the consumer of the product, including bulk consumers (such as agriculture, industry, and utilities) and residential and commercial consumers.

**Note 6. Historical Petroleum Prices.** Starting in January 1983, Form EIA-782, "Monthly Petroleum Product Sales Report," replaced 10 previous surveys. Every attempt was made to continue the most important price series. However, prices published through December 1982 and those

published since January 1983 do not necessarily form continuous data series due to changes in survey forms, definitions, instructions, populations, samples, processing systems, and statistical procedures. To provide historical data, continuous series were generated for annual data 1978–1982 and for monthly data 1981 and 1982 by estimating the prices that would have been published had Form EIA-782 survey and system been in operation at that time. This form of estimation was performed after detailed adjustment was made for product and sales type matching and for discontinuity due to other factors. An important difference between the previous and present prices is the distinction between wholesale and resale and between retail and end user. The resale category continues to include sales among resellers. However, sales to bulk consumers, such as utility, industrial, and commercial accounts previously included in the wholesale category, are now counted as made to end users. The end-user category continues to include retail sales through company-owned and operated outlets but also includes sales to the bulk consumers such as agriculture, industry, and electric utilities. Additional information may be found in "Estimated Historic Time Series for the EIA-782," a feature article by Paula Weir, printed in the December 1983 [3] *Petroleum Marketing Monthly*, published by EIA.

**Note 7. Electricity Retail Prices.** Average annual retail prices of electricity have the following plant coverage: Through 1979, annual data are for Classes A and B privately owned electric utilities only. For 1980–1982, annual data are for selected Class A utilities whose electric operating revenues were $100 million or more during the previous year. For 1983, annual data are for a selected sample of electric utilities. Beginning in 1984, data are for a census of electric utilities. Beginning in 1996, annual data also include energy service providers selling to retail customers.

Average monthly retail prices of electricity have the following plant coverage: Through 1985, monthly data are derived from selected privately owned electric utilities and, therefore, are not national averages. Beginning in 1986, monthly data are based on a sample of publicly and privately owned electric utilities. Beginning in 1996, monthly data also include energy service providers selling to retail customers.

Preliminary monthly data are from Form EIA-861M (formerly Form EIA-826), "Monthly Electric Power Industry Report," which is a monthly collection of data from approximately 450 of the largest publicly and privately owned electric utilities as well as a census of energy service providers with retail sales in deregulated states; a model is then applied to the collected data to estimate for the entire universe of U.S. electric utilities. Preliminary annual data are the sum of the monthly revenues divided by the sum of the monthly sales. When final annual data become available each year from Form EIA-861, "Annual Electric Power Industry Report," their ratios to the preliminary Form EIA-861M values are used to derive adjusted final monthly values.

**Note 8. Natural Gas Prices.** Natural gas prices are intended to include all taxes. Instructions on the data collection forms specifically direct that all federal, state, and local taxes, surcharges, and/or adjustments billed to consumers are to be included. However, sales and other taxes itemized on more than 3,000 consumers' bills are sometimes excluded by the reporting utilities. Delivered-to-consumers prices for 1987 forward represent natural gas delivered and sold to residential, commercial, industrial, vehicle fuel, and electric power consumers. They do not include the price of natural gas delivered on behalf of third parties to residential, commercial, industrial, and vehicle fuel customers except for certain states in the residential and commercial sectors for 2002 forward. Volumes of natural gas delivered on behalf of third parties are included in the consumption data shown in Table 4.3. Additional information is available in EIA, *Natural Gas Monthly*, Appendix C.

## Table 9.1 Sources

**Domestic First Purchase Price**

1949–1976: U.S. Department of the Interior (DOI), Bureau of Mines (BOM), *Minerals Yearbook*, "Crude Petroleum and Petroleum Products" chapter.
1977: Federal Energy Administration, based on Form FEA-P124, "Domestic Crude Oil Purchaser's Monthly Report."
1978–2009: U.S. Energy Information Administration (EIA), *Petroleum Marketing Annual 2009*, Table 1.
2010 forward: EIA, *Petroleum Marketing Monthly*, November 2017, Table 1.

**F.O.B. and Landed Cost of Imports**

October 1973–September 1977: Federal Energy Administration, Form FEA-F701-M-0, "Transfer Pricing Report."
October–December 1977: EIA, Form FEA-F701-M-0, "Transfer Pricing Report."
1978–2009: EIA, *Petroleum Marketing Annual 2009*, Table 1.
2010 forward: EIA, *Petroleum Marketing Monthly*, November 2017, Table 1.

**Refiner Acquisition Cost**

1968–1973: EIA estimates. The cost of domestic crude oil was derived by adding estimated transportation costs to the reported average domestic first purchase price. The cost of imported crude oil was derived by adding an estimated ocean transport cost based on the published "Average Freight Rate Assessment" to the average "Free Alongside Ship" value published by the U.S.Census Bureau.
1974–1976: DOI, BOM, *Minerals Yearbook*, "Crude Petroleum and Petroleum Products" chapter.
1977: January–September, FEA, based on Form FEA-P110-M-1, "Refiners' Monthly Cost Allocation Report."
1977: October–December, EIA, based on Form FEA-P110-M-1, "Refiners' Monthly Cost Allocation Report."

1978–2009: EIA, *Petroleum Marketing Annual 2009*, Table 1.
2010 forward: EIA, *Petroleum Marketing Monthly*, November 2017, Table 1.

## Table 9.2 Sources

October 1973–September 1977: Federal Energy Administration, Form FEA-F701-M-0, "Transfer Pricing Report."
October 1977–December 1977: U.S. Energy Information Administration (EIA), Form FEA-F701-M-0, "Transfer Pricing Report."
1978–2009: EIA, *Petroleum Marketing Annual 2009*, Table 21.
2010 forward: EIA, *Petroleum Marketing Monthly*, November 2017, Table 21.

## Table 9.9 Sources

1973–September 1977: Federal Power Commission, Form FPC-423, "Monthly Report of Cost and Quality of Fuels for Electric Utility Plants."
October 1977–December 1977: Federal Energy Regulatory Commission, Form FERC-423, "Monthly Report of Cost and Quality of Fuels for Electric Utility Plants."
1978 and 1979: U.S. Energy Information Administration (EIA), Form FERC-423, "Monthly Report of Cost and Quality of Fuels for Electric Utility Plants."
1980–1989: EIA, *Electric Power Monthly*, May issues.
1990–2000: EIA, *Electric Power Monthly*, March 2003, Table 26.
2001–2007: EIA, *Electric Power Monthly*, October 2008, Table 4.1; Federal Energy Regulatory Commission, Form FERC-423, "Monthly Report of Cost and Quality of Fuels for Electric Utility Plants"; and EIA, Form EIA-423, "Monthly Cost and Quality of Fuels for Electric Plants Report."
2008 forward: EIA, *Electric Power Monthly*, October 2017, Table 4.1; and Form EIA-923, "Power Plant Operations Report."

## Table 9.10 Sources

**All Prices Except Vehicle Fuel and Electric Power**
1949–2014: U.S. Energy Information Administration (EIA), *Natural Gas Annual* (*NGA*), annual reports and unpublished revisions.
2015 forward: EIA, *Natural Gas Monthly* (*NGM*), October 2017, Table 3.

**Vehicle Fuel Price**
1989–2015: EIA, NGA, annual reports.

**Electric Power Sector Price**
1967–1972: EIA, NGA, annual reports.
1973–1998: EIA, NGA 2000, Table 96.
1999–2002: EIA, NGM, October 2004, Table 4.
2003–2007: Federal Energy Regulatory Commission, Form FERC-423, "Monthly Report of Cost and Quality of Fuels for Electric Utility Plants," and EIA, Form EIA-423 "Monthly Cost and Quality of Fuels for Electric Plants Report."
2008 forward: Form EIA-923, "Power Plant Operations Report."

**Percentage of Residential Sector**
1989–2013: EIA, Form EIA-176, "Annual Report of Natural and Supplemental Gas Supply and Disposition." Calculated as the total amount of natural gas delivered to residential consumers minus the amount delivered for the account of others, and then divided by the total amount delivered to residential consumers.
2014 forward: EIA, Form EIA-857, "Monthly Report of Natural Gas Purchases and Deliveries to Consumers."

**Percentage of Commercial Sector**
1987–2014: EIA, NGA, annual reports. Calculated as the total amount of natural gas delivered to commercial consumers minus the amount delivered for the account of others, and then divided by the total amount delivered to commercial consumers.
2015 forward: EIA, NGM, October 2017, Table 3.

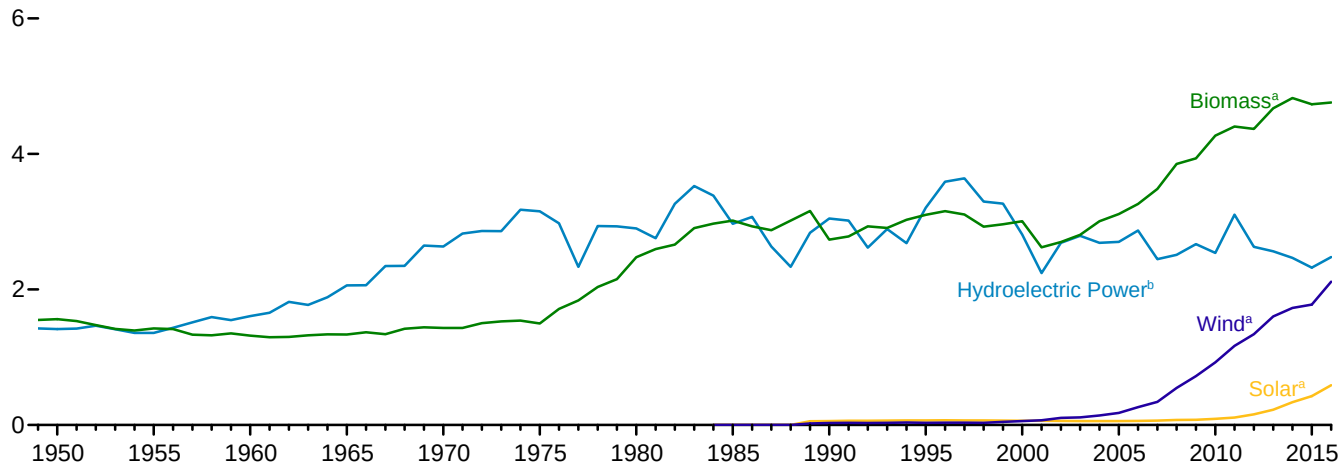
**Percentage of Industrial Sector**
1982–2014: EIA, NGA, annual reports. Calculated as the total amount of natural gas delivered to industrial consumers minus the amount delivered for the account of others, and then divided by the total amount delivered to industrial consumers.
2015 forward: EIA, NGM, October 2017, Table 3.

**Percentage of Electric Power Sector**
1973–2001: Calculated by EIA as the quantity of natural gas receipts by electric utilities reported on Form FERC-423, "Monthly Report of Cost and Quality of Fuels for Electric Utility Plants" (and predecessor forms) divided by the quantity of natural gas consumed by the electric power sector (for 1973–1988, see *Monthly Energy Review (MER)*, Table 7.3b; for 1989–2001, see MER, Table 7.4b).
2002–2007: Calculated by EIA as the quantity of natural gas receipts by electric utilities and independent power producers reported on Form FERC-423, "Monthly Report of Cost and Quality of Fuels for Electric Utility Plants," and EIA-423, "Monthly Cost and Quality of Fuels for Electric Plants Report," divided by the quantity of natural gas consumed by the electric power sector (see MER, Table 7.4b).
2008 forward: Calculated by EIA as the quantity of natural gas receipts by electric utilities and independent power producers reported on Form EIA-923, "Power Plant Operations Report," divided by the quantity of natural gas consumed by the electric power sector (see MER, Table 7.4b).

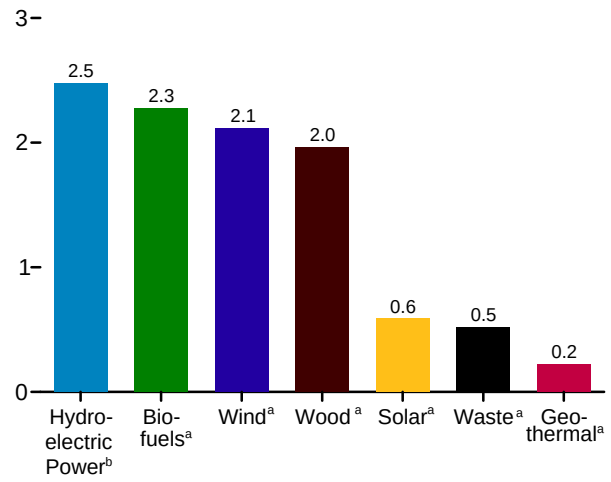
# 10. Renewable Energy

## Figure 10.1 Renewable Energy Consumption
(Quadrillion Btu)

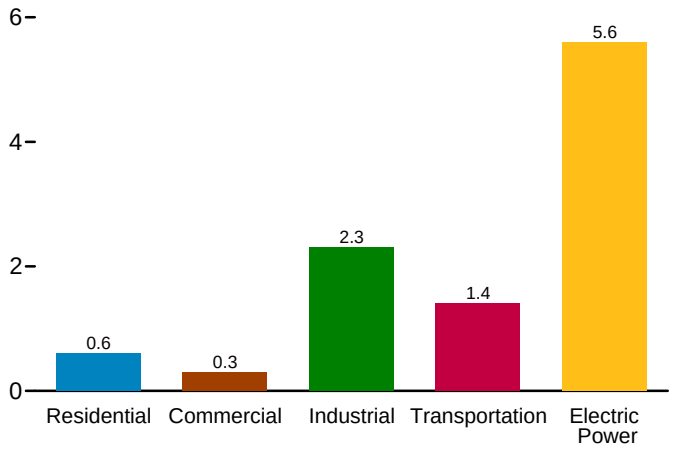
Major Sources, 1949–2016



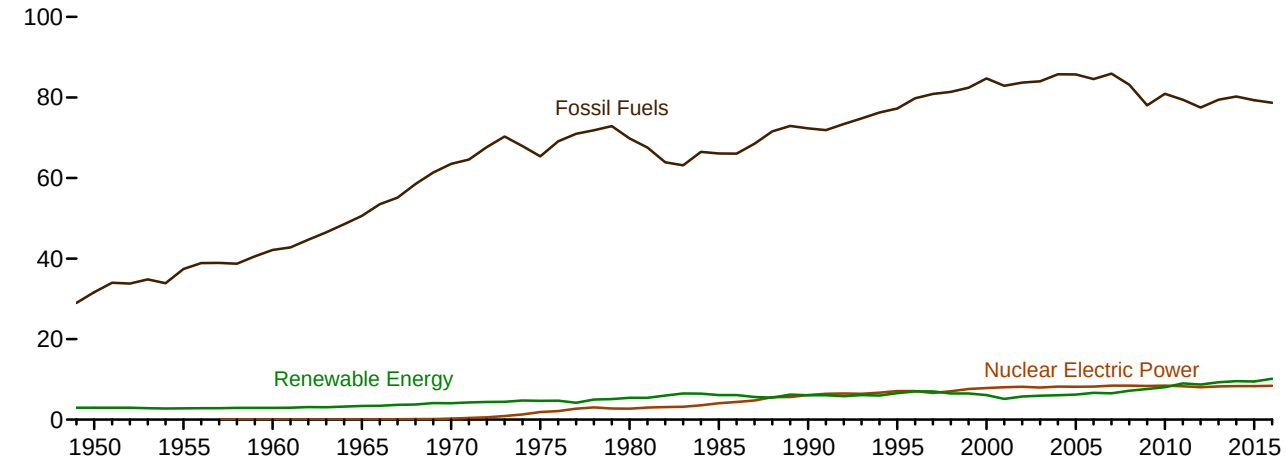

By Source, 2016




By Sector, 2016




Compared With Other Resources, 1949–2016




[a] See Table 10.1 for definition.
[b] Conventional hydroelectric power.

Web Page: http://www.eia.gov/totalenergy/data/monthly/#renewable.
Sources: Tables 1.3 and 10.1–10.2c.

## Table 10.1 Renewable Energy Production and Consumption by Source

(Trillion Btu)

| | Production[a] | | | Consumption | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Biomass | | Total Renewable Energy[d] | Hydroelectric Power[e] | Geothermal[f] | Solar[g] | Wind[h] | Biomass | | | | Total Renewable Energy |
| | Biofuels[b] | Total[c] | | | | | | Wood[i] | Waste[j] | Biofuels[k] | Total | |
| **1950 Total** | **NA** | **1,562** | **2,978** | **1,415** | **NA** | **NA** | **NA** | **1,562** | **NA** | **NA** | **1,562** | **2,978** |
| **1955 Total** | **NA** | **1,424** | **2,784** | **1,360** | **NA** | **NA** | **NA** | **1,424** | **NA** | **NA** | **1,424** | **2,784** |
| **1960 Total** | **NA** | **1,320** | **2,928** | **1,608** | **(s)** | **NA** | **NA** | **1,320** | **NA** | **NA** | **1,320** | **2,928** |
| **1965 Total** | **NA** | **1,335** | **3,396** | **2,059** | **2** | **NA** | **NA** | **1,335** | **NA** | **NA** | **1,335** | **3,396** |
| **1970 Total** | **NA** | **1,431** | **4,070** | **2,634** | **6** | **NA** | **NA** | **1,429** | **2** | **NA** | **1,431** | **4,070** |
| **1975 Total** | **NA** | **1,499** | **4,687** | **3,155** | **34** | **NA** | **NA** | **1,497** | **2** | **NA** | **1,499** | **4,687** |
| **1980 Total** | **NA** | **2,475** | **5,428** | **2,900** | **53** | **NA** | **NA** | **2,474** | **2** | **NA** | **2,475** | **5,428** |
| **1985 Total** | **93** | **3,016** | **6,084** | **2,970** | **97** | **(s)** | **(s)** | **2,687** | **236** | **93** | **3,016** | **6,084** |
| **1990 Total** | **111** | **2,735** | **6,040** | **3,046** | **171** | **59** | **29** | **2,216** | **408** | **111** | **2,735** | **6,040** |
| **1995 Total** | **198** | **3,099** | **6,557** | **3,205** | **152** | **68** | **33** | **2,370** | **531** | **200** | **3,101** | **6,559** |
| **2000 Total** | **233** | **3,006** | **6,102** | **2,811** | **164** | **63** | **57** | **2,262** | **511** | **236** | **3,008** | **6,104** |
| **2001 Total** | **254** | **2,624** | **5,162** | **2,242** | **164** | **62** | **70** | **2,006** | **364** | **253** | **2,622** | **5,160** |
| **2002 Total** | **308** | **2,705** | **5,731** | **2,689** | **171** | **60** | **105** | **1,995** | **402** | **303** | **2,701** | **5,726** |
| **2003 Total** | **401** | **2,805** | **5,942** | **2,793** | **173** | **58** | **113** | **2,002** | **401** | **403** | **2,806** | **5,944** |
| **2004 Total** | **486** | **2,996** | **6,063** | **2,688** | **178** | **58** | **142** | **2,121** | **389** | **498** | **3,008** | **6,075** |
| **2005 Total** | **561** | **3,101** | **6,221** | **2,703** | **181** | **58** | **178** | **2,137** | **403** | **574** | **3,114** | **6,233** |
| **2006 Total** | **716** | **3,212** | **6,586** | **2,869** | **181** | **61** | **264** | **2,099** | **397** | **766** | **3,262** | **6,637** |
| **2007 Total** | **970** | **3,472** | **6,510** | **2,446** | **186** | **65** | **341** | **2,089** | **413** | **983** | **3,485** | **6,523** |
| **2008 Total** | **1,374** | **3,868** | **7,191** | **2,511** | **192** | **74** | **546** | **2,059** | **435** | **1,357** | **3,851** | **7,174** |
| **2009 Total** | **1,570** | **3,953** | **7,620** | **2,669** | **200** | **78** | **721** | **1,931** | **452** | **1,553** | **3,936** | **7,604** |
| **2010 Total** | **1,868** | **4,316** | **8,077** | **2,539** | **208** | **90** | **923** | **1,981** | **468** | **1,821** | **4,270** | **8,030** |
| **2011 Total** | **2,029** | **4,501** | **9,095** | **3,103** | **212** | **111** | **1,168** | **2,010** | **462** | **1,933** | **4,405** | **8,999** |
| **2012 Total** | **1,929** | **4,406** | **8,743** | **2,629** | **212** | **157** | **1,340** | **2,010** | **467** | **1,892** | **4,369** | **8,706** |
| **2013 Total** | **1,981** | **4,647** | **9,250** | **2,562** | **214** | **225** | **1,601** | **2,170** | **496** | **2,007** | **4,673** | **9,276** |
| **2014 Total** | **2,103** | **4,861** | **9,607** | **2,467** | **214** | **337** | **1,728** | **2,242** | **516** | **2,067** | **4,825** | **9,570** |
| **2015** January | 178 | 403 | 808 | 225 | 18 | 21 | 141 | 182 | 43 | 163 | 388 | 793 |
| February | 162 | 364 | 753 | 208 | 17 | 25 | 139 | 164 | 38 | 158 | 360 | 748 |
| March | 180 | 395 | 817 | 226 | 18 | 35 | 143 | 172 | 43 | 176 | 391 | 813 |
| April | 172 | 381 | 814 | 209 | 17 | 40 | 167 | 168 | 42 | 170 | 380 | 812 |
| May | 183 | 398 | 807 | 188 | 18 | 43 | 160 | 173 | 42 | 185 | 400 | 808 |
| June | 184 | 397 | 773 | 190 | 17 | 43 | 125 | 171 | 42 | 186 | 399 | 775 |
| July | 187 | 411 | 798 | 196 | 18 | 45 | 127 | 179 | 46 | 189 | 413 | 799 |
| August | 185 | 408 | 772 | 178 | 18 | 45 | 122 | 179 | 44 | 189 | 413 | 776 |
| September | 175 | 387 | 723 | 150 | 16 | 39 | 130 | 170 | 42 | 182 | 394 | 730 |
| October | 183 | 395 | 755 | 155 | 18 | 34 | 153 | 167 | 45 | 184 | 396 | 755 |
| November | 182 | 396 | 807 | 180 | 18 | 30 | 183 | 170 | 45 | 179 | 393 | 804 |
| December | 190 | 414 | 862 | 216 | 18 | 27 | 187 | 177 | 47 | 185 | 408 | 857 |
| **Total** | **2,161** | **4,751** | **9,487** | **2,321** | **212** | **426** | **1,777** | **2,071** | **518** | **2,145** | **4,734** | **9,471** |
| **2016** January | 185 | 406 | 862 | 237 | 19 | 27 | 173 | 172 | 44 | 171 | 388 | 843 |
| February | 176 | 384 | 852 | 225 | 18 | 38 | 188 | 160 | 41 | 173 | 374 | 843 |
| March | 190 | 404 | 925 | 252 | 19 | 45 | 205 | 164 | 44 | 187 | 395 | 916 |
| April | 175 | 378 | 876 | 237 | 18 | 50 | 193 | 154 | 44 | 173 | 372 | 870 |
| May | 189 | 399 | 888 | 236 | 19 | 58 | 175 | 160 | 43 | 192 | 396 | 885 |
| June | 189 | 404 | 846 | 213 | 18 | 59 | 152 | 163 | 43 | 192 | 398 | 840 |
| July | 196 | 413 | 858 | 198 | 19 | 64 | 164 | 168 | 45 | 201 | 413 | 858 |
| August | 198 | 417 | 805 | 180 | 19 | 62 | 126 | 168 | 45 | 204 | 417 | 804 |
| September | 187 | 394 | 774 | 152 | 19 | 57 | 153 | 159 | 41 | 194 | 393 | 774 |
| October | 194 | 400 | 820 | 161 | 19 | 50 | 190 | 158 | 43 | 195 | 395 | 815 |
| November | 192 | 402 | 818 | 175 | 19 | 42 | 180 | 162 | 43 | 195 | 399 | 816 |
| December | 203 | 428 | 910 | 210 | 20 | 37 | 214 | 172 | 45 | 202 | 420 | 901 |
| **Total** | **2,275** | **4,829** | **10,233** | **2,477** | **226** | **587** | **2,114** | **1,959** | **522** | **2,279** | **4,760** | **10,164** |
| **2017** January | 195 | 418 | 922 | 258 | 20 | 36 | 190 | 170 | 47 | 177 | 394 | 897 |
| February | 176 | 377 | 868 | 229 | 18 | 41 | 202 | 155 | 42 | 166 | 362 | 852 |
| March | 196 | 417 | 1,023 | 281 | 20 | 66 | 239 | 169 | 45 | 190 | 404 | 1,010 |
| April | 182 | 388 | 988 | 272 | 19 | 72 | 237 | 158 | 42 | 183 | 383 | 983 |
| May | 196 | 405 | 1,014 | 299 | 19 | 84 | 208 | 162 | 41 | 200 | 403 | 1,013 |
| June | 191 | 400 | 974 | 286 | 18 | 88 | 181 | 164 | 39 | 198 | 401 | 975 |
| July | 195 | 412 | 905 | 244 | 19 | 83 | 146 | 171 | 40 | 198 | 409 | 902 |
| August | 202 | 421 | 842 | 199 | 19 | 81 | 122 | 171 | 41 | 202 | 414 | 836 |
| **8-Month Total** | **1,534** | **3,239** | **7,536** | **2,070** | **152** | **550** | **1,525** | **1,319** | **337** | **1,514** | **3,170** | **7,467** |
| **2016 8-Month Total** | **1,499** | **3,205** | **6,911** | **1,779** | **148** | **402** | **1,377** | **1,308** | **350** | **1,494** | **3,153** | **6,859** |
| **2015 8-Month Total** | **1,431** | **3,158** | **6,340** | **1,620** | **142** | **296** | **1,124** | **1,387** | **340** | **1,415** | **3,143** | **6,325** |

[a] For hydroelectric power, geothermal, solar, wind, and biomass waste, production equals consumption. For biofuels, production equals total biomass inputs to the production of fuel ethanol and biodiesel. For wood, through 2015, production equals consumption; beginning in 2016, production equals consumption plus densified biomass exports.

[b] Total biomass inputs to the production of fuel ethanol and biodiesel.

[c] Wood and wood-derived fuels, biomass waste, and total biomass inputs to the production of fuel ethanol and biodiesel.

[d] Hydroelectric power, geothermal, solar, wind, and biomass.

[e] Conventional hydroelectricity net generation (converted to Btu by multiplying by the total fossil fuels heat rate factors in Table A6).

[f] Geothermal electricity net generation (converted to Btu by multiplying by the total fossil fuels heat rate factors in Table A6), and geothermal heat pump and direct use energy.

[g] Solar photovoltaic (PV) and solar thermal electricity net generation (converted to Btu by multiplying by the total fossil fuels heat rate factors in Table A6), and solar thermal direct use energy.

[h] Wind electricity net generation (converted to Btu by multiplying by the total fossil fuels heat rate factors in Table A6).

[i] Wood and wood-derived fuels.

[j] Municipal solid waste from biogenic sources, landfill gas, sludge waste, agricultural byproducts, and other biomass. Through 2000, also includes non-renewable waste (municipal solid waste from non-biogenic sources, and tire-derived fuels).

[k] Fuel ethanol (minus denaturant) and biodiesel consumption, plus losses and co-products from the production of fuel ethanol and biodiesel.

NA=Not available. (s)=Less than 0.5 trillion Btu.

Notes: • Most data for the residential, commercial, industrial, and transportation sectors are estimates. See notes and sources for Tables 10.2a and 10.2b. • See Note, "Renewable Energy Production and Consumption," at end of section. • Totals may not equal sum of components due to independent rounding. • Geographic coverage is the 50 states and the District of Columbia.

Web Page: See http://www.eia.gov/totalenergy/data/monthly/#renewable (Excel and CSV files) for all available annual data beginning in 1949 and monthly data beginning in 1973.

Sources: • **Production:** Tables 10.2a–10.4 and U.S. Energy Information Administration, Form EIA-63C, "Densified Biomass Fuel Report." • **Consumption:** Tables 10.2a–10.2c.

## Table 10.2a Renewable Energy Consumption: Residential and Commercial Sectors

(Trillion Btu)

| | Residential Sector | | | | Commercial Sector[a] | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Biomass | | | | | | Biomass | | | | |
| | Geo-thermal[b] | Solar[c] | Wood[d] | Total | Hydro-electric Power[e] | Geo-thermal[b] | Solar[f] | Wind[g] | Wood[d] | Waste[h] | Fuel Ethanol[i,j] | Total | Total |
| **1950 Total** | NA | NA | 1,006 | 1,006 | NA | NA | NA | NA | 19 | NA | NA | 19 | 19 |
| **1955 Total** | NA | NA | 775 | 775 | NA | NA | NA | NA | 15 | NA | NA | 15 | 15 |
| **1960 Total** | NA | NA | 627 | 627 | NA | NA | NA | NA | 12 | NA | NA | 12 | 12 |
| **1965 Total** | NA | NA | 468 | 468 | NA | NA | NA | NA | 9 | NA | NA | 9 | 9 |
| **1970 Total** | NA | NA | 401 | 401 | NA | NA | NA | NA | 8 | NA | NA | 8 | 8 |
| **1975 Total** | NA | NA | 425 | 425 | NA | NA | NA | NA | 8 | NA | NA | 8 | 8 |
| **1980 Total** | NA | NA | 850 | 850 | NA | NA | NA | NA | 21 | NA | NA | 21 | 21 |
| **1985 Total** | NA | NA | 1,010 | 1,010 | NA | NA | NA | NA | 24 | NA | (s) | 24 | 24 |
| **1990 Total** | 6 | 55 | 580 | 640 | 1 | 3 | (s) | – | 66 | 28 | (s) | 94 | 98 |
| **1995 Total** | 7 | 63 | 520 | 589 | 1 | 5 | (s) | – | 72 | 40 | (s) | 113 | 119 |
| **2000 Total** | 9 | 58 | 420 | 486 | 1 | 8 | 1 | – | 71 | 47 | (s) | 119 | 128 |
| **2001 Total** | 9 | 55 | 370 | 435 | 1 | 8 | 1 | – | 67 | 25 | (s) | 92 | 101 |
| **2002 Total** | 10 | 53 | 380 | 444 | (s) | 9 | 1 | – | 69 | 26 | (s) | 95 | 105 |
| **2003 Total** | 13 | 52 | 400 | 465 | 1 | 11 | 1 | – | 71 | 29 | 1 | 101 | 114 |
| **2004 Total** | 14 | 51 | 410 | 475 | 1 | 12 | 1 | – | 70 | 34 | 1 | 105 | 120 |
| **2005 Total** | 16 | 50 | 430 | 496 | 1 | 14 | 2 | – | 70 | 34 | 1 | 105 | 121 |
| **2006 Total** | 18 | 53 | 380 | 451 | 1 | 14 | 2 | – | 65 | 36 | 1 | 103 | 120 |
| **2007 Total** | 22 | 55 | 420 | 497 | 1 | 14 | 4 | – | 70 | 31 | 2 | 103 | 121 |
| **2008 Total** | 26 | 58 | 470 | 555 | 1 | 15 | 6 | – | 73 | 34 | 2 | 109 | 130 |
| **2009 Total** | 33 | 60 | 500 | 593 | 1 | 17 | 7 | (s) | 73 | 36 | 3 | 112 | 137 |
| **2010 Total** | 37 | 65 | 440 | 541 | 1 | 19 | 11 | (s) | 72 | 36 | 3 | 111 | 142 |
| **2011 Total** | 40 | 71 | 450 | 560 | (s) | 20 | 19 | (s) | 69 | 43 | 3 | 115 | 154 |
| **2012 Total** | 40 | 79 | 420 | 539 | (s) | 20 | 32 | 1 | 61 | 45 | 3 | 108 | 161 |
| **2013 Total** | 40 | 92 | 580 | 711 | (s) | 20 | 41 | 1 | 70 | 47 | 3 | 120 | 182 |
| **2014 Total** | 40 | 109 | 590 | 739 | (s) | 20 | 52 | 1 | 75 | 47 | 4 | 126 | 199 |
| **2015** January | 3 | 6 | 37 | 47 | (s) | 2 | 3 | (s) | 7 | 4 | [j] 2 | 13 | 18 |
| February | 3 | 7 | 34 | 44 | (s) | 2 | 4 | (s) | 6 | 3 | 2 | 12 | 17 |
| March | 3 | 10 | 37 | 51 | (s) | 2 | 5 | (s) | 7 | 4 | 2 | 13 | 20 |
| April | 3 | 11 | 36 | 51 | (s) | 2 | 5 | (s) | 7 | 4 | 2 | 13 | 20 |
| May | 3 | 12 | 37 | 53 | (s) | 2 | 6 | (s) | 7 | 4 | 2 | 13 | 21 |
| June | 3 | 13 | 36 | 52 | (s) | 2 | 6 | (s) | 7 | 4 | 2 | 13 | 20 |
| July | 3 | 13 | 37 | 54 | (s) | 2 | 6 | (s) | 7 | 4 | 2 | 14 | 21 |
| August | 3 | 13 | 37 | 54 | (s) | 2 | 6 | (s) | 7 | 4 | 2 | 13 | 21 |
| September | 3 | 12 | 36 | 52 | (s) | 2 | 5 | (s) | 7 | 4 | 2 | 13 | 20 |
| October | 3 | 11 | 37 | 52 | (s) | 2 | 5 | (s) | 7 | 4 | 2 | 13 | 19 |
| November | 3 | 9 | 36 | 49 | (s) | 2 | 4 | (s) | 7 | 4 | 2 | 13 | 18 |
| December | 3 | 8 | 37 | 49 | (s) | 2 | 3 | (s) | 7 | 4 | 2 | 13 | 18 |
| **Total** | 40 | 128 | 440 | 607 | (s) | 20 | 57 | 1 | 81 | 47 | 26 | 154 | 232 |
| **2016** January | 3 | 8 | 32 | 43 | (s) | 2 | 4 | (s) | 7 | 4 | 2 | 13 | 19 |
| February | 3 | 10 | 30 | 42 | (s) | 2 | 5 | (s) | 7 | 4 | 2 | 12 | 19 |
| March | 3 | 13 | 32 | 48 | (s) | 2 | 6 | (s) | 7 | 5 | 2 | 14 | 22 |
| April | 3 | 14 | 31 | 48 | (s) | 2 | 7 | (s) | 7 | 4 | 2 | 13 | 21 |
| May | 3 | 16 | 32 | 51 | (s) | 2 | 7 | (s) | 7 | 4 | 2 | 13 | 22 |
| June | 3 | 17 | 31 | 50 | (s) | 2 | 7 | (s) | 7 | 4 | 2 | 13 | 22 |
| July | 3 | 17 | 32 | 52 | (s) | 2 | 8 | (s) | 7 | 4 | 2 | 13 | 23 |
| August | 3 | 17 | 32 | 52 | (s) | 2 | 7 | (s) | 7 | 4 | 2 | 13 | 22 |
| September | 3 | 15 | 31 | 49 | (s) | 2 | 7 | (s) | 7 | 4 | 2 | 13 | 21 |
| October | 3 | 13 | 32 | 48 | (s) | 2 | 6 | (s) | 7 | 4 | 2 | 13 | 21 |
| November | 3 | 11 | 31 | 45 | (s) | 2 | 5 | (s) | 7 | 4 | 2 | 13 | 19 |
| December | 3 | 10 | 32 | 45 | (s) | 2 | 4 | (s) | 7 | 4 | 2 | 14 | 20 |
| **Total** | 40 | 161 | 373 | 573 | 1 | 20 | 72 | 1 | 82 | 49 | 27 | 157 | 251 |
| **2017** January | 3 | 10 | 32 | 46 | (s) | 2 | 5 | (s) | 7 | 4 | 2 | 14 | 20 |
| February | 3 | 11 | 29 | 43 | (s) | 2 | 5 | (s) | 6 | 4 | 2 | 12 | 19 |
| March | 3 | 16 | 32 | 51 | (s) | 2 | 7 | (s) | 7 | 4 | 2 | 13 | 22 |
| April | 3 | 18 | 31 | 52 | (s) | 2 | 8 | (s) | 7 | 4 | 2 | 13 | 22 |
| May | 3 | 19 | 32 | 55 | (s) | 2 | 8 | (s) | 7 | 4 | 2 | 13 | 23 |
| June | 3 | 20 | 31 | 54 | (s) | 2 | 8 | (s) | 7 | 4 | 2 | 13 | 23 |
| July | 3 | 20 | 32 | 56 | (s) | 2 | 9 | (s) | 7 | 4 | 2 | 13 | 24 |
| August | 3 | 20 | 32 | 56 | (s) | 2 | 8 | (s) | 7 | 4 | 2 | 13 | 24 |
| **8-Month Total** | 26 | 134 | 254 | 414 | 1 | 13 | 58 | 1 | 54 | 31 | 18 | 104 | 177 |
| **2016 8-Month Total** | 26 | 112 | 248 | 386 | (s) | 13 | 51 | 1 | 55 | 32 | 18 | 105 | 170 |
| **2015 8-Month Total** | 26 | 87 | 293 | 406 | (s) | 13 | 40 | 1 | 54 | 31 | 17 | 103 | 157 |

[a] Commercial sector, including 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 Section 7.

[b] Geothermal heat pump and direct use energy.

[c] Distributed (small-scale) solar photovoltaic (PV) electricity generation in the residential sector (converted to Btu by multiplying by the fossil fuels heat rate factors in Table A6) and distributed solar thermal energy in the residential, commercial, and industrial sectors. See Table 10.5.

[d] Wood and wood-derived fuels.

[e] Conventional hydroelectricity net generation (converted to Btu by multiplying by the total fossil fuels heat rate factors in Table A6).

[f] Solar photovoltaic (PV) electricity net generation in the commercial sector (converted to Btu by multiplying by the total fossil fuels heat rate factors in Table A6), both utility-scale and distributed (small-scale). See Table 10.5.

[g] Wind electricity net generation (converted to Btu by multiplying by the total fossil fuels heat rate factors in Table A6).

[h] Municipal solid waste from biogenic sources, landfill gas, sludge waste, agricultural byproducts, and other biomass. Through 2000, also includes non-renewable waste (municipal solid waste from non-biogenic sources, and tire-derived fuels).

[i] The fuel ethanol (minus denaturant) portion of motor fuels, such as E10, consumed by the commercial sector.

[j] There is a discontinuity in this time series between 2014 and 2015 due to a change in the method for allocating motor gasoline consumption to the end-use sectors. Beginning in 2015, the commercial and industrial sector shares of fuel ethanol consumption are larger than in 2014, while the transportation sector share is smaller.

NA=Not available. – =No data reported. (s)=Less than 0.5 trillion Btu.

Notes: • Data are estimates, except for commercial sector hydroelectric power, wind, and waste. • Totals may not equal sum of components due to independent rounding. • Geographic coverage is the 50 states and the District of Columbia.

Web Page: See http://www.eia.gov/totalenergy/data/monthly/#renewable (Excel and CSV files) for all available annual data beginning in 1949 and monthly data beginning in 1973.

Sources: See end of section.

## Table 10.2b Renewable Energy Consumption: Industrial and Transportation Sectors

(Trillion Btu)

| | Industrial Sector[a] | | | | | | | | | | Transportation Sector | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Biomass | | | | | | Biomass | | |
| | Hydro-electric Power[b] | Geo-thermal[c] | Solar[d] | Wind[e] | Wood[f] | Waste[g] | Fuel Ethanol[h,i] | Losses and Co-products[j] | Total | Total | Fuel Ethanol[i,k] | Bio-diesel[l] | Total[m] |
| **1950 Total** | **69** | **NA** | **NA** | **NA** | **532** | **NA** | **NA** | **NA** | **532** | **602** | **NA** | **NA** | **NA** |
| **1955 Total** | **38** | **NA** | **NA** | **NA** | **631** | **NA** | **NA** | **NA** | **631** | **669** | **NA** | **NA** | **NA** |
| **1960 Total** | **39** | **NA** | **NA** | **NA** | **680** | **NA** | **NA** | **NA** | **680** | **719** | **NA** | **NA** | **NA** |
| **1965 Total** | **33** | **NA** | **NA** | **NA** | **855** | **NA** | **NA** | **NA** | **855** | **888** | **NA** | **NA** | **NA** |
| **1970 Total** | **34** | **NA** | **NA** | **NA** | **1,019** | **NA** | **NA** | **NA** | **1,019** | **1,053** | **NA** | **NA** | **NA** |
| **1975 Total** | **32** | **NA** | **NA** | **NA** | **1,063** | **NA** | **NA** | **NA** | **1,063** | **1,096** | **NA** | **NA** | **NA** |
| **1980 Total** | **33** | **NA** | **NA** | **NA** | **1,600** | **NA** | **NA** | **NA** | **1,600** | **1,633** | **NA** | **NA** | **NA** |
| **1985 Total** | **33** | **NA** | **NA** | **NA** | **1,645** | **230** | **1** | **42** | **1,918** | **1,951** | **50** | **NA** | **50** |
| **1990 Total** | **31** | **2** | **(s)** | **–** | **1,442** | **192** | **1** | **49** | **1,684** | **1,717** | **60** | **NA** | **60** |
| **1995 Total** | **55** | **3** | **(s)** | **–** | **1,652** | **195** | **2** | **86** | **1,934** | **1,992** | **112** | **NA** | **112** |
| **2000 Total** | **42** | **4** | **(s)** | **–** | **1,636** | **145** | **1** | **99** | **1,881** | **1,928** | **135** | **NA** | **135** |
| **2001 Total** | **33** | **5** | **(s)** | **–** | **1,443** | **129** | **3** | **108** | **1,681** | **1,719** | **141** | **1** | **142** |
| **2002 Total** | **39** | **5** | **(s)** | **–** | **1,396** | **146** | **3** | **130** | **1,676** | **1,720** | **168** | **2** | **170** |
| **2003 Total** | **43** | **3** | **(s)** | **–** | **1,363** | **142** | **4** | **168** | **1,678** | **1,725** | **228** | **2** | **230** |
| **2004 Total** | **33** | **4** | **(s)** | **–** | **1,476** | **132** | **6** | **201** | **1,815** | **1,852** | **286** | **3** | **290** |
| **2005 Total** | **32** | **4** | **(s)** | **–** | **1,452** | **148** | **7** | **227** | **1,834** | **1,871** | **327** | **12** | **339** |
| **2006 Total** | **29** | **4** | **1** | **–** | **1,472** | **130** | **10** | **280** | **1,892** | **1,926** | **442** | **33** | **475** |
| **2007 Total** | **16** | **5** | **1** | **–** | **1,413** | **145** | **10** | **369** | **1,937** | **1,958** | **557** | **45** | **602** |
| **2008 Total** | **17** | **5** | **1** | **–** | **1,339** | **143** | **12** | **519** | **2,012** | **2,035** | **786** | **39** | **825** |
| **2009 Total** | **18** | **4** | **2** | **–** | **1,178** | **154** | **13** | **603** | **1,948** | **1,972** | **894** | **41** | **935** |
| **2010 Total** | **16** | **4** | **3** | **–** | **1,273** | **168** | **17** | **727** | **2,185** | **2,208** | **1,041** | **33** | **1,075** |
| **2011 Total** | **17** | **4** | **4** | **(s)** | **1,309** | **165** | **17** | **756** | **2,246** | **2,272** | **1,045** | **113** | **1,158** |
| **2012 Total** | **22** | **4** | **7** | **(s)** | **1,339** | **159** | **17** | **711** | **2,226** | **2,259** | **1,045** | **115** | **1,162** |
| **2013 Total** | **33** | **4** | **9** | **(s)** | **1,312** | **187** | **18** | **709** | **2,226** | **2,272** | **1,072** | **182** | **1,278** |
| **2014 Total** | **12** | **4** | **11** | **1** | **1,325** | **190** | **14** | **757** | **2,286** | **2,314** | **1,093** | **181** | **1,292** |
| **2015** January | 1 | (s) | 1 | (s) | 115 | 17 | [i] 1 | 65 | 199 | 201 | [i] 88 | 6 | 94 |
| February | 1 | (s) | 1 | (s) | 103 | 15 | 1 | 59 | 178 | 180 | 83 | 11 | 95 |
| March | 1 | (s) | 1 | (s) | 107 | 17 | 1 | 65 | 190 | 193 | 92 | 13 | 107 |
| April | 1 | (s) | 1 | (s) | 107 | 16 | 1 | 61 | 186 | 189 | 88 | 15 | 105 |
| May | 1 | (s) | 1 | (s) | 110 | 15 | 2 | 65 | 192 | 195 | 97 | 18 | 116 |
| June | 1 | (s) | 1 | (s) | 107 | 15 | 1 | 65 | 189 | 192 | 94 | 21 | 117 |
| July | 1 | (s) | 1 | (s) | 112 | 16 | 2 | 67 | 196 | 199 | 97 | 18 | 118 |
| August | 1 | (s) | 1 | (s) | 112 | 15 | 2 | 66 | 195 | 197 | 98 | 20 | 120 |
| September | 1 | (s) | 1 | (s) | 107 | 15 | 1 | 63 | 186 | 189 | 94 | 20 | 116 |
| October | 1 | (s) | 1 | (s) | 106 | 17 | 1 | 66 | 190 | 193 | 94 | 17 | 114 |
| November | 1 | (s) | 1 | (s) | 108 | 16 | 1 | 65 | 191 | 193 | 92 | 14 | 110 |
| December | 1 | (s) | 1 | (s) | 111 | 17 | 1 | 68 | 198 | 201 | 93 | 17 | 113 |
| **Total** | **13** | **4** | **14** | **(s)** | **1,306** | **190** | **18** | **776** | **2,290** | **2,321** | **1,109** | **191** | **1,325** |
| **2016** January | 1 | (s) | 1 | (s) | 113 | 16 | 1 | 66 | 196 | 198 | 88 | 13 | 102 |
| February | 1 | (s) | 1 | (s) | 103 | 15 | 1 | 63 | 182 | 185 | 90 | 15 | 107 |
| March | 1 | (s) | 1 | (s) | 106 | 16 | 2 | 67 | 191 | 194 | 96 | 17 | 116 |
| April | 1 | (s) | 2 | (s) | 102 | 16 | 1 | 61 | 180 | 183 | 89 | 18 | 108 |
| May | 1 | (s) | 2 | (s) | 106 | 16 | 2 | 66 | 190 | 193 | 97 | 23 | 122 |
| June | 1 | (s) | 2 | (s) | 107 | 16 | 2 | 66 | 191 | 194 | 97 | 21 | 121 |
| July | 1 | (s) | 2 | (s) | 109 | 17 | 2 | 69 | 196 | 199 | 99 | 27 | 128 |
| August | 1 | (s) | 2 | (s) | 109 | 16 | 2 | 70 | 195 | 198 | 101 | 28 | 131 |
| September | 1 | (s) | 2 | (s) | 103 | 15 | 1 | 66 | 185 | 187 | 94 | 26 | 124 |
| October | 1 | (s) | 1 | (s) | 104 | 14 | 2 | 68 | 188 | 190 | 96 | 25 | 123 |
| November | 1 | (s) | 1 | (s) | 108 | 15 | 1 | 67 | 192 | 194 | 95 | 26 | 124 |
| December | 1 | (s) | 1 | (s) | 113 | 16 | 2 | 71 | 202 | 205 | 100 | 26 | 127 |
| **Total** | **12** | **4** | **17** | **1** | **1,283** | **186** | **18** | **801** | **2,288** | **2,322** | **1,142** | **266** | **1,433** |
| **2017** January | 1 | (s) | 1 | (s) | 111 | 17 | 1 | 70 | 200 | 203 | 89 | 13 | 104 |
| February | 1 | (s) | 1 | (s) | 101 | 16 | 1 | 63 | 181 | 183 | 85 | 13 | 100 |
| March | 1 | (s) | 2 | (s) | 110 | 17 | 2 | 70 | 198 | 202 | 95 | 19 | 117 |
| April | 1 | (s) | 2 | (s) | 103 | 16 | 1 | 64 | 184 | 188 | 93 | 21 | 115 |
| May | 1 | (s) | 2 | (s) | 104 | 15 | 2 | 69 | 189 | 193 | 99 | 25 | 127 |
| June | 1 | (s) | 2 | (s) | 107 | 13 | 2 | 66 | 188 | 192 | 100 | 25 | 128 |
| July | 1 | (s) | 3 | (s) | 111 | 14 | 2 | 68 | 194 | 198 | 98 | 26 | 126 |
| August | 1 | (s) | 2 | (s) | 111 | 14 | 2 | 70 | 197 | 201 | 101 | 25 | 128 |
| **8-Month Total** | **10** | **3** | **16** | **(s)** | **857** | **121** | **12** | **539** | **1,530** | **1,559** | **759** | **167** | **945** |
| **2016 8-Month Total** | **9** | **3** | **12** | **(s)** | **854** | **126** | **12** | **529** | **1,521** | **1,545** | **758** | **162** | **935** |
| **2015 8-Month Total** | **9** | **3** | **9** | **(s)** | **874** | **125** | **12** | **514** | **1,525** | **1,546** | **736** | **123** | **873** |

[a] Industrial sector, including 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 Section 7.

[b] Conventional hydroelectricity net generation (converted to Btu by multiplying by the total fossil fuels heat rate factors in Table A6).

[c] Geothermal heat pump and direct use energy.

[d] Solar photovoltaic (PV) electricity net generation in the industrial sector (converted to Btu by multiplying by the total fossil fuels heat rate factors in Table A6), both utility-scale and distributed (small-scale). See Table 10.5.

[e] Wind electricity net generation (converted to Btu by multiplying by the total fossil fuels heat rate factors in Table A6).

[f] Wood and wood-derived fuels.

[g] Municipal solid waste from biogenic sources, landfill gas, sludge waste, agricultural byproducts, and other biomass. Through 2000, also includes non-renewable waste (municipal solid waste from non-biogenic sources, and tire-derived fuels).

[h] The fuel ethanol (minus denaturant) portion of motor fuels, such as E10, consumed by the industrial sector.

[i] There is a discontinuity in this time series between 2014 and 2015 due to a change in the method for allocating motor gasoline consumption to the end-use sectors. Beginning in 2015, the commercial and industrial sector shares of fuel ethanol consumption are larger than in 2014, while the transportation sector share is smaller.

[j] Losses and co-products from the production of fuel ethanol and biodiesel. Does not include natural gas, electricity, and other non-biomass energy used in the production of fuel ethanol and biodiesel—these are included in the industrial sector consumption statistics for the appropriate energy source.

[k] The fuel ethanol (minus denaturant) portion of motor fuels, such as E10 and E85, consumed by the transportation sector.

[l] Although there is biodiesel use in other sectors, all biodiesel consumption is assigned to the transportation sector.

[m] Beginning in 2009, includes imports minus stock change of other renewable diesel fuel and other renewable fuels. See "Renewable Diesel Fuel (Other)" and "Renewable Fuels (Other)" in Glossary.

NA=Not available. – =No data reported. (s)=Less than 0.5 trillion Btu.

Notes: • Data are estimates, except for industrial sector hydroelectric power in 1949–1978 and 1989 forward, and wind. • Totals may not equal sum of components due to independent rounding. • Geographic coverage is the 50 states and the District of Columbia.

Web Page: See http://www.eia.gov/totalenergy/data/monthly/#renewable (Excel and CSV files) for all available annual data beginning in 1949 and monthly data beginning in 1973.

Sources: See end of section.

## Table 10.2c Renewable Energy Consumption: Electric Power Sector

(Trillion Btu)

| | Hydro-electric Power[a] | Geo-thermal[b] | Solar[c] | Wind[d] | Biomass | | | Total |
|---|---|---|---|---|---|---|---|---|
| | | | | | Wood[e] | Waste[f] | Total | |
| **1950 Total** | **1,346** | **NA** | **NA** | **NA** | **5** | **NA** | **5** | **1,351** |
| **1955 Total** | **1,322** | **NA** | **NA** | **NA** | **3** | **NA** | **3** | **1,325** |
| **1960 Total** | **1,569** | **(s)** | **NA** | **NA** | **2** | **NA** | **2** | **1,571** |
| **1965 Total** | **2,026** | **2** | **NA** | **NA** | **3** | **NA** | **3** | **2,031** |
| **1970 Total** | **2,600** | **6** | **NA** | **NA** | **1** | **2** | **4** | **2,609** |
| **1975 Total** | **3,122** | **34** | **NA** | **NA** | **(s)** | **2** | **2** | **3,158** |
| **1980 Total** | **2,867** | **53** | **NA** | **NA** | **3** | **2** | **4** | **2,925** |
| **1985 Total** | **2,937** | **97** | **(s)** | **(s)** | **8** | **7** | **14** | **3,049** |
| **1990 Total**[g] | **3,014** | **161** | **4** | **29** | **129** | **188** | **317** | **3,524** |
| **1995 Total** | **3,149** | **138** | **5** | **33** | **125** | **296** | **422** | **3,747** |
| **2000 Total** | **2,768** | **144** | **5** | **57** | **134** | **318** | **453** | **3,427** |
| **2001 Total** | **2,209** | **142** | **6** | **70** | **126** | **211** | **337** | **2,763** |
| **2002 Total** | **2,650** | **147** | **6** | **105** | **150** | **230** | **380** | **3,288** |
| **2003 Total** | **2,749** | **146** | **5** | **113** | **167** | **230** | **397** | **3,411** |
| **2004 Total** | **2,655** | **148** | **6** | **142** | **165** | **223** | **388** | **3,339** |
| **2005 Total** | **2,670** | **147** | **6** | **178** | **185** | **221** | **406** | **3,406** |
| **2006 Total** | **2,839** | **145** | **5** | **264** | **182** | **231** | **412** | **3,665** |
| **2007 Total** | **2,430** | **145** | **6** | **341** | **186** | **237** | **423** | **3,345** |
| **2008 Total** | **2,494** | **146** | **9** | **546** | **177** | **258** | **435** | **3,630** |
| **2009 Total** | **2,650** | **146** | **9** | **721** | **180** | **261** | **441** | **3,967** |
| **2010 Total** | **2,521** | **148** | **12** | **923** | **196** | **264** | **459** | **4,064** |
| **2011 Total** | **3,085** | **149** | **17** | **1,167** | **182** | **255** | **437** | **4,855** |
| **2012 Total** | **2,606** | **148** | **40** | **1,339** | **190** | **262** | **453** | **4,586** |
| **2013 Total** | **2,529** | **151** | **83** | **1,600** | **207** | **262** | **470** | **4,833** |
| **2014 Total** | **2,454** | **151** | **165** | **1,726** | **251** | **279** | **530** | **5,026** |
| **2015** January | 224 | 13 | 11 | 141 | 22 | 23 | 45 | 433 |
| February | 207 | 12 | 14 | 139 | 21 | 20 | 41 | 412 |
| March | 225 | 13 | 19 | 143 | 21 | 22 | 43 | 443 |
| April | 208 | 12 | 22 | 166 | 18 | 22 | 40 | 448 |
| May | 186 | 13 | 23 | 160 | 18 | 23 | 41 | 423 |
| June | 189 | 12 | 23 | 125 | 21 | 23 | 44 | 393 |
| July | 195 | 13 | 24 | 127 | 22 | 26 | 48 | 407 |
| August | 177 | 13 | 25 | 122 | 23 | 25 | 48 | 384 |
| September | 149 | 11 | 20 | 130 | 20 | 23 | 43 | 354 |
| October | 154 | 12 | 17 | 152 | 17 | 24 | 41 | 378 |
| November | 179 | 12 | 16 | 183 | 19 | 25 | 44 | 434 |
| December | 214 | 13 | 14 | 187 | 21 | 25 | 47 | 476 |
| **Total** | **2,308** | **148** | **228** | **1,776** | **244** | **281** | **525** | **4,985** |
| **2016** January | 236 | 14 | 14 | 173 | 21 | 25 | 45 | 481 |
| February | 224 | 13 | 22 | 188 | 21 | 23 | 43 | 490 |
| March | 250 | 14 | 25 | 205 | 20 | 23 | 43 | 536 |
| April | 236 | 12 | 27 | 193 | 15 | 25 | 40 | 508 |
| May | 235 | 14 | 33 | 175 | 16 | 24 | 40 | 496 |
| June | 212 | 13 | 33 | 152 | 19 | 24 | 42 | 452 |
| July | 197 | 13 | 38 | 164 | 20 | 24 | 45 | 456 |
| August | 180 | 13 | 36 | 126 | 21 | 25 | 46 | 401 |
| September | 151 | 14 | 34 | 153 | 18 | 23 | 41 | 393 |
| October | 160 | 14 | 29 | 190 | 15 | 24 | 39 | 432 |
| November | 175 | 14 | 25 | 180 | 17 | 23 | 40 | 433 |
| December | 209 | 15 | 21 | 214 | 20 | 25 | 46 | 505 |
| **Total** | **2,465** | **162** | **337** | **2,112** | **222** | **287** | **509** | **5,585** |
| **2017** January | 257 | 14 | 20 | 189 | 19 | 25 | 44 | 525 |
| February | 228 | 13 | 24 | 202 | 18 | 22 | 41 | 507 |
| March | 280 | 14 | 41 | 238 | 20 | 24 | 44 | 618 |
| April | 271 | 14 | 44 | 237 | 18 | 22 | 39 | 605 |
| May | 298 | 13 | 54 | 208 | 19 | 23 | 42 | 614 |
| June | 284 | 13 | 58 | 181 | 19 | 23 | 41 | 577 |
| July | 243 | 14 | 51 | 146 | 21 | 23 | 43 | 498 |
| August | 198 | 14 | 50 | 122 | 20 | 23 | 44 | 428 |
| **8-Month Total** | **2,060** | **110** | **342** | **1,523** | **154** | **184** | **338** | **4,372** |
| **2016 8-Month Total** | **1,770** | **106** | **228** | **1,375** | **151** | **192** | **344** | **3,823** |
| **2015 8-Month Total** | **1,611** | **100** | **160** | **1,123** | **166** | **184** | **350** | **3,343** |

[a] Conventional hydroelectricity net generation (converted to Btu by multiplying by the total fossil fuels heat rate factors in Table A6).

[b] Geothermal electricity net generation (converted to Btu by multiplying by the total fossil fuels heat rate factors in Table A6).

[c] Solar photovoltaic (PV) and solar thermal electricity net generation in the electric power sector (converted to Btu by multiplying by the total fossil fuels heat rate factors in Table A6). See Table 10.5.

[d] Wind electricity net generation (converted to Btu by multiplying by the total fossil fuels heat rate factors in Table A6).

[e] Wood and wood-derived fuels.

[f] Municipal solid waste from biogenic sources, landfill gas, sludge waste, agricultural byproducts, and other biomass. Through 2000, also includes non-renewable waste (municipal solid waste from non-biogenic sources, and tire-derived fuels).

[g] Through 1988, data are for electric utilities only. Beginning in 1989, data are for electric utilities and independent power producers.

NA=Not available. (s)=Less than 0.5 trillion Btu.

Notes: • The electric power sector comprises 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. • Totals may not equal sum of components due to independent rounding. • Geographic coverage is the 50 states and the District of Columbia.

Web Page: See http://www.eia.gov/totalenergy/data/monthly/#renewable (Excel and CSV files) for all available annual data beginning in 1949 and monthly data beginning in 1973.

Sources: Tables 7.2b, 7.4b, and A6.

# Table 10.3 Fuel Ethanol Overview

| | Feedstock[a] | Losses and Co-products[b] | Denaturant[c] | Production[d] | | | Trade[d] Net Imports[e] | Stocks[d,f] | Stock Change[d,g] | Consumption[d] | | | *Consumption Minus Denaturant*[h] |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | TBtu | TBtu | Mbbl | Mbbl | MMgal | TBtu | Mbbl | Mbbl | Mbbl | Mbbl | MMgal | TBtu | *TBtu* |
| **1981 Total** | **13** | **6** | **40** | **1,978** | **83** | **7** | **NA** | **NA** | **NA** | **1,978** | **83** | **7** | ***7*** |
| **1985 Total** | **93** | **42** | **294** | **14,693** | **617** | **52** | **NA** | **NA** | **NA** | **14,693** | **617** | **52** | ***51*** |
| **1990 Total** | **111** | **49** | **356** | **17,802** | **748** | **63** | **NA** | **NA** | **NA** | **17,802** | **748** | **63** | ***62*** |
| **1995 Total** | **198** | **86** | **647** | **32,325** | **1,358** | **115** | **387** | **2,186** | **-207** | **32,919** | **1,383** | **117** | ***114*** |
| **2000 Total** | **233** | **99** | **773** | **38,627** | **1,622** | **138** | **116** | **3,400** | **-624** | **39,367** | **1,653** | **140** | ***137*** |
| **2001 Total** | **253** | **108** | **841** | **42,028** | **1,765** | **150** | **315** | **4,298** | **898** | **41,445** | **1,741** | **148** | ***144*** |
| **2002 Total** | **307** | **130** | **1,019** | **50,956** | **2,140** | **182** | **306** | **6,200** | **1,902** | **49,360** | **2,073** | **176** | ***171*** |
| **2003 Total** | **400** | **168** | **1,335** | **66,772** | **2,804** | **238** | **292** | **5,978** | **-222** | **67,286** | **2,826** | **240** | ***233*** |
| **2004 Total** | **482** | **201** | **1,621** | **81,058** | **3,404** | **289** | **3,542** | **6,002** | **24** | **84,576** | **3,552** | **301** | ***293*** |
| **2005 Total** | **550** | **227** | **1,859** | **92,961** | **3,904** | **331** | **3,234** | **5,563** | **-439** | **96,634** | **4,059** | **344** | ***335*** |
| **2006 Total** | **683** | **280** | **2,326** | **116,294** | **4,884** | **414** | **17,408** | **8,760** | **3,197** | **130,505** | **5,481** | **465** | ***453*** |
| **2007 Total** | **907** | **368** | **3,105** | **155,263** | **6,521** | **553** | **10,457** | **10,535** | **1,775** | **163,945** | **6,886** | **584** | ***569*** |
| **2008 Total** | **1,286** | **518** | **4,433** | **221,637** | **9,309** | **790** | **12,610** | **14,226** | **3,691** | **230,556** | **9,683** | **821** | ***800*** |
| **2009 Total** | **1,503** | **602** | **5,688** | **260,424** | **10,938** | **928** | **4,720** | **16,594** | **2,368** | **262,776** | **11,037** | **936** | ***910*** |
| **2010 Total** | **1,823** | **726** | **6,506** | **316,617** | **13,298** | **1,127** | **-9,115** | **17,941** | **1,347** | **306,155** | **12,858** | **1,090** | ***1,061*** |
| **2011 Total** | **1,904** | **754** | **6,649** | **331,646** | **13,929** | **1,181** | **-24,365** | **18,238** | **297** | **306,984** | **12,893** | **1,093** | ***1,065*** |
| **2012 Total** | **1,801** | **709** | **6,264** | **314,714** | **13,218** | **1,120** | **-5,891** | **20,350** | **2,112** | **306,711** | **12,882** | **1,092** | ***1,064*** |
| **2013 Total** | **1,805** | **707** | **6,181** | **316,493** | **13,293** | **1,126** | **-5,761** | **16,424** | **-3,926** | **314,658** | **13,216** | **1,120** | ***1,092*** |
| **2014 Total** | **1,938** | **755** | **6,476** | **340,781** | **14,313** | **1,212** | **-18,371** | **18,739** | **2,315** | **320,095** | **13,444** | **1,139** | ***1,111*** |
| **2015** January | 169 | 65 | 589 | 29,770 | 1,250 | 106 | -1,633 | 20,647 | 1,908 | 26,229 | 1,102 | 93 | *91* |
| February | 152 | 59 | 534 | 26,814 | 1,126 | 95 | -1,623 | 21,057 | 410 | 24,781 | 1,041 | 88 | *86* |
| March | 167 | 65 | 567 | 29,485 | 1,238 | 105 | -2,050 | 20,878 | -179 | 27,614 | 1,160 | 98 | *96* |
| April | 158 | 61 | 527 | 27,910 | 1,172 | 99 | -1,504 | 20,854 | -24 | 26,430 | 1,110 | 94 | *92* |
| May | 168 | 65 | 545 | 29,666 | 1,246 | 106 | -1,489 | 20,154 | -700 | 28,877 | 1,213 | 103 | *100* |
| June | 168 | 65 | 528 | 29,684 | 1,247 | 106 | -1,490 | 20,128 | -26 | 28,220 | 1,185 | 100 | *98* |
| July | 172 | 66 | 539 | 30,249 | 1,270 | 108 | -1,675 | 19,701 | -427 | 29,001 | 1,218 | 103 | *101* |
| August | 169 | 65 | 524 | 29,762 | 1,250 | 106 | -905 | 19,390 | -311 | 29,168 | 1,225 | 104 | *101* |
| September | 162 | 63 | 519 | 28,571 | 1,200 | 102 | -987 | 18,944 | -446 | 28,030 | 1,177 | 100 | *97* |
| October | 169 | 66 | 560 | 29,886 | 1,255 | 106 | -1,579 | 18,984 | 40 | 28,267 | 1,187 | 101 | *98* |
| November | 168 | 65 | 580 | 29,675 | 1,246 | 106 | -929 | 20,099 | 1,115 | 27,631 | 1,161 | 98 | *96* |
| December | 176 | 68 | 624 | 31,081 | 1,305 | 111 | -1,767 | 21,596 | 1,497 | 27,817 | 1,168 | 99 | *96* |
| **Total** | **1,998** | **774** | **6,636** | **352,553** | **14,807** | **1,254** | **-17,632** | **21,596** | **2,857** | **332,064** | **13,947** | **1,181** | ***1,153*** |
| **2016** January | 172 | 66 | 617 | 30,452 | 1,279 | 108 | -2,294 | 23,347 | 1,751 | 26,407 | 1,109 | 94 | *92* |
| February | 162 | 63 | 586 | 28,810 | 1,210 | 103 | -2,024 | 23,171 | -176 | 26,962 | 1,132 | 96 | *93* |
| March | 175 | 67 | 601 | 30,957 | 1,300 | 110 | -2,612 | 22,730 | -441 | 28,786 | 1,209 | 102 | *100* |
| April | 159 | 61 | 557 | 28,208 | 1,185 | 100 | -2,919 | 21,336 | -1,394 | 26,683 | 1,121 | 95 | *93* |
| May | 171 | 66 | 586 | 30,346 | 1,275 | 108 | -1,627 | 20,962 | -374 | 29,093 | 1,222 | 104 | *101* |
| June | 172 | 66 | 567 | 30,443 | 1,279 | 108 | -1,045 | 21,284 | 322 | 29,076 | 1,221 | 103 | *101* |
| July | 178 | 68 | 570 | 31,469 | 1,322 | 112 | -1,641 | 21,381 | 97 | 29,731 | 1,249 | 106 | *103* |
| August | 180 | 69 | 564 | 31,856 | 1,338 | 113 | -1,924 | 21,198 | -183 | 30,115 | 1,265 | 107 | *105* |
| September | 170 | 65 | 544 | 30,048 | 1,262 | 107 | -2,315 | 20,713 | -485 | 28,218 | 1,185 | 100 | *98* |
| October | 175 | 67 | 563 | 31,006 | 1,302 | 110 | -2,946 | 20,113 | -600 | 28,660 | 1,204 | 102 | *100* |
| November | 173 | 67 | 559 | 30,706 | 1,290 | 109 | -3,074 | 19,463 | -650 | 28,282 | 1,188 | 101 | *98* |
| December | 185 | 71 | 606 | 32,680 | 1,373 | 116 | -2,583 | 19,758 | 295 | 29,802 | 1,252 | 106 | *104* |
| **Total** | **2,072** | **798** | **6,920** | **366,981** | **15,413** | **1,306** | **-27,002** | **19,758** | **-1,838** | **341,817** | **14,356** | **1,216** | ***1,187*** |
| **2017** January | 183 | 70 | 593 | 32,577 | 1,368 | 116 | -2,901 | 22,624 | [i]3,093 | 26,583 | 1,116 | 95 | *92* |
| February | 164 | 63 | 541 | 29,052 | 1,220 | 103 | -3,349 | 23,015 | 391 | 25,312 | 1,063 | 90 | *88* |
| March | 181 | 69 | 597 | 32,161 | 1,351 | 114 | -3,044 | 23,759 | 744 | 28,373 | 1,192 | 101 | *99* |
| April | 166 | 64 | 540 | 29,500 | 1,239 | 105 | -1,981 | 23,593 | -166 | 27,685 | 1,163 | 99 | *96* |
| May | 179 | 68 | 558 | 31,700 | 1,331 | 113 | -2,809 | 22,909 | -684 | 29,575 | 1,242 | 105 | *103* |
| June | 173 | 66 | 539 | 30,667 | 1,288 | 109 | -1,958 | 21,763 | -1,146 | 29,855 | 1,254 | 106 | *104* |
| July | 176 | 67 | 551 | 31,221 | 1,311 | 111 | -2,512 | 21,147 | -616 | 29,325 | 1,232 | 104 | *102* |
| August | 183 | 70 | 569 | 32,447 | 1,363 | 115 | -2,199 | 21,197 | 50 | 30,198 | 1,268 | 107 | *105* |
| **8-Month Total** | **1,404** | **538** | **4,488** | **249,325** | **10,472** | **887** | **-20,754** | **21,197** | **1,666** | **226,905** | **9,530** | **807** | ***789*** |
| **2016 8-Month Total** | **1,369** | **527** | **4,648** | **242,541** | **10,187** | **863** | **-16,084** | **21,198** | **-398** | **226,855** | **9,528** | **807** | ***787*** |
| **2015 8-Month Total** | **1,323** | **512** | **4,353** | **233,340** | **9,800** | **830** | **-12,370** | **19,390** | **651** | **220,319** | **9,253** | **784** | ***765*** |

[a] Total corn and other biomass inputs to the production of undenatured ethanol used for fuel ethanol.

[b] Losses and co-products from the production of fuel ethanol. Does not include natural gas, electricity, and other non-biomass energy used in the production of fuel ethanol—these are included in the industrial sector consumption statistics for the appropriate energy source.

[c] The amount of denaturant in fuel ethanol produced.

[d] Includes denaturant.

[e] Through 2009, data are for fuel ethanol imports only; data for fuel ethanol exports are not available. Beginning in 2010, data are for fuel ethanol imports minus fuel ethanol (including industrial alcohol) exports.

[f] Stocks are at end of period.

[g] A negative value indicates a decrease in stocks and a positive value indicates an increase.

[h] Consumption of fuel ethanol minus denaturant. Data for fuel ethanol minus denaturant are used to develop data for "Renewable Energy/Biomass" in Tables 10.1–10.2b, as well as in Sections 1 and 2.

[i] Derived from the preliminary 2016 stocks value (19,531 thousand barrels), not the final 2016 value (19,758 thousand barrels) that is shown under "Stocks."

NA=Not available.

Notes: • Mbbl = thousand barrels. MMgal = million U.S. gallons. TBtu = trillion Btu. • Fuel ethanol data in thousand barrels are converted to million gallons by multiplying by 0.042, and are converted to Btu by multiplying by the approximate heat content of fuel ethanol—see Table A3. • Through 1980, data are not available. For 1981–1992, data are estimates. For 1993–2008, only data for feedstock, losses and co-products, and denaturant are estimates. Beginning in 2009, only data for feedstock, and losses and co-products, are estimates. • See "Denaturant," "Ethanol," "Fuel Ethanol," and "Fuel Ethanol Minus Denaturant" in Glossary. • Totals may not equal sum of components due to independent rounding. • Geographic coverage is the 50 states and the District of Columbia.

Web Page: See http://www.eia.gov/totalenergy/data/monthly/#renewable (Excel and CSV files) for all available annual and monthly data beginning in 1981.

Sources: See end of section.

# Table 10.4 Biodiesel and Other Renewable Fuels Overview

| | Biodiesel | | | | | | | | | | | | | Other Renewable Fuels[f] |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Feedstock[a] | Losses and Co-products[b] | Production | | | Trade | | | Stocks[d] | Stock Change[e] | Consumption | | | |
| | | | | | | Imports | Exports | Net Imports[c] | | | | | | |
| | TBtu | TBtu | Mbbl | MMgal | TBtu | Mbbl | Mbbl | Mbbl | Mbbl | Mbbl | Mbbl | MMgal | TBtu | TBtu |
| **2001 Total** | **1** | **(s)** | **204** | **9** | **1** | **81** | **41** | **40** | **NA** | **NA** | **244** | **10** | **1** | **NA** |
| **2002 Total** | **1** | **(s)** | **250** | **10** | **1** | **197** | **57** | **140** | **NA** | **NA** | **390** | **16** | **2** | **NA** |
| **2003 Total** | **2** | **(s)** | **338** | **14** | **2** | **97** | **113** | **-17** | **NA** | **NA** | **322** | **14** | **2** | **NA** |
| **2004 Total** | **4** | **(s)** | **666** | **28** | **4** | **101** | **128** | **-27** | **NA** | **NA** | **639** | **27** | **3** | **NA** |
| **2005 Total** | **12** | **(s)** | **2,162** | **91** | **12** | **214** | **213** | **1** | **NA** | **NA** | **2,163** | **91** | **12** | **NA** |
| **2006 Total** | **32** | **(s)** | **5,963** | **250** | **32** | **1,105** | **856** | **250** | **NA** | **NA** | **6,213** | **261** | **33** | **NA** |
| **2007 Total** | **63** | **1** | **11,662** | **490** | **62** | **3,455** | **6,696** | **-3,241** | **NA** | **NA** | **8,422** | **354** | **45** | **NA** |
| **2008 Total** | **88** | **1** | **16,145** | **678** | **87** | **7,755** | **16,673** | **-8,918** | **NA** | **NA** | **7,228** | **304** | **39** | **NA** |
| **2009 Total** | **67** | **1** | **12,281** | **516** | **66** | **1,906** | **6,546** | **-4,640** | **711** | **711** | **[g] 7,663** | **322** | **41** | **(s)** |
| **2010 Total** | **44** | **1** | **8,177** | **343** | **44** | **564** | **2,588** | **-2,024** | **672** | **-39** | **6,192** | **260** | **33** | **(s)** |
| **2011 Total** | **125** | **2** | **23,035** | **967** | **123** | **890** | **1,799** | **-908** | **2,005** | **[h] 1,028** | **21,099** | **886** | **113** | **(s)** |
| **2012 Total** | **128** | **2** | **23,588** | **991** | **126** | **853** | **3,056** | **-2,203** | **1,984** | **-20** | **21,406** | **899** | **115** | **3** |
| **2013 Total** | **176** | **2** | **32,368** | **1,359** | **173** | **8,152** | **4,675** | **3,477** | **3,810** | **1,825** | **34,020** | **1,429** | **182** | **24** |
| **2014 Total** | **165** | **2** | **30,452** | **1,279** | **163** | **4,578** | **1,974** | **2,604** | **3,131** | **-679** | **33,735** | **1,417** | **181** | **18** |
| **2015** January | 9 | (s) | 1,727 | 73 | 9 | 372 | 22 | 350 | 4,032 | 902 | 1,176 | 49 | 6 | (s) |
| February | 10 | (s) | 1,851 | 78 | 10 | 526 | 23 | 503 | 4,245 | 212 | 2,141 | 90 | 11 | 1 |
| March | 13 | (s) | 2,326 | 98 | 12 | 340 | 191 | 149 | 4,244 | (s) | 2,475 | 104 | 13 | 2 |
| April | 14 | (s) | 2,568 | 108 | 14 | 330 | 240 | 90 | 4,071 | -173 | 2,831 | 119 | 15 | 2 |
| May | 15 | (s) | 2,784 | 117 | 15 | 336 | 255 | 81 | 3,599 | -471 | 3,337 | 140 | 18 | 2 |
| June | 16 | (s) | 2,901 | 122 | 16 | 673 | 260 | 413 | 3,063 | -536 | 3,850 | 162 | 21 | 2 |
| July | 16 | (s) | 2,883 | 121 | 15 | 1,157 | 255 | 902 | 3,404 | 341 | 3,444 | 145 | 18 | 3 |
| August | 16 | (s) | 2,933 | 123 | 16 | 961 | 275 | 686 | 3,333 | -71 | 3,690 | 155 | 20 | 2 |
| September | 13 | (s) | 2,479 | 104 | 13 | 1,062 | 200 | 862 | 3,021 | -312 | 3,652 | 153 | 20 | 3 |
| October | 14 | (s) | 2,535 | 106 | 14 | 863 | 161 | 702 | 3,070 | 48 | 3,189 | 134 | 17 | 3 |
| November | 14 | (s) | 2,521 | 106 | 14 | 701 | 76 | 625 | 3,600 | 530 | 2,616 | 110 | 14 | 3 |
| December | 14 | (s) | 2,573 | 108 | 14 | 1,078 | 133 | 945 | 3,943 | 343 | 3,174 | 133 | 17 | 3 |
| **Total** | **163** | **2** | **30,080** | **1,263** | **161** | **8,399** | **2,091** | **6,308** | **3,943** | **813** | **35,575** | **1,494** | **191** | **25** |
| **2016** January | 14 | (s) | 2,490 | 105 | 13 | 248 | 42 | 206 | 4,222 | 279 | 2,416 | 101 | 13 | 1 |
| February | 14 | (s) | 2,504 | 105 | 13 | 287 | 49 | 238 | 4,133 | -89 | 2,831 | 119 | 15 | 2 |
| March | 16 | (s) | 2,861 | 120 | 15 | 565 | 234 | 331 | 4,167 | 34 | 3,159 | 133 | 17 | 3 |
| April | 16 | (s) | 2,856 | 120 | 15 | 969 | 246 | 723 | 4,358 | 192 | 3,388 | 142 | 18 | 1 |
| May | 18 | (s) | 3,222 | 135 | 17 | 1,117 | 335 | 782 | 4,091 | -268 | 4,272 | 179 | 23 | 2 |
| June | 17 | (s) | 3,205 | 135 | 17 | 1,630 | 220 | 1,410 | 4,726 | 635 | 3,980 | 167 | 21 | 3 |
| July | 18 | (s) | 3,331 | 140 | 18 | 1,681 | 250 | 1,431 | 4,443 | -283 | 5,045 | 212 | 27 | 2 |
| August | 18 | (s) | 3,385 | 142 | 18 | 1,873 | 235 | 1,638 | 4,265 | -177 | 5,201 | 218 | 28 | 2 |
| September | 17 | (s) | 3,206 | 135 | 17 | 1,835 | 150 | 1,685 | 4,227 | -38 | 4,929 | 207 | 26 | 4 |
| October | 19 | (s) | 3,433 | 144 | 18 | 1,822 | 114 | 1,708 | 4,690 | 463 | 4,678 | 196 | 25 | 2 |
| November | 19 | (s) | 3,408 | 143 | 18 | 2,184 | 143 | 2,041 | 5,314 | 624 | 4,825 | 203 | 26 | 3 |
| December | 19 | (s) | 3,425 | 144 | 18 | 2,668 | 80 | 2,588 | 6,398 | 1,083 | 4,929 | 207 | 26 | 1 |
| **Total** | **203** | **3** | **37,327** | **1,568** | **200** | **16,879** | **2,098** | **14,781** | **6,398** | **2,455** | **49,653** | **2,085** | **266** | **25** |
| **2017** January | 12 | (s) | 2,204 | 93 | 12 | 241 | 43 | 198 | 6,259 | [i] 41 | 2,361 | 99 | 13 | 2 |
| February | 12 | (s) | 2,232 | 94 | 12 | 549 | 57 | 492 | 6,466 | 207 | 2,516 | 106 | 13 | 1 |
| March | 15 | (s) | 2,757 | 116 | 15 | 650 | 136 | 514 | 6,194 | -272 | 3,542 | 149 | 19 | 3 |
| April | 16 | (s) | 3,014 | 127 | 16 | 681 | 283 | 398 | 5,713 | -481 | 3,893 | 163 | 21 | 2 |
| May | 18 | (s) | 3,237 | 136 | 17 | 948 | 239 | 709 | 4,926 | -787 | 4,734 | 199 | 25 | 3 |
| June | 18 | (s) | 3,336 | 140 | 18 | 1,736 | 226 | 1,510 | 5,072 | 147 | 4,700 | 197 | 25 | 3 |
| July | 19 | (s) | 3,552 | 149 | 19 | 1,670 | 455 | 1,215 | 5,076 | 3 | 4,764 | 200 | 26 | 3 |
| August | 19 | (s) | 3,551 | 149 | 19 | 1,582 | 387 | 1,195 | 5,172 | 96 | 4,650 | 195 | 25 | 2 |
| **8-Month Total** | **130** | **2** | **23,884** | **1,003** | **128** | **8,057** | **1,827** | **6,230** | **5,172** | **-1,046** | **31,159** | **1,309** | **167** | **19** |
| **2016 8-Month Total** | **130** | **2** | **23,854** | **1,002** | **128** | **8,370** | **1,611** | **6,759** | **4,265** | **322** | **30,291** | **1,272** | **162** | **15** |
| **2015 8-Month Total** | **109** | **1** | **19,972** | **839** | **107** | **4,695** | **1,520** | **3,175** | **3,333** | **202** | **22,944** | **964** | **123** | **14** |

[a] Total vegetable oil and other biomass inputs to the production of biodiesel—calculated by multiplying biodiesel production by 5.433 million Btu per barrel. See "Biodiesel Feedstock" entry in the "Thermal Conversion Factor Source Documentation" at the end of Appendix A.

[b] Losses and co-products from the production of biodiesel. Does not include natural gas, electricity, and other non-biomass energy used in the production of biodiesel—these are included in the industrial sector consumption statistics for the appropriate energy source.

[c] Net imports equal imports minus exports.

[d] Stocks are at end of period. Includes biodiesel stocks at (or in) refineries, pipelines, and bulk terminals. Beginning in 2011, also includes stocks at biodiesel production plants.

[e] A negative value indicates a decrease in stocks and a positive value indicates an increase.

[f] Imports minus stock change of other renewable diesel fuel and other renewable fuels. See "Renewable Diesel Fuel (Other)" and "Renewable Fuels (Other)" in Glossary.

[g] In 2009, because of incomplete data coverage and differing data sources, a "Balancing Item" amount of 733 thousand barrels (653 thousand barrels in January 2009; 80 thousand barrels in February 2009) is used to balance biodiesel supply and disposition.

[h] Derived from the final 2010 stocks value for bulk terminals and biodiesel production plants (977 thousand barrels), not the final 2010 value for bulk terminals only (672 thousand barrels) that is shown under "Stocks."

[i] Derived from the preliminary 2016 stocks value (6,217 thousand barrels), not the final 2016 value (6,398 thousand barrels) that is shown under "Stocks."

NA=Not available. (s)=Less than 0.5 trillion Btu and greater than -0.5 trillion Btu.

Notes: • Mbbl = thousand barrels. MMgal = million U.S. gallons. TBtu = trillion Btu. • Biodiesel data in thousand barrels are converted to million gallons by multiplying by 0.042, and are converted to Btu by multiplying by 5.359 million Btu per barrel (the approximate heat content of biodiesel—see Table A1). • Through 2000, data are not available. Beginning in 2001, data not from U.S. Energy Information Administration (EIA) surveys are estimates. • Totals may not equal sum of components due to independent rounding. • Geographic coverage is the 50 states and the District of Columbia.

Web Page: See http://www.eia.gov/totalenergy/data/monthly/#renewable (Excel and CSV files) for all available annual and monthly data beginning in 2001.

Sources: See end of section.

# Table 10.5 Solar Energy Consumption

(Trillion Btu)

| | Distributed[a] Solar Energy[b] | | | | | | Utility-Scale[c] Solar Energy[b] | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Electricity[d] | | | | | Electricity[e] | | | | |
| | Heat[f] | Residential Sector | Commercial Sector | Industrial Sector | Total | Total[g] | Commercial Sector[h] | Industrial Sector[i] | Electric Power Sector[j] | Total | Total[k] |
| **1985 Total** | **NA** | **NA** | **NA** | **NA** | **NA** | **NA** | **NA** | **NA** | **(s)** | **(s)** | **(s)** |
| **1990 Total** | **55** | **(s)** | **(s)** | **(s)** | **(s)** | **55** | **–** | **–** | **4** | **4** | **59** |
| **1995 Total** | **63** | **(s)** | **(s)** | **(s)** | **1** | **63** | **–** | **–** | **5** | **5** | **68** |
| **2000 Total** | **57** | **(s)** | **1** | **(s)** | **1** | **58** | **–** | **–** | **5** | **5** | **63** |
| **2001 Total** | **55** | **(s)** | **1** | **(s)** | **1** | **56** | **–** | **–** | **6** | **6** | **62** |
| **2002 Total** | **53** | **1** | **1** | **(s)** | **2** | **54** | **–** | **–** | **6** | **6** | **60** |
| **2003 Total** | **51** | **1** | **1** | **(s)** | **2** | **53** | **–** | **–** | **5** | **5** | **58** |
| **2004 Total** | **50** | **1** | **1** | **(s)** | **2** | **53** | **–** | **–** | **6** | **6** | **58** |
| **2005 Total** | **49** | **1** | **2** | **(s)** | **3** | **52** | **–** | **–** | **6** | **6** | **58** |
| **2006 Total** | **51** | **2** | **2** | **1** | **5** | **56** | **–** | **–** | **5** | **5** | **61** |
| **2007 Total** | **53** | **2** | **4** | **1** | **7** | **59** | **–** | **–** | **6** | **6** | **65** |
| **2008 Total** | **54** | **4** | **6** | **1** | **11** | **65** | **(s)** | **–** | **9** | **9** | **74** |
| **2009 Total** | **55** | **5** | **7** | **2** | **14** | **69** | **(s)** | **–** | **9** | **9** | **78** |
| **2010 Total** | **56** | **9** | **11** | **3** | **23** | **79** | **(s)** | **(s)** | **12** | **12** | **90** |
| **2011 Total** | **58** | **13** | **19** | **4** | **36** | **93** | **1** | **(s)** | **17** | **18** | **111** |
| **2012 Total** | **59** | **20** | **30** | **7** | **57** | **116** | **1** | **(s)** | **40** | **41** | **157** |
| **2013 Total** | **61** | **31** | **38** | **9** | **78** | **139** | **3** | **(s)** | **83** | **86** | **225** |
| **2014 Total** | **62** | **47** | **49** | **11** | **107** | **169** | **4** | **(s)** | **165** | **168** | **337** |
| **2015** January | 3 | 3 | 3 | 1 | 7 | 10 | (s) | (s) | 11 | 11 | 21 |
| February | 4 | 3 | 3 | 1 | 8 | 11 | (s) | (s) | 14 | 14 | 25 |
| March | 5 | 5 | 4 | 1 | 11 | 16 | (s) | (s) | 19 | 19 | 35 |
| April | 6 | 6 | 5 | 1 | 12 | 17 | (s) | (s) | 22 | 22 | 40 |
| May | 6 | 6 | 5 | 1 | 13 | 19 | (s) | (s) | 23 | 23 | 43 |
| June | 6 | 6 | 5 | 1 | 13 | 19 | (s) | (s) | 23 | 24 | 43 |
| July | 7 | 7 | 6 | 1 | 14 | 20 | (s) | (s) | 24 | 24 | 45 |
| August | 7 | 7 | 5 | 1 | 14 | 20 | (s) | (s) | 25 | 25 | 45 |
| September | 6 | 6 | 5 | 1 | 12 | 18 | (s) | (s) | 20 | 21 | 39 |
| October | 5 | 6 | 4 | 1 | 11 | 16 | (s) | (s) | 17 | 18 | 34 |
| November | 4 | 5 | 3 | 1 | 9 | 14 | (s) | (s) | 16 | 16 | 30 |
| December | 4 | 4 | 3 | 1 | 9 | 13 | (s) | (s) | 14 | 15 | 27 |
| **Total** | **63** | **65** | **53** | **14** | **132** | **194** | **4** | **(s)** | **228** | **232** | **426** |
| **2016** January | 3 | 5 | 4 | 1 | 10 | 13 | (s) | (s) | 14 | 14 | 27 |
| February | 4 | 6 | 4 | 1 | 11 | 15 | (s) | (s) | 22 | 23 | 38 |
| March | 5 | 8 | 6 | 1 | 15 | 20 | (s) | (s) | 25 | 25 | 45 |
| April | 6 | 9 | 6 | 2 | 16 | 22 | (s) | (s) | 27 | 27 | 50 |
| May | 6 | 10 | 7 | 2 | 18 | 24 | 1 | (s) | 33 | 34 | 58 |
| June | 6 | 10 | 7 | 2 | 19 | 25 | 1 | (s) | 33 | 34 | 59 |
| July | 7 | 11 | 7 | 2 | 19 | 26 | 1 | (s) | 38 | 38 | 64 |
| August | 7 | 10 | 7 | 2 | 19 | 25 | 1 | (s) | 36 | 37 | 62 |
| September | 6 | 9 | 6 | 2 | 17 | 22 | 1 | (s) | 34 | 34 | 57 |
| October | 5 | 8 | 5 | 1 | 15 | 20 | (s) | (s) | 29 | 30 | 50 |
| November | 4 | 7 | 4 | 1 | 12 | 16 | (s) | (s) | 25 | 25 | 42 |
| December | 4 | 6 | 4 | 1 | 11 | 15 | (s) | (s) | 21 | 21 | 37 |
| **Total** | **63** | **98** | **67** | **17** | **181** | **245** | **5** | **(s)** | **337** | **343** | **587** |
| **2017** January | 3 | 6 | 4 | 1 | 12 | 15 | (s) | (s) | 20 | 21 | 36 |
| February | 4 | 7 | 5 | 1 | 14 | 17 | (s) | (s) | 24 | 24 | 41 |
| March | 5 | 11 | 7 | 2 | 19 | 24 | (s) | (s) | 41 | 42 | 66 |
| April | 6 | 12 | 7 | 2 | 21 | 27 | (s) | (s) | 44 | 45 | 72 |
| May | 6 | 13 | 8 | 2 | 23 | 29 | 1 | (s) | 54 | 54 | 84 |
| June | 6 | 14 | 8 | 2 | 24 | 30 | 1 | (s) | 58 | 58 | 88 |
| July | 7 | 14 | 8 | 2 | 25 | 31 | 1 | (s) | 51 | 52 | 83 |
| August | 7 | 13 | 8 | 2 | 24 | 30 | 1 | (s) | 50 | 51 | 81 |
| **8-Month Total** | **44** | **90** | **54** | **16** | **161** | **204** | **4** | **(s)** | **342** | **346** | **550** |
| **2016 8-Month Total** | **44** | **68** | **47** | **12** | **126** | **170** | **4** | **(s)** | **228** | **232** | **402** |
| **2015 8-Month Total** | **43** | **44** | **37** | **9** | **91** | **134** | **3** | **(s)** | **160** | **163** | **296** |

[a] Data are estimates for distributed (small-scale) facilities (combined generator nameplate capacity less than 1 megawatt).

[b] See "Photovoltaic Energy" and "Solar Thermal Energy" in Glossary.

[c] Data are for utility-scale facilities (combined generator nameplate capacity of 1 megawatt or more).

[d] Solar photovoltaic (PV) electricity generation at distributed (small-scale) facilities connected to the electric power grid (converted to Btu by multiplying by the fossil fuels heat rate factors in Table A6).

[e] Solar photovoltaic (PV) and solar thermal electricity net generation at utility-scale facilities (converted to Btu by multiplying by the fossil fuels heat rate factors in Table A6).

[f] Solar thermal direct use energy in the residential, commercial, and industrial sectors for all end uses, such as pool heating, hot water heating, and space heating.

[g] Data are the sum of "Distributed Solar Energy Heat" and "Distributed Solar Energy Electricity."

[h] 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 Section 7.

[i] 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 Section 7.

[j] 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.

[k] Data are the sum of "Distributed Solar Energy Total" and "Utility-Scale Solar Energy Total."

NA=Not available. – =No data reported. (s)=Less than 0.5 trillion Btu.

Notes: • Distributed (small-scale) solar energy data for all years, and utility-scale solar energy data for the current two years, are estimates. • Totals may not equal sum of components due to independent rounding. • Geographic coverage is the 50 states and the District of Columbia.

Web Page: See http://www.eia.gov/totalenergy/data/monthly/#renewable (Excel and CSV files) for all available annual and monthly data beginning in 1984.

Sources: See end of section.

# Table 10.6 Solar Electricity Net Generation

(Million Kilowatthours)

| | Distributed[a] Solar Generation[b] | | | | Utility-Scale[c] Solar Generation[b] | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | Residential Sector | Commercial Sector | Industrial Sector | Total | Commercial Sector[d] | Industrial Sector[e] | Electric Power Sector[f] | Total | Total |
| **1985 Total** | **NA** | **NA** | **NA** | **NA** | **NA** | **NA** | **11** | **11** | **11** |
| **1990 Total** | **12** | **17** | **4** | **32** | **–** | **–** | **367** | **367** | **399** |
| **1995 Total** | **20** | **29** | **6** | **56** | **–** | **–** | **497** | **497** | **553** |
| **2000 Total** | **39** | **55** | **12** | **107** | **–** | **–** | **493** | **493** | **600** |
| **2001 Total** | **47** | **67** | **15** | **129** | **–** | **–** | **543** | **543** | **672** |
| **2002 Total** | **56** | **79** | **18** | **153** | **–** | **–** | **555** | **555** | **708** |
| **2003 Total** | **66** | **93** | **21** | **179** | **–** | **–** | **534** | **534** | **713** |
| **2004 Total** | **81** | **115** | **25** | **222** | **–** | **–** | **575** | **575** | **797** |
| **2005 Total** | **122** | **172** | **38** | **333** | **–** | **–** | **550** | **550** | **883** |
| **2006 Total** | **178** | **252** | **56** | **485** | **–** | **–** | **508** | **508** | **993** |
| **2007 Total** | **251** | **355** | **79** | **685** | **–** | **–** | **612** | **612** | **1,297** |
| **2008 Total** | **404** | **571** | **126** | **1,101** | **(s)** | **–** | **864** | **864** | **1,965** |
| **2009 Total** | **543** | **767** | **170** | **1,480** | **(s)** | **–** | **891** | **891** | **2,371** |
| **2010 Total** | **897** | **1,172** | **259** | **2,328** | **5** | **2** | **1,206** | **1,212** | **3,540** |
| **2011 Total** | **1,330** | **1,913** | **424** | **3,667** | **84** | **7** | **1,727** | **1,818** | **5,485** |
| **2012 Total** | **2,071** | **3,173** | **703** | **5,947** | **148** | **14** | **4,164** | **4,327** | **10,274** |
| **2013 Total** | **3,264** | **4,029** | **892** | **8,185** | **294** | **17** | **8,724** | **9,036** | **17,221** |
| **2014 Total** | **4,947** | **5,146** | **1,139** | **11,233** | **371** | **16** | **17,304** | **17,691** | **28,924** |
| **2015** January | 340 | 327 | 80 | 746 | 20 | 1 | 1,134 | 1,155 | 1,902 |
| February | 375 | 356 | 85 | 816 | 23 | 1 | 1,459 | 1,484 | 2,299 |
| March | 536 | 479 | 119 | 1,134 | 33 | 2 | 2,037 | 2,072 | 3,206 |
| April | 609 | 525 | 129 | 1,264 | 39 | 2 | 2,338 | 2,379 | 3,643 |
| May | 676 | 574 | 144 | 1,394 | 46 | 2 | 2,456 | 2,504 | 3,898 |
| June | 693 | 571 | 144 | 1,408 | 43 | 2 | 2,512 | 2,558 | 3,966 |
| July | 741 | 596 | 150 | 1,487 | 45 | 2 | 2,579 | 2,627 | 4,114 |
| August | 746 | 575 | 147 | 1,468 | 46 | 2 | 2,639 | 2,688 | 4,156 |
| September | 679 | 515 | 135 | 1,330 | 37 | 2 | 2,178 | 2,217 | 3,547 |
| October | 618 | 455 | 125 | 1,198 | 32 | 2 | 1,875 | 1,910 | 3,107 |
| November | 515 | 367 | 100 | 982 | 27 | 1 | 1,702 | 1,730 | 2,712 |
| December | 471 | 349 | 93 | 914 | 24 | 1 | 1,545 | 1,570 | 2,484 |
| **Total** | **6,999** | **5,689** | **1,451** | **14,139** | **416** | **21** | **24,456** | **24,893** | **39,032** |
| **2016** January | 513 | 409 | 98 | 1,021 | 23 | NM | 1,491 | 1,516 | 2,536 |
| February | 614 | 468 | 108 | 1,189 | 45 | 3 | 2,395 | 2,443 | 3,632 |
| March | 824 | 608 | 150 | 1,582 | 47 | NM | 2,664 | 2,713 | 4,295 |
| April | 939 | 661 | 164 | 1,763 | 44 | NM | 2,903 | 2,949 | 4,712 |
| May | 1,044 | 719 | 181 | 1,945 | 54 | NM | 3,547 | 3,603 | 5,548 |
| June | 1,086 | 723 | 183 | 1,991 | 62 | NM | 3,545 | 3,610 | 5,601 |
| July | 1,133 | 743 | 190 | 2,066 | 69 | NM | 4,024 | 4,097 | 6,163 |
| August | 1,100 | 718 | 186 | 2,004 | 59 | NM | 3,886 | 3,948 | 5,952 |
| September | 977 | 643 | 170 | 1,790 | 56 | 3 | 3,624 | 3,683 | 5,473 |
| October | 874 | 578 | 156 | 1,607 | 45 | 3 | 3,145 | 3,193 | 4,801 |
| November | 717 | 467 | 123 | 1,307 | 38 | 2 | 2,660 | 2,700 | 4,007 |
| December | 644 | 443 | 114 | 1,202 | 24 | NM | 2,273 | 2,299 | 3,500 |
| **Total** | **10,465** | **7,180** | **1,823** | **19,467** | **565** | **32** | **36,157** | **36,754** | **56,221** |
| **2017** January | 682 | 481 | 120 | 1,282 | 23 | NM | 2,182 | 2,206 | 3,488 |
| February | 784 | 526 | 139 | 1,449 | 27 | NM | 2,533 | 2,562 | 4,011 |
| March | 1,142 | 703 | 210 | 2,054 | 47 | 2 | 4,425 | 4,474 | 6,529 |
| April | 1,282 | 760 | 226 | 2,268 | 50 | NM | 4,764 | 4,816 | 7,084 |
| May | 1,420 | 809 | 250 | 2,479 | 67 | 4 | 5,745 | 5,816 | 8,295 |
| June | 1,460 | 811 | 254 | 2,524 | 72 | 8 | 6,193 | 6,272 | 8,796 |
| July | 1,487 | 878 | 264 | 2,629 | 64 | 7 | 5,473 | 5,544 | 8,173 |
| August | 1,438 | 850 | 258 | 2,546 | 58 | 7 | 5,362 | 5,427 | 7,973 |
| **8-Month Total** | **9,694** | **5,817** | **1,722** | **17,233** | **408** | **32** | **36,677** | **37,117** | **54,350** |
| **2016 8-Month Total** | **7,252** | **5,049** | **1,260** | **13,561** | **401** | **23** | **24,455** | **24,879** | **38,440** |
| **2015 8-Month Total** | **4,715** | **4,003** | **998** | **9,716** | **296** | **15** | **17,156** | **17,467** | **27,183** |

[a] Data are estimates for solar photovoltaic (PV) electricity generation at small-scale facilities (combined generator nameplate capacity less than 1 megawatt) connected to the electric power grid.

[b] See "Photovoltaic Energy" and "Solar Thermal Energy" in Glossary.

[c] Solar photovoltaic (PV) and solar thermal electricity net generation at utility-scale facilities (combined generator nameplate capacity of 1 megawatt or more).

[d] 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 Section 7.

[e] 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 Section 7.

[f] 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.

NA=Not available. NM=Not meaningful due to large standard error. – =No data reported. (s)=Less than 0.5 million kilowatthours.

Notes: • Distributed (small-scale) solar generation data for all years, and utility-scale solar energy data for the current two years, are estimates. • Totals may not equal sum of components due to independent rounding. • Geographic coverage is the 50 states and the District of Columbia.

Web Page: See http://www.eia.gov/totalenergy/data/monthly/#renewable (Excel and CSV files) for all available annual and monthly data beginning in 1984.

Sources: • **Distributed Solar Generation: 1989–2013—**Calculated as distributed solar energy consumption (see Table 10.5) divided by the total fossil fuels heat rate factors (see Table A6). **2014 forward—**U.S. Energy Information Administration (EIA), *Electric Power Monthly,* monthly reports, Tables 1.1, 1.2.C, 1.2.D, and 1.2.E. • **Utility-Scale Solar Generation: 1984–1988—**EIA, Form EIA-759, "Monthly Power Plant Report." **1989–1997:** EIA, Form EIA-759, "Monthly Power Plant Report," and Form EIA-867, "Annual Nonutility Power Producer Report." **1998–2000:** EIA, Form EIA-759, "Monthly Power Plant Report," and Form EIA-860B, "Annual Electric Generator Report—Nonutility." **2001–2003:** EIA, Form EIA-906, "Power Plant Report." **2004–2007:** EIA, Form EIA-906, "Power Plant Report," and Form EIA-920, "Combined Heat and Power Plant Report." **2008 forward:** EIA, Form EIA-923, "Power Plant Operations Report." • **Total:** Calculated as distributed solar generation plus utility-scale solar generation.

# Renewable Energy

**Note. Renewable Energy Production and Consumption.** In Tables 1.1, 1.3, and 10.1, renewable energy consumption consists of: conventional hydroelectricity net generation (converted to Btu by multiplying by the total fossil fuels heat rate factors in Table A6); geothermal electricity net generation (converted to Btu by multiplying by the total fossil fuels heat rate factors in Table A6), and geothermal heat pump and geothermal direct use energy; solar thermal and photovoltaic electricity net generation (converted to Btu by multiplying by the total fossil fuels heat rate factors in Table A6), and solar thermal direct use energy; wind electricity net generation (converted to Btu by multiplying by the total fossil fuels heat rate factors in Table A6); wood and wood-derived fuels consumption; biomass waste (municipal solid waste from biogenic sources, landfill gas, sludge waste, agricultural byproducts, and other biomass) consumption; fuel ethanol (minus denaturant) and biodiesel consumption; and losses and co-products from the production of fuel ethanol and biodiesel. In Tables 1.1, 1.2, and 10.1, renewable energy production is assumed to equal consumption for all renewable energy sources except biofuels and wood. Biofuels production comprises biomass inputs to the production of fuel ethanol and biodiesel. Wood production is the sum of wood consumption and densified biomass exports.

## Table 10.2a Sources

### Residential Sector, Geothermal

1989–2011: Annual estimates by the U.S Energy Information Administration (EIA) based on data from Oregon Institute of Technology, Geo-Heat Center.
2012 forward: Annual estimates assumed by EIA to be equal to that of 2011.
(For 1989 forward, monthly estimates are created by dividing the annual estimates by the number of days in the year and then multiplying by the number of days in the month.)

### Residential Sector, Solar

1989 forward: Residential sector solar consumption is the sum of the values for "Distributed Solar Energy Consumption: Heat" (which includes solar thermal direct use energy in the residential, commercial, and industrial sectors) from Table 10.5 and "Distributed Solar Energy Consumption: Electricity, Residential Sector" from Table 10.5.

### Residential Sector, Wood

1949–1979: Annual estimates are from EIA, *Estimates of U.S. Wood Energy Consumption from 1949 to 1981*, Table A2.
1980–2013: Annual estimates are based on EIA, Form EIA-457, "Residential Energy Consumption Survey"; and National Oceanic and Atmospheric Administration regional heating degree-day data.
2014 forward: Annual estimates based on residential wood consumption growth rates from EIA's *Annual Energy Outlook* data system.
(For 1973 forward, monthly estimates are created by dividing the annual estimates by the number of days in the year and then multiplying by the number of days in the month.)

### Residential Sector, Total Renewable Energy

1949–1988: Residential sector total renewable energy consumption is equal to residential sector wood consumption.
1989 forward: Residential sector total renewable energy consumption is the sum of the residential sector consumption values for geothermal, solar, and wood.

### Commercial Sector, Hydroelectric Power

1989 forward: Commercial sector conventional hydroelectricity net generation data from EIA, Form EIA-923, "Power Plant Operations Report," and predecessor forms, are converted to Btu by multiplying by the total fossil fuels heat rate factors in Table A6.

### Commercial Sector, Geothermal

1989–2011: Annual estimates by EIA based on data from Oregon Institute of Technology, Geo-Heat Center.
2012 forward: Annual estimates assumed by EIA to be equal to that of 2011.
(For 1989 forward, monthly estimates are created by dividing the annual estimates by the number of days in the year and then multiplying by the number of days in the month.)

### Commercial Sector, Solar

1989 forward: Commercial sector solar consumption is the sum of the values for "Distributed Solar Energy Consumption: Electricity, Commercial Sector" from Table 10.5 and "Utility-Scale Solar Energy Consumption: Electricity, Commercial Sector" from Table 10.5.

### Commercial Sector, Wind

2009 forward: Commercial sector wind electricity net generation data from EIA, Form EIA-923, "Power Plant Operations Report," are converted to Btu by multiplying by the total fossil fuels heat rate factors in Table A6.

### Commercial Sector, Wood

1949–1979: Annual estimates are from EIA, *Estimates of U.S. Wood Energy Consumption from 1949 to 1981*, Table A2.
1980–1983: Annual estimates are from EIA, *Estimates of U.S. Wood Energy Consumption 1980 –1983*, Table ES1.
1984: Annual estimate assumed by EIA to be equal to that of 1983.
1985–1988: Annual estimates interpolated by EIA.
(For 1973–1988, monthly estimates are created by dividing the annual estimates by the number of days in the year and then multiplying by the number of days in the month.)
1989 forward: Monthly/annual commercial sector combined-heat-and-power (CHP) wood consumption data are from EIA, Form EIA-923, "Power Plant Operations Report," and predecessor forms. Annual estimates for commercial sector non-CHP wood consumption are based on EIA, Form

EIA-871, "Commercial Buildings Energy Consumption Survey" (for 2014 forward, the annual estimates are based on commercial sector wood consumption growth rates from EIA's *Annual Energy Outlook* data system). For 1989 forward, monthly estimates for commercial sector non-CHP wood consumption are created by dividing the annual estimates by the number of days in the year and then multiplying by the number of days in the month. Commercial sector total wood consumption is the sum of commercial sector CHP and non-CHP wood consumption.

### Commercial Sector, Biomass Waste

1989 forward: Table 7.4c.

### Commercial Sector, Fuel Ethanol (Minus Denaturant)

1981 forward: The commercial sector share of motor gasoline consumption is equal to commercial sector motor gasoline consumption from Table 3.7a divided by motor gasoline product supplied from Table 3.5. Commercial sector fuel ethanol (minus denaturant) consumption is equal to fuel ethanol (minus denaturant) consumption from Table 10.3 multplied by the commercial sector share of motor gasoline consumption. Note that there is a discontinuity in this time series between 2014 and 2015 due to a change in the method for allocating motor gasoline consumption to the end-use sectors; beginning in 2015, the commercial and industrial sector shares of fuel ethanol consumption are larger than in 2014, while the transportation sector share is smaller.

### Commercial Sector, Total Biomass

1949–1980: Commercial sector total biomass consumption is equal to commercial sector wood consumption.
1981–1988: Commercial sector total biomass consumption is the sum of the commercial sector consumption values for wood and fuel ethanol (minus denaturant).
1989 forward: Commercial sector total biomass consumption is the sum of the commercial sector consumption values for wood, waste, and fuel ethanol (minus denaturant).

### Commercial Sector, Total Renewable Energy

1949–1988: Commercial sector total renewable energy consumption is equal to commercial sector total biomass consumption.
1989–2007: Commercial sector total renewable energy consumption is the sum of the commercial sector consumption values for conventional hydroelectric power, geothermal, and total biomass.
2008: Commercial sector total renewable energy consumption is the sum of the commercial sector consumption values for conventional hydroelectric power, geothermal, solar, and total biomass.
2009 forward: Commercial sector total renewable energy is the sum of the commercial sector consumption values for conventional hydroelectric power, geothermal, solar, wind, and total biomass.

## Table 10.2b Sources

### Industrial Sector, Hydroelectric Power

1949 forward: Industrial sector conventional hydroelectricity net generation data from Table 7.2c are converted to Btu by multiplying by the total fossil fuels heat rate factors in Table A6.

### Industrial Sector, Geothermal

1989–2009: Annual estimates by the U.S. Energy Information Administration (EIA) based on data from Oregon Institute of Technology, Geo-Heat Center.
2010 forward: Annual estimates assumed by EIA to be equal to that of 2009.
(For 1989 forward, monthly estimates are created by dividing the annual estimates by the number of days in the year and then multiplying by the number of days in the month.)

### Industrial Sector, Solar

1989 forward: Industrial sector solar consumption is the sum of the values for "Distributed Solar Energy Consumption: Electricity, Industrial Sector" from Table 10.5 and "Utility-Scale Solar Energy Consumption: Electricity, Industrial Sector" from Table 10.6.

### Industrial Sector, Wind

2011 forward: Industrial sector wind electricity net generation data from EIA, Form EIA-923, "Power Plant Operations Report," are converted to Btu by multiplying by the total fossil fuels heat rate factors in Table A6.

### Industrial Sector, Wood

1949–1979: Annual estimates are from EIA, *Estimates of U.S. Wood Energy Consumption from 1949 to 1981*, Table A2.
1980–1983: Annual estimates are from EIA, *Estimates of U.S. Wood Energy Consumption 1980 –1983*, Table ES1.
1984: Annual estimate is from EIA, *Estimates of U.S. Biofuels Consumption 1990*, Table 1.
1985 and 1986: Annual estimates interpolated by EIA.
1987: Annual estimate is from EIA, *Estimates of Biofuels Consumption in the United States During 1987*, Table 2.
1988: Annual estimate interpolated by EIA.
(For 1973–1988, monthly estimates are created by dividing the annual estimates by the number of days in the year and then multiplying by the number of days in the month.)
1989 forward: Monthly/annual industrial sector combined-heat-and-power (CHP) wood consumption data are from EIA, Form EIA-923, "Power Plant Operations Report," and predecessor forms. Annual estimates for industrial sector non-CHP wood consumption are based on EIA, Form EIA-846, "Manufacturing Energy Consumption Survey" (for 2014 forward, the annual estimates are assumed by EIA to be equal to that of 2013). For 1989 forward, monthly estimates for industrial sector non-CHP wood consumption are created by dividing the annual estimates by the number of days in the year and then multiplying by the number of days in the month. Industrial sector total wood consumption

is the sum of industrial sector CHP and non-CHP wood consumption.

### Industrial Sector, Biomass Waste

1981: Annual estimate is calculated as total waste consumption (from EIA, *Estimates of U.S. Biofuels Consumption 1990*, Table 8) minus electric power sector waste consumption (from MER Table 10.2c).
1982 and 1983: Annual estimates are calculated as total waste consumption (based on *Estimates of U.S. Biofuels Consumption 1990*, Table 8) minus electric power sector waste consumption (from MER, Table 10.2c).
1984: Annual estimate is calculated as total waste consumption (from EIA, *Estimates of U.S. Biofuels Consumption 1990*, Table 8) minus electric power sector waste consumption (from MER, Table 10.2c).
1985 and 1986: Annual estimates interpolated by EIA.
1987: Annual estimate is calculated as total waste consumption (from EIA, *Estimates of U.S. Biofuels Consumption 1990*, Table 8) minus electric power sector waste consumption (from MER, Table 10.2c).
1988: Annual estimate interpolated by EIA.
(For 1973–1988, monthly estimates are created by dividing the annual estimates by the number of days in the year and then multiplying by the number of days in the month.)
1989 forward: Monthly/annual industrial sector combined-heat-and-power (CHP) consumption data are from Table 7.4c. Annual estimates for industrial sector non-CHP waste consumption are based on information presented in Government Advisory Associates, *Resource Recovery Yearbook* and *Methane Recovery Yearbook*, and information provided by the U.S. Environmental Protection Agency, Landfill Methane Outreach Program (for 2014 forward, the annual estimates are assumed by EIA to be equal to that of 2013). For 1989 forward, monthly estimates for industrial sector non-CHP waste consumption are created by dividing the annual estimates by the number of days in the year and then multiplying by the number of days in the month. Industrial sector total waste consumption is the sum of industrial sector CHP and non-CHP waste consumption.

### Industrial Sector, Fuel Ethanol (Minus Denaturant)

1981 forward: The industrial sector share of motor gasoline consumption is equal to industrial sector motor gasoline consumption from Table 3.7b divided by motor gasoline product supplied from Table 3.5. Industrial sector fuel ethanol (minus denaturant) consumption is equal to fuel ethanol (minus denaturant) consumption from Table 10.3 multiplied by the industrial sector share of motor gasoline consumption. Note that there is a discontinuity in this time series between 2014 and 2015 due to a change in the method for allocating motor gasoline consumption to the end-use sectors; beginning in 2015, the commercial and industrial sector shares of fuel ethanol consumption are larger than in 2014, while the transportation sector share is smaller.

### Industrial Sector, Biomass Losses and Co-products

1981 forward: Calculated as fuel ethanol losses and co-products from Table 10.3 plus biodiesel losses and co-products from Table 10.4.

### Industrial Sector, Total Biomass

1949–1980: Industrial sector total biomass consumption is equal to industrial sector wood consumption.
1981 forward: Industrial sector total biomass consumption is the sum of the industrial sector consumption values for wood, waste, fuel ethanol (minus denaturant), and biomass losses and co-products.

### Industrial Sector, Total Renewable Energy

1949–1988: Industrial sector total renewable energy consumption is the sum of the industrial sector consumption values for conventional hydroelectric power and total biomass.
1989–2009: Industrial sector total renewable energy consumption is the sum of the industrial sector consumption values for conventional hydroelectric power, geothermal, and total biomass.
2010: Industrial sector total renewable energy consumption is the sum of the industrial sector consumption values for conventional hydroelectric power, geothermal, solar, and total biomass.
2011 forward: Industrial sector total renewable energy consumption is the sum of the industrial sector consumption values for conventional hydroelectric power, geothermal, solar, wind, and total biomass.

### Transportation Sector, Fuel Ethanol (Minus Denaturant)

1981 forward: The transportation sector share of motor gasoline consumption is equal to transportation sector motor gasoline consumption from Table 3.7c divided by motor gasoline product supplied from Table 3.5. Transportation sector fuel ethanol (minus denaturant) consumption is equal to fuel ethanol (minus denaturant) consumption from Table 10.3 multiplied by the transportation sector share of motor gasoline consumption. Note that there is a discontinuity in this time series between 2014 and 2015 due to a change in the method for allocating motor gasoline consumption to the end-use sectors; beginning in 2015, the commercial and industrial sector shares of fuel ethanol consumption are larger than in 2014, while the transportation sector share is smaller.

### Transportation Sector, Biodiesel

2001 forward: Table 10.4. Transportation sector biodiesel consumption is assumed to equal total biodiesel consumption.

### Transportation Sector, Other Renewable Fuels

2009 forward: Table 10.4.

### Transportation Sector, Total Renewable Energy

1981–2000: Transportation sector total renewable energy consumption is equal to transportation sector fuel ethanol (minus denaturant) consumption.
2001–2008: Transportation sector total renewable energy consumption is the sum of the transportation sector consumption values for fuel ethanol (minus denaturant) and biodiesel.
2009 forward: Transportation sector total renewable energy consumption is the sum of the transportation sector consumption values for fuel ethanol (minus denaturant), biodiesel, and other renewable fuels.

## Table 10.3 Sources

### Feedstock

1981 forward: Calculated as fuel ethanol production (in thousand barrels) minus denaturant, and then multiplied by the fuel ethanol feedstock factor—see Table A3.

### Losses and Co-products

1981 forward: Calculated as fuel ethanol feedstock plus denaturant minus fuel ethanol production.

### Denaturant

1981–2008: Data in thousand barrels for petroleum denaturant in fuel ethanol produced are estimated as 2% of fuel ethanol production; these data are converted to Btu by multiplying by 4.645 million Btu per barrel (the estimated quantity-weighted factor of natural gasoline and conventional motor gasoline used as denaturant).
2009–2016: U.S. Energy Information Administration (EIA), *Petroleum Supply Annual (PSA)*, annual reports, Table 1. Data in thousand barrels for net production of natural gasoline at renewable fuels and oxygenate plants are multiplied by -1; these data are converted to Btu by multiplying by 4.620 million Btu per barrel (the approximate heat content of natural gasoline). Data in thousand barrels for net production of conventional motor gasoline and motor gasoline blending components at renewable fuels and oxygenate plants are multiplied by -1; these data are converted to Btu by multiplying by 5.253 million Btu per barrel (the approximate heat content of conventional motor gasoline). Total denaturant is the sum of the values for natural gasoline, conventional motor gasoline, and motor gasoline blending components.
2017: EIA, *Petroleum Supply Monthly (PSM)*, monthly reports, Table 1. Data in thousand barrels for net production of natural gasoline at renewable fuels and oxygenate plants are multiplied by -1; these data are converted to Btu by multiplying by 4.620 million Btu per barrel (the approximate heat content of natural gasoline). Data in thousand barrels for net production of conventional motor gasoline and motor gasoline blending components at renewable fuels and oxygenate plants are multiplied by -1; these data are converted to Btu by multiplying by 5.253 million Btu per barrel (the approximate heat content of conventional motor gasoline). Total denaturant is the sum of the values for natural gasoline, conventional motor gasoline, and motor gasoline blending components.

### Production

1981–1992: Fuel ethanol production is assumed to equal fuel ethanol consumption—see sources for "Consumption."
1993–2004: Calculated as fuel ethanol consumption plus fuel ethanol stock change minus fuel ethanol net imports. These data differ slightly from the original production data from EIA, Form EIA-819, "Monthly Oxygenate Report," and predecessor form, which were not reconciled and updated to be consistent with the final balance.
2005–2008: EIA, Form EIA-819, "Monthly Oxygenate Report."
2009–2016: EIA, PSA, annual reports, Table 1, data for net production of fuel ethanol at renewable fuels and oxygenate plants.
2017: EIA, PSM, monthly reports, Table 1, data for net production of fuel ethanol at renewable fuels and oxygenate plants.

### Trade, Stocks, and Stock Change

1992–2016: EIA, PSA, annual reports, Table 1.
2017: EIA, PSM, monthly reports, Table 1.

### Consumption

1981–1989: EIA, *Estimates of U.S. Biofuels Consumption 1990*, Table 10; and interpolated values for 1982, 1983, 1985, 1986, and 1988.
1990–1992: EIA, *Estimates of U.S. Biomass Energy Consumption 1992*, Table D2; and interpolated value for 1991.
1993–2004: EIA, PSA, annual reports, Tables 2 and 16. Calculated as 10% of oxygenated finished motor gasoline field production (Table 2), plus fuel ethanol refinery input (Table 16).
2005–2008: EIA, PSA, annual reports, Tables 1 and 15. Calculated as motor gasoline blending components adjustments (Table 1), plus finished motor gasoline adjustments (Table 1), plus fuel ethanol refinery and blender net inputs (Table 15).
2009–2016: EIA, PSA, annual reports, Table 1. Calculated as fuel ethanol refinery and blender net inputs minus fuel ethanol adjustments.
2017: EIA, PSM, monthly reports, Table 1. Calculated as fuel ethanol refinery and blender net inputs minus fuel ethanol adjustments.

### Consumption Minus Denaturant

1981 forward: Calculated as fuel ethanol consumption minus the amount of denaturant in fuel ethanol consumed. Denaturant in fuel ethanol consumed is estimated by multiplying denaturant in fuel ethanol produced by the fuel ethanol consumption-to-production ratio.

## Table 10.4 Sources

### Biodiesel Feedstock

2001 forward: Calculated as biodiesel production in thousand barrels multiplied by 5.433 million Btu per barrel

(the biodiesel feedstock factor—see "Biodiesel Feedstock" entry in the "Thermal Conversion Factor Source Documentation" at the end of Appendix A).

### Biodiesel Losses and Co-products

2001 forward: Calculated as biodiesel feedstock minus biodiesel production.

### Biodiesel Production

2001–2005: U.S. Department of Agriculture, Commodity Credit Corporation, Bioenergy Program records. Annual data are derived from quarterly data. Monthly data are estimated by dividing the annual data by the number of days in the year and then multiplying by the number of days in the month.

2006: U.S. Department of Commerce, U.S. Census Bureau, "M311K—Fats and Oils: Production, Consumption, and Stocks," data for soybean oil consumed in methyl esters (biodiesel). In addition, the U.S. Energy Information Administration (EIA) estimates that 14.4 million gallons of yellow grease were consumed in methyl esters (biodiesel).

2007: U.S. Department of Commerce, U.S. Census Bureau, "M311K—Fats and Oils: Production, Consumption, and Stocks," data for all fats and oils consumed in methyl esters (biodiesel).

2008: EIA, *Monthly Biodiesel Production Report*, December 2009 (release date October 2010), Table 11. Monthly data for 2008 are estimated based on U.S. Department of Commerce, U.S. Census Bureau, M311K data, multiplied by the EIA 2008 annual value's share of the M311K 2008 annual value.

2009 and 2010: EIA, *Monthly Biodiesel Production Report*, monthly reports, Table 1.

2011–2016: EIA, *Petroleum Supply Annual (PSA)*, annual reports, Table 1, data for renewable fuels except fuel ethanol.

2017: EIA, *Petroleum Supply Monthly (PSM)*, monthly reports, Table 1, data for renewable fuels except fuel ethanol.

### Biodiesel Trade

2001–2011: For imports, U.S. Department of Agriculture, data for the following Harmonized Tariff Schedule codes: 3824.90.40.20, "Fatty Esters Animal/Vegetable Mixture" (data through June 2010); and 3824.90.40.30, "Biodiesel/Mixes" (data for July 2010–2011). For exports, U.S. Department of Agriculture, data for the following Schedule B codes: 3824.90.40.00, "Fatty Substances Animal/Vegetable/Mixture" (data through 2010); and 3824.90.40.30, "Biodiesel <70%" (data for 2011). (The data above are converted from pounds to gallons by dividing by 7.4.) Although these categories include products other than biodiesel (such as biodiesel coprocessed with petroleum feedstocks; and products destined for soaps, cosmetics, and other items), biodiesel is the largest component. In the absence of other reliable data for biodiesel trade, EIA sees these data as good substitutes.

2012–2016: EIA, PSA, annual reports, Tables 25 and 31, data for biomass-based diesel fuel.

2017: EIA, PSM, monthly reports, Tables 37 and 49, data for biomass-based diesel fuel.

### Biodiesel Stocks and Stock Change

2009 forward: EIA, biodiesel data from EIA-22M, "Monthly Biodiesel Production Survey"; and biomass-based diesel fuel data from EIA-810, "Monthly Refinery Report," EIA-812, "Monthly Product Pipeline Report," and EIA-815, "Monthly Bulk Terminal and Blender Report."

### Biodiesel Consumption

2001–2008: Calculated as biodiesel production plus biodiesel net imports.

January and February 2009: EIA, PSA, Table 1, data for refinery and blender net inputs of renewable fuels except fuel ethanol.

March 2009 forward: Calculated as biodiesel production plus biodiesel net imports minus biodiesel stock change.

### Other Renewable Fuels

2009 forward: Imports data for "Other Renewable Diesel Fuel" are from EIA, PSA Table 25 and PSM Table 37 (data are converted to Btu by multiplying by the other renewable diesel fuel heat content factor in Table A1). Imports data for "Other Renewable Fuels" are from EIA, PSA Table 25 and PSM Table 37 (data are converted to Btu by multiplying by the biodiesel heat content factor in Table A1). Stock change data for "Other Renewable Diesel Fuel" are from EIA, EIA-810, "Monthly Refinery Report," EIA-812, "Monthly Product Pipeline Report," and EIA-815, "Monthly Bulk Terminal and Blender Report" (data are converted to Btu by multiplying by the other renewable diesel heat content factor in Table A1). "Other Renewable Fuels" in Table 10.4 is calculated as other renewable diesel fuel imports plus other renewable fuels imports minus other renewable diesel fuel stock change.

## Table 10.5 Sources

### Distributed Solar Energy Consumption: Heat

#### Annual Data

1989–2009: Annual estimates by the U.S. Energy Information Administration (EIA) based on EIA, Form EIA-63A, "Annual Solar Thermal Collector/Reflector Shipments Report." Solar energy consumption by solar thermal non-electric applications (mainly in the residential sector, but with some in the commercial and industrial sectors) is based on assumptions about the stock of equipment in place and other factors.

2010 forward: Annual estimates based on commercial sector solar thermal growth rates from EIA's *Annual Energy Outlook (AEO)* data system. (Annual estimates are subject to revision when a new AEO is released.)

**Monthly Data**

1989–2013: Monthly estimates for each year are obtained by allocating a given year's annual value to the months in that year. Each month's allocator is the average of that month's "Distributed Solar Energy Consumption: Electricity, Total" values in 2014 and 2015. The allocators, when rounded, are as follows: January—5%; February—6%; March—8%; April—9%; May—10%; June—10%; July—10%; August—10%; September—9%; October—9%; November—7%; and December—7%.

2014 forward: Initial monthly estimates for each year are obtained as described above. Once all 12 months of "Distributed Solar Energy Consumption: Electricity, Total" data are available for a given year, they are used as allocators and applied to the annual estimate in order to revise the initial monthly estimates.

## Distributed Solar Energy Consumption: Electricity, Residential Sector

Beginning in 2014, monthly and annual data for residential sector distributed (small-scale) solar photovoltaic generation are from EIA, *Electric Power Monthly*, Table 1.2.E. Those data are converted to consumption data in Btu by multiplying by the total fossil fuels heat rate factors in MER Table A6.

Backcasts for earlier periods are developed as follows:

**Annual Data**

1989–2003: Annual growth rates are calculated based on distributed (small-scale) solar electricity consumption in all sectors. Consumption is estimated using information on shipments of solar panels from EIA, Form EIA-63B, "Annual Photovoltaic Cell/Module Shipments Report," and assumptions about the stock of equipment in place and other factors. The growth rates are applied to more recent data to create historical annual estimates.

2004–2008: Annual growth rates based on commercial sector solar photovoltaic growth rates from EIA's *Annual Energy Outlook (AEO)* data system are applied to more recent data to create historical annual estimates. (Annual estimates are subject to revision when a new AEO is released.)

2009–2013: Annual growth rates based on residential sector solar photovoltaic growth rates from EIA's *Annual Energy Outlook (AEO)* data system are applied to more recent data to create historical annual estimates. (Annual estimates are subject to revision when a new AEO is released.)

**Monthly Data**

1989–2013: See "Distributed Solar Energy Consumption: Heat, Monthly Data."

## Distributed Solar Energy Consumption: Electricity, Commercial Sector

Beginning in 2014, monthly and annual data for commercial sector distributed (small-scale) solar photovoltaic generation are from EIA, *Electric Power Monthly*, Table 1.2.C. Those data are converted to consumption data in Btu by multiplying by the total fossil fuels heat rate factors in MER Table A6.

Backcasts for earlier periods are developed as follows:

**Annual Data**

1989–2003: Annual growth rates based on EIA, Form EIA-63B, "Annual Photovoltaic Cell/Module Shipments Report," are applied to more recent data to create historical annual estimates. (See "Distributed Solar Energy Consumption: Electricity, Residential Sector" sources above for details.)

2004–2013: Annual growth rates based on commercial sector solar photovoltaic growth rates from EIA's *Annual Energy Outlook (AEO)* data system are applied to more recent data to create historical annual estimates. (Annual estimates are subject to revision when a new AEO is released.)

**Monthly Data**

1989–2013: See "Distributed Solar Energy Consumption: Heat, Monthly Data."

## Distributed Solar Energy Consumption: Electricity, Industrial Sector

Beginning in 2014, monthly and annual data for industrial sector distributed (small-scale) solar photovoltaic generation are from EIA, *Electric Power Monthly*, Table 1.2.D. Those data are converted to consumption data in Btu by multiplying by the total fossil fuels heat rate factors in MER Table A6.

Backcasts for earlier periods are developed as follows:

**Annual Data**

1989–2003: Annual growth rates based on EIA, Form EIA-63B, "Annual Photovoltaic Cell/Module Shipments Report," are applied to more recent data to create historical annual estimates. (See "Distributed Solar Energy Consumption: Electricity, Residential Sector" sources above for details.)

2004–2013: Annual growth rates based on commercial sector solar photovoltaic growth rates from EIA's *Annual Energy Outlook (AEO)* data system are applied to more recent data to create historical annual estimates. (Annual estimates are subject to revision when a new AEO is released.)

**Monthly Data**

1989–2013: See "Distributed Solar Energy Consumption: Heat, Monthly Data."

## Distributed Solar Energy Consumption: Electricity, Total

1989 forward: Distributed (small-scale) solar energy consumption for total electricity is the sum of the distributed solar energy consumption (for electricity) values for the residential, commercial, and industrial sectors.

## Distributed Solar Energy Consumption: Total

1989 forward: Distributed (small-scale) solar energy consumption total is the sum of distributed solar energy consumption values for heat and total electricity.

## Utility-Scale Solar Energy Consumption: Electricity, Commercial Sector

2008 forward: Commercial sector solar photovoltaic and solar thermal electricity net generation data from EIA, Form

EIA-923, “Power Plant Operations Report,” are converted to Btu by multiplying by the total fossil fuels heat rate factors in Table A6.

### Utility-Scale Solar Energy Consumption: Electricity, Industrial Sector

2010 forward: Industrial sector solar photovoltaic and solar thermal electricity net generation data from EIA, Form EIA-923, "Power Plant Operations Report," are converted to Btu by multiplying by the total fossil fuels heat rate factors in Table A6.

### Utility-Scale Solar Energy Consumption: Electricity, Electric Power Sector

1984 forward: Electric power sector solar photovoltaic and solar thermal electricity net generation data from Table 7.2b are converted to Btu by multiplying by the total fossil fuels heat rate factors in Table A6.

### Utility-Scale Solar Energy Consumption: Electricity, Total

1984 forward: Utility-scale solar energy consumption for total electricity is the sum of the utility-scale solar energy consumption (for electricity) values for the commercial, industrial, and electric power sectors.

### Solar Energy Consumption: Total

1984 forward: Total solar energy consumption is the sum of the values for total distributed solar energy consumption and total utility-scale solar energy consumption.

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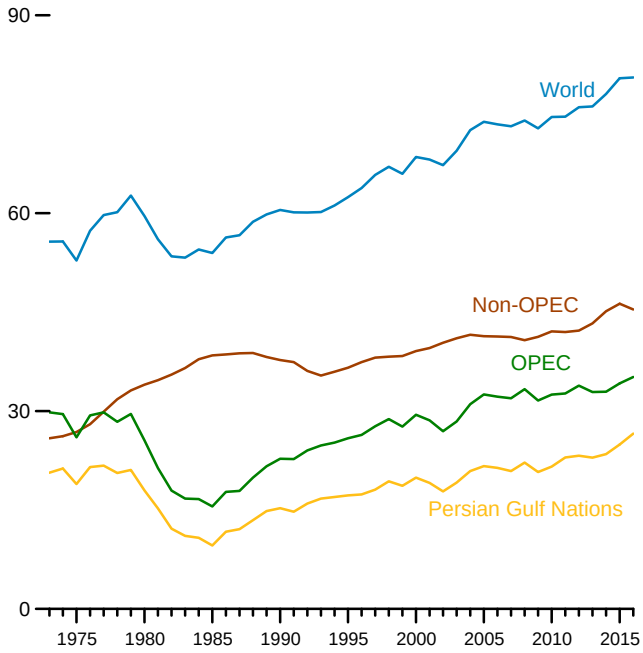
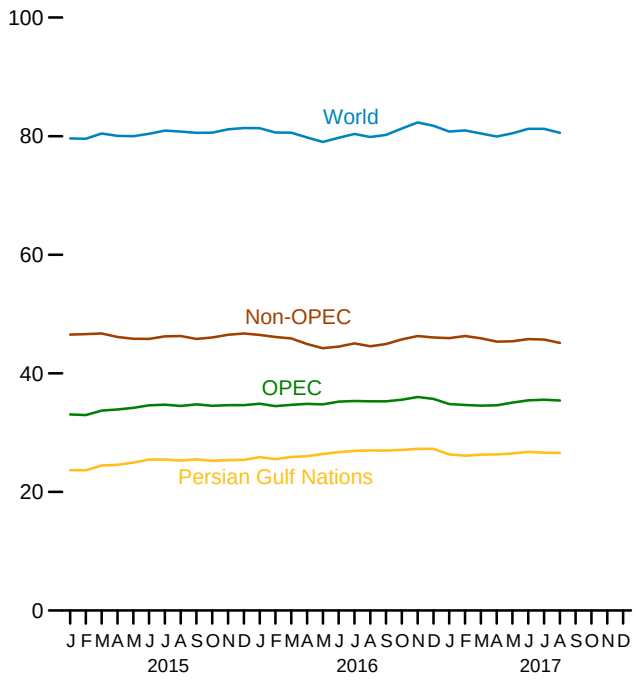
# 11. International Petroleum

## Figure 11.1a World Crude Oil Production Overview
(Million Barrels per Day)

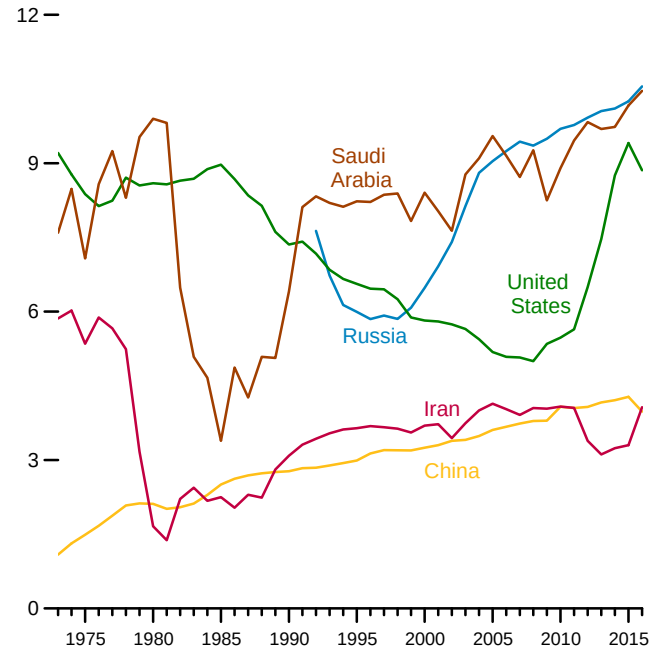
World Production, 1973–2016



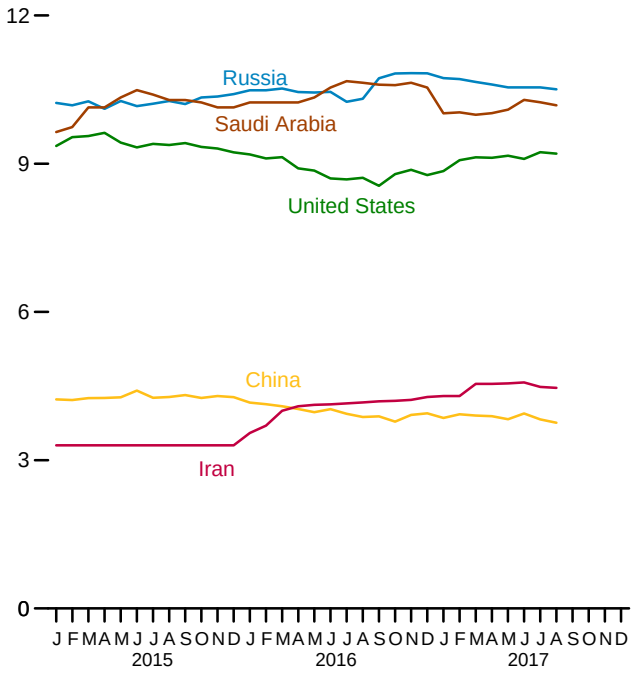

World Production, Monthly




Selected Producers, 1973–2016




Selected Producers, Monthly

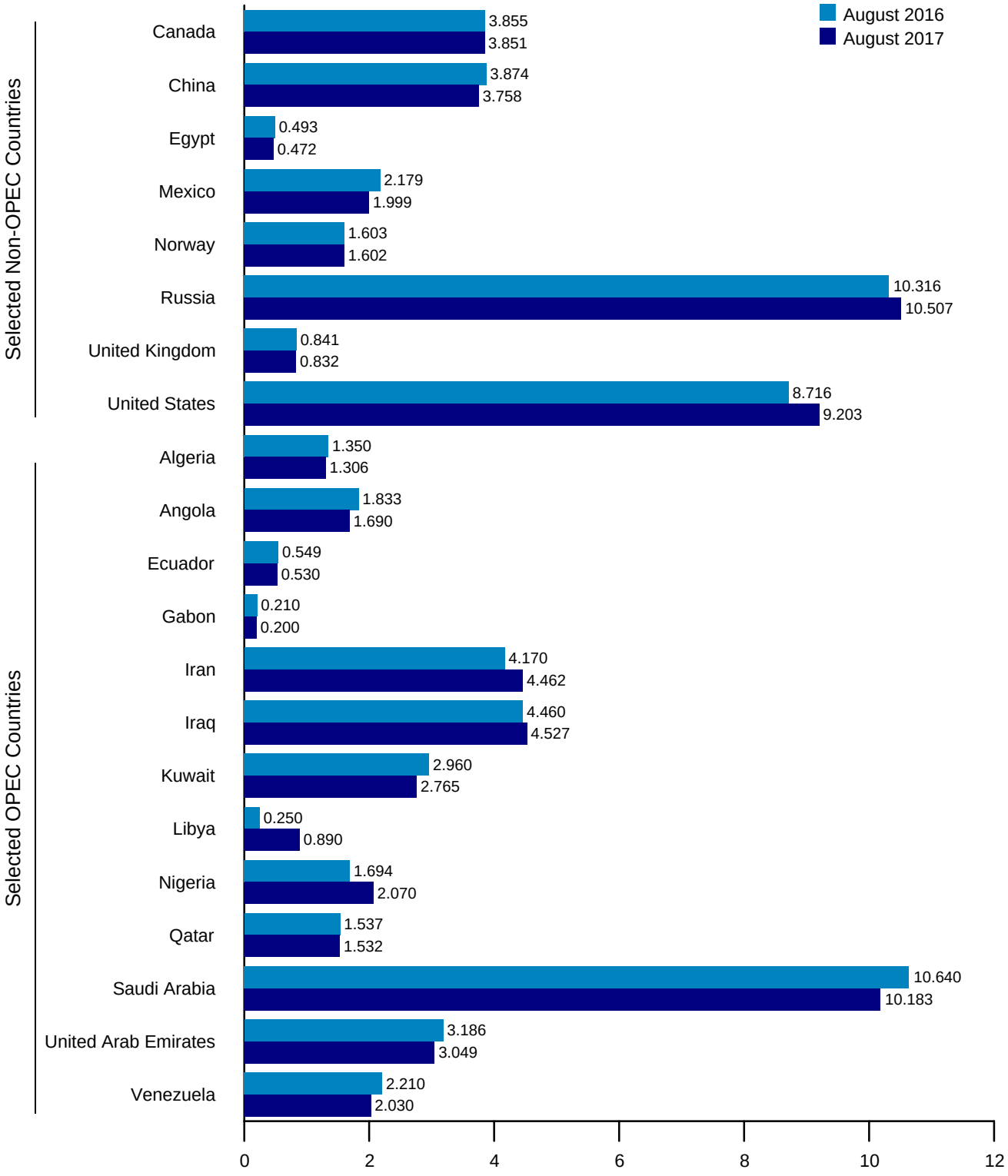



Notes: • OPEC is the Organization of the Petroleum Exporting Countries. • The Persian Gulf Nations are Bahrain, Iran, Iraq, Kuwait, Qatar, Saudi Arabia, and the United Arab Emirates. Production from the Neutral Zone between Kuwait and Saudi Arabia is included in "Persian Gulf Nations."

Web Page: http://www.eia.gov/totalenergy/data/monthly/#international.

Sources: Tables 11.1a and 11.1b.

**Figure 11.1b World Crude Oil Production by Selected Countries**
(Million Barrels per Day)




Note: OPEC is the Organization of the Petroleum Exporting Countries.
Web Page: http://www.eia.gov/totalenergy/data/monthly/#international.
Sources: Tables 11.1a and 11.1b.

## Table 11.1a World Crude Oil Production: Selected OPEC Members

(Thousand Barrels per Day)

| | Algeria | Angola | Ecuador | Gabon | Iran | Iraq | Kuwait[a] | Libya | Nigeria | Qatar | Saudi Arabia[a] | United Arab Emirates | Vene-zuela | Total OPEC[b] |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **1973 Average** | **1,097** | **162** | **209** | **150** | **5,861** | **2,018** | **3,020** | **2,175** | **2,054** | **570** | **7,596** | **1,533** | **3,366** | **29,811** |
| **1975 Average** | **983** | **165** | **161** | **223** | **5,350** | **2,262** | **2,084** | **1,480** | **1,783** | **438** | **7,075** | **1,664** | **2,346** | **26,013** |
| **1980 Average** | **1,106** | **150** | **204** | **175** | **1,662** | **2,514** | **1,656** | **1,787** | **2,055** | **472** | **9,900** | **1,709** | **2,168** | **25,558** |
| **1985 Average** | **1,036** | **231** | **281** | **172** | **2,250** | **1,433** | **1,023** | **1,059** | **1,495** | **301** | **3,388** | **1,193** | **1,677** | **15,539** |
| **1990 Average** | **1,180** | **475** | **285** | **270** | **3,088** | **2,040** | **1,175** | **1,375** | **1,810** | **406** | **6,410** | **2,117** | **2,137** | **22,768** |
| **1995 Average** | **1,162** | **646** | **392** | **365** | **3,643** | **560** | **2,057** | **1,390** | **1,993** | **442** | **8,231** | **2,233** | **2,750** | **25,870** |
| **1996 Average** | **1,227** | **709** | **396** | **368** | **3,686** | **579** | **2,062** | **1,401** | **2,001** | **510** | **8,218** | **2,278** | **2,938** | **26,389** |
| **1997 Average** | **1,259** | **714** | **388** | **370** | **3,664** | **1,155** | **2,007** | **1,446** | **2,132** | **550** | **8,362** | **2,316** | **3,280** | **27,697** |
| **1998 Average** | **1,226** | **735** | **375** | **352** | **3,634** | **2,150** | **2,085** | **1,390** | **2,153** | **696** | **8,389** | **2,345** | **3,167** | **28,781** |
| **1999 Average** | **1,177** | **745** | **373** | **331** | **3,557** | **2,508** | **1,898** | **1,319** | **2,130** | **665** | **7,833** | **2,169** | **2,826** | **27,632** |
| **2000 Average** | **1,214** | **746** | **395** | **315** | **3,696** | **2,571** | **2,079** | **1,410** | **2,165** | **742** | **8,404** | **2,368** | **3,155** | **29,427** |
| **2001 Average** | **1,265** | **742** | **412** | **270** | **3,724** | **2,390** | **1,998** | **1,367** | **2,256** | **730** | **8,031** | **2,205** | **3,010** | **28,581** |
| **2002 Average** | **1,349** | **896** | **393** | **251** | **3,444** | **2,023** | **1,894** | **1,319** | **2,118** | **709** | **7,634** | **2,082** | **2,604** | **26,929** |
| **2003 Average** | **1,516** | **903** | **411** | **241** | **3,743** | **1,308** | **2,136** | **1,421** | **2,275** | **807** | **8,775** | **2,348** | **2,335** | **28,425** |
| **2004 Average** | **1,582** | **1,052** | **528** | **239** | **4,001** | **2,011** | **2,376** | **1,515** | **2,329** | **901** | **9,101** | **2,478** | **2,557** | **31,036** |
| **2005 Average** | **1,692** | **1,239** | **532** | **266** | **4,139** | **1,878** | **2,529** | **1,633** | **2,627** | **978** | **9,550** | **2,535** | **2,565** | **32,526** |
| **2006 Average** | **1,699** | **1,398** | **536** | **237** | **4,028** | **1,996** | **2,535** | **1,681** | **2,440** | **996** | **9,152** | **2,636** | **2,511** | **32,187** |
| **2007 Average** | **1,708** | **1,724** | **511** | **244** | **3,912** | **2,086** | **2,464** | **1,702** | **2,350** | **1,083** | **8,722** | **2,603** | **2,490** | **31,944** |
| **2008 Average** | **1,705** | **1,951** | **505** | **248** | **4,050** | **2,375** | **2,586** | **1,736** | **2,165** | **1,198** | **9,261** | **2,681** | **2,510** | **33,308** |
| **2009 Average** | **1,585** | **1,877** | **486** | **242** | **4,037** | **2,391** | **2,350** | **1,650** | **2,208** | **1,279** | **8,250** | **2,413** | **2,520** | **31,609** |
| **2010 Average** | **1,540** | **1,909** | **486** | **246** | **4,080** | **2,399** | **2,300** | **1,650** | **2,408** | **1,459** | **8,900** | **2,415** | **2,410** | **32,500** |
| **2011 Average** | **1,540** | **1,756** | **500** | **241** | **4,054** | **2,626** | **2,530** | **465** | **2,474** | **1,571** | **9,458** | **2,679** | **2,500** | **32,672** |
| **2012 Average** | **1,532** | **1,787** | **504** | **230** | **3,387** | **2,983** | **2,635** | **1,367** | **2,457** | **1,551** | **9,832** | **2,804** | **2,500** | **33,859** |
| **2013 Average** | **1,462** | **1,803** | **526** | **220** | **3,113** | **3,054** | **2,650** | **918** | **2,307** | **1,553** | **9,693** | **2,820** | **2,500** | **32,890** |
| **2014 Average** | **1,420** | **1,742** | **556** | **220** | **3,239** | **3,368** | **2,642** | **471** | **2,347** | **1,540** | **9,735** | **2,894** | **2,500** | **32,935** |
| **2015** January | 1,429 | 1,820 | 558 | 215 | 3,300 | 3,475 | 2,750 | 370 | 2,294 | 1,514 | 9,640 | 2,960 | 2,500 | 33,075 |
| February | 1,429 | 1,770 | 553 | 215 | 3,300 | 3,325 | 2,750 | 360 | 2,269 | 1,520 | 9,740 | 2,970 | 2,500 | 32,951 |
| March | 1,429 | 1,720 | 553 | 215 | 3,300 | 3,725 | 2,750 | 475 | 2,152 | 1,525 | 10,140 | 2,980 | 2,500 | 33,714 |
| April | 1,429 | 1,790 | 548 | 205 | 3,300 | 3,775 | 2,770 | 505 | 2,165 | 1,531 | 10,140 | 3,010 | 2,500 | 33,918 |
| May | 1,429 | 1,770 | 543 | 205 | 3,300 | 3,925 | 2,780 | 430 | 2,139 | 1,532 | 10,340 | 3,020 | 2,500 | 34,163 |
| June | 1,429 | 1,820 | 541 | 215 | 3,300 | 4,275 | 2,780 | 410 | 2,025 | 1,537 | 10,490 | 3,030 | 2,500 | 34,602 |
| July | 1,429 | 1,850 | 538 | 215 | 3,300 | 4,325 | 2,810 | 400 | 2,122 | 1,537 | 10,400 | 3,030 | 2,500 | 34,706 |
| August | 1,429 | 1,870 | 537 | 215 | 3,300 | 4,225 | 2,850 | 360 | 2,088 | 1,537 | 10,290 | 3,040 | 2,500 | 34,491 |
| September | 1,429 | 1,800 | 539 | 215 | 3,300 | 4,425 | 2,850 | 375 | 2,225 | 1,537 | 10,290 | 3,040 | 2,500 | 34,775 |
| October | 1,429 | 1,770 | 538 | 215 | 3,300 | 4,275 | 2,800 | 415 | 2,198 | 1,537 | 10,240 | 3,050 | 2,500 | 34,517 |
| November | 1,429 | 1,820 | 537 | 215 | 3,300 | 4,425 | 2,850 | 375 | 2,226 | 1,537 | 10,140 | 3,040 | 2,500 | 34,644 |
| December | 1,429 | 1,820 | 533 | 215 | 3,300 | 4,425 | 2,900 | 370 | 2,159 | 1,537 | 10,140 | 3,060 | 2,500 | 34,638 |
| **Average** | **1,429** | **1,802** | **543** | **213** | **3,300** | **4,054** | **2,804** | **404** | **2,171** | **1,532** | **10,168** | **3,019** | **2,500** | **34,190** |
| **2016** January | 1,350 | 1,798 | 534 | 210 | 3,550 | 4,475 | 2,950 | 370 | 2,159 | 1,497 | 10,240 | 3,105 | 2,400 | 34,865 |
| February | 1,350 | 1,793 | 540 | 210 | 3,700 | 4,225 | 2,910 | 360 | 2,120 | 1,517 | 10,240 | 2,885 | 2,400 | 34,477 |
| March | 1,350 | 1,798 | 552 | 210 | 4,000 | 4,225 | 2,930 | 320 | 1,993 | 1,537 | 10,240 | 2,910 | 2,400 | 34,692 |
| April | 1,350 | 1,793 | 555 | 210 | 4,090 | 4,475 | 2,700 | 330 | 2,010 | 1,537 | 10,240 | 2,920 | 2,400 | 34,837 |
| May | 1,350 | 1,818 | 556 | 210 | 4,120 | 4,355 | 2,910 | 285 | 1,673 | 1,537 | 10,340 | 3,100 | 2,300 | 34,781 |
| June | 1,330 | 1,823 | 550 | 210 | 4,130 | 4,405 | 2,910 | 330 | 1,811 | 1,537 | 10,540 | 3,135 | 2,280 | 35,218 |
| July | 1,350 | 1,829 | 545 | 210 | 4,150 | 4,415 | 2,950 | 310 | 1,764 | 1,537 | 10,670 | 3,156 | 2,220 | 35,333 |
| August | 1,350 | 1,833 | 549 | 210 | 4,170 | 4,460 | 2,960 | 250 | 1,694 | 1,537 | 10,640 | 3,186 | 2,210 | 35,276 |
| September | 1,350 | 1,768 | 560 | 210 | 4,190 | 4,480 | 2,960 | 310 | 1,726 | 1,477 | 10,600 | 3,216 | 2,200 | 35,274 |
| October | 1,350 | 1,618 | 552 | 200 | 4,200 | 4,565 | 2,960 | 550 | 1,854 | 1,507 | 10,590 | 3,196 | 2,190 | 35,559 |
| November | 1,350 | 1,698 | 544 | 220 | 4,220 | 4,645 | 2,970 | 580 | 1,984 | 1,527 | 10,640 | 3,226 | 2,180 | 36,011 |
| December | 1,350 | 1,668 | 544 | 220 | 4,280 | 4,685 | 2,970 | 620 | 1,684 | 1,527 | 10,540 | 3,226 | 2,150 | 35,691 |
| **Average** | **1,348** | **1,770** | **548** | **211** | **4,068** | **4,452** | **2,924** | **385** | **1,871** | **1,523** | **10,461** | **3,106** | **2,277** | **35,170** |
| **2017** January | 1,340 | 1,658 | 536 | 200 | 4,300 | 4,565 | 2,830 | 680 | 1,849 | 1,487 | 10,020 | 3,067 | 2,100 | 34,834 |
| February | 1,340 | 1,688 | 535 | 185 | 4,300 | 4,445 | 2,770 | 690 | 1,869 | 1,467 | 10,040 | 3,047 | 2,090 | 34,668 |
| March | 1,316 | 1,630 | 531 | 190 | 4,544 | 4,431 | 2,763 | 590 | 1,730 | 1,507 | 9,992 | 3,028 | 2,090 | 34,544 |
| April | 1,306 | 1,700 | 528 | 210 | 4,544 | 4,426 | 2,763 | 535 | 1,780 | 1,512 | 10,022 | 3,008 | 2,080 | 34,600 |
| May | 1,306 | 1,660 | 533 | 200 | 4,554 | 4,476 | 2,763 | 780 | 1,900 | 1,517 | 10,093 | 3,028 | 2,080 | 35,076 |
| June | 1,306 | 1,690 | 540 | 200 | 4,574 | 4,491 | 2,774 | 850 | 1,945 | 1,522 | [R] 10,293 | 3,048 | 2,030 | [R] 35,449 |
| July | 1,306 | 1,670 | 541 | 210 | 4,482 | 4,501 | 2,764 | 1,005 | 2,032 | 1,527 | 10,243 | 3,048 | 2,030 | 35,545 |
| August | 1,306 | 1,690 | 530 | 200 | 4,462 | 4,527 | 2,765 | 890 | 2,070 | 1,532 | 10,183 | 3,049 | 2,030 | 35,415 |
| **8-Month Average** | **1,316** | **1,673** | **534** | **200** | **4,471** | **4,483** | **2,774** | **754** | **1,898** | **1,509** | **10,111** | **3,040** | **2,066** | **35,021** |
| **2016 8-Month Average** | **1,348** | **1,811** | **548** | **210** | **3,990** | **4,380** | **2,903** | **319** | **1,901** | **1,530** | **10,395** | **3,051** | **2,326** | **34,938** |
| **2015 8-Month Average** | **1,429** | **1,802** | **546** | **212** | **3,300** | **3,887** | **2,780** | **414** | **2,156** | **1,529** | **10,151** | **3,005** | **2,500** | **33,962** |

[a] Except for the period from August 1990 through May 1991, includes about one-half of the production in the Kuwait-Saudi Arabia Neutral Zone. Kuwaiti Neutral Zone output was discontinued following Iraq's invasion of Kuwait on August 2, 1990, but was resumed in June 1991. As of July 2015 all Neutral Zone production is offline. Data for Saudi Arabia include approximately 150 thousand barrels per day from the Abu Safah field produced on behalf of Bahrain.

[b] See "Organization of the Petroleum Exporting Countries (OPEC)" in Glossary. On Tables 11.1a and 11.1b, countries are classified as "OPEC" or "Non-OPEC" in all years based on their status in the most current year. For example, Equatorial Guinea joined OPEC in May 2017 and is thus included in "Total OPEC" for all years.

R=Revised.

Notes: • Data are for crude oil and lease condensate; they exclude natural gas plant liquids. • Monthly data are often preliminary figures and may not average to the annual totals because of rounding or because updates to the preliminary monthly data are not available.

Web Page: See http://www.eia.gov/totalenergy/data/monthly/#international (Excel and CSV files) for all available annual and monthly data beginning in 1973.

Sources: See end of section.

## Table 11.1b World Crude Oil Production: Persian Gulf Nations, Non-OPEC, and World

(Thousand Barrels per Day)

| | Persian Gulf Nations[b] | Selected Non-OPEC[a] Producers | | | | | | | | | Total Non-OPEC[a] | World |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Canada | China | Egypt | Mexico | Norway | Former U.S.S.R. | Russia | United Kingdom | United States | | |
| **1973 Average** | **20,668** | **1,798** | **1,090** | **165** | **465** | **32** | **8,324** | **NA** | **2** | **9,208** | **25,868** | **55,679** |
| **1975 Average** | **18,934** | **1,430** | **1,490** | **235** | **705** | **189** | **9,523** | **NA** | **12** | **8,375** | **26,816** | **52,828** |
| **1980 Average** | **17,961** | **1,435** | **2,114** | **595** | **1,936** | **486** | **11,706** | **NA** | **1,622** | **8,597** | **34,000** | **59,558** |
| **1985 Average** | **9,630** | **1,471** | **2,505** | **887** | **2,745** | **773** | **11,585** | **NA** | **2,530** | **8,971** | **38,426** | **53,965** |
| **1990 Average** | **15,278** | **1,553** | **2,774** | **873** | **2,553** | **1,630** | **10,975** | **NA** | **1,820** | **7,355** | **37,729** | **60,497** |
| **1995 Average** | **17,208** | **1,805** | **2,990** | **920** | **2,711** | **2,766** | **– –** | **5,995** | **2,489** | **6,560** | **36,564** | **62,434** |
| **1996 Average** | **17,367** | **1,837** | **3,131** | **922** | **2,944** | **3,091** | **– –** | **5,850** | **2,568** | **6,465** | **37,429** | **63,818** |
| **1997 Average** | **18,095** | **1,922** | **3,200** | **856** | **3,104** | **3,142** | **– –** | **5,920** | **2,518** | **6,452** | **38,109** | **65,806** |
| **1998 Average** | **19,337** | **1,981** | **3,198** | **834** | **3,160** | **3,011** | **– –** | **5,854** | **2,616** | **6,252** | **38,250** | **67,032** |
| **1999 Average** | **18,667** | **1,907** | **3,195** | **852** | **2,998** | **3,019** | **– –** | **6,079** | **2,684** | **5,881** | **38,335** | **65,967** |
| **2000 Average** | **19,897** | **1,977** | **3,249** | **768** | **3,104** | **3,222** | **– –** | **6,479** | **2,275** | **5,822** | **39,100** | **68,527** |
| **2001 Average** | **19,114** | **2,029** | **3,300** | **720** | **3,218** | **3,226** | **– –** | **6,917** | **2,282** | **5,801** | **39,551** | **68,132** |
| **2002 Average** | **17,824** | **2,171** | **3,390** | **715** | **3,263** | **3,131** | **– –** | **7,408** | **2,292** | **5,744** | **40,361** | **67,290** |
| **2003 Average** | **19,154** | **2,306** | **3,409** | **713** | **3,459** | **3,042** | **– –** | **8,132** | **2,093** | **5,649** | **41,035** | **69,460** |
| **2004 Average** | **20,906** | **2,398** | **3,485** | **673** | **3,476** | **2,954** | **– –** | **8,805** | **1,845** | **5,441** | **41,559** | **72,595** |
| **2005 Average** | **21,644** | **2,369** | **3,609** | **623** | **3,423** | **2,698** | **– –** | **9,043** | **1,649** | **5,184** | **41,340** | **73,866** |
| **2006 Average** | **21,377** | **2,525** | **3,673** | **535** | **3,345** | **2,491** | **– –** | **9,247** | **1,490** | **5,086** | **41,290** | **73,476** |
| **2007 Average** | **20,904** | **2,628** | **3,736** | **530** | **3,143** | **2,270** | **– –** | **9,437** | **1,498** | **5,074** | **41,229** | **73,172** |
| **2008 Average** | **22,186** | **2,579** | **3,790** | **566** | **2,839** | **2,182** | **– –** | **9,357** | **1,391** | **4,998** | **40,738** | **74,046** |
| **2009 Average** | **20,754** | **2,579** | **3,796** | **587** | **2,646** | **2,067** | **– –** | **9,495** | **1,328** | **5,349** | **41,255** | **72,864** |
| **2010 Average** | **21,589** | **2,741** | **4,078** | **568** | **2,621** | **1,871** | **– –** | **9,694** | **1,233** | **5,475** | **42,074** | **74,573** |
| **2011 Average** | **22,953** | **2,901** | **4,052** | **551** | **2,600** | **1,760** | **– –** | **9,774** | **1,026** | **5,643** | **41,972** | **74,644** |
| **2012 Average** | **23,233** | **3,138** | **4,074** | **539** | **2,593** | **1,612** | **– –** | **9,922** | **888** | **6,497** | **42,196** | **76,055** |
| **2013 Average** | **22,932** | **3,325** | **4,164** | **524** | **2,562** | **1,533** | **– –** | **10,054** | **801** | **7,466** | R **43,294** | R **76,184** |
| **2014 Average** | **23,469** | **3,613** | **4,208** | **517** | **2,469** | **1,562** | **– –** | **10,107** | **787** | **8,753** | R **45,136** | R **78,071** |
| **2015** January | 23,689 | 3,885 | 4,232 | 508 | 2,290 | 1,579 | – – | 10,231 | 872 | 9,358 | R 46,540 | R 79,614 |
| February | 23,655 | 3,906 | 4,218 | 516 | 2,370 | 1,589 | – – | 10,181 | 812 | 9,537 | R 46,612 | R 79,563 |
| March | 24,470 | 3,775 | 4,256 | 525 | 2,356 | 1,586 | – – | 10,264 | 867 | 9,561 | R 46,726 | R 80,440 |
| April | 24,576 | 3,463 | 4,258 | 503 | 2,235 | 1,614 | – – | 10,111 | 925 | 9,626 | R 46,120 | R 80,038 |
| May | 24,947 | 3,212 | 4,271 | 512 | 2,263 | 1,555 | – – | 10,270 | 1,016 | 9,428 | R 45,822 | R 79,985 |
| June | 25,462 | 3,457 | 4,408 | 504 | 2,283 | 1,596 | – – | 10,166 | 870 | 9,329 | R 45,805 | R 80,407 |
| July | 25,452 | 3,821 | 4,263 | 524 | 2,308 | 1,611 | – – | 10,213 | 839 | 9,402 | R 46,227 | R 80,933 |
| August | 25,292 | 3,922 | 4,278 | 523 | 2,291 | 1,599 | – – | 10,268 | 788 | 9,379 | R 46,281 | R 80,772 |
| September | 25,492 | 3,422 | 4,317 | 501 | 2,306 | 1,581 | – – | 10,209 | 862 | 9,417 | R 45,793 | R 80,568 |
| October | 25,252 | 3,582 | 4,259 | 517 | 2,314 | 1,685 | – – | 10,341 | 912 | 9,339 | R 46,057 | R 80,574 |
| November | 25,342 | 3,819 | 4,297 | 494 | 2,310 | 1,644 | – – | 10,361 | 972 | 9,307 | R 46,509 | R 81,153 |
| December | 25,412 | 3,866 | 4,275 | 509 | 2,308 | 1,682 | – – | 10,407 | 979 | 9,229 | R 46,722 | R 81,360 |
| **Average** | **24,927** | **3,677** | **4,278** | **511** | **2,302** | **1,610** | **– –** | **10,253** | **893** | **9,408** | R **46,267** | R **80,457** |
| **2016** January | 25,867 | 3,877 | 4,166 | 498 | 2,294 | 1,657 | – – | 10,485 | 1,003 | 9,186 | R 46,483 | R 81,348 |
| February | 25,527 | 3,797 | 4,133 | 497 | 2,247 | 1,675 | – – | 10,485 | 1,014 | 9,107 | R 46,132 | R 80,609 |
| March | 25,892 | 3,767 | 4,091 | 497 | 2,249 | 1,632 | – – | 10,522 | 987 | 9,134 | R 45,886 | R 80,578 |
| April | 26,012 | 3,429 | 4,036 | 496 | 2,210 | 1,666 | – – | 10,450 | 989 | 8,906 | R 44,944 | R 79,781 |
| May | 26,412 | 2,811 | 3,973 | 495 | 2,207 | 1,608 | – – | 10,440 | 991 | 8,859 | R 44,233 | R 79,014 |
| June | 26,707 | 3,112 | 4,034 | 495 | 2,213 | 1,480 | – – | 10,453 | 897 | 8,703 | R 44,509 | R 79,727 |
| July | 26,928 | 3,657 | 3,938 | 494 | 2,192 | 1,762 | – – | 10,254 | 980 | 8,682 | R 45,038 | R 80,371 |
| August | 27,003 | 3,855 | 3,874 | 493 | 2,179 | 1,603 | – – | 10,316 | 841 | 8,716 | R 44,568 | R 79,844 |
| September | 26,973 | 3,849 | 3,887 | 493 | 2,146 | 1,430 | – – | 10,729 | 826 | 8,553 | R 44,940 | R 80,214 |
| October | 27,068 | 3,893 | 3,780 | 492 | 2,135 | 1,766 | – – | 10,826 | 760 | 8,791 | R 45,721 | R 81,280 |
| November | 27,278 | 4,135 | 3,915 | 491 | 2,105 | 1,785 | – – | 10,832 | 948 | 8,876 | R 46,302 | R 82,313 |
| December | 27,278 | 3,968 | 3,949 | 491 | 2,067 | 1,706 | – – | 10,830 | 961 | 8,771 | R 46,058 | R 81,749 |
| **Average** | **26,583** | **3,679** | **3,981** | **494** | **2,187** | **1,648** | **– –** | **10,551** | **933** | **8,857** | R **45,400** | R **80,569** |
| **2017** January | 26,312 | 4,097 | 3,855 | 490 | 2,054 | 1,660 | – – | 10,733 | 970 | E 8,851 | R 45,945 | R 80,779 |
| February | 26,111 | 4,137 | 3,929 | 489 | 2,051 | 1,709 | – – | 10,713 | 944 | E 9,070 | R 46,299 | R 80,967 |
| March | 26,306 | 3,927 | 3,903 | 489 | 2,052 | 1,750 | – – | 10,654 | 945 | E 9,131 | R 45,904 | R 80,448 |
| April | 26,316 | 3,567 | 3,891 | 487 | 2,045 | 1,730 | – – | 10,603 | 915 | E 9,120 | R 45,336 | R 79,936 |
| May | 26,472 | 3,687 | 3,829 | 486 | 2,053 | 1,651 | – – | 10,543 | R 930 | E 9,161 | R 45,397 | R 80,473 |
| June | R 26,743 | 4,057 | 3,944 | 485 | 2,041 | 1,587 | – – | 10,543 | 941 | RE 9,096 | R 45,785 | R 81,234 |
| July | 26,606 | 3,942 | 3,827 | 485 | 2,004 | R 1,626 | – – | 10,546 | R 907 | RE 9,234 | R 45,696 | R 81,241 |
| August | 26,559 | 3,851 | 3,758 | 472 | 1,999 | 1,602 | – – | 10,507 | 832 | E 9,203 | 45,135 | 80,550 |
| **8-Month Average** | **26,431** | **3,906** | **3,866** | **485** | **2,037** | **1,664** | **– –** | **10,604** | **923** | E **9,109** | **45,681** | **80,701** |
| **2016 8-Month Average** | **26,299** | **3,538** | **4,030** | **496** | **2,224** | **1,636** | **– –** | **10,425** | **963** | **8,911** | **45,221** | **80,159** |
| **2015 8-Month Average** | **24,703** | **3,679** | **4,273** | **514** | **2,299** | **1,591** | **– –** | **10,214** | **874** | **9,451** | **46,265** | **80,227** |

[a] See "Organization of the Petroleum Exporting Countries (OPEC)" in Glossary. On Tables 11.1a and 11.1b, countries are classified as "OPEC" or "Non-OPEC" in all years based on their status in the most current year. For example, Equatorial Guinea joined OPEC in May 2017 and is thus included in "Total OPEC" for all years.

[b] Bahrain, Iran, Iraq, Kuwait, Qatar, Saudi Arabia, United Arab Emirates, and the Neutral Zone (between Kuwait and Saudi Arabia).

R=Revised. NA=Not available. – – =Not applicable. E=Estimate.

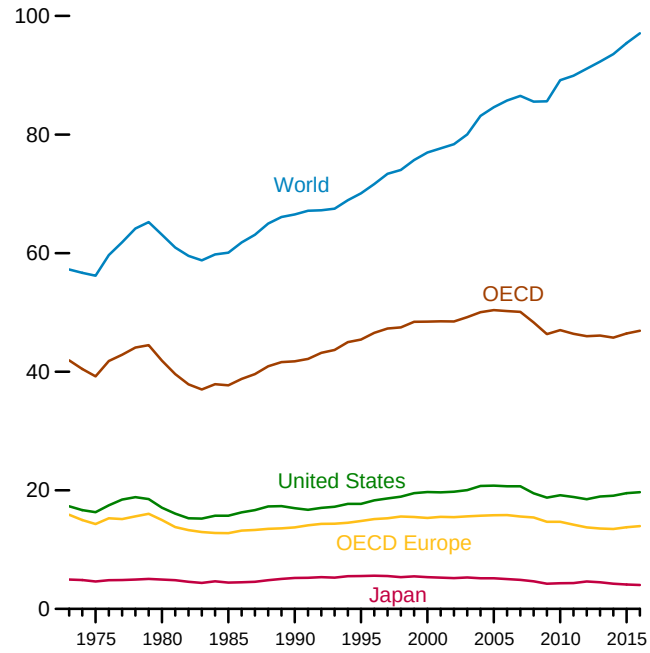
Notes: • Data are for crude oil and lease condensate; they exclude natural gas plant liquids. • Monthly data are often preliminary figures and may not average to the annual totals because of rounding or because updates to the preliminary monthly data are not available. • Data for countries may not sum to World totals due to independent rounding. • U.S. geographic coverage is the 50 states and the District of Columbia.

Web Page: See http://www.eia.gov/totalenergy/data/monthly/#international (Excel and CSV files) for all available annual and monthly data beginning in 1973.

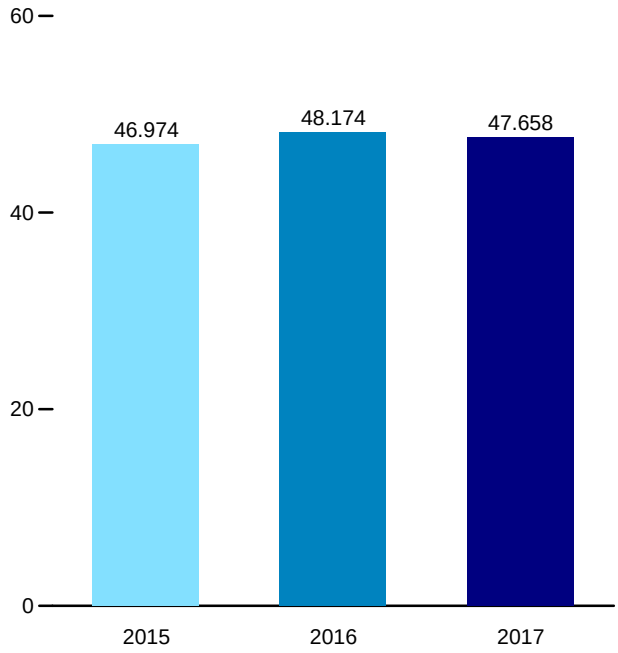
Sources: See end of section.

## Figure 11.2 Petroleum Consumption in OECD Countries
(Million Barrels per Day)

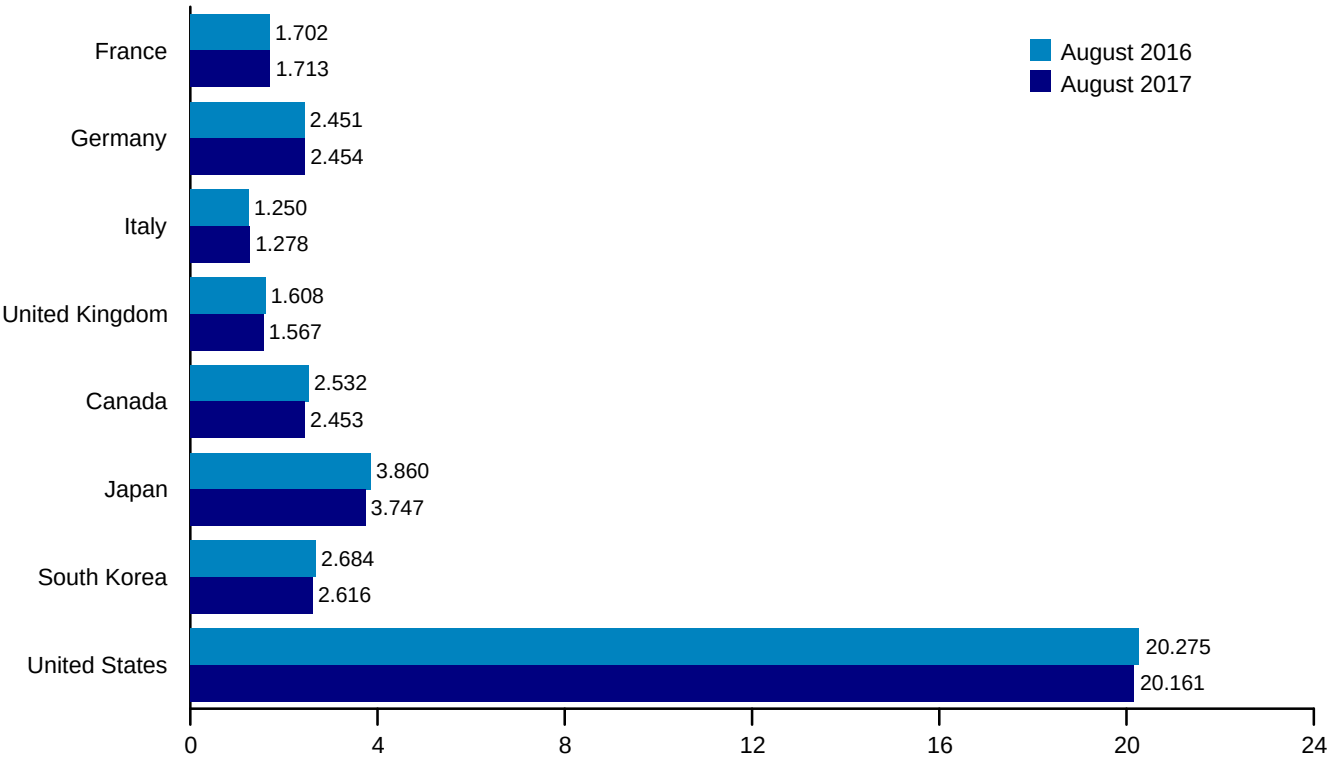
Overview, 1973–2016




OECD Total, August




By Selected OECD Countries




Note: OECD is the Organization for Economic Cooperation and Development.

Web Page: http://www.eia.gov/totalenergy/data/monthly/#international.
Source: Table 11.2.

## Table 11.2 Petroleum Consumption in OECD Countries

(Thousand Barrels per Day)

| | France | Germany[a] | Italy | United Kingdom | OECD Europe[b] | Canada | Japan | South Korea | United States | Other OECD[c] | OECD[d] | World |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **1973 Average** | **2,601** | **3,324** | **2,068** | **2,341** | **15,879** | **1,729** | **4,949** | **281** | **17,308** | **1,768** | **41,913** | **57,237** |
| **1975 Average** | **2,252** | **2,957** | **1,855** | **1,911** | **14,314** | **1,779** | **4,621** | **311** | **16,322** | **1,885** | **39,232** | **56,198** |
| **1980 Average** | **2,256** | **3,082** | **1,934** | **1,725** | **14,995** | **1,873** | **4,960** | **537** | **17,056** | **2,449** | **41,870** | **63,113** |
| **1985 Average** | **1,753** | **2,651** | **1,705** | **1,617** | **12,769** | **1,514** | **4,436** | **552** | **15,726** | **2,699** | **37,696** | **60,082** |
| **1990 Average** | **1,827** | **2,682** | **1,868** | **1,776** | **13,759** | **1,722** | **5,217** | **1,048** | **16,988** | **3,030** | **41,764** | **66,539** |
| **1995 Average** | **1,915** | **2,882** | **1,942** | **1,816** | **14,835** | **1,799** | **5,546** | **2,008** | **17,725** | **3,517** | **45,430** | **70,077** |
| **1996 Average** | **1,943** | **2,922** | **1,920** | **1,852** | **15,148** | **1,853** | **5,591** | **2,101** | **18,309** | **3,554** | **46,556** | **71,654** |
| **1997 Average** | **1,962** | **2,917** | **1,934** | **1,810** | **15,291** | **1,940** | **5,549** | **2,255** | **18,620** | **3,640** | **47,296** | **73,378** |
| **1998 Average** | **2,040** | **2,923** | **1,943** | **1,792** | **15,591** | **1,931** | **5,348** | **1,917** | **18,917** | **3,774** | **47,478** | **74,028** |
| **1999 Average** | **2,034** | **2,836** | **1,891** | **1,811** | **15,500** | **2,016** | **5,486** | **2,084** | **19,519** | **3,808** | **48,414** | **75,700** |
| **2000 Average** | **2,001** | **2,767** | **1,854** | **1,765** | **15,349** | **2,008** | **5,357** | **2,135** | **19,701** | **3,899** | **48,449** | **76,982** |
| **2001 Average** | **2,054** | **2,807** | **1,835** | **1,747** | **15,529** | **2,029** | **5,265** | **2,132** | **19,649** | **3,905** | **48,508** | **77,670** |
| **2002 Average** | **1,991** | **2,710** | **1,870** | **1,739** | **15,488** | **2,040** | **5,187** | **2,149** | **19,761** | **3,857** | **48,482** | **78,361** |
| **2003 Average** | **2,001** | **2,679** | **1,860** | **1,759** | **15,612** | **2,155** | **5,298** | **2,175** | **20,034** | **3,930** | **49,203** | **80,015** |
| **2004 Average** | **2,008** | **2,648** | **1,829** | **1,789** | **15,714** | **2,233** | **5,163** | **2,155** | **20,731** | **4,035** | **50,032** | **83,156** |
| **2005 Average** | **1,990** | **2,624** | **1,781** | **1,819** | **15,792** | **2,338** | **5,164** | **2,191** | **20,802** | **4,101** | **50,389** | **84,606** |
| **2006 Average** | **1,991** | **2,636** | **1,777** | **1,805** | **15,838** | **2,346** | **5,032** | **2,180** | **20,687** | **4,140** | **50,223** | **85,728** |
| **2007 Average** | **1,978** | **2,407** | **1,729** | **1,751** | **15,570** | **2,434** | **4,899** | **2,240** | **20,680** | **4,270** | **50,094** | **86,517** |
| **2008 Average** | **1,940** | **2,533** | **1,667** | **1,729** | **15,427** | **2,344** | **4,664** | **2,142** | **19,498** | **4,228** | **48,303** | [R] **85,552** |
| **2009 Average** | **1,863** | **2,434** | **1,544** | **1,649** | **14,704** | **2,283** | **4,257** | **2,188** | **18,771** | **4,137** | **46,342** | **85,595** |
| **2010 Average** | **1,821** | **2,467** | **1,544** | **1,626** | **14,685** | **2,382** | **4,328** | **2,269** | **19,180** | **4,189** | **47,032** | [R] **89,171** |
| **2011 Average** | **1,779** | **2,392** | **1,494** | **1,582** | **14,208** | **2,429** | **4,345** | **2,259** | **18,887** | **4,261** | **46,388** | **89,912** |
| **2012 Average** | **1,739** | **2,389** | **1,370** | **1,535** | **13,737** | **2,480** | **4,630** | **2,322** | **18,487** | **4,331** | **45,986** | [R] **91,117** |
| **2013 Average** | **1,714** | **2,435** | **1,260** | **1,508** | **13,549** | **2,457** | **4,504** | **2,328** | **18,967** | **4,286** | **46,091** | **92,305** |
| **2014 Average** | **1,691** | **2,374** | **1,266** | **1,509** | **13,474** | **2,375** | **4,248** | **2,348** | **19,100** | **4,196** | **45,742** | [R] **93,568** |
| **2015** January | 1,643 | 2,287 | 1,131 | 1,434 | 13,019 | 2,410 | 4,522 | 2,531 | 19,261 | 4,017 | 45,760 | NA |
| February | 1,783 | 2,426 | 1,236 | 1,657 | 13,914 | 2,492 | 5,034 | 2,578 | 19,664 | 4,196 | 47,878 | NA |
| March | 1,692 | 2,383 | 1,227 | 1,480 | 13,515 | 2,306 | 4,505 | 2,468 | 19,340 | 4,219 | 46,354 | NA |
| April | 1,721 | 2,355 | 1,315 | 1,572 | 13,717 | 2,248 | 4,163 | 2,445 | 19,251 | 4,021 | 45,844 | NA |
| May | 1,542 | 2,184 | 1,232 | 1,488 | 13,095 | 2,289 | 3,598 | 2,266 | 19,316 | 4,120 | 44,682 | NA |
| June | 1,774 | 2,312 | 1,301 | 1,561 | 14,010 | 2,359 | 3,677 | 2,371 | 19,853 | 4,174 | 46,444 | NA |
| July | 1,811 | 2,385 | 1,398 | 1,497 | 14,205 | 2,408 | 3,800 | 2,355 | 20,134 | 4,288 | 47,190 | NA |
| August | 1,676 | 2,410 | 1,248 | 1,581 | 13,987 | 2,424 | 3,918 | 2,507 | 19,939 | 4,198 | 46,974 | NA |
| September | 1,793 | 2,525 | 1,336 | 1,625 | 14,445 | 2,426 | 3,859 | 2,422 | 19,433 | 4,188 | 46,773 | NA |
| October | 1,665 | 2,426 | 1,293 | 1,531 | 13,919 | 2,409 | 3,836 | 2,472 | 19,491 | 4,258 | 46,384 | NA |
| November | 1,499 | 2,388 | 1,258 | 1,582 | 13,511 | 2,371 | 3,978 | 2,589 | 19,127 | 4,203 | 45,780 | NA |
| December | 1,718 | 2,341 | 1,310 | 1,572 | 13,885 | 2,335 | 4,616 | 2,683 | 19,589 | 4,270 | 47,379 | NA |
| **Average** | **1,692** | **2,368** | **1,274** | **1,547** | **13,766** | **2,372** | **4,120** | **2,473** | **19,534** | **4,179** | **46,444** | **95,432** |
| **2016** January | 1,569 | 2,300 | 1,108 | 1,492 | [R] 12,881 | 2,371 | 4,345 | 2,695 | 19,063 | 4,119 | [R] 45,472 | NA |
| February | 1,682 | 2,468 | 1,243 | 1,641 | [R] 13,908 | 2,328 | 4,629 | 2,752 | 19,847 | 4,308 | [R] 47,771 | NA |
| March | 1,718 | 2,475 | 1,251 | 1,538 | [R] 13,892 | 2,304 | 4,356 | 2,533 | 19,728 | 4,337 | [R] 47,150 | NA |
| April | 1,663 | 2,478 | 1,281 | 1,611 | 13,968 | 2,258 | 3,973 | 2,519 | 19,340 | 4,097 | 46,154 | NA |
| May | 1,661 | 2,285 | 1,246 | 1,549 | 13,617 | 2,304 | 3,579 | 2,574 | 19,328 | 4,168 | 45,570 | NA |
| June | 1,580 | 2,313 | 1,302 | 1,654 | [R] 13,998 | 2,389 | 3,561 | 2,544 | 19,846 | 4,250 | [R] 46,588 | NA |
| July | 1,681 | 2,398 | 1,305 | 1,551 | 14,048 | 2,401 | 3,779 | 2,472 | 19,776 | 4,140 | 46,614 | NA |
| August | 1,702 | 2,451 | 1,250 | 1,608 | 14,550 | 2,532 | 3,860 | 2,684 | 20,275 | 4,273 | 48,174 | NA |
| September | 1,738 | 2,426 | 1,319 | 1,646 | [R] 14,509 | 2,455 | 3,723 | 2,642 | 19,757 | 4,123 | [R] 47,209 | NA |
| October | 1,667 | 2,457 | 1,236 | 1,594 | 14,266 | 2,347 | 3,777 | 2,532 | 19,650 | 4,178 | 46,749 | NA |
| November | 1,565 | 2,502 | 1,206 | 1,596 | 14,054 | 2,386 | 4,158 | 2,780 | 19,659 | 4,248 | 47,284 | NA |
| December | 1,659 | 2,373 | 1,287 | 1,564 | [R] 14,051 | 2,467 | 4,596 | 2,843 | 19,984 | 4,285 | [R] 48,225 | NA |
| **Average** | **1,657** | **2,410** | **1,253** | **1,586** | [R] **13,977** | **2,379** | **4,026** | **2,630** | **19,687** | **4,210** | [R] **46,910** | [R] **97,077** |
| **2017** January | 1,738 | [R] 2,429 | 1,178 | 1,445 | [R] 13,537 | 2,350 | 4,176 | 2,665 | 19,244 | 4,029 | [R] 46,002 | NA |
| February | 1,706 | [R] 2,424 | 1,234 | 1,652 | [R] 13,858 | 2,325 | 4,565 | 2,739 | 19,159 | 4,322 | [R] 46,968 | NA |
| March | 1,709 | [R] 2,598 | 1,280 | 1,492 | [R] 14,083 | 2,376 | 4,279 | 2,668 | 20,047 | 4,361 | [R] 47,814 | NA |
| April | 1,625 | [R] 2,431 | 1,196 | 1,630 | [R] 13,788 | 2,159 | 3,841 | 2,522 | 19,556 | 4,071 | [R] 45,938 | NA |
| May | 1,670 | [R] 2,451 | 1,279 | 1,515 | [R] 14,124 | 2,413 | 3,553 | 2,590 | 20,039 | 4,326 | 47,046 | NA |
| June | 1,747 | [R] 2,420 | 1,371 | 1,629 | [R] 14,613 | 2,446 | 3,524 | 2,563 | 20,494 | 4,329 | [R] 47,968 | NA |
| July | 1,729 | 2,479 | 1,348 | [R] 1,587 | [R] 14,547 | 2,525 | 3,636 | 2,634 | 20,020 | 4,200 | [R] 47,562 | NA |
| August | 1,713 | 2,454 | 1,278 | 1,567 | 14,433 | 2,453 | 3,747 | 2,616 | 20,161 | 4,249 | 47,658 | NA |
| **8-Month Average** | **1,705** | **2,461** | **1,271** | **1,563** | **14,126** | **2,382** | **3,909** | **2,624** | **19,847** | **4,235** | **47,123** | **NA** |
| **2016 8-Month Average** | **1,657** | **2,395** | **1,248** | **1,580** | **13,856** | **2,361** | **4,007** | **2,596** | **19,649** | **4,211** | **46,680** | **NA** |
| **2015 8-Month Average** | **1,704** | **2,342** | **1,261** | **1,532** | **13,678** | **2,366** | **4,143** | **2,439** | **19,594** | **4,154** | **46,374** | **NA** |

[a] Data are for unified Germany, i.e., the former East Germany and West Germany.

[b] "OECD Europe" consists of Austria, Belgium, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, the Netherlands, Norway, Portugal, Spain, Sweden, Switzerland, Turkey, and the United Kingdom; for 1984 forward, Czech Republic, Hungary, Poland, and Slovakia; and, for 2000 forward, Slovenia.

[c] "Other OECD" consists of Australia, New Zealand, and the U.S. Territories; for 1984 forward, Mexico; for 2000 forward, Chile, Estonia, and Israel; and, for 2016 forward, Latvia.

[d] The Organization for Economic Cooperation and Development (OECD) consists of "OECD Europe," Canada, Japan, South Korea, the United States, and "Other OECD."

R=Revised. NA=Not available.

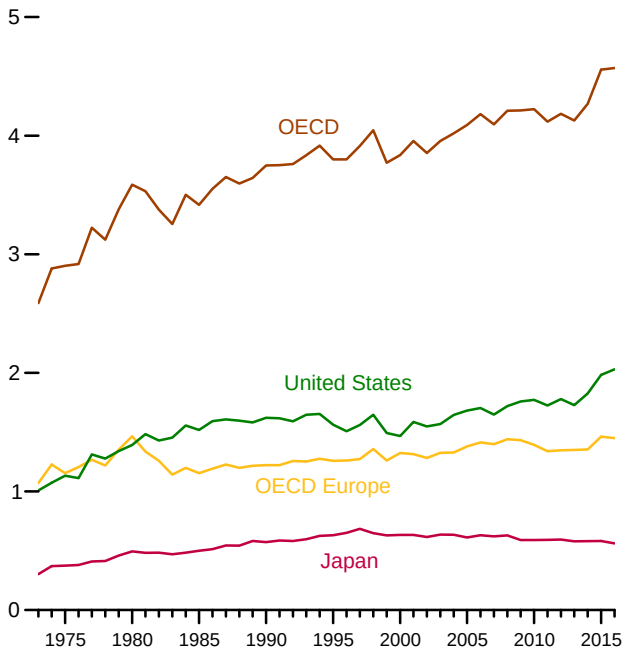
Notes: • Totals may not equal sum of components due to independent rounding. • U.S. geographic coverage is the 50 states and the District of Columbia.

Web Page: See http://www.eia.gov/totalenergy/data/monthly/#international (Excel and CSV files) for all available annual and monthly data beginning in 1973.

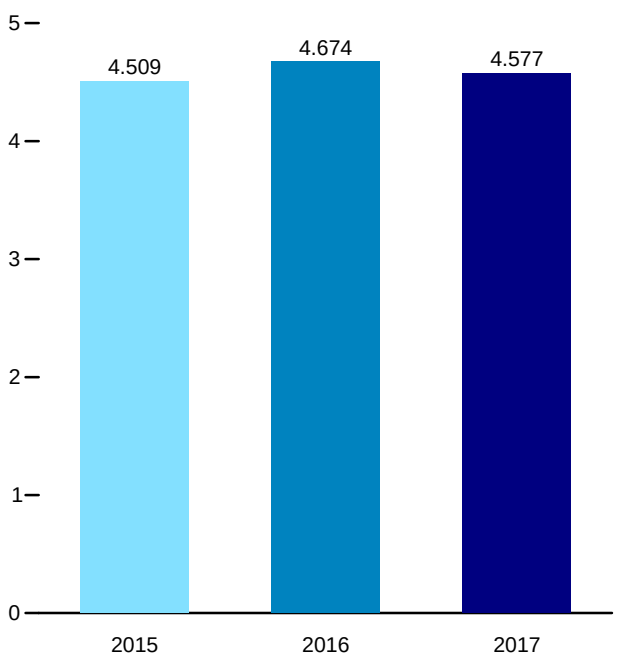
Sources: • **United States:** Table 3.1. • **Chile, East Germany, Former Czechoslovakia, Hungary, Mexico, Poland, South Korea, Non-OECD Countries, U.S. Territories,** and **World: 1973–1979—**U.S. Energy Information Administration (EIA), International Energy Database. • **Countries Other Than United States: 1980–2008—**EIA, International Energy Statistics (IES). • **OECD Countries,** and **U.S. Territories: 2009 forward—**EIA, IES. • **World: 2009 forward—**EIA, International Energy Statistics Database. • **All Other Data:—**International Energy Agency (IEA), *Quarterly Oil Statistics and Energy Balances in OECD Countries,* various issues.

## Figure 11.3 Petroleum Stocks in OECD Countries
(Billion Barrels)

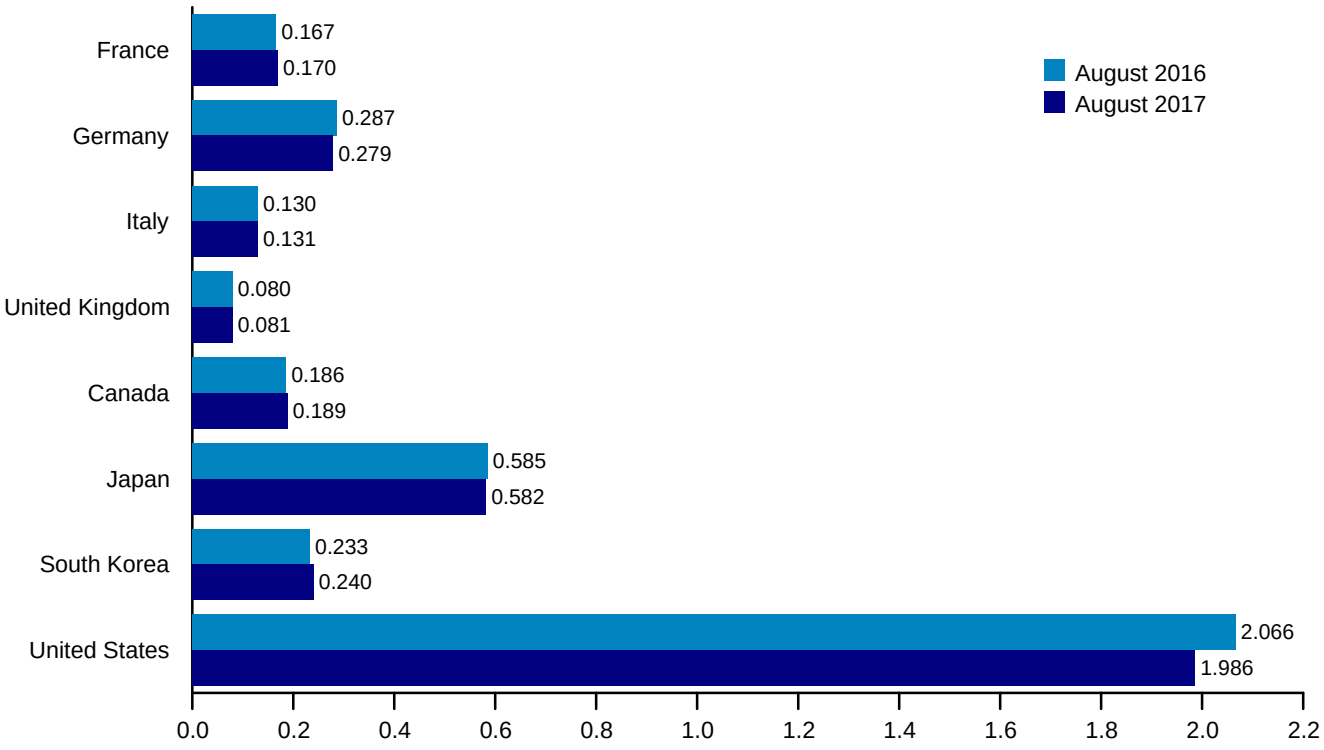
Overview, End of Year, 1973–2016




OECD Stocks, End of Month, August




Selected OECD Countries, End of Month




Note: OECD is the Organization for Economic Cooperation and Development.
Web Page: http://www.eia.gov/totalenergy/data/monthly/#international.
Source: Table 11.3.

## Table 11.3 Petroleum Stocks in OECD Countries

(Million Barrels)

| | France | Germany[a] | Italy | United Kingdom | OECD Europe[b] | Canada | Japan | South Korea | United States | Other OECD[c] | OECD[d] |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **1973 Year** | **201** | **181** | **152** | **156** | **1,070** | **140** | **303** | **NA** | **1,008** | **67** | **2,588** |
| **1975 Year** | **225** | **187** | **143** | **165** | **1,154** | **174** | **375** | **NA** | **1,133** | **67** | **2,903** |
| **1980 Year** | **243** | **319** | **170** | **168** | **1,464** | **164** | **495** | **NA** | **1,392** | **72** | **3,587** |
| **1985 Year** | **139** | **277** | **156** | **131** | **1,154** | **112** | **500** | **13** | **1,519** | **119** | **3,417** |
| **1990 Year** | **143** | **280** | **171** | **103** | **1,222** | **143** | **572** | **64** | **1,621** | **126** | **3,749** |
| **1995 Year** | **155** | **302** | **162** | **101** | **1,257** | **132** | **631** | **92** | **1,563** | **125** | **3,799** |
| **1996 Year** | **154** | **303** | **152** | **103** | **1,261** | **127** | **651** | **123** | **1,507** | **131** | **3,800** |
| **1997 Year** | **161** | **299** | **147** | **100** | **1,274** | **144** | **685** | **124** | **1,560** | **126** | **3,913** |
| **1998 Year** | **169** | **323** | **153** | **104** | **1,358** | **139** | **649** | **129** | **1,647** | **123** | **4,045** |
| **1999 Year** | **160** | **290** | **148** | **101** | **1,261** | **141** | **629** | **132** | **1,493** | **115** | **3,771** |
| **2000 Year** | **170** | **272** | **157** | **100** | **1,324** | **143** | **634** | **140** | **1,468** | **127** | **3,836** |
| **2001 Year** | **165** | **273** | **151** | **113** | **1,315** | **154** | **634** | **143** | **1,586** | **122** | **3,954** |
| **2002 Year** | **170** | **253** | **156** | **104** | **1,282** | **155** | **615** | **140** | **1,548** | **113** | **3,854** |
| **2003 Year** | **179** | **273** | **153** | **100** | **1,325** | **165** | **636** | **155** | **1,568** | **106** | **3,956** |
| **2004 Year** | **177** | **267** | **154** | **101** | **1,328** | **154** | **635** | **149** | **1,645** | **109** | **4,020** |
| **2005 Year** | **185** | **283** | **151** | **95** | **1,380** | **168** | **612** | **135** | **1,682** | **114** | **4,090** |
| **2006 Year** | **182** | **283** | **153** | **103** | **1,413** | **169** | **631** | **152** | **1,703** | **115** | **4,182** |
| **2007 Year** | **180** | **275** | **152** | **92** | **1,398** | **163** | **621** | **143** | **1,648** | **123** | **4,096** |
| **2008 Year** | **179** | **279** | **148** | **93** | **1,441** | **162** | **629** | **135** | **1,719** | **125** | **4,211** |
| **2009 Year** | **175** | **284** | **146** | **89** | **1,432** | **157** | **591** | **155** | **1,758** | **119** | **4,213** |
| **2010 Year** | **168** | **287** | **143** | **83** | **1,393** | **184** | **590** | **165** | **1,772** | **120** | **4,224** |
| **2011 Year** | **165** | **281** | **135** | **80** | **1,338** | **178** | **592** | **167** | **1,725** | **119** | **4,119** |
| **2012 Year** | **162** | **288** | **126** | **80** | **1,347** | **174** | **594** | **181** | **1,779** | **109** | **4,184** |
| **2013 Year** | **167** | **290** | **125** | **78** | **1,350** | **170** | **580** | **185** | **1,728** | **116** | **4,127** |
| **2014 Year** | **168** | **284** | **119** | **78** | **1,354** | **193** | **581** | **197** | **1,825** | **118** | **4,268** |
| **2015** January | 170 | 284 | 116 | 73 | 1,371 | 192 | 574 | 197 | 1,847 | 119 | 4,300 |
| February | 170 | 286 | 113 | 75 | 1,383 | 184 | 568 | 198 | 1,848 | 117 | 4,297 |
| March | 173 | 284 | 121 | 76 | 1,407 | 183 | 568 | 201 | 1,881 | 115 | 4,355 |
| April | 170 | 284 | 124 | 85 | 1,411 | 185 | 558 | 210 | 1,907 | 115 | 4,385 |
| May | 175 | 288 | 122 | 78 | 1,419 | 181 | 582 | 224 | 1,928 | 112 | 4,446 |
| June | 170 | 286 | 117 | 77 | 1,409 | 176 | 578 | 225 | 1,939 | 118 | 4,445 |
| July | 168 | 281 | 116 | 74 | 1,400 | 184 | 589 | 223 | 1,936 | 118 | 4,450 |
| August | 167 | 283 | 123 | 77 | 1,429 | 185 | 594 | 227 | 1,958 | 116 | 4,509 |
| September | 167 | 281 | 117 | 79 | 1,433 | 182 | 590 | 226 | 1,968 | 115 | 4,514 |
| October | 165 | 280 | 118 | 80 | 1,436 | 183 | 588 | 223 | 1,975 | 111 | 4,516 |
| November | 164 | 281 | 117 | 83 | 1,446 | 187 | 582 | 222 | 1,989 | 109 | 4,535 |
| **December** | **168** | **285** | **117** | **81** | **1,462** | **188** | **582** | **228** | **1,982** | **114** | **4,556** |
| **2016** January | 171 | 287 | 120 | 83 | R 1,487 | 187 | 580 | 219 | 2,014 | 116 | R 4,603 |
| February | 169 | 289 | 123 | 81 | R 1,494 | 183 | 564 | 233 | 2,018 | 113 | R 4,605 |
| March | 166 | 289 | 120 | 77 | R 1,480 | 184 | 560 | 236 | 2,024 | 115 | R 4,598 |
| April | 171 | 286 | 126 | 77 | R 1,480 | 180 | 566 | 230 | 2,035 | 116 | R 4,608 |
| May | 167 | 289 | 123 | 81 | R 1,488 | 169 | 574 | 235 | 2,051 | 118 | R 4,633 |
| June | 167 | 288 | 121 | 82 | R 1,479 | 175 | 573 | 238 | 2,049 | 121 | R 4,635 |
| July | 169 | 290 | 125 | 75 | R 1,499 | 186 | 577 | 238 | 2,066 | 123 | R 4,688 |
| August | 167 | 287 | 130 | 80 | R 1,485 | 186 | 585 | 233 | 2,066 | 118 | R 4,674 |
| September | 167 | 285 | 127 | 78 | R 1,468 | 185 | 587 | 239 | 2,051 | 118 | R 4,648 |
| October | 163 | 287 | 128 | 77 | R 1,450 | 190 | 587 | 238 | 2,053 | 117 | R 4,635 |
| November | 166 | 283 | 126 | 80 | R 1,455 | 190 | 573 | 238 | 2,056 | 110 | 4,622 |
| **December** | **162** | **285** | **124** | **82** | R **1,449** | **183** | **562** | **230** | **2,030** | **115** | R **4,570** |
| **2017** January | 166 | 285 | 129 | 82 | R 1,504 | 185 | 562 | 238 | 2,049 | 117 | R 4,654 |
| February | 166 | 285 | 131 | 82 | R 1,507 | 187 | 556 | 236 | 2,046 | 113 | R 4,645 |
| March | 168 | 281 | 134 | 81 | R 1,500 | 185 | 546 | 238 | 2,029 | 116 | R 4,614 |
| April | 165 | 283 | 131 | 84 | R 1,507 | 181 | 558 | 240 | 2,029 | 120 | R 4,636 |
| May | 167 | 280 | 132 | 81 | R 1,485 | 180 | 572 | 238 | 2,034 | 124 | R 4,633 |
| June | 165 | 277 | 134 | R 81 | R 1,475 | 183 | 566 | 236 | 2,009 | 120 | R 4,590 |
| July | 170 | 279 | 131 | R 80 | R 1,480 | 190 | 577 | 240 | 1,998 | 115 | R 4,600 |
| August | 170 | 279 | 131 | 81 | 1,466 | 189 | 582 | 240 | 1,986 | 114 | 4,577 |

[a] Through December 1983, the data for Germany are for the former West Germany only. Beginning with January 1984, the data for Germany are for the unified Germany, i.e., the former East Germany and West Germany.

[b] "OECD Europe" consists of Austria, Belgium, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, the Netherlands, Norway, Portugal, Spain, Sweden, Switzerland, Turkey, and the United Kingdom; for 1984 forward, Czech Republic, Hungary, Poland, and Slovakia; and, for 2000 forward, Slovenia.

[c] "Other OECD" consists of Australia, New Zealand, and the U.S. Territories; for 1984 forward, Mexico; for 2000 forward, Chile, Estonia, and Israel; and, for 2016 forward, Latvia.

[d] The Organization for Economic Cooperation and Development (OECD) consists of "OECD Europe," Canada, Japan, South Korea, the United States, and "Other OECD."

R=Revised. NA=Not available.

Notes: • Stocks are at end of period. • Petroleum stocks include crude oil (including strategic reserves), unfinished oils, natural gas liquids, and refined products. • In the United States in January 1975, 1981, and 1983, numerous respondents were added to bulk terminal and pipeline surveys, thereby affecting subsequent stocks reported. New-basis end-of-year U.S. stocks, in million barrels, would have been 1,121 in 1974, 1,425 in 1980, and 1,461 in 1982. • Totals may not equal sum of components due to independent rounding. • U.S. geographic coverage is the 50 states and the District of Columbia.

Web Page: See http://www.eia.gov/totalenergy/data/monthly/#international (Excel and CSV files) for all available annual and monthly data beginning in 1973.

Sources: • **United States:** Table 3.4. • **U.S. Territories: 1983 forward—**U.S. Energy Information Administration, International Energy Database. • **All Other Data: 1973–1982—**International Energy Agency (IEA), *Quarterly Oil Statistics and Energy Balances*, various issues. **1983—**IEA, Monthly Oil and Gas Statistics Database. **1984 forward—**IEA, Monthly Oil Data Service, November 14, 2017.

# International Petroleum

## Tables 11.1a and 11.1b Sources

**United States**
Table 3.1.

**All Other Countries and World, Annual Data**
1973–1979: U.S. Energy Information Administration (EIA), *International Energy Annual 1981*, Table 8.
1980 forward: EIA, International Energy Statistics Database, November 2017.

**All Other Countries and World, Monthly Data**
1973–1980: *Petroleum Intelligence Weekly (PIW)*, *Oil & Gas Journal (OGJ)*, and EIA adjustments.
1981–1993: *PIW*, *OGJ*, and other industry sources.
1994 forward: EIA, International Energy Statistics Database, November 2017.

# 12. Environment

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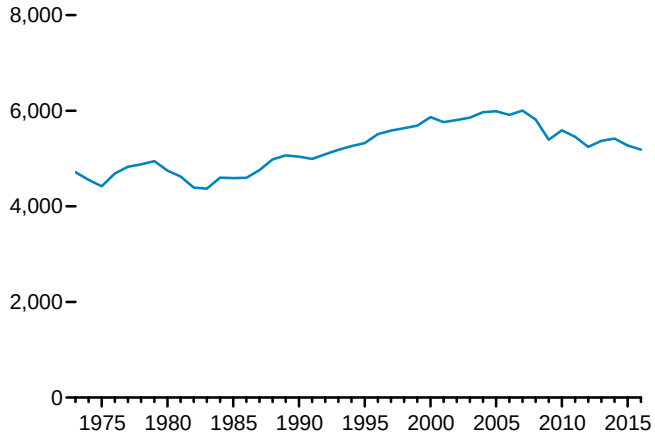
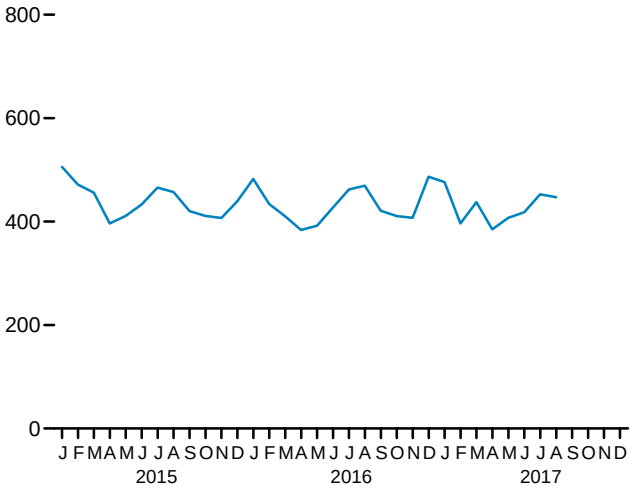
## Figure 12.1 Carbon Dioxide Emissions From Energy Consumption by Source

(Million Metric Tons of Carbon Dioxide)

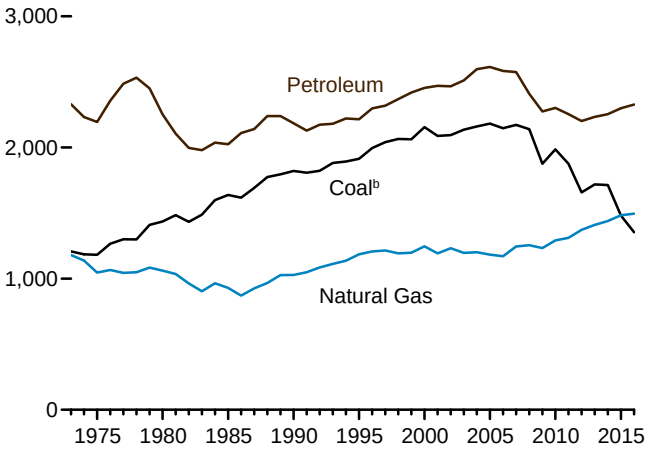
Total,[a] 1973–2016



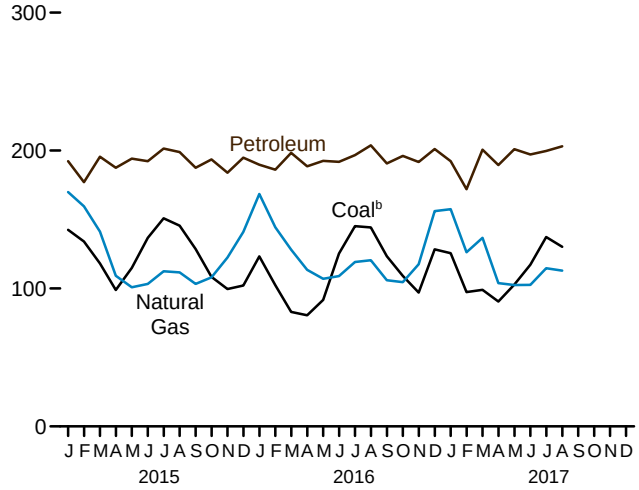

Total,[a] Monthly



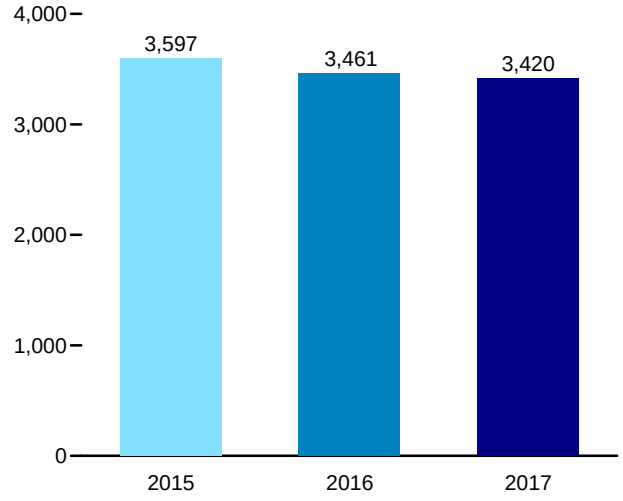

By Major Source, 1973–2016



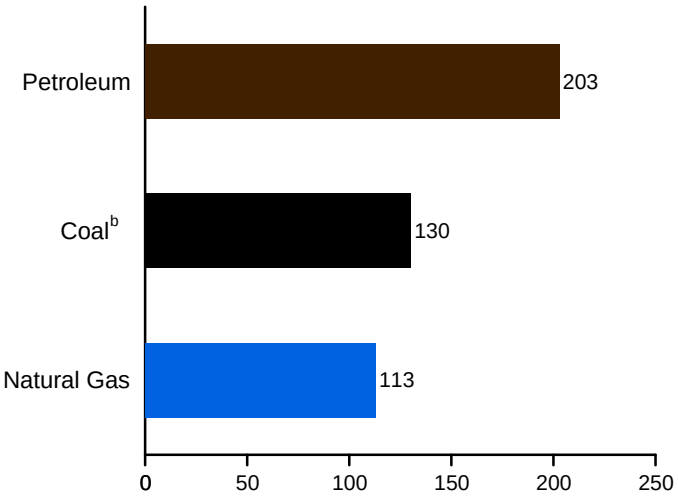

By Major Source, Monthly




Total,[a] January–August




By Major Source, August 2017




[a] Excludes emissions from biomass energy consumption.
[b] Includes coal coke net imports.

Web Page: http://www.eia.gov/totalenergy/data/monthly/#environment.
Source: Table 12.1.

## Table 12.1 Carbon Dioxide Emissions From Energy Consumption by Source

(Million Metric Tons of Carbon Dioxide[a])

| | | | Petroleum | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Coal[b] | Natural Gas[c] | Aviation Gasoline | Distillate Fuel Oil[d] | HGL[e] | Jet Fuel | Kero-sene | Lubri-cants | Motor Gasoline[f] | Petroleum Coke | Residual Fuel Oil | Other[g] | Total | Total[h,i] |
| **1973 Total** | **1,207** | R **1,179** | **6** | **480** | R **76** | **155** | **32** | **13** | **911** | **54** | R **506** | R **97** | R **2,330** | R **4,715** |
| **1975 Total** | **1,181** | **1,046** | **5** | R **442** | R **70** | **146** | **24** | **11** | **911** | **51** | R **442** | R **93** | R **2,195** | R **4,421** |
| **1980 Total** | **1,436** | **1,061** | **4** | **446** | R **80** | **156** | **24** | **13** | **900** | **49** | R **452** | R **129** | R **2,253** | R **4,750** |
| **1985 Total** | **1,638** | R **929** | **3** | **445** | R **83** | **178** | **17** | **12** | **930** | R **55** | **216** | R **86** | R **2,025** | R **4,592** |
| **1990 Total** | **1,821** | R **1,027** | **3** | **470** | R **76** | **223** | **6** | **13** | **988** | **70** | R **221** | R **114** | R **2,184** | **5,039** |
| **1995 Total** | **1,913** | R **1,186** | **3** | **498** | R **91** | **222** | **8** | **13** | **1,045** | **76** | **152** | **107** | R **2,215** | R **5,324** |
| **1996 Total** | **1,995** | R **1,207** | **3** | **524** | R **97** | **232** | **9** | **12** | **1,063** | **79** | **152** | **125** | R **2,298** | R **5,511** |
| **1997 Total** | **2,040** | R **1,214** | **3** | **534** | R **95** | **234** | **10** | **13** | **1,075** | **80** | R **143** | R **131** | R **2,319** | R **5,583** |
| **1998 Total** | **2,064** | R **1,193** | **2** | **537** | R **91** | **238** | **12** | **14** | **1,107** | **93** | **158** | R **116** | R **2,369** | R **5,637** |
| **1999 Total** | **2,062** | R **1,198** | **3** | **555** | R **100** | **245** | **11** | **14** | **1,128** | **96** | **148** | **119** | R **2,419** | R **5,689** |
| **2000 Total** | R **2,156** | R **1,246** | **3** | **579** | R **104** | **254** | **10** | **14** | **1,136** | **86** | R **162** | R **106** | R **2,454** | R **5,866** |
| **2001 Total** | **2,088** | R **1,193** | **2** | **597** | R **94** | **243** | **11** | **13** | **1,152** | **89** | R **145** | **125** | R **2,470** | R **5,762** |
| **2002 Total** | **2,095** | R **1,231** | **2** | **586** | R **96** | **237** | **6** | **12** | **1,183** | **96** | **125** | R **121** | R **2,466** | R **5,805** |
| **2003 Total** | **2,136** | R **1,196** | **2** | **610** | R **93** | **231** | **8** | **11** | **1,187** | **96** | **138** | **134** | R **2,511** | R **5,855** |
| **2004 Total** | **2,160** | R **1,201** | **2** | **632** | **95** | **240** | **10** | **12** | **1,210** | R **106** | **155** | **136** | R **2,597** | **5,970** |
| **2005 Total** | **2,182** | **1,183** | **2** | **639** | R **90** | **246** | **10** | **12** | **1,209** | R **105** | R **164** | **135** | R **2,614** | R **5,991** |
| **2006 Total** | **2,147** | R **1,170** | **2** | **645** | R **85** | **240** | **8** | **11** | **1,217** | **106** | **122** | **147** | R **2,583** | R **5,912** |
| **2007 Total** | **2,172** | R **1,246** | **2** | **647** | R **89** | **238** | **5** | **12** | **1,211** | R **99** | R **129** | **143** | R **2,575** | R **6,005** |
| **2008 Total** | **2,140** | R **1,255** | **2** | **610** | R **85** | **226** | **2** | **11** | **1,143** | R **92** | R **111** | **126** | R **2,408** | R **5,815** |
| **2009 Total** | **1,876** | R **1,233** | **2** | **559** | **83** | **204** | **3** | **10** | **1,129** | R **86** | R **91** | **107** | R **2,275** | R **5,395** |
| **2010 Total** | **1,986** | R **1,292** | **2** | **585** | R **86** | **210** | **3** | **11** | **1,112** | **82** | R **96** | **115** | R **2,302** | R **5,591** |
| **2011 Total** | **1,876** | R **1,311** | **2** | **599** | **80** | **209** | **2** | **10** | **1,078** | **79** | R **82** | R **114** | R **2,254** | R **5,453** |
| **2012 Total** | **1,657** | R **1,372** | **2** | **574** | **84** | **206** | **1** | **9** | **1,071** | R **78** | R **66** | **110** | R **2,202** | R **5,242** |
| **2013 Total** | **1,718** | R **1,409** | **2** | **581** | **92** | **210** | **1** | **10** | **1,087** | **77** | R **57** | R **116** | R **2,233** | R **5,372** |
| **2014 Total** | R **1,714** | R **1,440** | **2** | **614** | R **87** | **216** | **1** | **10** | **1,095** | **76** | R **46** | R **108** | R **2,255** | R **5,419** |
| **2015** January | 143 | R 170 | (s) | 54 | 9 | 17 | (s) | 1 | 90 | 7 | 4 | 8 | 192 | R 506 |
| February | 134 | R 160 | (s) | 53 | 8 | 16 | (s) | 1 | 83 | 4 | 3 | 9 | 177 | R 472 |
| March | 118 | R 141 | (s) | 53 | 8 | 19 | (s) | 1 | 94 | 7 | 4 | R 9 | R 196 | R 456 |
| April | 99 | R 109 | (s) | 50 | 7 | 18 | (s) | 1 | 93 | 7 | R 3 | 9 | R 188 | R 397 |
| May | 115 | R 101 | (s) | 49 | R 7 | 19 | (s) | 1 | 96 | 7 | 4 | 11 | 194 | R 411 |
| June | 137 | 103 | (s) | 49 | 7 | 20 | (s) | 1 | 95 | 7 | 3 | R 11 | 192 | R 433 |
| July | 151 | 112 | (s) | 50 | 7 | 21 | (s) | 1 | 99 | 7 | 5 | 11 | 201 | R 466 |
| August | 145 | R 112 | (s) | 50 | R 8 | 20 | (s) | 1 | 99 | 8 | R 5 | 9 | R 199 | R 457 |
| September | 129 | 103 | (s) | 51 | 6 | 18 | (s) | 1 | 94 | 5 | 4 | R 9 | 187 | R 420 |
| October | 108 | R 108 | (s) | 52 | 8 | 20 | (s) | 1 | 96 | 6 | 4 | 7 | R 194 | R 411 |
| November | 100 | 122 | (s) | 47 | 7 | 18 | (s) | 1 | 92 | 5 | 4 | 9 | 184 | R 407 |
| December | 102 | R 141 | (s) | 49 | 9 | 20 | (s) | 1 | 95 | 5 | 5 | 10 | 195 | R 439 |
| **Total** | **1,480** | R **1,483** | **1** | **607** | **91** | **227** | **1** | **11** | **1,126** | **76** | R **47** | R **112** | R **2,299** | R **5,274** |
| **2016** January | 123 | 168 | (s) | 50 | R 9 | 18 | (s) | 1 | 90 | 7 | 5 | R 10 | R 190 | R 482 |
| February | 102 | 144 | (s) | 48 | 8 | 18 | (s) | 1 | 90 | 6 | 3 | 12 | 186 | R 434 |
| March | 83 | R 128 | (s) | 51 | 8 | 19 | (s) | 1 | 98 | 7 | R 6 | 9 | 198 | R 410 |
| April | 81 | R 114 | (s) | 47 | R 6 | 19 | (s) | 1 | 93 | 5 | 7 | 10 | R 189 | R 384 |
| May | 92 | R 107 | (s) | 48 | 7 | 20 | (s) | 1 | 98 | 5 | 5 | 9 | 192 | R 392 |
| June | 125 | R 109 | (s) | 48 | 6 | 21 | (s) | 1 | 97 | 4 | 5 | R 10 | R 192 | R 427 |
| July | 145 | R 119 | (s) | 46 | 7 | 21 | (s) | 1 | 100 | 6 | 6 | 9 | R 197 | R 462 |
| August | 144 | 120 | (s) | 50 | R 6 | 21 | (s) | 1 | 101 | 8 | 5 | 11 | R 204 | R 469 |
| September | 123 | R 106 | (s) | 49 | 7 | 20 | (s) | 1 | 96 | 5 | 4 | 10 | R 191 | R 421 |
| October | 109 | R 105 | (s) | 51 | 7 | 20 | (s) | 1 | 95 | 6 | 5 | R 11 | 196 | R 411 |
| November | 97 | R 118 | (s) | 49 | 7 | 20 | (s) | 1 | 93 | 9 | R 5 | 9 | R 192 | R 407 |
| December | 128 | R 156 | (s) | 52 | 9 | 21 | (s) | 1 | 96 | 7 | 5 | 10 | 201 | R 487 |
| **Total** | **1,354** | R **1,495** | **1** | **589** | R **88** | **237** | **1** | **11** | **1,145** | **76** | R **59** | R **120** | R **2,327** | R **5,187** |
| **2017** January | 126 | R 157 | (s) | 49 | 10 | 20 | (s) | 1 | 88 | 8 | 7 | R 10 | 192 | R 476 |
| February | 97 | R 126 | (s) | 45 | R 7 | 17 | (s) | 1 | 84 | 4 | 4 | R 9 | 172 | R 397 |
| March | 99 | R 137 | (s) | 54 | 8 | 21 | (s) | 1 | 98 | 3 | R 6 | 11 | R 201 | R 437 |
| April | 91 | R 104 | (s) | 47 | 7 | 19 | (s) | 1 | 93 | 6 | 5 | 11 | R 190 | R 385 |
| May | 103 | 102 | (s) | 51 | 7 | 21 | (s) | 1 | 100 | 6 | 6 | 10 | 201 | R 407 |
| June | 117 | R 103 | (s) | 49 | 6 | 21 | (s) | 1 | 98 | 5 | 6 | 10 | 197 | R 418 |
| July | 137 | R 115 | (s) | 48 | 7 | 22 | (s) | 1 | 100 | 9 | 4 | 10 | R 200 | R 453 |
| August | 130 | 113 | (s) | 51 | 6 | 22 | (s) | 1 | 102 | 6 | 5 | 10 | 203 | 447 |
| **8-Month Total** | **900** | **957** | **1** | **394** | **58** | **163** | **(s)** | **6** | **763** | **46** | **42** | **82** | **1,555** | **3,420** |
| **2016 8-Month Total** | **896** | **1,010** | **1** | **388** | **58** | **157** | **1** | **7** | **765** | **49** | **41** | **80** | **1,547** | **3,461** |
| **2015 8-Month Total** | **1,041** | **1,008** | **1** | **408** | **61** | **150** | **1** | **8** | **749** | **54** | **30** | **77** | **1,539** | **3,597** |

[a] Metric tons of carbon dioxide can be converted to metric tons of carbon equivalent by multiplying by 12/44.
[b] Includes coal coke net imports.
[c] Natural gas, excluding supplemental gaseous fuels.
[d] Distillate fuel oil, excluding biodiesel.
[e] Hydrocarbon gas liquids.
[f] Finished motor gasoline, excluding fuel ethanol.
[g] Aviation gasoline blending components, crude oil, motor gasoline blending components, petrochemical feedstocks, special naphthas, still gas, unfinished oils, waxes, and miscellaneous petroleum products.
[h] Includes electric power sector use of geothermal energy and non-biomass waste. See Table 12.6.
[i] Excludes emissions from biomass energy consumption. See Table 12.7.

R=Revised. (s)=Less than 0.5 million metric tons.

Notes: • Data are estimates for carbon dioxide emissions from energy consumption, plus the relatively small amount of emissions from the non-combustion use of fossil fuels. See "Section 12 Methodology and Sources" at end of section. • See "Carbon Dioxide" in Glossary. • See Note 1, "Emissions of Carbon Dioxide and Other Greenhouse Gases," at end of section. • Data exclude emissions from biomass energy consumption. See Table 12.7 and Note 2, "Accounting for Carbon Dioxide Emissions From Biomass Energy Combustion," at end of section. • Totals may not equal sum of components due to independent rounding. • Geographic coverage is the 50 states and the District of Columbia.

Web Page: See http://www.eia.gov/totalenergy/data/monthly/#environment (Excel and CSV files) for all available annual and monthly data beginning in 1973.

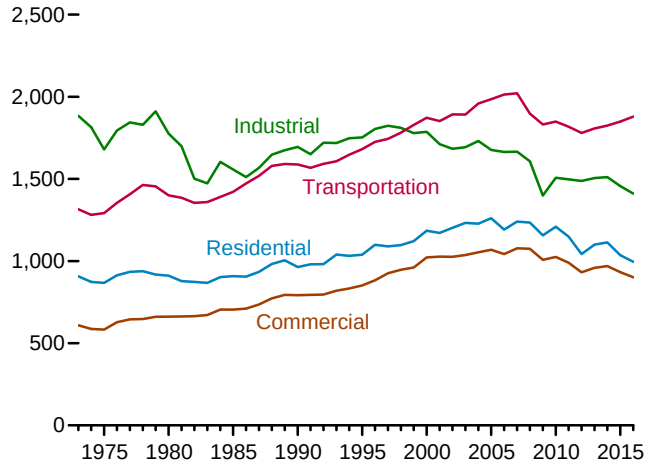
Sources: See end of section.

Historical revisions are due to revised data for non-combustion use of fossil fuels in Table 1.11b.

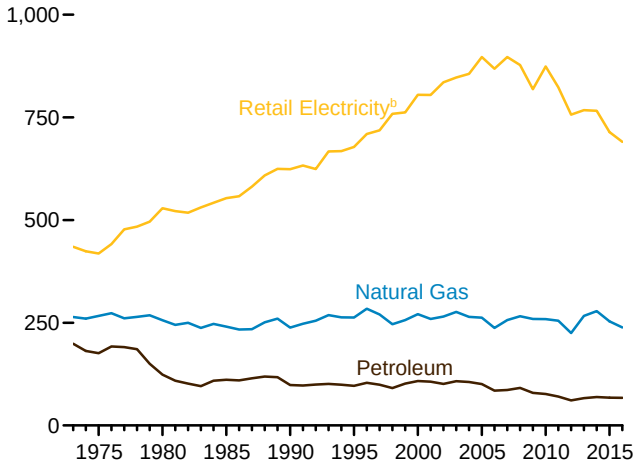
## Figure 12.2 Carbon Dioxide Emissions From Energy Consumption by Sector

(Million Metric Tons of Carbon Dioxide)

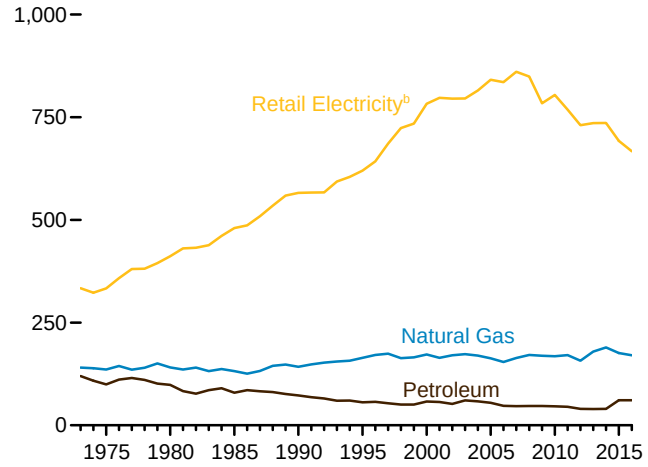
Total[a] by End-Use Sector,[b] 1973–2016



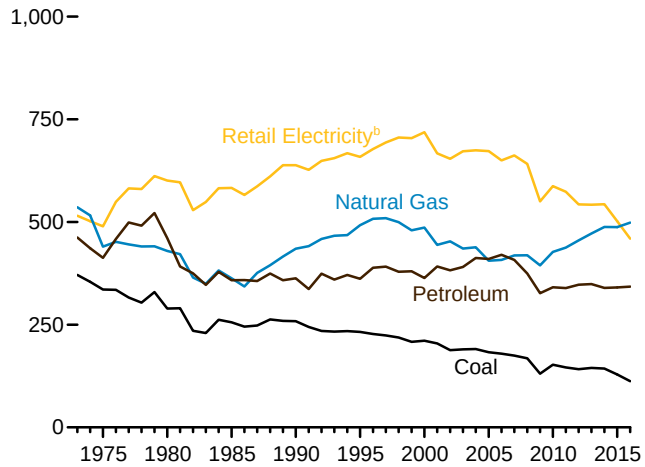

Residential Sector by Major Source, 1973–2016



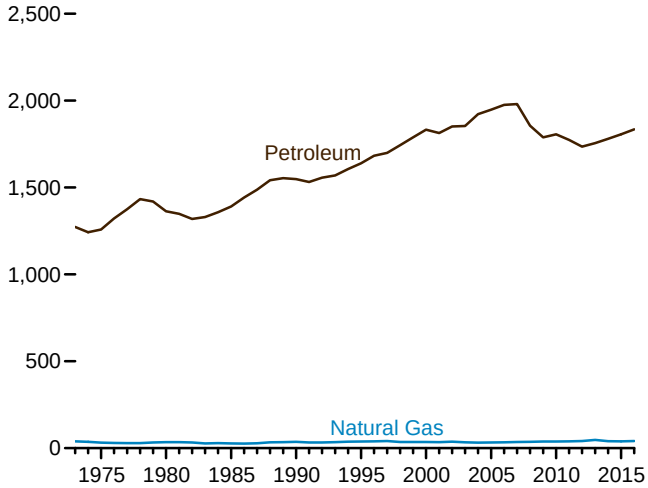

Commercial Sector by Major Source, 1973–2016



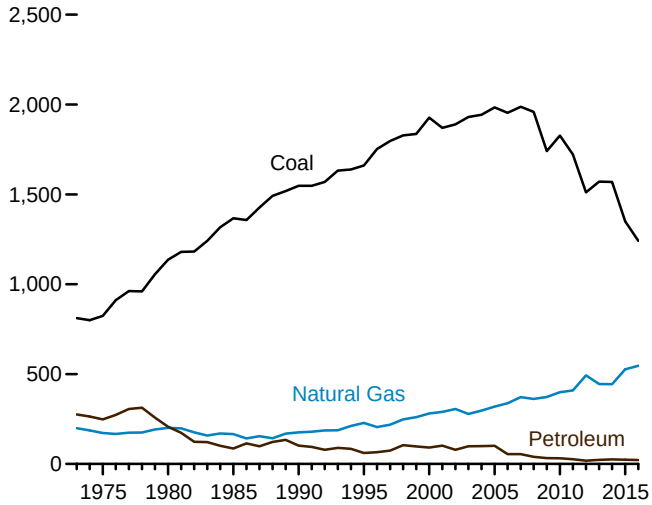

Industrial Sector by Major Source, 1973–2016




Transportation Sector by Major Source, 1973–2016




Electric Power Sector by Major Source, 1973–2016




[a] Excludes emissions from biomass energy consumption.

[b] Emissions from energy consumption in the electric power sector are allocated to the end-use sectors in proportion to each sector's share of total electricity retail sales.

Web Page: http://www.eia.gov/totalenergy/data/monthly/#environment.

Sources: Tables 12.2–12.6.

## Table 12.2 Carbon Dioxide Emissions From Energy Consumption: Residential Sector

(Million Metric Tons of Carbon Dioxide[a])

| | Coal | Natural Gas[b] | Petroleum | | | | Retail Electricity[e] | Total[f] |
|---|---|---|---|---|---|---|---|---|
| | | | Distillate Fuel Oil[c] | HGL[d] | Kerosene | Total | | |
| **1973 Total** | **9** | **264** | **147** | **36** | **16** | **199** | **435** | **907** |
| **1975 Total** | **6** | **266** | **132** | **32** | **12** | **176** | **419** | **867** |
| **1980 Total** | **3** | **256** | **96** | **20** | **8** | **124** | **529** | **911** |
| **1985 Total** | **4** | **241** | **80** | **20** | **11** | **111** | **553** | **909** |
| **1990 Total** | **3** | **238** | **72** | **22** | **5** | **98** | **624** | **963** |
| **1995 Total** | **2** | **263** | **66** | **25** | **5** | **96** | **678** | **1,039** |
| **1996 Total** | **2** | **284** | **68** | **30** | **6** | **104** | **710** | **1,099** |
| **1997 Total** | **2** | **270** | **64** | **29** | **7** | **99** | **719** | **1,090** |
| **1998 Total** | **1** | **247** | **56** | **27** | **8** | **91** | **759** | **1,097** |
| **1999 Total** | **1** | **257** | **60** | **33** | **8** | **102** | **762** | **1,122** |
| **2000 Total** | **1** | **271** | **66** | **35** | **7** | **108** | **805** | **1,185** |
| **2001 Total** | **1** | **259** | **66** | **33** | **7** | **106** | **805** | **1,171** |
| **2002 Total** | **1** | **265** | **63** | **34** | **4** | **101** | **835** | **1,203** |
| **2003 Total** | **1** | **276** | **68** | **34** | **5** | **108** | **847** | **1,232** |
| **2004 Total** | **1** | **264** | **67** | **32** | **6** | **106** | **856** | **1,227** |
| **2005 Total** | **1** | **262** | **62** | **32** | **6** | **101** | **897** | **1,261** |
| **2006 Total** | **1** | **237** | **52** | **28** | **5** | **85** | **869** | **1,191** |
| **2007 Total** | **1** | **257** | **53** | **31** | **3** | **86** | **897** | **1,241** |
| **2008 Total** | **NA** | **266** | **55** | **35** | **2** | **91** | **877** | **1,234** |
| **2009 Total** | **NA** | **259** | **43** | **35** | **2** | **79** | **819** | **1,157** |
| **2010 Total** | **NA** | **259** | **41** | **33** | **2** | **77** | **874** | **1,210** |
| **2011 Total** | **NA** | **255** | **38** | **31** | **1** | **70** | **823** | **1,148** |
| **2012 Total** | **NA** | **225** | **35** | **25** | **1** | **61** | **757** | **1,043** |
| **2013 Total** | **NA** | **267** | **36** | **30** | **1** | **66** | **768** | **1,100** |
| **2014 Total** | **NA** | **278** | **39** | **29** | **1** | **69** | **766** | **1,113** |
| **2015** January | NA | 52 | 6 | 3 | (s) | 8 | 72 | 132 |
| February | NA | 50 | 5 | 2 | (s) | 7 | 66 | 123 |
| March | NA | 35 | 4 | 2 | (s) | 6 | 57 | 98 |
| April | NA | 18 | 2 | 2 | (s) | 4 | 42 | 64 |
| May | NA | 10 | 2 | 2 | (s) | 5 | 49 | 63 |
| June | NA | 7 | 1 | 2 | (s) | 3 | 65 | 76 |
| July | NA | 6 | 2 | 2 | (s) | 4 | 81 | 90 |
| August | NA | 6 | 2 | 2 | (s) | 4 | 77 | 87 |
| September | NA | 6 | 2 | 2 | (s) | 4 | 64 | 74 |
| October | NA | 11 | 5 | 2 | (s) | 7 | 48 | 66 |
| November | NA | 22 | 5 | 2 | (s) | 7 | 44 | 74 |
| December | NA | 32 | 5 | 3 | (s) | 8 | 51 | 92 |
| **Total** | **NA** | **253** | **40** | **27** | **1** | **68** | **714** | **1,035** |
| **2016** January | NA | 48 | 5 | 3 | (s) | 8 | 65 | 121 |
| February | NA | 38 | 5 | 2 | (s) | 7 | 52 | 98 |
| March | NA | 25 | 3 | 2 | (s) | 6 | 41 | 72 |
| April | NA | 18 | 3 | 2 | (s) | 5 | 38 | 61 |
| May | NA | 11 | 3 | 2 | (s) | 5 | 43 | 59 |
| June | NA | 7 | 2 | 2 | (s) | 4 | 66 | 77 |
| July | NA | 6 | 2 | 2 | (s) | 4 | 84 | 95 |
| August | NA | 6 | 2 | 2 | (s) | 4 | 84 | 93 |
| September | NA | 6 | 2 | 2 | (s) | 5 | 65 | 75 |
| October | NA | 10 | 3 | 2 | (s) | 6 | 50 | 66 |
| November | NA | 21 | 4 | 2 | (s) | 6 | 43 | 70 |
| December | NA | 44 | 6 | 2 | (s) | 8 | 62 | 114 |
| **Total** | **NA** | **239** | **39** | **27** | **1** | **67** | **691** | **996** |
| **2017** January | NA | 46 | 6 | 3 | (s) | 8 | 63 | 117 |
| February | NA | 32 | 4 | 2 | (s) | 6 | 45 | 83 |
| March | NA | 32 | 4 | 2 | (s) | 6 | 46 | 84 |
| April | NA | 15 | 3 | 2 | (s) | 5 | 40 | 60 |
| May | NA | 11 | 2 | 2 | (s) | 4 | 46 | 61 |
| June | NA | 7 | 3 | 2 | (s) | 5 | 59 | 71 |
| July | NA | 6 | [R] 2 | 2 | (s) | 4 | 78 | 87 |
| August | NA | 6 | 2 | 2 | (s) | 4 | 71 | 81 |
| **8-Month Total** | **NA** | **154** | **25** | **18** | **(s)** | **43** | **447** | **645** |
| **2016 8-Month Total** | **NA** | **158** | **24** | **18** | **(s)** | **43** | **474** | **674** |
| **2015 8-Month Total** | **NA** | **182** | **24** | **18** | **(s)** | **42** | **509** | **732** |

[a] Metric tons of carbon dioxide can be converted to metric tons of carbon equivalent by multiplying by 12/44.
[b] Natural gas, excluding supplemental gaseous fuels.
[c] Distillate fuel oil, excluding biodiesel.
[d] Hydrocarbon gas liquids.
[e] Emissions from energy consumption (for electricity and a small amount of useful thermal output) in the electric power sector are allocated to the end-use sectors in proportion to each sector's share of total electricity retail sales. See Tables 7.6 and 12.6.
[f] Excludes emissions from biomass energy consumption. See Table 12.7.
R=Revised. NA=Not available. (s)=Less than 0.5 million metric tons.

Notes: • Data are estimates for carbon dioxide emissions from energy consumption. See "Section 12 Methodology and Sources" at end of section. • See "Carbon Dioxide" in Glossary. • See Note 1, "Emissions of Carbon Dioxide and Other Greenhouse Gases," at end of section. • Data exclude emissions from biomass energy consumption. See Table 12.7 and Note 2, "Accounting for Carbon Dioxide Emissions From Biomass Energy Combustion," at end of section. • Totals may not equal sum of components due to independent rounding. • Geographic coverage is the 50 states and the District of Columbia.
Web Page: See http://www.eia.gov/totalenergy/data/monthly/#environment (Excel and CSV files) for all available annual and monthly data beginning in 1973.
Sources: See end of section.

## Table 12.3 Carbon Dioxide Emissions From Energy Consumption: Commercial Sector

(Million Metric Tons of Carbon Dioxide[a])

| | | | Petroleum | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Coal | Natural Gas[b] | Distillate Fuel Oil[c] | HGL[d] | Kerosene | Motor Gasoline[e] | Petroleum Coke | Residual Fuel Oil | Total | Retail Electricity[f] | Total[g] |
| **1973 Total** | **15** | **141** | **47** | **9** | **5** | **6** | **NA** | **52** | **120** | **334** | **609** |
| **1975 Total** | **14** | **136** | **43** | **8** | **4** | **6** | **NA** | **39** | **100** | **333** | **583** |
| **1980 Total** | **11** | **141** | **38** | **6** | **3** | **8** | **NA** | **44** | **98** | **412** | **662** |
| **1985 Total** | **13** | **132** | **46** | **6** | **2** | **7** | **NA** | **18** | **79** | **480** | **704** |
| **1990 Total** | **12** | **142** | **39** | **6** | **1** | **8** | **0** | **18** | **73** | **566** | **793** |
| **1995 Total** | **11** | **164** | **35** | **7** | **2** | **1** | **(s)** | **11** | **56** | **620** | **851** |
| **1996 Total** | **12** | **171** | **35** | **8** | **2** | **2** | **(s)** | **11** | **57** | **643** | **883** |
| **1997 Total** | **12** | **174** | **32** | **8** | **2** | **3** | **(s)** | **9** | **54** | **686** | **926** |
| **1998 Total** | **9** | **164** | **31** | **7** | **2** | **3** | **(s)** | **7** | **50** | **724** | **947** |
| **1999 Total** | **10** | **165** | **32** | **9** | **2** | **2** | **(s)** | **6** | **51** | **735** | **960** |
| **2000 Total** | **9** | **173** | **36** | **9** | **2** | **3** | **(s)** | **7** | **58** | **783** | **1,022** |
| **2001 Total** | **9** | **164** | **37** | **9** | **2** | **3** | **(s)** | **6** | **57** | **797** | **1,027** |
| **2002 Total** | **9** | **170** | **32** | **9** | **1** | **3** | **(s)** | **6** | **52** | **795** | **1,026** |
| **2003 Total** | **8** | **173** | **36** | **10** | **1** | **4** | **(s)** | **9** | **60** | **796** | **1,037** |
| **2004 Total** | **10** | **170** | **34** | **10** | **1** | **3** | **(s)** | **10** | **58** | **815** | **1,053** |
| **2005 Total** | **9** | **163** | **33** | **8** | **2** | **3** | **(s)** | **9** | **55** | **841** | **1,069** |
| **2006 Total** | **6** | **154** | **29** | **8** | **1** | **3** | **(s)** | **6** | **47** | **835** | **1,043** |
| **2007 Total** | **7** | **164** | **28** | **8** | **1** | **4** | **(s)** | **6** | **46** | **861** | **1,078** |
| **2008 Total** | **8** | **171** | **28** | **10** | **(s)** | **3** | **(s)** | **6** | **47** | **849** | **1,075** |
| **2009 Total** | **7** | **169** | **29** | **9** | **(s)** | **4** | **(s)** | **6** | **47** | **784** | **1,007** |
| **2010 Total** | **7** | **168** | **29** | **9** | **(s)** | **3** | **(s)** | **5** | **46** | **804** | **1,025** |
| **2011 Total** | **6** | **171** | **29** | **9** | **(s)** | **3** | **(s)** | **4** | **45** | **768** | **990** |
| **2012 Total** | **4** | **157** | **26** | **9** | **(s)** | **3** | **(s)** | **2** | **40** | **731** | **932** |
| **2013 Total** | **4** | **179** | **25** | **10** | **(s)** | **3** | **(s)** | **2** | **40** | **736** | **959** |
| **2014 Total** | **4** | **190** | **26** | **10** | **(s)** | **4** | **(s)** | **1** | **40** | **736** | **970** |
| **2015** January | (s) | 29 | 4 | 1 | (s) | 2 | (s) | (s) | 7 | 59 | 95 |
| February | (s) | 28 | 3 | 1 | (s) | 2 | (s) | (s) | 6 | 56 | 91 |
| March | (s) | 21 | 2 | 1 | (s) | 2 | (s) | (s) | 5 | 52 | 79 |
| April | (s) | 13 | 1 | 1 | (s) | 2 | (s) | (s) | 4 | 48 | 65 |
| May | (s) | 9 | 1 | 1 | (s) | 2 | (s) | (s) | 4 | 56 | 69 |
| June | (s) | 7 | 1 | 1 | (s) | 2 | 0 | (s) | 4 | 65 | 76 |
| July | (s) | 7 | 1 | 1 | (s) | 2 | 0 | (s) | 4 | 71 | 82 |
| August | (s) | 7 | 1 | 1 | (s) | 2 | (s) | (s) | 4 | 69 | 81 |
| September | (s) | 8 | 1 | 1 | (s) | 2 | (s) | (s) | 4 | 62 | 74 |
| October | (s) | 11 | 3 | 1 | (s) | 2 | (s) | (s) | 6 | 55 | 72 |
| November | (s) | 16 | 3 | 1 | (s) | 2 | (s) | (s) | 6 | 50 | 72 |
| December | (s) | 19 | 4 | 1 | (s) | 2 | (s) | (s) | 7 | 49 | 75 |
| **Total** | **3** | **176** | **26** | **9** | **(s)** | **25** | **(s)** | **(s)** | **61** | **692** | **932** |
| **2016** January | (s) | 28 | 3 | 1 | (s) | 2 | (s) | (s) | 6 | 55 | 89 |
| February | (s) | 23 | 3 | 1 | (s) | 2 | (s) | (s) | 6 | 47 | 76 |
| March | (s) | 16 | 2 | 1 | (s) | 2 | (s) | (s) | 5 | 43 | 65 |
| April | (s) | 13 | 2 | 1 | (s) | 2 | (s) | (s) | 5 | 43 | 61 |
| May | (s) | 9 | 2 | 1 | (s) | 2 | 0 | (s) | 5 | 50 | 64 |
| June | (s) | 8 | 1 | 1 | (s) | 2 | (s) | (s) | 4 | 63 | 75 |
| July | (s) | 7 | 1 | 1 | (s) | 2 | (s) | (s) | 4 | 71 | 83 |
| August | (s) | 8 | 1 | 1 | (s) | 2 | 0 | (s) | 4 | 72 | 84 |
| September | (s) | 8 | 2 | 1 | (s) | 2 | 0 | (s) | 4 | 62 | 74 |
| October | (s) | 10 | 2 | 1 | (s) | 2 | 0 | (s) | 5 | 55 | 71 |
| November | (s) | 15 | 2 | 1 | (s) | 2 | (s) | (s) | 5 | 49 | 69 |
| December | (s) | 25 | 4 | 1 | (s) | 2 | (s) | (s) | 7 | 57 | 89 |
| **Total** | **2** | **170** | **26** | **9** | **(s)** | **26** | **(s)** | **(s)** | **61** | **667** | **901** |
| **2017** January | (s) | 26 | 4 | 1 | (s) | 2 | (s) | (s) | 7 | 54 | 87 |
| February | (s) | 20 | 3 | 1 | (s) | 2 | (s) | (s) | 5 | 44 | 69 |
| March | (s) | 20 | 3 | 1 | (s) | 2 | (s) | (s) | 6 | 48 | 74 |
| April | (s) | 12 | 2 | 1 | (s) | 2 | (s) | (s) | 5 | 44 | 61 |
| May | (s) | 10 | 1 | 1 | (s) | 2 | (s) | (s) | 4 | 51 | 65 |
| June | (s) | 8 | 2 | 1 | (s) | 2 | (s) | (s) | 5 | 58 | 70 |
| July | (s) | 7 | 1 | 1 | (s) | 2 | (s) | (s) | 4 | 67 | 78 |
| August | (s) | 8 | 1 | 1 | (s) | 2 | (s) | (s) | 4 | 64 | 76 |
| **8-Month Total** | **1** | **111** | **17** | **6** | **(s)** | **17** | **(s)** | **(s)** | **40** | **429** | **581** |
| **2016 8-Month Total** | **2** | **111** | **16** | **6** | **(s)** | **17** | **(s)** | **(s)** | **39** | **444** | **596** |
| **2015 8-Month Total** | **2** | **123** | **15** | **6** | **(s)** | **17** | **(s)** | **(s)** | **38** | **476** | **639** |

[a] Metric tons of carbon dioxide can be converted to metric tons of carbon equivalent by multiplying by 12/44.
[b] Natural gas, excluding supplemental gaseous fuels.
[c] Distillate fuel oil, excluding biodiesel.
[d] Hydrocarbon gas liquids.
[e] Finished motor gasoline, excluding fuel ethanol.
[f] Emissions from energy consumption (for electricity and a small amount of useful thermal output) in the electric power sector are allocated to the end-use sectors in proportion to each sector's share of total electricity retail sales. See Tables 7.6 and 12.6.
[g] Excludes emissions from biomass energy consumption. See Table 12.7.
NA=Not available. (s)=Less than 0.5 million metric tons.

Notes: • Data are estimates for carbon dioxide emissions from energy consumption. See "Section 12 Methodology and Sources" at end of section. • See "Carbon Dioxide" in Glossary. • See Note 1, "Emissions of Carbon Dioxide and Other Greenhouse Gases," at end of section. • Data exclude emissions from biomass energy consumption. See Table 12.7 and Note 2, "Accounting for Carbon Dioxide Emissions From Biomass Energy Combustion," at end of section. • Totals may not equal sum of components due to independent rounding. • Geographic coverage is the 50 states and the District of Columbia.

Web Page: See http://www.eia.gov/totalenergy/data/monthly/#environment (Excel and CSV files) for all available annual and monthly data beginning in 1973.

Sources: See end of section.

## Table 12.4 Carbon Dioxide Emissions From Energy Consumption: Industrial Sector

(Million Metric Tons of Carbon Dioxide[a])

| | Coal | Coal Coke Net Imports | Natural Gas[b] | Petroleum | | | | | | | | | Retail Electricity[g] | Total[h] |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Distillate Fuel Oil[c] | HGL[d] | Kerosene | Lubricants | Motor Gasoline[e] | Petroleum Coke | Residual Fuel Oil | Other[f] | Total | | |
| **1973 Total** | **371** | **-1** | **536** | **106** | R **28** | **11** | **7** | **18** | **52** | R **142** | R **97** | R **462** | **515** | R **1,884** |
| **1975 Total** | **336** | **2** | **440** | **97** | R **27** | **9** | **6** | **16** | **51** | R **115** | R **93** | R **413** | **490** | R **1,680** |
| **1980 Total** | **289** | **-4** | R **430** | **96** | R **54** | **13** | **7** | **11** | **48** | R **103** | R **129** | R **461** | **601** | R **1,776** |
| **1985 Total** | **256** | **-2** | R **363** | **81** | R **55** | **3** | **6** | **15** | **54** | **57** | R **86** | R **358** | **583** | R **1,558** |
| **1990 Total** | **258** | **1** | R **435** | **84** | R **46** | **1** | **7** | **13** | **67** | R **32** | R **114** | R **363** | **638** | **1,695** |
| **1995 Total** | **233** | **7** | R **492** | **82** | R **58** | **1** | **7** | **14** | **67** | **25** | **107** | R **362** | **659** | R **1,752** |
| **1996 Total** | **227** | **3** | R **508** | **86** | R **59** | **1** | **6** | **14** | **71** | R **25** | **125** | R **388** | **678** | R **1,804** |
| **1997 Total** | **224** | **5** | R **509** | **88** | R **58** | **1** | **7** | **15** | **70** | R **22** | R **131** | R **391** | **694** | R **1,823** |
| **1998 Total** | **219** | **8** | R **500** | **88** | R **56** | **2** | **7** | **14** | **80** | **16** | R **116** | R **379** | **706** | R **1,811** |
| **1999 Total** | **208** | **7** | R **480** | **86** | R **57** | **1** | **7** | **11** | **85** | **14** | **119** | R **380** | **704** | R **1,779** |
| **2000 Total** | **211** | **7** | R **486** | **87** | R **58** | **1** | **7** | **11** | **76** | **17** | R **106** | R **364** | **719** | R **1,787** |
| **2001 Total** | **204** | **3** | R **444** | R **94** | R **51** | **2** | **6** | **21** | **79** | **14** | **125** | R **392** | **667** | **1,711** |
| **2002 Total** | **188** | **7** | R **453** | **88** | R **52** | **1** | **6** | **22** | **79** | **13** | R **121** | R **382** | **654** | R **1,684** |
| **2003 Total** | **190** | **6** | R **435** | **85** | R **48** | **2** | **6** | **23** | **78** | R **15** | **134** | R **391** | **672** | R **1,694** |
| **2004 Total** | R **190** | **16** | R **438** | **88** | **52** | **2** | **6** | **26** | **85** | R **17** | **136** | R **412** | **674** | **1,731** |
| **2005 Total** | **183** | **5** | R **406** | **92** | R **48** | **3** | **6** | **25** | **82** | **20** | **135** | R **410** | **672** | R **1,676** |
| **2006 Total** | **179** | **7** | R **408** | **91** | R **47** | **2** | **6** | **26** | **85** | **16** | **147** | R **420** | **650** | R **1,664** |
| **2007 Total** | **175** | **3** | R **418** | **91** | **50** | **1** | **6** | **21** | **83** | **13** | **143** | **408** | **662** | R **1,666** |
| **2008 Total** | **168** | **5** | R **419** | **98** | R **38** | **(s)** | **6** | **17** | R **77** | **13** | **126** | R **375** | **642** | R **1,608** |
| **2009 Total** | **131** | **-3** | R **395** | **78** | R **38** | **(s)** | **5** | **16** | **73** | R **9** | **107** | R **327** | **550** | R **1,399** |
| **2010 Total** | **153** | **-1** | R **427** | **84** | R **42** | **1** | **6** | **17** | **68** | R **8** | **115** | R **341** | **587** | R **1,507** |
| **2011 Total** | **146** | **1** | R **438** | **90** | **38** | **(s)** | **5** | **17** | R **64** | R **9** | R **114** | R **339** | **574** | R **1,498** |
| **2012 Total** | **141** | **(s)** | R **455** | **93** | **48** | **(s)** | **5** | **17** | **70** | R **5** | **110** | R **347** | **543** | R **1,487** |
| **2013 Total** | R **145** | **-2** | R **472** | **92** | R **50** | **(s)** | **5** | **17** | **65** | R **3** | R **116** | R **349** | **542** | R **1,506** |
| **2014 Total** | **143** | **-2** | R **488** | **100** | **45** | **(s)** | **5** | **14** | **64** | R **3** | R **108** | R **339** | **543** | R **1,511** |
| **2015** January | 12 | (s) | R 46 | 9 | 6 | (s) | 1 | 1 | 6 | (s) | 8 | R 32 | 42 | R 131 |
| February | 11 | (s) | R 42 | 10 | 5 | (s) | (s) | 1 | 2 | (s) | 9 | 28 | 41 | R 122 |
| March | 11 | (s) | R 43 | 9 | 5 | (s) | 1 | 1 | 6 | (s) | R 9 | R 31 | 39 | R 123 |
| April | 10 | (s) | R 40 | 8 | 4 | (s) | 1 | 1 | 6 | (s) | 9 | 29 | 37 | R 116 |
| May | 11 | (s) | 39 | 6 | R 4 | (s) | 1 | 1 | 6 | (s) | 11 | R 30 | 42 | R 122 |
| June | 11 | (s) | R 38 | 7 | 4 | (s) | (s) | 1 | 6 | (s) | R 11 | 30 | 47 | R 125 |
| July | 11 | (s) | R 39 | 7 | 4 | (s) | 1 | 2 | 6 | (s) | 11 | 30 | 48 | R 129 |
| August | 11 | (s) | 39 | 6 | R 5 | (s) | (s) | 2 | R 6 | (s) | 9 | R 29 | 47 | R 126 |
| September | 10 | (s) | R 38 | 8 | 4 | (s) | (s) | 1 | 4 | (s) | R 9 | R 27 | 43 | R 118 |
| October | 11 | (s) | R 40 | 6 | 5 | (s) | 1 | 1 | 5 | (s) | 7 | R 25 | 40 | R 115 |
| November | 10 | (s) | R 41 | 4 | 4 | (s) | (s) | 1 | 5 | (s) | 9 | 24 | 38 | R 113 |
| December | 10 | (s) | R 43 | 5 | 5 | (s) | (s) | 1 | 4 | (s) | 10 | 27 | 36 | R 116 |
| **Total** | **129** | **-2** | R **487** | **85** | **53** | **(s)** | **6** | **17** | **65** | **2** | R **112** | R **341** | **502** | R **1,457** |
| **2016** January | 10 | (s) | R 46 | 8 | 6 | (s) | (s) | 1 | 6 | (s) | R 10 | 31 | 38 | R 125 |
| February | 10 | (s) | R 42 | 8 | 5 | (s) | (s) | 1 | 5 | (s) | 12 | 32 | 33 | R 118 |
| March | 10 | (s) | R 43 | 9 | 4 | (s) | 1 | 1 | 6 | (s) | 9 | 30 | 31 | R 114 |
| April | 9 | (s) | R 40 | 6 | 4 | (s) | (s) | 1 | 4 | (s) | 10 | R 27 | 32 | R 108 |
| May | 9 | (s) | R 40 | 6 | R 3 | (s) | (s) | 1 | 4 | (s) | 9 | R 25 | 36 | R 110 |
| June | 9 | (s) | R 39 | 7 | 3 | (s) | 1 | 1 | 3 | (s) | R 10 | 25 | 42 | R 115 |
| July | 9 | (s) | R 40 | 4 | 4 | (s) | (s) | 2 | 5 | (s) | 9 | 24 | 46 | R 119 |
| August | 9 | (s) | R 41 | 7 | R 3 | (s) | (s) | 2 | 7 | (s) | 11 | 31 | 46 | R 126 |
| September | 9 | (s) | R 39 | 7 | 4 | (s) | (s) | 1 | 4 | (s) | 10 | 27 | 40 | R 115 |
| October | 9 | (s) | 40 | 7 | 4 | (s) | (s) | 1 | 5 | (s) | R 11 | 29 | 38 | R 117 |
| November | 9 | -1 | R 42 | 7 | 4 | (s) | (s) | 1 | 8 | (s) | 9 | 30 | 35 | R 116 |
| December | 10 | (s) | R 46 | 7 | 5 | (s) | (s) | 1 | 6 | (s) | 10 | 31 | 39 | R 125 |
| **Total** | R **112** | **-2** | R **498** | **83** | **50** | **(s)** | **6** | **17** | R **63** | R **3** | R **120** | R **343** | **459** | R **1,411** |
| **2017** January | 9 | (s) | R 46 | 7 | 6 | (s) | (s) | 1 | 7 | (s) | R 10 | 31 | 37 | R 123 |
| February | 9 | (s) | R 41 | 7 | 4 | (s) | (s) | 1 | 4 | (s) | R 9 | 25 | 32 | R 107 |
| March | 9 | (s) | R 44 | 10 | R 4 | (s) | (s) | 1 | 2 | (s) | 11 | 30 | 34 | R 118 |
| April | 9 | (s) | 40 | 6 | 4 | (s) | (s) | 1 | 5 | (s) | 11 | R 29 | 33 | R 111 |
| May | 9 | (s) | R 41 | 8 | 4 | (s) | (s) | 2 | 5 | (s) | 10 | 29 | 37 | R 116 |
| June | 9 | (s) | R 40 | 7 | 3 | (s) | (s) | 1 | 4 | (s) | 10 | 26 | 40 | R 114 |
| July | 9 | (s) | R 41 | 6 | 4 | (s) | (s) | 2 | 8 | (s) | 10 | 29 | 44 | R 123 |
| August | 10 | (s) | 41 | 7 | 3 | (s) | (s) | 2 | 5 | (s) | 10 | 28 | 43 | 121 |
| **8-Month Total** | **74** | **-2** | **334** | **57** | **32** | **(s)** | **3** | **12** | **40** | **2** | **82** | **228** | **300** | **934** |
| **2016 8-Month Total** | **75** | **-1** | **331** | **54** | **32** | **(s)** | **4** | **12** | **40** | **2** | **80** | **225** | **305** | **935** |
| **2015 8-Month Total** | **88** | **-2** | **325** | **62** | **36** | **(s)** | **4** | **11** | **46** | **1** | **77** | **238** | **343** | **993** |

[a] Metric tons of carbon dioxide can be converted to metric tons of carbon equivalent by multiplying by 12/44.
[b] Natural gas, excluding supplemental gaseous fuels.
[c] Distillate fuel oil, excluding biodiesel.
[d] Hydrocarbon gas liquids.
[e] Finished motor gasoline, excluding fuel ethanol.
[f] Aviation gasoline blending components, crude oil, motor gasoline blending components, petrochemical feedstocks, special naphthas, still gas, unfinished oils, waxes, and miscellaneous petroleum products.
[g] Emissions from energy consumption (for electricity and a small amount of useful thermal output) in the electric power sector are allocated to the end-use sectors in proportion to each sector's share of total electricity retail sales. See Tables 7.6 and 12.6.
[h] Excludes emissions from biomass energy consumption. See Table 12.7.

R=Revised. (s)=Less than 0.5 million metric tons and greater than -0.5 million metric tons.

Notes: • Data are estimates for carbon dioxide emissions from energy consumption, plus the relatively small amount of emissions from the non-combustion use of fossil fuels. See "Section 12 Methodology and Sources" at end of section. • See "Carbon Dioxide" in Glossary. • See Note 1, "Emissions of Carbon Dioxide and Other Greenhouse Gases," at end of section. • Data exclude emissions from biomass energy consumption. See Table 12.7 and Note 2, "Accounting for Carbon Dioxide Emissions From Biomass Energy Combustion," at end of section. • Totals may not equal sum of components due to independent rounding. • Geographic coverage is the 50 states and the District of Columbia.

Web Page: See http://www.eia.gov/totalenergy/data/monthly/#environment (Excel and CSV files) for all available annual and monthly data beginning in 1973.

Sources: See end of section.

Historical revisions are due to revised data for non-combustion use of fossil fuels in Table 1.11b.

## Table 12.5 Carbon Dioxide Emissions From Energy Consumption: Transportation Sector

(Million Metric Tons of Carbon Dioxide[a])

| | Coal | Natural Gas[b] | Petroleum | | | | | | | | Retail Electricity[f] | Total[g] |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Aviation Gasoline | Distillate Fuel Oil[c] | HGL[d] | Jet Fuel | Lubricants | Motor Gasoline[e] | Residual Fuel Oil | Total | | |
| **1973 Total** | **(s)** | **39** | **6** | **163** | **3** | **152** | **6** | **886** | **57** | **1,273** | **2** | **1,315** |
| **1975 Total** | **(s)** | **32** | **5** | **155** | **3** | **145** | **6** | **889** | **56** | **1,258** | **2** | **1,292** |
| **1980 Total** | **(h)** | **34** | **4** | **204** | **1** | **155** | **6** | **881** | **110** | **1,363** | **2** | **1,400** |
| **1985 Total** | **(h)** | **28** | **3** | **232** | **2** | **178** | **6** | **908** | **62** | **1,391** | **3** | **1,421** |
| **1990 Total** | **(h)** | **36** | **3** | **268** | **1** | **223** | **7** | **967** | **80** | **1,548** | **3** | **1,588** |
| **1995 Total** | **(h)** | **38** | **3** | **307** | **1** | **222** | **6** | **1,029** | **72** | **1,640** | **3** | **1,681** |
| **1996 Total** | **(h)** | **39** | **3** | **327** | **1** | **232** | **6** | **1,047** | **67** | **1,683** | **3** | **1,725** |
| **1997 Total** | **(h)** | **41** | **3** | **341** | **1** | **234** | **6** | **1,057** | **56** | **1,700** | **3** | **1,744** |
| **1998 Total** | **(h)** | **35** | **2** | **352** | **1** | **238** | **7** | **1,090** | **53** | **1,743** | **3** | **1,782** |
| **1999 Total** | **(h)** | **36** | **3** | **365** | **1** | **245** | **7** | **1,115** | **52** | **1,789** | **3** | **1,828** |
| **2000 Total** | **(h)** | **36** | **3** | **377** | **1** | **254** | **7** | **1,122** | **70** | **1,833** | **4** | **1,873** |
| **2001 Total** | **(h)** | **35** | **2** | **387** | **1** | **243** | **6** | **1,128** | **46** | **1,813** | **4** | **1,852** |
| **2002 Total** | **(h)** | **37** | **2** | **394** | **1** | **237** | **6** | **1,158** | **53** | **1,852** | **4** | **1,892** |
| **2003 Total** | **(h)** | **33** | **2** | **408** | **1** | **231** | **6** | **1,161** | **45** | **1,854** | **5** | **1,892** |
| **2004 Total** | **(h)** | **32** | **2** | **433** | **1** | **240** | **6** | **1,181** | **58** | **1,922** | **5** | **1,959** |
| **2005 Total** | **(h)** | **33** | **2** | **444** | **2** | **246** | **6** | **1,182** | **66** | **1,948** | **5** | **1,986** |
| **2006 Total** | **(h)** | **33** | **2** | **467** | **2** | **240** | **5** | **1,188** | **71** | **1,976** | **5** | **2,014** |
| **2007 Total** | **(h)** | **35** | **2** | **469** | **1** | **238** | **6** | **1,186** | **78** | **1,980** | **5** | **2,021** |
| **2008 Total** | **(h)** | **37** | **2** | **424** | **3** | **226** | **5** | **1,124** | **73** | **1,856** | **5** | **1,898** |
| **2009 Total** | **(h)** | **38** | **2** | **405** | **2** | **204** | **5** | **1,109** | **62** | **1,789** | **5** | **1,832** |
| **2010 Total** | **(h)** | **38** | **2** | **426** | **2** | **210** | **5** | **1,091** | **70** | **1,806** | **5** | **1,849** |
| **2011 Total** | **(h)** | **39** | **2** | **437** | **2** | **209** | **5** | **1,058** | **61** | **1,774** | **4** | **1,818** |
| **2012 Total** | **(h)** | **41** | **2** | **416** | **2** | **206** | **5** | **1,051** | **53** | **1,735** | **4** | **1,780** |
| **2013 Total** | **(h)** | **47** | **2** | **424** | **3** | **210** | **5** | **1,066** | **46** | **1,756** | **4** | **1,807** |
| **2014 Total** | **(h)** | **40** | **2** | **443** | **3** | **216** | **5** | **1,077** | **35** | **1,781** | **4** | **1,825** |
| **2015** January | (h) | 5 | (s) | 35 | (s) | 17 | 1 | 87 | 3 | 143 | (s) | 148 |
| February | (h) | 4 | (s) | 34 | (s) | 16 | (s) | 80 | (s) | 131 | (s) | 136 |
| March | (h) | 4 | (s) | 37 | (s) | 19 | 1 | 91 | 3 | 152 | (s) | 156 |
| April | (h) | 3 | (s) | 38 | (s) | 18 | (s) | 89 | 2 | 148 | (s) | 152 |
| May | (h) | 3 | (s) | 38 | (s) | 19 | 1 | 93 | 3 | 154 | (s) | 157 |
| June | (h) | 3 | (s) | 39 | (s) | 20 | (s) | 91 | 2 | 153 | (s) | 157 |
| July | (h) | 3 | (s) | 41 | (s) | 21 | 1 | 95 | 4 | 161 | (s) | 165 |
| August | (h) | 3 | (s) | 41 | (s) | 20 | (s) | 95 | 4 | 160 | (s) | 163 |
| September | (h) | 3 | (s) | 39 | (s) | 18 | (s) | 90 | 3 | 151 | (s) | 154 |
| October | (h) | 3 | (s) | 38 | (s) | 20 | (s) | 93 | 3 | 155 | (s) | 158 |
| November | (h) | 3 | (s) | 34 | (s) | 18 | (s) | 88 | 4 | 145 | (s) | 149 |
| December | (h) | 4 | (s) | 35 | (s) | 20 | (s) | 92 | 4 | 151 | (s) | 155 |
| **Total** | **(h)** | **40** | **1** | **449** | **3** | **227** | **5** | **1,083** | **37** | **1,806** | **4** | **1,849** |
| **2016** January | (h) | 5 | (s) | 33 | (s) | 18 | (s) | 87 | 4 | 143 | (s) | 148 |
| February | (h) | 4 | (s) | 32 | (s) | 18 | (s) | 86 | 2 | 139 | (s) | 143 |
| March | (h) | 3 | (s) | 36 | (s) | 19 | (s) | 94 | 5 | 155 | (s) | 159 |
| April | (h) | 3 | (s) | 36 | (s) | 19 | (s) | 89 | 6 | 150 | (s) | 154 |
| May | (h) | 3 | (s) | 37 | (s) | 20 | (s) | 94 | 4 | 156 | (s) | 160 |
| June | (h) | 3 | (s) | 38 | (s) | 21 | (s) | 93 | 4 | 157 | (s) | 160 |
| July | (h) | 3 | (s) | 38 | (s) | 21 | (s) | 96 | 5 | 162 | (s) | 165 |
| August | (h) | 3 | (s) | 40 | (s) | 21 | (s) | 97 | 4 | 163 | (s) | 167 |
| September | (h) | 3 | (s) | 37 | (s) | 20 | (s) | 92 | 3 | 153 | (s) | 156 |
| October | (h) | 3 | (s) | 38 | (s) | 20 | (s) | 91 | 4 | 154 | (s) | 157 |
| November | (h) | 3 | (s) | 35 | (s) | 20 | (s) | 89 | 4 | 149 | (s) | 152 |
| December | (h) | 4 | (s) | 35 | (s) | 21 | (s) | 93 | 4 | 153 | (s) | 158 |
| **Total** | **(h)** | **41** | **1** | **437** | **3** | **237** | **5** | **1,101** | **50** | **1,835** | **4** | **1,879** |
| **2017** January | (h) | 4 | (s) | 32 | (s) | 20 | (s) | 85 | 6 | 144 | (s) | 149 |
| February | (h) | 3 | (s) | 31 | (s) | 17 | (s) | 81 | 3 | 133 | (s) | 137 |
| March | (h) | 4 | (s) | 37 | (s) | 21 | (s) | 94 | 5 | 157 | (s) | 161 |
| April | (h) | 3 | (s) | 36 | (s) | 19 | (s) | 90 | 4 | 149 | (s) | 153 |
| May | (h) | 3 | (s) | 39 | (s) | 21 | (s) | 96 | 5 | 161 | (s) | 164 |
| June | (h) | 3 | (s) | 38 | (s) | 21 | (s) | 95 | 5 | 160 | (s) | 163 |
| July | (h) | 3 | (s) | 39 | (s) | 22 | (s) | 96 | 3 | 161 | (s) | 164 |
| August | (h) | 3 | (s) | 40 | (s) | 22 | (s) | 98 | 4 | 165 | (s) | 169 |
| **8-Month Total** | **(h)** | **26** | **1** | **293** | **2** | **163** | **3** | **734** | **36** | **1,231** | **2** | **1,260** |
| **2016 8-Month Total** | **(h)** | **27** | **1** | **291** | **2** | **157** | **4** | **736** | **34** | **1,225** | **2** | **1,255** |
| **2015 8-Month Total** | **(h)** | **27** | **1** | **303** | **2** | **150** | **4** | **721** | **22** | **1,203** | **3** | **1,233** |

[a] Metric tons of carbon dioxide can be converted to metric tons of carbon equivalent by multiplying by 12/44.
[b] Natural gas, excluding supplemental gaseous fuels.
[c] Distillate fuel oil, excluding biodiesel.
[d] Hydrocarbon gas liquids.
[e] Finished motor gasoline, excluding fuel ethanol.
[f] Emissions from energy consumption (for electricity and a small amount of useful thermal output) in the electric power sector are allocated to the end-use sectors in proportion to each sector's share of total electricity retail sales. See Tables 7.6 and 12.6.
[g] Excludes emissions from biomass energy consumption. See Table 12.7.
[h] Beginning in 1978, the small amounts of coal consumed for transportation are reported as industrial sector consumption.

(s)=Less than 0.5 million metric tons.

Notes: • Data are estimates for carbon dioxide emissions from energy consumption, plus the relatively small amount of emissions from the non-combustion use of fossil fuels. See "Section 12 Methodology and Sources" at end of section. • See "Carbon Dioxide" in Glossary. • See Note 1, "Emissions of Carbon Dioxide and Other Greenhouse Gases," at end of section. • Data exclude emissions from biomass energy consumption. See Table 12.7 and Note 2, "Accounting for Carbon Dioxide Emissions From Biomass Energy Combustion," at end of section. • Totals may not equal sum of components due to independent rounding. • Geographic coverage is the 50 states and the District of Columbia.

Web Page: See http://www.eia.gov/totalenergy/data/monthly/#environment (Excel and CSV files) for all available annual and monthly data beginning in 1973.

Sources: See end of section.

## Table 12.6 Carbon Dioxide Emissions From Energy Consumption: Electric Power Sector

(Million Metric Tons of Carbon Dioxide[a])

| | Coal | Natural Gas[b] | Petroleum | | | | Geo-thermal | Non-Biomass Waste[d] | Total[e] |
|---|---|---|---|---|---|---|---|---|---|
| | | | Distillate Fuel Oil[c] | Petroleum Coke | Residual Fuel Oil | Total | | | |
| **1973 Total** | **812** | **199** | **20** | **2** | **254** | **276** | **NA** | **NA** | **1,286** |
| **1975 Total** | **824** | **172** | **17** | **(s)** | **231** | **248** | **NA** | **NA** | **1,244** |
| **1980 Total** | **1,137** | **200** | **12** | **1** | **194** | **207** | **NA** | **NA** | **1,544** |
| **1985 Total** | **1,367** | **166** | **6** | **1** | **79** | **86** | **NA** | **NA** | **1,619** |
| **1990 Total** | **1,548** | **176** | **7** | **3** | **92** | **102** | **(s)** | **6** | **1,831** |
| **1995 Total** | **1,661** | **228** | **8** | **8** | **45** | **61** | **(s)** | **10** | **1,960** |
| **1996 Total** | **1,752** | **205** | **8** | **8** | **50** | **66** | **(s)** | **10** | **2,033** |
| **1997 Total** | **1,797** | **219** | **8** | **10** | **56** | **75** | **(s)** | **10** | **2,101** |
| **1998 Total** | **1,828** | **248** | **10** | **13** | **82** | **105** | **(s)** | **10** | **2,192** |
| **1999 Total** | **1,836** | **260** | **10** | **11** | **76** | **97** | **(s)** | **10** | **2,204** |
| **2000 Total** | **1,927** | **281** | **13** | **10** | **69** | **91** | **(s)** | **10** | **2,310** |
| **2001 Total** | **1,870** | **290** | **12** | **11** | **79** | **102** | **(s)** | **11** | **2,273** |
| **2002 Total** | **1,890** | **306** | **9** | **18** | **52** | **79** | **(s)** | **13** | **2,288** |
| **2003 Total** | **1,931** | **278** | **12** | **18** | **69** | **98** | **(s)** | **11** | **2,319** |
| **2004 Total** | **1,943** | **297** | **8** | **22** | **69** | **99** | **(s)** | **11** | **2,350** |
| **2005 Total** | **1,984** | **319** | **8** | **24** | **69** | **101** | **(s)** | **11** | **2,416** |
| **2006 Total** | **1,954** | **338** | **5** | **21** | **28** | **55** | **(s)** | **12** | **2,358** |
| **2007 Total** | **1,987** | **372** | **6** | **17** | **31** | **54** | **(s)** | **11** | **2,425** |
| **2008 Total** | **1,959** | **362** | **5** | **15** | **19** | **39** | **(s)** | **12** | **2,373** |
| **2009 Total** | **1,741** | **373** | **5** | **13** | **14** | **33** | **(s)** | **11** | **2,158** |
| **2010 Total** | **1,828** | **399** | **6** | **14** | **12** | **32** | **(s)** | **11** | **2,270** |
| **2011 Total** | **1,723** | **409** | **5** | **14** | **7** | **26** | **(s)** | **11** | **2,170** |
| **2012 Total** | **1,511** | **493** | **4** | **9** | **6** | **19** | **(s)** | **11** | **2,034** |
| **2013 Total** | **1,571** | **444** | **4** | **13** | **6** | **23** | **(s)** | **11** | **2,050** |
| **2014 Total** | **1,569** | **444** | **6** | **12** | **7** | **26** | **(s)** | **11** | **2,050** |
| **2015** January | 130 | 39 | 1 | 1 | 1 | 3 | (s) | 1 | 173 |
| February | 123 | 36 | 2 | 1 | 2 | 5 | (s) | 1 | 164 |
| March | 107 | 39 | (s) | 1 | (s) | 2 | (s) | 1 | 148 |
| April | 89 | 36 | (s) | 1 | (s) | 1 | (s) | 1 | 127 |
| May | 104 | 40 | (s) | 1 | (s) | 2 | (s) | 1 | 147 |
| June | 126 | 49 | (s) | 1 | (s) | 2 | (s) | 1 | 177 |
| July | 140 | 57 | (s) | 1 | 1 | 2 | (s) | 1 | 200 |
| August | 135 | 56 | (s) | 1 | 1 | 2 | (s) | 1 | 194 |
| September | 118 | 49 | (s) | 1 | (s) | 2 | (s) | 1 | 170 |
| October | 98 | 43 | (s) | 1 | (s) | 2 | (s) | 1 | 144 |
| November | 89 | 40 | (s) | 1 | (s) | 2 | (s) | 1 | 132 |
| December | 92 | 42 | (s) | 1 | (s) | 1 | (s) | 1 | 136 |
| **Total** | **1,350** | **527** | **5** | **11** | **7** | **24** | **(s)** | **11** | **1,913** |
| **2016** January | 114 | 42 | (s) | 1 | 1 | 2 | (s) | 1 | 159 |
| February | 93 | 38 | (s) | 1 | 1 | 2 | (s) | 1 | 133 |
| March | 73 | 41 | (s) | 1 | (s) | 2 | (s) | 1 | 116 |
| April | 71 | 39 | (s) | 1 | (s) | 2 | (s) | 1 | 114 |
| May | 82 | 44 | (s) | 1 | (s) | 2 | (s) | 1 | 129 |
| June | 116 | 53 | (s) | 1 | (s) | 2 | (s) | 1 | 172 |
| July | 136 | 63 | (s) | 1 | 1 | 2 | (s) | 1 | 201 |
| August | 135 | 63 | (s) | 1 | 1 | 2 | (s) | 1 | 201 |
| September | 114 | 50 | (s) | 1 | (s) | 2 | (s) | 1 | 167 |
| October | 100 | 41 | (s) | 1 | (s) | 1 | (s) | 1 | 143 |
| November | 88 | 36 | (s) | 1 | (s) | 2 | (s) | 1 | 127 |
| December | 119 | 37 | (s) | 1 | (s) | 2 | (s) | 1 | 158 |
| **Total** | **1,241** | **546** | **4** | **12** | **5** | **21** | **(s)** | **11** | **1,821** |
| **2017** January | 116 | 35 | (s) | 1 | (s) | 2 | (s) | 1 | 154 |
| February | 88 | 30 | (s) | 1 | (s) | 1 | (s) | 1 | 121 |
| March | 90 | 37 | (s) | 1 | (s) | 1 | (s) | 1 | 129 |
| April | 81 | 34 | (s) | (s) | (s) | 1 | (s) | 1 | 117 |
| May | 94 | 38 | (s) | 1 | (s) | 2 | (s) | 1 | 134 |
| June | 108 | 46 | (s) | 1 | (s) | 2 | (s) | 1 | 157 |
| July | 128 | 58 | (s) | 1 | (s) | 2 | (s) | 1 | 189 |
| August | 121 | 55 | (s) | 1 | (s) | 2 | (s) | 1 | 179 |
| **8-Month Total** | **827** | **332** | **3** | **7** | **3** | **12** | **(s)** | **7** | **1,179** |
| **2016 8-Month Total** | **820** | **383** | **3** | **8** | **4** | **15** | **(s)** | **7** | **1,225** |
| **2015 8-Month Total** | **953** | **352** | **4** | **8** | **6** | **18** | **(s)** | **7** | **1,330** |

[a] Metric tons of carbon dioxide can be converted to metric tons of carbon equivalent by multiplying by 12/44.
[b] Natural gas, excluding supplemental gaseous fuels.
[c] Distillate fuel oil, excluding biodiesel.
[d] Municipal solid waste from non-biogenic sources, and tire-derived fuels. Through 1994, also includes blast furnace gas, and other manufactured and waste gases derived from fossil fuels.
[e] Excludes emissions from biomass energy consumption. See Table 12.7.

NA=Not available. (s)=Less than 0.5 million metric tons.

Notes: • Data are estimates for carbon dioxide emissions from energy consumption. See "Section 12 Methodology and Sources" at end of section. • See "Carbon Dioxide" in Glossary. • See Note 1, "Emissions of Carbon Dioxide and Other Greenhouse Gases," at end of section. • Data exclude emissions from biomass energy consumption. See Table 12.7 and Note 2, "Accounting for Carbon Dioxide Emissions From Biomass Energy Combustion," at end of section. • Totals may not equal sum of components due to independent rounding. • Geographic coverage is the 50 states and the District of Columbia.

Web Page: See http://www.eia.gov/totalenergy/data/monthly/#environment (Excel and CSV files) for all available annual and monthly data beginning in 1973.

Sources: See end of section.

# Table 12.7 Carbon Dioxide Emissions From Biomass Energy Consumption

(Million Metric Tons of Carbon Dioxide[a])

| | By Source | | | | | By Sector | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Wood[b] | Biomass Waste[c] | Fuel Ethanol[d] | Bio-diesel | Total | Resi-dential | Com-mercial[e] | Indus-trial[f] | Trans-portation | Electric Power[g] | Total |
| **1973 Total** | **143** | **(s)** | **NA** | **NA** | **143** | **33** | **1** | **109** | **NA** | **(s)** | **143** |
| **1975 Total** | **140** | **(s)** | **NA** | **NA** | **141** | **40** | **1** | **100** | **NA** | **(s)** | **141** |
| **1980 Total** | **232** | **(s)** | **NA** | **NA** | **232** | **80** | **2** | **150** | **NA** | **(s)** | **232** |
| **1985 Total** | **252** | **14** | **3** | **NA** | **270** | **95** | **2** | **168** | **3** | **1** | **270** |
| **1990 Total** | **208** | **24** | **4** | **NA** | **237** | **54** | **8** | **147** | **4** | **23** | **237** |
| **1995 Total** | **222** | **30** | **8** | **NA** | **260** | **49** | **9** | **166** | **8** | **28** | **260** |
| **1996 Total** | **229** | **32** | **6** | **NA** | **266** | **51** | **10** | **170** | **6** | **30** | **266** |
| **1997 Total** | **222** | **30** | **7** | **NA** | **259** | **40** | **10** | **172** | **7** | **30** | **259** |
| **1998 Total** | **205** | **30** | **8** | **NA** | **242** | **36** | **9** | **160** | **8** | **30** | **242** |
| **1999 Total** | **208** | **29** | **8** | **NA** | **245** | **37** | **9** | **161** | **8** | **30** | **245** |
| **2000 Total** | **212** | **27** | **9** | **NA** | **248** | **39** | **9** | **161** | **9** | **29** | **248** |
| **2001 Total** | **188** | **33** | **10** | **(s)** | **231** | **35** | **9** | **147** | **10** | **31** | **231** |
| **2002 Total** | **187** | **36** | **12** | **(s)** | **235** | **36** | **9** | **144** | **12** | **35** | **235** |
| **2003 Total** | **188** | **36** | **16** | **(s)** | **240** | **38** | **9** | **141** | **16** | **37** | **240** |
| **2004 Total** | **199** | **35** | **20** | **(s)** | **255** | **38** | **10** | **151** | **20** | **36** | **255** |
| **2005 Total** | **200** | **37** | **23** | **1** | **261** | **40** | **10** | **150** | **23** | **37** | **261** |
| **2006 Total** | **197** | **36** | **31** | **2** | **266** | **36** | **9** | **151** | **33** | **38** | **266** |
| **2007 Total** | **196** | **37** | **39** | **3** | **276** | **39** | **9** | **146** | **41** | **39** | **276** |
| **2008 Total** | **193** | **39** | **55** | **3** | **290** | **44** | **10** | **139** | **57** | **40** | **290** |
| **2009 Total** | **181** | **41** | **62** | **3** | **287** | **47** | **10** | **125** | **64** | **41** | **287** |
| **2010 Total** | **186** | **42** | **73** | **2** | **303** | **41** | **10** | **136** | **74** | **42** | **303** |
| **2011 Total** | **189** | **42** | **73** | **8** | **312** | **42** | **11** | **139** | **80** | **40** | **312** |
| **2012 Total** | **189** | **42** | **73** | **8** | **312** | **39** | **10** | **141** | **80** | **42** | **312** |
| **2013 Total** | **204** | **45** | **75** | **13** | **337** | **54** | **11** | **141** | **87** | **43** | **337** |
| **2014 Total** | **210** | **47** | **76** | **13** | **346** | **55** | **12** | **142** | **88** | **49** | **346** |
| **2015** January | 17 | 4 | 6 | (s) | 28 | 4 | 1 | 12 | 6 | 4 | 28 |
| February | 15 | 3 | 6 | 1 | 26 | 3 | 1 | 11 | 7 | 4 | 26 |
| March | 16 | 4 | 7 | 1 | 28 | 4 | 1 | 12 | 7 | 4 | 28 |
| April | 16 | 4 | 6 | 1 | 27 | 3 | 1 | 12 | 7 | 4 | 27 |
| May | 16 | 4 | 7 | 1 | 28 | 4 | 1 | 12 | 8 | 4 | 28 |
| June | 16 | 4 | 7 | 2 | 28 | 3 | 1 | 12 | 8 | 4 | 28 |
| July | 17 | 4 | 7 | 1 | 29 | 4 | 1 | 12 | 8 | 4 | 29 |
| August | 17 | 4 | 7 | 1 | 29 | 4 | 1 | 12 | 8 | 4 | 29 |
| September | 16 | 4 | 7 | 1 | 28 | 3 | 1 | 11 | 8 | 4 | 28 |
| October | 16 | 4 | 7 | 1 | 28 | 4 | 1 | 12 | 8 | 4 | 28 |
| November | 16 | 4 | 7 | 1 | 28 | 3 | 1 | 12 | 7 | 4 | 28 |
| December | 17 | 4 | 7 | 1 | 29 | 4 | 1 | 12 | 8 | 4 | 29 |
| **Total** | **194** | **47** | **79** | **14** | **334** | **41** | **14** | **141** | **90** | **48** | **334** |
| **2016** January | 16 | 4 | 6 | 1 | 27 | 3 | 1 | 12 | 7 | 4 | 27 |
| February | 15 | 4 | 6 | 1 | 26 | 3 | 1 | 11 | 7 | 4 | 26 |
| March | 15 | 4 | 7 | 1 | 27 | 3 | 1 | 11 | 8 | 4 | 27 |
| April | 14 | 4 | 6 | 1 | 26 | 3 | 1 | 11 | 7 | 4 | 26 |
| May | 15 | 4 | 7 | 2 | 28 | 3 | 1 | 11 | 8 | 4 | 28 |
| June | 15 | 4 | 7 | 2 | 28 | 3 | 1 | 12 | 8 | 4 | 28 |
| July | 16 | 4 | 7 | 2 | 29 | 3 | 1 | 12 | 9 | 4 | 29 |
| August | 16 | 4 | 7 | 2 | 29 | 3 | 1 | 12 | 9 | 4 | 29 |
| September | 15 | 4 | 7 | 2 | 27 | 3 | 1 | 11 | 8 | 4 | 27 |
| October | 15 | 4 | 7 | 2 | 27 | 3 | 1 | 11 | 8 | 4 | 27 |
| November | 15 | 4 | 7 | 2 | 28 | 3 | 1 | 12 | 8 | 4 | 28 |
| December | 16 | 4 | 7 | 2 | 29 | 3 | 1 | 12 | 9 | 4 | 29 |
| **Total** | **184** | **47** | **81** | **20** | **332** | **35** | **14** | **138** | **98** | **47** | **332** |
| **2017** January | 16 | 4 | 6 | 1 | 27 | 3 | 1 | 12 | 7 | 4 | 27 |
| February | 15 | 4 | 6 | 1 | 25 | 3 | 1 | 11 | 7 | 4 | 25 |
| March | 16 | 4 | 7 | 1 | 28 | 3 | 1 | 12 | 8 | 4 | 28 |
| April | 15 | 4 | 7 | 2 | 27 | 3 | 1 | 11 | 8 | 4 | 27 |
| May | 15 | 4 | 7 | 2 | 28 | 3 | 1 | 11 | 9 | 4 | 28 |
| June | 15 | 4 | 7 | 2 | 28 | 3 | 1 | 11 | 9 | 4 | 28 |
| July | 16 | 4 | 7 | 2 | 29 | 3 | 1 | 12 | 9 | 4 | 29 |
| August | 16 | 4 | 7 | 2 | 29 | 3 | 1 | 12 | 9 | 4 | 29 |
| **8-Month Total** | **124** | **31** | **54** | **12** | **221** | **24** | **9** | **92** | **64** | **31** | **221** |
| **2016 8-Month Total** | **123** | **32** | **54** | **12** | **220** | **23** | **9** | **92** | **64** | **32** | **220** |
| **2015 8-Month Total** | **130** | **31** | **52** | **9** | **222** | **27** | **9** | **94** | **59** | **32** | **222** |

[a] Metric tons of carbon dioxide can be converted to metric tons of carbon equivalent by multiplying by 12/44.

[b] Wood and wood-derived fuels.

[c] Municipal solid waste from biogenic sources, landfill gas, sludge waste, agricultural byproducts, and other biomass.

[d] Fuel ethanol minus denaturant.

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

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

[g] The electric power sector comprises 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.

NA=Not available. (s)=Less than 0.5 million metric tons.

Notes: • Carbon dioxide emissions from biomass energy consumption are excluded from the energy-related carbon dioxide emissions reported in Tables 12.1–12.6. See Note 2, "Accounting for Carbon Dioxide Emissions From Biomass Energy Combustion," at end of section. • Data are estimates. See "Section 12 Methodology and Sources" at end of section. • See "Carbon Dioxide" in Glossary. • See Note 1, "Emissions of Carbon Dioxide and Other Greenhouse Gases," at end of section. • Totals may not equal sum of components due to independent rounding. • Geographic coverage is the 50 states and the District of Columbia.

Web Page: See http://www.eia.gov/totalenergy/data/monthly/#environment (Excel and CSV files) for all available annual and monthly data beginning in 1973.

Sources: See end of section.

# Environment

**Note 1. Emissions of Carbon Dioxide and Other Greenhouse Gases.** Greenhouse gases are those gases—such as water vapor, carbon dioxide ($CO_2$), methane, nitrous oxide, hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride—that are transparent to solar (short-wave) radiation but opaque to long-wave (infrared) radiation, thus preventing long-wave radiant energy from leaving Earth's atmosphere. The net effect is a trapping of absorbed radiation and a tendency to warm the planet's surface.

Energy-related carbon dioxide emissions account for about 98% of U.S. $CO_2$ emissions. The vast majority of $CO_2$ emissions come from fossil fuel combustion, with smaller amounts from the non-combustion use of fossil fuels, as well as from electricity generation using geothermal energy and non-biomass waste. Other sources of $CO_2$ emissions include industrial processes, such as cement and limestone production. Data in the U.S. Energy Information Administration's (EIA) *Monthly Energy Review (MER)* Tables 12.1–12.6 are estimates for U.S. $CO_2$ emissions from energy consumption, plus the non-combustion use of fossil fuels (excluded are estimates for $CO_2$ emissions from biomass energy consumption, which appear in MER Table 12.7).

For annual U.S. estimates for emissions of $CO_2$ from all sources, as well as for emissions of other greenhouse gases, see EIA's *Emissions of Greenhouse Gases Report* at http://www.eia.gov/environment/emissions/ghg_report/.

**Note 2. Accounting for Carbon Dioxide Emissions From Biomass Energy Combustion.** Carbon dioxide ($CO_2$) emissions from the combustion of biomass to produce energy are excluded from the energy-related $CO_2$ emissions reported in MER Tables 12.1–12.6, but appear in MER Table 12.7. According to current international convention (see the Intergovernmental Panel on Climate Change's "2006 IPCC Guidelines for National Greenhouse Gas Inventories"), carbon released through biomass combustion is excluded from reported energy-related emissions. The release of carbon from biomass combustion is assumed to be balanced by the uptake of carbon when the feedstock is grown, resulting in zero net emissions over some period of time. (This is not to say that biomass energy is carbon-neutral. Energy inputs are required in order to grow, fertilize, and harvest the feedstock and to produce and process the biomass into fuels.)

However, analysts have debated whether increased use of biomass energy may result in a decline in terrestrial carbon stocks, leading to a net positive release of carbon rather than the zero net release assumed by its exclusion from reported energy-related emissions. For example, the clearing of forests for biofuel crops could result in an initial release of carbon that is not fully recaptured in subsequent use of the land for agriculture.

To reflect the potential net emissions, the international convention for greenhouse gas inventories is to report biomass emissions in the category "agriculture, forestry, and other land use," usually based on estimates of net changes in carbon stocks over time.

This indirect accounting of $CO_2$ emissions from biomass can potentially lead to confusion in accounting for and understanding the flow of $CO_2$ emissions within energy and non-energy systems. In recognition of this issue, reporting of $CO_2$ emissions from biomass combustion alongside other energy-related $CO_2$ emissions offers an alternative accounting treatment. It is important, however, to avoid misinterpreting emissions from fossil energy and biomass energy sources as necessarily additive. Instead, the combined total of direct $CO_2$ emissions from biomass and energy-related $CO_2$ emissions implicitly assumes that none of the carbon emitted was previously or subsequently reabsorbed in terrestrial sinks or that other emissions sources offset any such sequestration.

## Section 12 Methodology and Sources

To estimate carbon dioxide emissions from energy consumption for the *Monthly Energy Review (MER)*, Tables 12.1–12.7, the U.S. Energy Information Administration (EIA) uses the following methodology and sources:

**Step 1. Determine Fuel Consumption**

Coal—Coal sectoral (residential, commercial, coke plants, other industrial, transportation, electric power) consumption data in thousand short tons are from MER Table 6.2. Coal sectoral consumption data are converted to trillion Btu by multiplying by the coal heat content factors in MER Table A5.

Coal Coke Net Imports—Coal coke net imports data in trillion Btu are derived from coal coke imports and exports data in MER Tables 1.4a and 1.4b.

Natural Gas (excluding supplemental gaseous fuels)—Natural gas sectoral consumption data in trillion Btu are from MER Tables 2.2–2.6.

Petroleum—Total and sectoral consumption (product supplied) data in thousand barrels per day for asphalt and road oil, aviation gasoline, distillate fuel oil, hydrocarbon gas liquids (HGL), jet fuel, kerosene, lubricants, motor gasoline, petroleum coke, and residual fuel oil are from MER Tables 3.5 and 3.7a–3.7c. For the component products of HGL (ethane/ethylene, propane/propylene, normal butane/butylene, isobutane/isobutylene, and natural gasoline) and "other petroleum" (aviation gasoline blending components, crude oil, motor gasoline blending components, naphthas for petrochemical feedstock use, other oils for petrochemical feedstock use, special naphthas, still gas, unfinished oils, waxes, and miscellaneous petroleum products), consumption (product supplied) data in thousand barrels per day are from EIA's *Petroleum Supply Annual* (*PSA*), *Petroleum Supply Monthly* (*PSM*), and

earlier publications (see sources for MER Table 3.5). Petroleum consumption data by product are converted to trillion Btu by multiplying by the petroleum heat content factors in MER Tables A1 and A3.

Biomass—Sectoral consumption data in trillion Btu for wood, biomass waste, fuel ethanol (minus denaturant), and biodiesel are from MER Tables 10.2a–10.2c.

**Step 2. Remove Biofuels From Petroleum**

Distillate Fuel Oil—Beginning in 2009, the distillate fuel oil data (for total and transportation sector) in Step 1 include biodiesel, a non-fossil renewable fuel. To remove the biodiesel portion from distillate fuel oil, data in thousand barrels per day for refinery and blender net inputs of renewable diesel fuel (from the PSA/PSM) are converted to trillion Btu by multiplying by the biodiesel heat content factor in MER Table A1, and then subtracted from the distillate fuel oil consumption values.

Motor Gasoline—Beginning in 1993, the motor gasoline data (for total, commercial sector, industrial sector, and transportation sector) in Step 1 include fuel ethanol, a non-fossil renewable fuel. To remove the fuel ethanol portion from motor gasoline, data in trillion Btu for fuel ethanol consumption (from MER Tables 10.2a, 10.2b, and 10.3) are subtracted from the motor gasoline consumption values. (Note that about 2% of fuel ethanol is fossil-based petroleum denaturant, to make the fuel ethanol undrinkable. For 1993–2008, petroleum denaturant is double counted in the PSA product supplied statistics, in both the original product category—e.g., natural gasoline—and also in the finished motor gasoline category; for this time period for MER Section 12, petroleum denaturant is removed along with the fuel ethanol from motor gasoline, but left in the original product. Beginning in 2009, petroleum denaturant is counted only in the PSA/PSM product supplied statistics for motor gasoline; for this time period for MER Section 12, petroleum denaturant is left in motor gasoline.)

**Step 3. Remove Carbon Sequestered by Non-Combustion Use**

The following fuels have industrial non-combustion uses as chemical feedstocks and other products: coal, natural gas, asphalt and road oil, distillate fuel oil, hydrocarbon gas liquids (ethane/ethylene, propane/propylene, normal butane/butylene, isobutane/isobutylene, and natural gasoline), lubricants (which have industrial and transportation non-combustion uses), naphthas for petrochemical feedstock use, other oils for petrochemical feedstock use, petroleum coke, residual fuel oil, special naphthas, still gas, waxes, and miscellaneous petroleum products. In the non-combustion use of these fuels, some of the carbon is sequestered, and is thus subtracted from the fuel consumption values in Steps 1 and 2.

Estimates of annual non-combustion use and associated carbon sequestration are developed by EIA using the methodology detailed in "Documentation for *Emissions of Greenhouse Gases in the United States 2008*" at http://www.eia.gov/environment/archive/1605/ggrpt/documentation/pdf/0638(2008).pdf.

To obtain monthly estimates of non-combustion use and associated carbon sequestration, monthly patterns for industrial consumption and product supplied data series are used. For coal non-combustion use, the monthly pattern for coke plants coal consumption from MER Table 6.2 is used. For natural gas, the monthly pattern for other industrial non-CHP natural gas consumption from MER Table 4.3 is used. For distillate fuel oil, petroleum coke, and residual fuel oil, the monthly patterns for industrial consumption from MER Table 3.7b are used. For the other petroleum products, the monthly patterns for product supplied from the PSA and PSM are used. See Tables 1.11a and 1.11b for estimates of fossil fuel non-combustion uses.

**Step 4. Determine Carbon Dioxide Emissions From Energy Consumption**

Carbon dioxide ($CO_2$) emissions data in million metric tons are calculated by multiplying consumption values in trillion Btu from Steps 1 and 2 (minus the carbon sequestered in non-combustion use in Step 3) by the $CO_2$ emissions factors at http://www.eia.gov/environment/archive/1605/ggrpt/excel/CO2_coeffs_09_v2.xls.

Coal—$CO_2$ emissions for coal are calculated for each sector (residential, commercial, coke plants, other industrial, transportation, electric power). Total coal emissions are the sum of the sectoral coal emissions.

Coal Coke Net Imports—$CO_2$ emissions for coal coke net imports are calculated.

Natural Gas—$CO_2$ emissions for natural gas are calculated for each sector (residential, commercial, industrial, transportation, electric power). Total natural gas emissions are the sum of the sectoral natural gas emissions.

Petroleum—$CO_2$ emissions are calculated for each petroleum product. Total petroleum emissions are the sum of the product emissions. Total HGL emissions are the sum of the emissions for the component products (ethane/ethylene, propane/propylene, normal butane/butylene, isobutane/isobutylene, and natural gasoline); residential, commercial, and transportation sector HGL emissions are estimated by multiplying consumption values in trillion Btu from MER Tables 3.8a and 3.8c by the propane emissions factor; industrial sector HGL emissions are estimated as total HGL emissions minus emissions by the other sectors.

Geothermal and Non-Biomass Waste—Annual $CO_2$ emissions data for geothermal and non-biomass waste are EIA estimates based on Form EIA-923, "Power Plant Operations Report" (and predecessor forms). Monthly estimates are created by dividing the annual data by the number of

days in the year and then multiplying by the number of days in the month. (Annual estimates for the current year are set equal to those of the previous year.)

Biomass—$CO_2$ emissions for wood, biomass waste, fuel ethanol (minus denaturant), and biodiesel are calculated for each sector. Total emissions for each biomass fuel are the sum of the sectoral emissions. The following factors, in million metric tons $CO_2$ per quadrillion Btu, are used: wood —93.80; biomass waste—90.70; fuel ethanol—68.44; and biodiesel—73.84. For 1973–1988, the biomass portion of waste in MER Tables 10.2a–10.2c is estimated as 67%; for 1989–2000, the biomass portion of waste is estimated as 67% in 1989 to 58% in 2000, based on the biogenic shares of total municipal solid waste shown in EIA's "Methodology for Allocating Municipal Solid Waste to Biogenic and Non-Biogenic Energy," Table 1 at http://www.eia.gov/totalenergy/data/monthly/pdf/historical/msw.pdf.

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# Appendix A

## British Thermal Unit Conversion Factors

The thermal conversion factors presented in the following tables can be used to estimate the heat content in British thermal units (Btu) of a given amount of energy measured in physical units, such as barrels or cubic feet. For example, 10 barrels of asphalt has a heat content of approximately 66.36 million Btu (10 barrels x 6.636 million Btu per barrel = 66.36 million Btu).

The heat content rates (i.e., thermal conversion factors) provided in this section represent the gross (or higher or upper) energy content of the fuels. Gross heat content rates are applied in all Btu calculations for the *Monthly Energy Review* and are commonly used in energy calculations in the United States; net (or lower) heat content rates are typically used in European energy calculations. The difference between the two rates is the amount of energy that is consumed to vaporize water that is created during the combustion process. Generally, the difference ranges from 2% to 10%, depending on the specific fuel and its hydrogen content. Some fuels, such as unseasoned wood, can be more than 40% different in their gross and net heat content rates. See "Heat Content" and "British Thermal Unit (Btu)" in the Glossary for more information.

In general, the annual thermal conversion factors presented in Tables A2 through A6 are computed from final annual data or from the best available data and labeled "preliminary." Often, the current year's factors are labeled "estimate," and are set equal to the previous year's values until data become available to calculate the factors. The source of each factor is described in the section entitled "Thermal Conversion Factor Source Documentation," which follows Table A6 in this appendix.

### Table A1. Approximate Heat Content of Petroleum and Other Liquids

(Million Btu per Barrel, Except as Noted)

| Commodity | Heat Content | Commodity | Heat Content |
|---|---|---|---|
| Asphalt and Road Oil | 6.636 | Motor Gasoline Blending Components (MGBC) | |
| Aviation Gasoline (Finished) | 5.048 | Through 2006 | 5.253 |
| Aviation Gasoline Blending Components | 5.048 | Beginning in 2007 | 5.222 |
| Biodiesel | 5.359 | Oxygenates (excluding Fuel Ethanol) | 4.247 |
| Crude Oil–see Table A2 | | Petrochemical Feedstocks | |
| Distillate Fuel Oil–see Table A3 for averages | | Naphtha Less Than 401°F | 5.248 |
| 15 ppm sulfur and under | 5.770 | Other Oils Equal to or Greater Than 401°F | 5.825 |
| Greater than 15 ppm to 500 ppm sulfur | 5.817 | Petroleum Coke–see Table A3 for averages | |
| Greater than 500 ppm sulfur | 5.825 | Total, through 2003 | 6.024 |
| Fuel Ethanol–see Table A3 | | Catalyst, beginning in 2004 | [a] 6.287 |
| Hydrocarbon Gas Liquids | | Marketable, beginning in 2004 | 5.719 |
| Ethane/Ethylene | 3.082 | Plant Condensate | 5.418 |
| Propane/Propylene | 3.836 | Renewable Fuels Except Fuel Ethanol | [b] 5.359; [b] 5.494 |
| Normal Butane/Butylene | 4.326 | Residual Fuel Oil | 6.287 |
| Isobutane/Isobutylene | 3.974 | Special Naphthas | 5.248 |
| Natural Gasoline (Pentanes Plus) | 4.620 | Still Gas | [c] 6.287; [c] 6.000 |
| Hydrogen | [a] 6.287 | Unfinished Oils | 5.825 |
| Jet Fuel, Kerosene Type | 5.670 | Unfractionated Stream | 5.418 |
| Jet Fuel, Naphtha Type | 5.355 | Waxes | 5.537 |
| Kerosene | 5.670 | Miscellaneous Products | 5.796 |
| Lubricants | 6.065 | Other Hydrocarbons | 5.825 |
| Motor Gasoline (Finished)–see Tables A2/A3 | | | |

[a] Per residual fuel oil equivalent barrel (6.287 million Btu per barrel).

[b] The biodiesel heat content factor, 5.359 million Btu per barrel, is used for "Biomass-Based Diesel Fuel" and "Other Renewable Fuels"; however, a factor of 5.494 million Btu per barrel is used for "Other Renewable Diesel Fuel."

[c] Through 2015, the still gas heat content factor is 6.000 million Btu per fuel oil equivalent barrel; beginning in 2016, the factor is 6.287 million Btu per residual fuel oil equivalent barrel.

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

Web Page: http://www.eia.gov/totalenergy/data/monthly/#appendices.

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

## Table A2. Approximate Heat Content of Petroleum Production, Imports, and Exports

(Million Btu per Barrel)

| | Production | | Imports | | | | Exports | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Petroleum Products | | | | Petroleum Products | | |
| | Crude Oil[a] | Natural Gas Plant Liquids | Crude Oil[a] | Motor Gasoline[b] | Total Products | Total | Crude Oil[a] | Motor Gasoline[c] | Total Products | Total |
| 1950 | 5.800 | 4.522 | 5.943 | 5.253 | 6.263 | 6.080 | 5.800 | 5.253 | 5.751 | 5.766 |
| 1955 | 5.800 | 4.406 | 5.924 | 5.253 | 6.234 | 6.040 | 5.800 | 5.253 | 5.765 | 5.768 |
| 1960 | 5.800 | 4.295 | 5.911 | 5.253 | 6.161 | 6.021 | 5.800 | 5.253 | 5.835 | 5.834 |
| 1965 | 5.800 | 4.264 | 5.872 | 5.253 | 6.123 | 5.997 | 5.800 | 5.253 | 5.742 | 5.743 |
| 1970 | 5.800 | 4.146 | 5.822 | 5.253 | 6.088 | 5.985 | 5.800 | 5.253 | 5.811 | 5.810 |
| 1975 | 5.800 | 3.984 | 5.821 | 5.253 | 5.935 | 5.858 | 5.800 | 5.253 | 5.747 | 5.748 |
| 1980 | 5.800 | 3.914 | 5.812 | 5.253 | 5.748 | 5.796 | 5.800 | 5.253 | 5.841 | 5.820 |
| 1981 | 5.800 | 3.930 | 5.818 | 5.253 | 5.659 | 5.775 | 5.800 | 5.253 | 5.837 | 5.821 |
| 1982 | 5.800 | 3.872 | 5.826 | 5.253 | 5.664 | 5.775 | 5.800 | 5.253 | 5.829 | 5.820 |
| 1983 | 5.800 | 3.839 | 5.825 | 5.253 | 5.677 | 5.774 | 5.800 | 5.253 | 5.800 | 5.800 |
| 1984 | 5.800 | 3.812 | 5.823 | 5.253 | 5.613 | 5.745 | 5.800 | 5.253 | 5.867 | 5.850 |
| 1985 | 5.800 | 3.815 | 5.832 | 5.253 | 5.572 | 5.736 | 5.800 | 5.253 | 5.819 | 5.814 |
| 1986 | 5.800 | 3.797 | 5.903 | 5.253 | 5.624 | 5.808 | 5.800 | 5.253 | 5.839 | 5.832 |
| 1987 | 5.800 | 3.804 | 5.901 | 5.253 | 5.599 | 5.820 | 5.800 | 5.253 | 5.860 | 5.858 |
| 1988 | 5.800 | 3.800 | 5.900 | 5.253 | 5.618 | 5.820 | 5.800 | 5.253 | 5.842 | 5.840 |
| 1989 | 5.800 | 3.826 | 5.906 | 5.253 | 5.641 | 5.833 | 5.800 | 5.253 | 5.869 | 5.857 |
| 1990 | 5.800 | 3.822 | 5.934 | 5.253 | 5.614 | 5.849 | 5.800 | 5.253 | 5.838 | 5.833 |
| 1991 | 5.800 | 3.807 | 5.948 | 5.253 | 5.636 | 5.873 | 5.800 | 5.253 | 5.827 | 5.823 |
| 1992 | 5.800 | 3.804 | 5.953 | 5.253 | 5.623 | 5.877 | 5.800 | 5.253 | 5.774 | 5.777 |
| 1993 | 5.800 | 3.801 | 5.954 | 5.253 | 5.539 | 5.866 | 5.800 | 5.253 | 5.681 | 5.693 |
| 1994 | 5.800 | 3.794 | 5.950 | 5.253 | 5.416 | 5.835 | 5.800 | 5.253 | 5.693 | 5.704 |
| 1995 | 5.800 | 3.796 | 5.938 | 5.253 | 5.345 | 5.830 | 5.800 | 5.253 | 5.692 | 5.703 |
| 1996 | 5.800 | 3.777 | 5.947 | 5.253 | 5.373 | 5.828 | 5.800 | 5.253 | 5.663 | 5.678 |
| 1997 | 5.800 | 3.762 | 5.954 | 5.253 | 5.333 | 5.836 | 5.800 | 5.253 | 5.663 | 5.678 |
| 1998 | 5.800 | 3.769 | 5.953 | 5.253 | 5.314 | 5.833 | 5.800 | 5.253 | 5.505 | 5.539 |
| 1999 | 5.800 | 3.744 | 5.942 | 5.253 | 5.291 | 5.815 | 5.800 | 5.253 | 5.530 | 5.564 |
| 2000 | 5.800 | 3.733 | 5.959 | 5.253 | 5.309 | 5.823 | 5.800 | 5.253 | 5.529 | 5.542 |
| 2001 | 5.800 | 3.735 | 5.976 | 5.253 | 5.330 | 5.838 | 5.800 | 5.253 | 5.637 | 5.641 |
| 2002 | 5.800 | 3.729 | 5.971 | 5.253 | 5.362 | 5.845 | 5.800 | 5.253 | 5.517 | 5.519 |
| 2003 | 5.800 | 3.739 | 5.970 | 5.253 | 5.381 | 5.845 | 5.800 | 5.253 | 5.628 | 5.630 |
| 2004 | 5.800 | 3.724 | 5.981 | 5.253 | 5.429 | 5.853 | 5.800 | 5.253 | 5.532 | 5.539 |
| 2005 | 5.800 | 3.724 | 5.977 | 5.253 | 5.436 | 5.835 | 5.800 | 5.253 | 5.504 | 5.513 |
| 2006 | 5.800 | 3.712 | 5.980 | 5.253 | 5.431 | 5.836 | 5.800 | 5.219 | 5.415 | 5.423 |
| 2007 | 5.800 | 3.701 | 5.985 | 5.222 | 5.483 | 5.857 | 5.800 | 5.188 | 5.465 | 5.471 |
| 2008 | 5.800 | 3.706 | 5.990 | 5.222 | 5.459 | 5.861 | 5.800 | 5.215 | 5.587 | 5.591 |
| 2009 | 5.800 | 3.692 | 5.988 | 5.222 | 5.509 | 5.878 | 5.800 | 5.221 | 5.674 | 5.677 |
| 2010 | 5.800 | 3.674 | 5.989 | 5.222 | 5.545 | 5.892 | 5.800 | 5.214 | 5.601 | 5.604 |
| 2011 | 5.800 | 3.672 | 6.008 | 5.222 | 5.538 | 5.905 | 5.800 | 5.216 | 5.526 | 5.530 |
| 2012 | 5.800 | 3.683 | 6.165 | 5.222 | 5.501 | 6.035 | 5.800 | 5.217 | 5.520 | 5.526 |
| 2013 | 5.800 | 3.714 | 6.010 | 5.222 | 5.497 | 5.899 | 5.800 | 5.216 | 5.470 | 5.482 |
| 2014 | 5.800 | 3.723 | 6.035 | 5.222 | 5.518 | 5.929 | 5.800 | 5.218 | 5.369 | 5.406 |
| 2015 | 5.717 | 3.744 | 6.065 | 5.222 | 5.504 | 5.941 | 5.682 | 5.218 | 5.279 | 5.319 |
| 2016 | 5.722 | 3.714 | 6.053 | 5.222 | 5.491 | 5.929 | 5.724 | 5.218 | 5.184 | 5.245 |
| 2017 | E 5.722 | E 3.714 | E 6.053 | E 5.222 | E 5.491 | E 5.929 | E 5.724 | E 5.218 | E 5.184 | E 5.245 |

[a] Includes lease condensate.
[b] Excludes fuel ethanol, methyl tertiary butyl ether (MTBE), and other oxygenates blended into motor gasoline.
[c] Through 2005, excludes fuel ethanol, MTBE, and other oxygenates blended into motor gasoline. Beginning in 2006, includes MTBE, but excludes fuel ethanol and other oxygenates blended into motor gasoline.

E=Estimate.
Note: The 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.

# 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 | 5.953 | 5.461 | 6.254 | 5.649 | 5.825 | 4.011 | 5.253 | 6.024 | NA | *NA* |
| 1955 | 5.469 | 5.781 | 5.881 | 5.407 | 6.254 | 5.591 | 5.825 | 4.011 | 5.253 | 6.024 | NA | *NA* |
| 1960 | 5.417 | 5.781 | 5.818 | 5.387 | 6.267 | 5.555 | 5.825 | 4.011 | 5.253 | 6.024 | NA | *NA* |
| 1965 | 5.364 | 5.760 | 5.748 | 5.386 | 6.267 | 5.532 | 5.825 | 4.011 | 5.253 | 6.024 | NA | *NA* |
| 1970 | 5.260 | 5.708 | 5.595 | 5.393 | 6.252 | 5.503 | 5.825 | [g] 3.779 | 5.253 | 6.024 | NA | *NA* |
| 1975 | 5.253 | 5.649 | 5.513 | 5.392 | 6.250 | 5.494 | 5.825 | 3.739 | 5.253 | 6.024 | NA | *NA* |
| 1980 | 5.321 | 5.751 | 5.366 | 5.441 | 6.254 | 5.479 | 5.825 | 3.746 | 5.253 | 6.024 | 3.563 | *6.586* |
| 1981 | 5.283 | 5.693 | 5.299 | 5.433 | 6.258 | 5.448 | 5.825 | 3.715 | 5.253 | 6.024 | 3.563 | *6.562* |
| 1982 | 5.266 | 5.698 | 5.247 | 5.423 | 6.258 | 5.415 | 5.825 | 3.678 | 5.253 | 6.024 | 3.563 | *6.539* |
| 1983 | 5.140 | 5.591 | 5.254 | 5.416 | 6.255 | 5.406 | 5.825 | 3.633 | 5.253 | 6.024 | 3.563 | *6.515* |
| 1984 | 5.307 | 5.657 | 5.207 | 5.418 | 6.251 | 5.395 | 5.825 | 3.677 | 5.253 | 6.024 | 3.563 | *6.492* |
| 1985 | 5.263 | 5.598 | 5.199 | 5.423 | 6.247 | 5.387 | 5.825 | 3.676 | 5.253 | 6.024 | 3.563 | *6.469* |
| 1986 | 5.268 | 5.632 | 5.269 | 5.426 | 6.257 | 5.418 | 5.825 | 3.710 | 5.253 | 6.024 | 3.563 | *6.446* |
| 1987 | 5.239 | 5.594 | 5.233 | 5.429 | 6.249 | 5.403 | 5.825 | 3.734 | 5.253 | 6.024 | 3.563 | *6.423* |
| 1988 | 5.257 | 5.597 | 5.228 | 5.433 | 6.250 | 5.410 | 5.825 | 3.719 | 5.253 | 6.024 | 3.563 | *6.400* |
| 1989 | 5.194 | 5.549 | 5.219 | 5.438 | [d] 6.240 | 5.410 | 5.825 | 3.747 | 5.253 | 6.024 | 3.563 | *6.377* |
| 1990 | 5.145 | 5.553 | 5.253 | 5.442 | 6.244 | 5.411 | 5.825 | 3.712 | 5.253 | 6.024 | 3.563 | *6.355* |
| 1991 | 5.094 | 5.528 | 5.167 | 5.441 | 6.246 | 5.384 | 5.825 | 3.708 | 5.253 | 6.024 | 3.563 | *6.332* |
| 1992 | 5.124 | 5.513 | 5.168 | 5.443 | 6.238 | 5.378 | 5.825 | 3.722 | 5.253 | 6.024 | 3.563 | *6.309* |
| 1993 | 5.102 | [b] 5.504 | [b] 5.177 | [b] 5.422 | 6.230 | [b] 5.370 | 5.825 | 3.709 | [h] 5.232 | 6.024 | 3.563 | *6.287* |
| 1994 | 5.095 | 5.512 | 5.149 | 5.424 | 6.213 | 5.360 | [f] 5.820 | 3.730 | 5.231 | 6.024 | 3.563 | *6.264* |
| 1995 | 5.060 | 5.475 | 5.121 | 5.418 | 6.187 | 5.342 | 5.820 | 3.718 | 5.218 | 6.024 | 3.563 | *6.242* |
| 1996 | 4.995 | 5.430 | 5.114 | 5.420 | 6.194 | 5.336 | 5.820 | 3.708 | 5.218 | 6.024 | 3.563 | *6.220* |
| 1997 | 4.986 | 5.388 | 5.119 | 5.416 | 6.198 | 5.336 | 5.820 | 3.704 | 5.215 | 6.024 | 3.563 | *6.198* |
| 1998 | 4.972 | 5.362 | 5.136 | 5.414 | 6.210 | 5.349 | 5.819 | 3.697 | 5.215 | 6.024 | 3.563 | *6.176* |
| 1999 | 4.899 | 5.288 | 5.091 | 5.413 | 6.204 | 5.328 | 5.819 | 3.706 | 5.213 | 6.024 | 3.563 | *6.167* |
| 2000 | 4.905 | 5.313 | 5.056 | 5.423 | 6.188 | 5.326 | 5.819 | 3.692 | 5.214 | 6.024 | 3.563 | *6.159* |
| 2001 | 4.934 | 5.322 | 5.141 | 5.413 | 6.199 | 5.346 | 5.819 | 3.685 | 5.214 | 6.024 | 3.563 | *6.151* |
| 2002 | 4.883 | 5.290 | 5.092 | 5.411 | 6.172 | 5.324 | 5.819 | 3.671 | 5.211 | 6.024 | 3.563 | *6.143* |
| 2003 | 4.918 | 5.312 | 5.143 | 5.404 | 6.182 | 5.338 | 5.819 | 3.688 | 5.203 | 6.024 | 3.563 | *6.106* |
| 2004 | 4.949 | 5.323 | 5.144 | 5.410 | 6.134 | 5.341 | 5.818 | 3.677 | 5.201 | [i] 5.982 | 3.563 | *6.069* |
| 2005 | 4.913 | 5.359 | 5.179 | 5.412 | 6.126 | 5.353 | 5.818 | 3.674 | 5.198 | 5.982 | 3.563 | *6.032* |
| 2006 | 4.883 | 5.296 | 5.159 | 5.409 | 6.038 | 5.336 | 5.803 | 3.644 | 5.191 | 5.987 | 3.563 | *5.995* |
| 2007 | 4.830 | 5.270 | 5.122 | 5.384 | 6.064 | 5.309 | 5.784 | 3.641 | 5.155 | 5.996 | 3.563 | *5.959* |
| 2008 | 4.769 | 5.156 | 5.147 | 5.355 | 6.013 | 5.287 | 5.780 | 3.645 | 5.126 | 5.992 | 3.563 | *5.922* |
| 2009 | 4.661 | 5.216 | 5.014 | [c] 5.328 | 5.987 | [c] 5.236 | 5.781 | 3.595 | 5.101 | 6.017 | 3.563 | *5.901* |
| 2010 | 4.660 | 5.193 | 4.982 | 5.321 | 5.956 | 5.222 | 5.778 | 3.599 | 5.078 | 6.059 | 3.561 | *5.880* |
| 2011 | 4.659 | 5.179 | 4.955 | 5.317 | 5.900 | 5.211 | 5.776 | 3.543 | 5.068 | 6.077 | 3.560 | *5.859* |
| 2012 | 4.704 | 5.118 | 4.910 | 5.305 | 5.925 | 5.191 | 5.774 | 3.558 | 5.063 | 6.084 | 3.560 | *5.838* |
| 2013 | 4.636 | 5.044 | 4.869 | 5.301 | 5.892 | 5.174 | 5.774 | 3.579 | 5.062 | 6.089 | 3.559 | *5.817* |
| 2014 | 4.689 | 5.039 | 4.870 | 5.299 | 5.906 | 5.177 | 5.773 | 3.558 | 5.060 | 6.100 | 3.558 | *5.797* |
| 2015 | 4.745 | 5.064 | 4.831 | 5.303 | 5.915 | 5.172 | 5.773 | 3.576 | 5.060 | 6.085 | 3.558 | *5.776* |
| 2016 | [E] 4.732 | [E] 5.058 | [E] 4.867 | [E] 5.304 | [P] 5.885 | 5.181 | 5.773 | 3.543 | 5.059 | 6.104 | 3.558 | *5.755* |
| 2017 | [E] 4.732 | [E] 5.058 | [E] 4.867 | [E] 5.304 | [E] 5.885 | [E] 5.181 | [E] 5.773 | [E] 3.543 | [E] 5.059 | [E] 6.104 | [E] 3.558 | *5.735* |

[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 renewable diesel fuel (including biodiesel) 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 renewable diesel fuel (including biodiesel) blended into distillate fuel oil.

[g] 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 hydrocarbon gas liquids are calculated by using heat content values shown in Table A1.

[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.

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.

## Table A4. Approximate Heat Content of Natural Gas

(Btu per Cubic Foot)

| | Production | | Consumption[a] | | | | |
|---|---|---|---|---|---|---|---|
| | Marketed | Dry | End-Use Sectors[b] | Electric Power Sector[c] | Total | Imports | Exports |
| 1950 | 1,119 | 1,035 | 1,035 | 1,035 | 1,035 | – – | 1,035 |
| 1955 | 1,120 | 1,035 | 1,035 | 1,035 | 1,035 | 1,035 | 1,035 |
| 1960 | 1,107 | 1,035 | 1,035 | 1,035 | 1,035 | 1,035 | 1,035 |
| 1965 | 1,101 | 1,032 | 1,032 | 1,032 | 1,032 | 1,032 | 1,032 |
| 1970 | 1,102 | 1,031 | 1,031 | 1,031 | 1,031 | 1,031 | 1,031 |
| 1975 | 1,095 | 1,021 | 1,020 | 1,026 | 1,021 | 1,026 | 1,014 |
| 1980 | 1,098 | 1,026 | 1,024 | 1,035 | 1,026 | 1,022 | 1,013 |
| 1981 | 1,103 | 1,027 | 1,025 | 1,035 | 1,027 | 1,014 | 1,011 |
| 1982 | 1,107 | 1,028 | 1,026 | 1,036 | 1,028 | 1,018 | 1,011 |
| 1983 | 1,115 | 1,031 | 1,031 | 1,030 | 1,031 | 1,024 | 1,010 |
| 1984 | 1,109 | 1,031 | 1,030 | 1,035 | 1,031 | 1,005 | 1,010 |
| 1985 | 1,112 | 1,032 | 1,031 | 1,038 | 1,032 | 1,002 | 1,011 |
| 1986 | 1,110 | 1,030 | 1,029 | 1,034 | 1,030 | 997 | 1,008 |
| 1987 | 1,112 | 1,031 | 1,031 | 1,032 | 1,031 | 999 | 1,011 |
| 1988 | 1,109 | 1,029 | 1,029 | 1,028 | 1,029 | 1,002 | 1,018 |
| 1989 | 1,107 | 1,031 | 1,031 | [c] 1,028 | 1,031 | 1,004 | 1,019 |
| 1990 | 1,105 | 1,029 | 1,030 | 1,027 | 1,029 | 1,012 | 1,018 |
| 1991 | 1,108 | 1,030 | 1,031 | 1,025 | 1,030 | 1,014 | 1,022 |
| 1992 | 1,110 | 1,030 | 1,031 | 1,025 | 1,030 | 1,011 | 1,018 |
| 1993 | 1,106 | 1,027 | 1,028 | 1,025 | 1,027 | 1,020 | 1,016 |
| 1994 | 1,105 | 1,028 | 1,029 | 1,025 | 1,028 | 1,022 | 1,011 |
| 1995 | 1,106 | 1,026 | 1,027 | 1,021 | 1,026 | 1,021 | 1,011 |
| 1996 | 1,109 | 1,026 | 1,027 | 1,020 | 1,026 | 1,022 | 1,011 |
| 1997 | 1,107 | 1,026 | 1,027 | 1,020 | 1,026 | 1,023 | 1,011 |
| 1998 | 1,109 | 1,031 | 1,033 | 1,024 | 1,031 | 1,023 | 1,011 |
| 1999 | 1,107 | 1,027 | 1,028 | 1,022 | 1,027 | 1,022 | 1,006 |
| 2000 | 1,107 | 1,025 | 1,026 | 1,021 | 1,025 | 1,023 | 1,006 |
| 2001 | 1,105 | 1,028 | 1,029 | 1,026 | 1,028 | 1,023 | 1,010 |
| 2002 | 1,103 | 1,024 | 1,025 | 1,020 | 1,024 | 1,022 | 1,008 |
| 2003 | 1,103 | 1,028 | 1,029 | 1,025 | 1,028 | 1,025 | 1,009 |
| 2004 | 1,104 | 1,026 | 1,026 | 1,027 | 1,026 | 1,025 | 1,009 |
| 2005 | 1,104 | 1,028 | 1,028 | 1,028 | 1,028 | 1,025 | 1,009 |
| 2006 | 1,103 | 1,028 | 1,028 | 1,028 | 1,028 | 1,025 | 1,009 |
| 2007 | 1,102 | 1,027 | 1,027 | 1,027 | 1,027 | 1,025 | 1,009 |
| 2008 | 1,100 | 1,027 | 1,027 | 1,027 | 1,027 | 1,025 | 1,009 |
| 2009 | 1,101 | 1,025 | 1,025 | 1,025 | 1,025 | 1,025 | 1,009 |
| 2010 | 1,098 | 1,023 | 1,023 | 1,022 | 1,023 | 1,025 | 1,009 |
| 2011 | 1,142 | 1,022 | 1,022 | 1,021 | 1,022 | 1,025 | 1,009 |
| 2012 | 1,091 | 1,024 | 1,025 | 1,022 | 1,024 | 1,025 | 1,009 |
| 2013 | 1,101 | 1,027 | 1,028 | 1,025 | 1,027 | 1,025 | 1,009 |
| 2014 | 1,116 | 1,032 | 1,033 | 1,029 | 1,032 | 1,025 | 1,009 |
| 2015 | 1,124 | 1,037 | 1,038 | 1,035 | 1,037 | 1,025 | 1,009 |
| 2016 | 1,127 | 1,037 | 1,037 | [P] 1,034 | 1,037 | 1,025 | 1,009 |
| 2017 | [E] 1,127 | [E] 1,037 | [E] 1,037 | [E] 1,034 | [E] 1,037 | [E] 1,025 | [E] 1,009 |

[a] Consumption factors are for natural gas, plus a small amount of supplemental gaseous fuels.
[b] Residential, commercial, industrial, and transportation sectors.
[c] 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.

P=Preliminary. E=Estimate. – – =Not applicable.

Note: The 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.

## Table A5. Approximate Heat Content of Coal and Coal Coke

(Million Btu per Short Ton)

| | Coal | | | | | | | | | Coal Coke |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | Consumption | | | | | | | |
| | | | | Industrial Sector | | | | | | |
| | Production[a] | Waste Coal Supplied[b] | Residential and Commercial Sectors[c] | Coke Plants | Other[d] | Electric Power Sector[e,f] | Total | Imports | Exports | Imports and Exports |
| 1950 | 25.090 | NA | 24.461 | 26.798 | 24.820 | 23.937 | 24.989 | 25.020 | 26.788 | 24.800 |
| 1955 | 25.201 | NA | 24.373 | 26.794 | 24.821 | 24.056 | 24.982 | 25.000 | 26.907 | 24.800 |
| 1960 | 24.906 | NA | 24.226 | 26.791 | 24.609 | 23.927 | 24.713 | 25.003 | 26.939 | 24.800 |
| 1965 | 24.775 | NA | 24.028 | 26.787 | 24.385 | 23.780 | 24.537 | 25.000 | 26.973 | 24.800 |
| 1970 | 23.842 | NA | 23.203 | 26.784 | 22.983 | 22.573 | 23.440 | 25.000 | 26.982 | 24.800 |
| 1975 | 22.897 | NA | 22.261 | 26.782 | 22.436 | 21.642 | 22.506 | 25.000 | 26.562 | 24.800 |
| 1980 | 22.415 | NA | 22.543 | 26.790 | 22.690 | 21.295 | 21.947 | 25.000 | 26.384 | 24.800 |
| 1981 | 22.308 | NA | 22.474 | 26.794 | 22.585 | 21.085 | 21.713 | 25.000 | 26.160 | 24.800 |
| 1982 | 22.239 | NA | 22.695 | 26.797 | 22.712 | 21.194 | 21.674 | 25.000 | 26.223 | 24.800 |
| 1983 | 22.052 | NA | 22.775 | 26.798 | 22.691 | 21.133 | 21.576 | 25.000 | 26.291 | 24.800 |
| 1984 | 22.010 | NA | 22.844 | 26.799 | 22.543 | 21.101 | 21.573 | 25.000 | 26.402 | 24.800 |
| 1985 | 21.870 | NA | 22.646 | 26.798 | 22.020 | 20.959 | 21.366 | 25.000 | 26.307 | 24.800 |
| 1986 | 21.913 | NA | 22.947 | 26.798 | 22.198 | 21.084 | 21.462 | 25.000 | 26.292 | 24.800 |
| 1987 | 21.922 | NA | 23.404 | 26.799 | 22.381 | 21.136 | 21.517 | 25.000 | 26.291 | 24.800 |
| 1988 | 21.823 | NA | 23.571 | 26.799 | 22.360 | 20.900 | 21.328 | 25.000 | 26.299 | 24.800 |
| 1989 | 21.765 | [b] 10.391 | 23.650 | 26.800 | 22.347 | [e] 20.898 | 21.307 | 25.000 | 26.160 | 24.800 |
| 1990 | 21.822 | 9.303 | 23.137 | 26.799 | 22.457 | 20.779 | 21.197 | 25.000 | 26.202 | 24.800 |
| 1991 | 21.681 | 10.758 | 23.114 | 26.799 | 22.460 | 20.730 | 21.120 | 25.000 | 26.188 | 24.800 |
| 1992 | 21.682 | 10.396 | 23.105 | 26.799 | 22.250 | 20.709 | 21.068 | 25.000 | 26.161 | 24.800 |
| 1993 | 21.418 | 10.638 | 22.994 | 26.800 | 22.123 | 20.677 | 21.010 | 25.000 | 26.335 | 24.800 |
| 1994 | 21.394 | 11.097 | 23.112 | 26.800 | 22.068 | 20.589 | 20.929 | 25.000 | 26.329 | 24.800 |
| 1995 | 21.326 | 11.722 | 23.118 | 26.800 | 21.950 | 20.543 | 20.880 | 25.000 | 26.180 | 24.800 |
| 1996 | 21.322 | 12.147 | 23.011 | 26.800 | 22.105 | 20.547 | 20.870 | 25.000 | 26.174 | 24.800 |
| 1997 | 21.296 | 12.158 | 22.494 | 26.800 | 22.172 | 20.518 | 20.830 | 25.000 | 26.251 | 24.800 |
| 1998 | 21.418 | 12.639 | 21.620 | 27.426 | 23.164 | 20.516 | 20.881 | 25.000 | 26.800 | 24.800 |
| 1999 | 21.070 | 12.552 | 23.880 | 27.426 | 22.489 | 20.490 | 20.818 | 25.000 | 26.081 | 24.800 |
| 2000 | 21.072 | 12.360 | 25.020 | 27.426 | 22.433 | 20.511 | 20.828 | 25.000 | 26.117 | 24.800 |
| 2001 | [a] 20.772 | 12.169 | 24.909 | 27.426 | 22.622 | 20.337 | 20.671 | 25.000 | 25.998 | 24.800 |
| 2002 | 20.673 | 12.165 | 22.962 | 27.426 | 22.562 | 20.238 | 20.541 | 25.000 | 26.062 | 24.800 |
| 2003 | 20.499 | 12.360 | 22.242 | 27.425 | 22.468 | 20.082 | 20.387 | 25.000 | 25.972 | 24.800 |
| 2004 | 20.424 | 12.266 | 22.324 | 27.426 | 22.473 | 19.980 | 20.290 | 25.000 | 26.108 | 24.800 |
| 2005 | 20.348 | 12.093 | 22.342 | 26.279 | 22.178 | 19.988 | 20.246 | 25.000 | 25.494 | 24.800 |
| 2006 | 20.310 | 12.080 | 22.066 | 26.271 | 22.050 | 19.931 | 20.181 | 25.000 | 25.453 | 24.800 |
| 2007 | 20.340 | 12.090 | 22.069 | 26.329 | 22.371 | 19.909 | 20.168 | 25.000 | 25.466 | 24.800 |
| 2008 | 20.208 | 12.121 | [c] 23.035 | 26.281 | 22.304 | 19.713 | 19.979 | 25.000 | 25.399 | 24.800 |
| 2009 | 19.963 | 12.076 | 22.852 | 26.334 | 21.823 | 19.521 | 19.741 | 25.000 | 25.633 | 24.800 |
| 2010 | 20.173 | 11.960 | 22.611 | 26.295 | 21.846 | 19.623 | 19.870 | 25.000 | 25.713 | 24.800 |
| 2011 | 20.142 | 11.604 | 22.099 | 26.299 | 21.568 | 19.341 | 19.600 | 25.000 | 25.645 | 24.800 |
| 2012 | 20.215 | 11.539 | 21.300 | 28.636 | 21.449 | 19.211 | 19.544 | 23.128 | 24.551 | 24.800 |
| 2013 | 20.182 | 11.103 | 21.233 | 28.705 | 21.600 | 19.174 | 19.513 | 22.379 | 24.605 | 24.800 |
| 2014 | 20.146 | 11.474 | 21.307 | 28.458 | 21.525 | 19.290 | 19.611 | 22.187 | 25.032 | 24.800 |
| 2015 | 19.880 | 11.527 | 20.699 | 28.526 | 21.258 | 19.146 | 19.482 | 22.633 | 25.048 | 24.800 |
| 2016 | [E] 19.880 | [E] 11.527 | [E] 20.699 | [E] 28.526 | [E] 21.258 | [P] 19.187 | [E] 19.499 | [E] 22.633 | [E] 25.048 | [E] 24.800 |
| 2017 | [E] 19.880 | [E] 11.527 | [E] 20.699 | [E] 28.526 | [E] 21.258 | [E] 19.187 | [E] 19.499 | [E] 22.633 | [E] 25.048 | [E] 24.800 |

[a] Beginning in 2001, includes a small amount of refuse recovery (coal recaptured from a refuse mine, and cleaned to reduce the concentration of noncombustible materials).

[b] Waste coal (including fine coal, coal obtained from a refuse bank or slurry dam, anthracite culm, bituminous gob, and lignite waste) consumed by the electric power and industrial sectors. Beginning in 1989, waste coal supplied is counted as a supply-side item to balance the same amount of waste coal included in "Consumption."

[c] Through 2007, used as the thermal conversion factor for coal consumption by the residential and commercial sectors. Beginning in 2008, used as the thermal conversion factor for coal consumption by the commercial sector only.

[d] Includes transportation. Excludes coal synfuel plants.

[e] 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.

[f] Electric power sector factors are for anthracite, bituminous coal, subbituminous coal, lignite, waste coal, and, beginning in 1998, coal synfuel.

P=Preliminary. E=Estimate. NA=Not available.

Note: The 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.

## Table A6. Approximate Heat Rates for Electricity, and Heat Content of Electricity

(Btu per Kilowatthour)

| | Approximate Heat Rates[a] for Electricity Net Generation | | | | | | |
|---|---|---|---|---|---|---|---|
| | Fossil Fuels[b] | | | | | | |
| | Coal[c] | Petroleum[d] | Natural Gas[e] | Total Fossil Fuels[f,g] | Nuclear[h] | Noncombustible Renewable Energy[g,i] | Heat Content[j] of Electricity[k] |
| 1950 | NA | NA | NA | 14,030 | – – | 14,030 | 3,412 |
| 1955 | NA | NA | NA | 11,699 | – – | 11,699 | 3,412 |
| 1960 | NA | NA | NA | 10,760 | 11,629 | 10,760 | 3,412 |
| 1965 | NA | NA | NA | 10,453 | 11,804 | 10,453 | 3,412 |
| 1970 | NA | NA | NA | 10,494 | 10,977 | 10,494 | 3,412 |
| 1975 | NA | NA | NA | 10,406 | 11,013 | 10,406 | 3,412 |
| 1980 | NA | NA | NA | 10,388 | 10,908 | 10,388 | 3,412 |
| 1981 | NA | NA | NA | 10,453 | 11,030 | 10,453 | 3,412 |
| 1982 | NA | NA | NA | 10,454 | 11,073 | 10,454 | 3,412 |
| 1983 | NA | NA | NA | 10,520 | 10,905 | 10,520 | 3,412 |
| 1984 | NA | NA | NA | 10,440 | 10,843 | 10,440 | 3,412 |
| 1985 | NA | NA | NA | 10,447 | 10,622 | 10,447 | 3,412 |
| 1986 | NA | NA | NA | 10,446 | 10,579 | 10,446 | 3,412 |
| 1987 | NA | NA | NA | 10,419 | 10,442 | 10,419 | 3,412 |
| 1988 | NA | NA | NA | 10,324 | 10,602 | 10,324 | 3,412 |
| 1989 | NA | NA | NA | 10,432 | 10,583 | 10,432 | 3,412 |
| 1990 | NA | NA | NA | 10,402 | 10,582 | 10,402 | 3,412 |
| 1991 | NA | NA | NA | 10,436 | 10,484 | 10,436 | 3,412 |
| 1992 | NA | NA | NA | 10,342 | 10,471 | 10,342 | 3,412 |
| 1993 | NA | NA | NA | 10,309 | 10,504 | 10,309 | 3,412 |
| 1994 | NA | NA | NA | 10,316 | 10,452 | 10,316 | 3,412 |
| 1995 | NA | NA | NA | 10,312 | 10,507 | 10,312 | 3,412 |
| 1996 | NA | NA | NA | 10,340 | 10,503 | 10,340 | 3,412 |
| 1997 | NA | NA | NA | 10,213 | 10,494 | 10,213 | 3,412 |
| 1998 | NA | NA | NA | 10,197 | 10,491 | 10,197 | 3,412 |
| 1999 | NA | NA | NA | 10,226 | 10,450 | 10,226 | 3,412 |
| 2000 | NA | NA | NA | 10,201 | 10,429 | 10,201 | 3,412 |
| 2001 | 10,378 | 10,742 | 10,051 | [b] 10,333 | 10,443 | 10,333 | 3,412 |
| 2002 | 10,314 | 10,641 | 9,533 | 10,173 | 10,442 | 10,173 | 3,412 |
| 2003 | 10,297 | 10,610 | 9,207 | 10,125 | 10,422 | 10,125 | 3,412 |
| 2004 | 10,331 | 10,571 | 8,647 | 10,016 | 10,428 | 10,016 | 3,412 |
| 2005 | 10,373 | 10,631 | 8,551 | 9,999 | 10,436 | 9,999 | 3,412 |
| 2006 | 10,351 | 10,809 | 8,471 | 9,919 | 10,435 | 9,919 | 3,412 |
| 2007 | 10,375 | 10,794 | 8,403 | 9,884 | 10,489 | 9,884 | 3,412 |
| 2008 | 10,378 | 11,015 | 8,305 | 9,854 | 10,452 | 9,854 | 3,412 |
| 2009 | 10,414 | 10,923 | 8,160 | 9,760 | 10,459 | 9,760 | 3,412 |
| 2010 | 10,415 | 10,984 | 8,185 | 9,756 | 10,452 | 9,756 | 3,412 |
| 2011 | 10,444 | 10,829 | 8,152 | 9,716 | 10,464 | 9,716 | 3,412 |
| 2012 | 10,498 | 10,991 | 8,039 | 9,516 | 10,479 | 9,516 | 3,412 |
| 2013 | 10,459 | 10,713 | 7,948 | 9,541 | 10,449 | 9,541 | 3,412 |
| 2014 | 10,428 | 10,814 | 7,907 | 9,510 | 10,459 | 9,510 | 3,412 |
| 2015 | 10,495 | 10,687 | 7,878 | 9,319 | 10,458 | 9,319 | 3,412 |
| 2016 | [E] 10,495 | [E] 10,687 | [E] 7,878 | [E] 9,319 | [E] 10,458 | [E] 9,319 | 3,412 |
| 2017 | [E] 10,495 | [E] 10,687 | [E] 7,878 | [E] 9,319 | [E] 10,458 | [E] 9,319 | 3,412 |

[a] The values in columns 1–6 of this table are for net heat rates. See "Heat Rate" in Glossary.
[b] Through 2000, heat rates are for fossil-fueled steam-electric plants at electric utilities. Beginning in 2001, heat rates are for all fossil-fueled plants at electric utilities and electricity-only independent power producers.
[c] Includes anthracite, bituminous coal, subbituminous coal, lignite, and, beginning in 2002, waste coal and coal synfuel.
[d] Includes distillate fuel oil, residual fuel oil, jet fuel, kerosene, petroleum coke, and waste oil.
[e] Includes natural gas and supplemental gaseous fuels.
[f] Includes coal, petroleum, natural gas, and, beginning in 2001, other gases (blast furnace gas, propane gas, and other manufactured and waste gases derived from fossil fuels).
[g] The fossil-fuels heat rate is used as the thermal conversion factor for electricity net generation from noncombustible renewable energy (hydro, geothermal, solar thermal, photovoltaic, and wind) to approximate the quantity of fossil fuels replaced by these sources. Through 2000, also used as the thermal conversion factor for wood and waste electricity net generation at electric utilities; beginning in 2001, Btu data for wood and waste at electric utilities are available from surveys.
[h] Used as the thermal conversion factor for nuclear electricity net generation.
[i] Technology-based geothermal heat rates are no longer used in Btu calculations in this report. For technology-based geothermal heat rates for 1960–2010, see the *Annual Energy Review 2010,* Table A6.
[j] See "Heat Content" in Glossary.
[k] The value of 3,412 Btu per kilowatthour is a constant. It is used as the thermal conversion factor for electricity retail sales, and electricity imports and exports.
E=Estimate. NA=Not available. – – =Not applicable.
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 this table.

# Thermal Conversion Factor Source Documentation

## Approximate Heat Content of Petroleum and Natural Gas Liquids

**Asphalt**. The U.S. Energy Information Administration (EIA) adopted the thermal conversion factor of 6.636 million British thermal units (Btu) per barrel as estimated by the Bureau of Mines and first published in the *Petroleum Statement, Annual, 1956*.

**Aviation Gasoline Blending Components**. Assumed by EIA to be 5.048 million Btu per barrel or equal to the thermal conversion factor for **Aviation Gasoline (Finished)**.

**Aviation Gasoline (Finished)**. EIA adopted the thermal conversion factor of 5.048 million Btu per barrel as adopted by the Bureau of Mines from the Texas Eastern Transmission Corporation publication *Competition and Growth in American Energy Markets 1947–1985*, a 1968 release of historical and projected statistics.

**Butane-Propane Mixture**. EIA adopted the Bureau of Mines calculation of 4.130 million Btu per barrel based on an assumed mixture of 60% normal butane and 40% propane. See **Normal Butane/Butylene** and **Propane/Propylene**.

**Crude Oil Exports**. • 1949–2014: Assumed by EIA to be 5.800 million Btu per barrel or equal to the thermal conversion factor for crude oil produced in the United States. See **Crude Oil Production**. • 2015 forward: Calculated annually by EIA based on conversion of American Petroleum Institute (API) gravity ranges of crude oil exports as reported in trade data from the U.S. Census Bureau. Specific gravity (SG) = 141.5 / (131.5 + API gravity). The higher heating value (HHV) in million Btu per barrel = SG * (7.801796 - 1.3213 * $SG^2$).

**Crude Oil Imports**. Calculated annually by EIA as the average of the thermal conversion factors for each type of crude oil imported weighted by the quantities imported. Thermal conversion factors for each type were calculated on a foreign country basis, by determining the average American Petroleum Institute (API) gravity of crude oil imported from each foreign country from Form ERA-60 in 1977 and converting average API gravity to average Btu content by using National Bureau of Standards, Miscellaneous Publication No. 97, *Thermal Properties of Petroleum Products*, 1933.

**Crude Oil Production**. • 1949–2014: EIA adopted the thermal conversion factor of 5.800 million Btu per barrel as reported in a Bureau of Mines internal memorandum, "Bureau of Mines Standard Average Heating Values of Various Fuels, Adopted January 3, 1950." • 2015 forward: Calculated annually by EIA based on conversion of American Petroleum Institute (API) gravity ranges of crude oil production as reported on Form EIA-914, "Monthly Crude Oil, Lease Condensate, and Natural Gas Production Report." Specific gravity (SG) = 141.5 / (131.5 + API gravity). The higher heating value (HHV) in million Btu per barrel = SG * (7.801796 - 1.3213 * $SG^2$).

**Distillate Fuel Oil Consumption**. • 1949–1993: EIA adopted the Bureau of Mines thermal conversion factor of 5.825 million Btu per barrel as reported in a Bureau of Mines internal memorandum, "Bureau of Mines Standard Average Heating Values of Various Fuels, Adopted January 3, 1950." • 1994 forward: Calculated by EIA as the annual quantity-weighted average of the conversion factors for **Distillate Fuel Oil, 15 ppm Sulfur and Under** (5.770 million Btu per barrel), **Distillate Fuel Oil, Greater Than 15 ppm to 500 ppm Sulfur** (5.817 million Btu per barrel), and **Distillate Fuel Oil, Greater Than 500 ppm Sulfur** (5.825 million Btu per barrel).

**Distillate Fuel Oil, 15 ppm Sulfur and Under**. EIA adopted the thermal conversion factor of 5.770 million Btu per barrel (137,380 Btu per gallon) for U.S. conventional diesel from U.S. Department of Energy, Argonne National Laboratory, "The Greenhouse Gases, Regulated Emissions, and Energy Use in Transportation Model" (GREET), version GREET1_2013, October 2013.

**Distillate Fuel Oil, Greater Than 15 ppm to 500 ppm Sulfur**. EIA adopted the thermal conversion factor of 5.817 million Btu per barrel (138,490 Btu per gallon) for low-sulfur diesel from U.S. Department of Energy, Argonne Laboratory, "The Greenhouse Gases, Regulated Emissions, and Energy Use in Transportation Model" (GREET), version GREET1_2013, October 2013.

**Distillate Fuel Oil, Greater Than 500 ppm Sulfur**. EIA adopted the Bureau of Mines thermal conversion factor of 5.825 million Btu per barrel as reported in a Bureau of Mines internal memorandum, "Bureau of Mines Standard Average Heating Values of Various Fuels, Adopted January 3, 1950."

**Ethane/Ethylene**. EIA adopted the Bureau of Mines thermal conversion factor of 3.082 million Btu per barrel as published in the *California Oil World and Petroleum Industry*, First Issue, April 1942.

**Ethane-Propane Mixture**. EIA calculation of 3.308 million Btu per barrel based on an assumed mixture of 70% ethane and 30% propane. See **Ethane/Ethylene** and **Propane/Propylene**.

**Hydrocarbon Gas Liquids.** • 1949–1966: U.S. Department of the Interior, Bureau of Mines, Mineral Industry Surveys, "Crude Petroleum and Petroleum Products, 1956," Table 4 footnote, constant value of 4.011 million Btu per barrel. • 1967 forward: Calculated annually by EIA as the average of the thermal conversion factors for all hydrocarbon gas liquids consumed (see Table A1) weighted by the quantities consumed. The component products of

hydrocarbon gas liquids are ethane (including ethylene), propane (including propylene), normal butane (including butylene), isobutane (including isobutylene), butane-propane mixtures, ethane-propane mixtures, and natural gasoline (pentanes plus). For 1967–1980, quantities consumed are from EIA, Energy Data Reports, "Petroleum Statement, Annual," Table 1. For 1981 forward, quantities consumed are from EIA, *Petroleum Supply Annual*, Table 2.

**Hydrogen**. Assumed by EIA to be 6.287 million Btu per barrel or equal to the thermal conversion factor for **Residual Fuel Oil**.

**Isobutane/Isobutylene**. EIA adopted the Bureau of Mines thermal conversion factor of 3.974 million Btu per barrel as published in the *California Oil World and Petroleum Industry*, First Issue, April 1942.

**Jet Fuel, Kerosene-Type**. EIA adopted the Bureau of Mines thermal conversion factor of 5.670 million Btu per barrel for "Jet Fuel, Commercial" as published by the Texas Eastern Transmission Corporation in the report *Competition and Growth in American Energy Markets 1947–1985*, a 1968 release of historical and projected statistics.

**Jet Fuel, Naphtha-Type**. EIA adopted the Bureau of Mines thermal conversion factor of 5.355 million Btu per barrel for "Jet Fuel, Military" as published by the Texas Eastern Transmission Corporation in the report *Competition and Growth in American Energy Markets 1947–1985*, a 1968 release of historical and projected statistics.

**Kerosene**. EIA adopted the Bureau of Mines thermal conversion factor of 5.670 million Btu per barrel as reported in a Bureau of Mines internal memorandum, "Bureau of Mines Standard Average Heating Values of Various Fuels, Adopted January 3, 1950."

**Lubricants**. EIA adopted the thermal conversion factor of 6.065 million Btu per barrel as estimated by the Bureau of Mines and first published in the *Petroleum Statement, Annual, 1956*.

**Miscellaneous Products**. EIA adopted the thermal conversion factor of 5.796 million Btu per barrel as estimated by the Bureau of Mines and first published in the *Petroleum Statement, Annual, 1956*.

**Motor Gasoline Blending Components**. • 1949–2006: EIA adopted the Bureau of Mines thermal conversion factor of 5.253 million Btu per barrel for "Gasoline, Motor Fuel" as published by the Texas Eastern Transmission Corporation in Appendix V of *Competition and Growth in American Markets 1947-1985*, a 1968 release of historical and projected statistics. • 2007 forward: EIA adopted the thermal conversion factor of 5.222 million Btu per barrel (124,340 Btu per gallon) for gasoline blendstock from U.S. Department of Energy, Argonne National Laboratory, "The Greenhouse Gases, Regulated Emissions, and Energy Use in Transportation Model" (GREET), version GREET1_2013, October 2013.

**Motor Gasoline Exports**. • 1949–2005: EIA adopted the Bureau of Mines thermal conversion factor of 5.253 million Btu per barrel for "Gasoline, Motor Fuel" as published by the Texas Eastern Transmission Corporation in Appendix V of *Competition and Growth in American Energy Markets 1947–1985*, a 1968 release of historical and projected statistics. • 2006 forward: Calculated by EIA as the annual quantity-weighted average of the conversion factors for gasoline blendstock and the methyl tertiary butyl ether (MTBE) blended into motor gasoline exports. The factor for gasoline blendstock is 5.253 million Btu per barrel in 2006 and 5.222 million Btu per barrel beginning in 2007 (see **Motor Gasoline Blending Components**). For MTBE, EIA adopted the thermal conversion factor of 4.247 million Btu per barrel (101,130 Btu per gallon) from U.S. Department of Energy, Argonne National Laboratory, "The Greenhouse Gases, Regulated Emissions, and Energy Use in Transportation Model" (GREET), version GREET1_2013, October 2013.

**Motor Gasoline (Finished) Consumption.** • 1949–1992: EIA adopted the Bureau of Mines thermal conversion factor of 5.253 million Btu per barrel for "Gasoline, Motor Fuel" as published by the Texas Eastern Transmission Corporation in Appendix V of *Competition and Growth in American Markets 1947-1985*, a 1968 release of historical and projected statistics. • 1993–2006: Calculated by EIA as the annual quantity-weighted average of the conversion factors for gasoline blendstock and the oxygenates blended into motor gasoline. The factor for gasoline blendstock is 5.253 million Btu per barrel (the motor gasoline factor used for previous years). The factors for fuel ethanol are shown in Table A3 (see **Fuel Ethanol, Denatured**). The following factors for other oxygenates are from U.S. Department of Energy, Argonne National Laboratory, "The Greenhouse Gases, Regulated Emissions, and Energy Use in Transportation Model" (GREET), version GREET1_2013, October 2013—methyl tertiary butyl ether (MTBE): 4.247 million Btu per barrel (101,130 Btu per gallon); tertiary amyl methyl ether (TAME): 4.560 million Btu per barrel (108,570 Btu per gallon); ethyl tertiary butyl ether (ETBE): 4.390 million Btu per barrel (104,530 Btu per gallon); methanol: 2.738 million Btu per barrel (65,200 Btu per gallon); and butanol: 4.555 million Btu per barrel (108,458 Btu per gallon). • 2007 forward: Calculated by EIA as the annual quantity-weighted average of the conversion factors for gasoline blendstock and fuel ethanol blended into motor gasoline. The factor for gasoline blendstock is 5.222 million Btu per barrel (124,340 Btu per gallon), which is from the GREET model (see above). The factors for fuel ethanol are shown in Table A3 (see **Fuel Ethanol, Denatured**).

**Motor Gasoline Imports.** • 1949–2006: EIA adopted the Bureau of Mines thermal conversion factor of 5.253 million Btu per barrel for "Gasoline, Motor Fuel" as published by the Texas Eastern Transmission Corporation in Appendix V of *Competition and Growth in American Energy Markets 1947–1985*, a 1968 release of historical and projected

statistics. • 2007 forward: EIA adopted the thermal conversion factor of 5.222 million Btu per barrel (124,340 Btu per gallon) for gasoline blendstock from U.S. Department of Energy, Argonne National Laboratory, "The Greenhouse Gases, Regulated Emissions, and Energy Use in Transportation Model" (GREET), version GREET1_2013, October 2013.

**Natural Gas Plant Liquids Production**. Calculated annually by EIA as the average of the thermal conversion factors for each natural gas plant liquid produced weighted by the quantities produced.

**Natural Gasoline**. EIA adopted the thermal conversion factor of 4.620 million Btu per barrel as estimated by the Bureau of Mines and first published in the *Petroleum Statement, Annual 1956.*

**Normal Butane/Butylene.** EIA adopted the Bureau of Mines thermal conversion factor of 4.326 million Btu per barrel as published in the *California Oil World and Petroleum Industry*, First Issue, April 1942.

**Other Hydrocarbons**. Assumed by EIA to be 5.825 million Btu per barrel or equal to the thermal conversion factor for **Unfinished Oils**.

**Oxygenates (Excluding Fuel Ethanol)**. EIA adopted the thermal conversion factor of 4.247 million Btu per barrel (101,130 Btu per gallon) for methyl tertiary butyl ether (MTBE) from U.S. Department of Energy, Argonne National Laboratory, "The Greenhouse Gases, Regulated Emissions, and Energy Use in Transportation Model" (GREET), version GREET1_2013, October 2013.

**Petrochemical Feedstocks, Naphtha Less Than 401 Degrees Fahrenheit**. Assumed by EIA to be 5.248 million Btu per barrel or equal to the thermal conversion factor for **Special Naphthas**.

**Petrochemical Feedstocks, Other Oils Equal to or Greater Than 401 Degrees Fahrenheit**. Assumed by EIA to be 5.825 million Btu per barrel or equal to the thermal conversion factor for **Distillate Fuel Oil**.

**Petrochemical Feedstocks, Still Gas**. Assumed by EIA to be 6.000 million Btu per barrel or equal to the thermal conversion factor for **Still Gas**.

**Petroleum Coke, Catalyst**. Assumed by EIA to be 6.287 million Btu per barrel or equal to the thermal conversion factor for **Residual Fuel Oil**.

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**Petroleum Coke, Marketable**. EIA adopted the thermal conversion factor of 5.719 million Btu per barrel, calculated by dividing 28,595,925 Btu per short ton for petroleum coke (from U.S. Department of Energy, Argonne National Laboratory, "The Greenhouse Gases, Regulated Emissions, and Energy Use in Transportation Model" (GREET), version GREET1_October 2013) by 5.0 barrels per short ton (as given in the Bureau of Mines Form 6-1300-M and successor EIA forms).

**Petroleum Coke, Total**. • 1949–2003: EIA adopted the thermal conversion factor of 6.024 million Btu per barrel as reported in Btu per short ton in the Bureau of Mines internal memorandum, "Bureau of Mines Standard Average Heating Values of Various Fuels, Adopted January 3, 1950." The Bureau of Mines calculated this factor by dividing 30.120 million Btu per short ton, as given in the referenced Bureau of Mines internal memorandum, by 5.0 barrels per short ton, as given in the Bureau of Mines Form 6-1300-M and successor EIA forms. • 2004 forward: Calculated by EIA as the annual quantity-weighted average of the conversion factors for **Petroleum Coke, Catalyst** (6.287 million Btu per barrel) and **Petroleum Coke, Marketable** (5.719 million Btu per barrel).

**Petroleum Consumption, Commercial Sector**. Calculated annually by EIA as the average of the thermal conversion factors for all petroleum products consumed by the commercial sector weighted by the estimated quantities consumed by the commercial sector. The quantities of petroleum products consumed by the commercial sector are estimated in the State Energy Data System—see documentation at http://www.eia.gov/state/seds/sep_use/notes/use_petrol.pdf.

**Petroleum Consumption, Electric Power Sector**. Calculated annually by EIA as the average of the thermal conversion factors for distillate fuel oil, petroleum coke, and residual fuel oil consumed by the electric power sector weighted by the quantities consumed by the electric power sector. Data are from Form EIA-923, "Power Plant Operations Report," and predecessor forms.

**Petroleum Consumption, Industrial Sector**. Calculated annually by EIA as the average of the thermal conversion factors for all petroleum products consumed by the industrial sector weighted by the estimated quantities consumed by the industrial sector. The quantities of petroleum products consumed by the industrial sector are estimated in the State Energy Data System—see documentation at http://www.eia.gov/state/seds/sep_use/notes/use_petrol.pdf.

**Petroleum Consumption, Residential Sector**. Calculated annually by EIA as the average of the thermal conversion factors for all petroleum products consumed by the residential sector weighted by the estimated quantities consumed by the residential sector. The quantities of petroleum products consumed by the residential sector are estimated in the State Energy Data System—see documentation at http://www.eia.gov/state/seds/sep_use/notes/use_petrol.pdf.

**Petroleum Consumption, Total**. Calculated annually by EIA as the average of the thermal conversion factors for all petroleum products consumed weighted by the quantities consumed.

**Petroleum Consumption, Transportation Sector**. Calculated annually by EIA as the average of the thermal conversion factors for all petroleum products consumed by the transportation sector weighted by the estimated quantities consumed by the transportation sector. The quantities of petroleum products consumed by the transportation sector are estimated in the State Energy Data System—see documentation at http://www.eia.gov/state/seds/sep_use/notes/use_petrol.pdf.

**Petroleum Products Exports**. Calculated annually by EIA as the average of the thermal conversion factors for each petroleum product exported weighted by the quantities exported.

**Petroleum Products Imports**. Calculated annually by EIA as the average of the thermal conversion factors for each petroleum product imported weighted by the quantities imported.

**Plant Condensate**. Estimated to be 5.418 million Btu per barrel by EIA from data provided by McClanahan Consultants, Inc., Houston, Texas.

**Propane/Propylene**. EIA adopted the Bureau of Mines thermal conversion factor of 3.836 million Btu per barrel as published in the *California Oil World and Petroleum Industry*, First Issue, April 1942.

**Renewable Fuels Except Fuel Ethanol**. For "Biomass-Based Diesel Fuel" and "Other Renewable Fuels," EIA assumed the thermal conversion factor to be 5.359 million Btu per barrel or equal to the thermal conversion factor for **Biodiesel**. For "Other Renewable Diesel Fuel," EIA adopted the thermal conversion factor of 5.494 million Btu per barrel (130,817 Btu per gallon) for renewable diesel II (UOP-HDO) from U.S. Department of Energy, Argonne National Laboratory, "The Greenhouse Gases, Regulated Emissions, and Energy Use in Transportation Model" (GREET), version GREET1_2013, October 2013.

**Residual Fuel Oil**. EIA adopted the thermal conversion factor of 6.287 million Btu per barrel as reported in the Bureau of Mines internal memorandum, "Bureau of Mines Standard Average Heating Values of Various Fuels, Adopted January 3, 1950."

**Road Oil**. EIA adopted the Bureau of Mines thermal conversion factor of 6.636 million Btu per barrel, which was assumed to be equal to that of **Asphalt** and was first published by the Bureau of Mines in the *Petroleum Statement, Annual, 1970*.

**Special Naphthas**. EIA adopted the Bureau of Mines thermal conversion factor of 5.248 million Btu per barrel, which was assumed to be equal to that of the total gasoline (aviation and motor) factor and was first published in the *Petroleum Statement, Annual, 1970*.

**Still Gas**. • 1949–2015: EIA adopted the Bureau of Mines estimated thermal conversion factor of 6.000 million Btu per barrel, first published in the *Petroleum Statement, Annual, 1970*. • 2016 forward: Assumed by EIA to be 6.287 million Btu per barrel or equal to the thermal conversion factor for **Residual Fuel Oil.**

**Total Petroleum Exports**. Calculated annually by EIA as the average of the thermal conversion factors for crude oil and each petroleum product exported weighted by the quantities exported. See **Crude Oil Exports** and **Petroleum Products Exports**.

**Total Petroleum Imports**. Calculated annually by EIA as the average of the thermal conversion factors for each type of crude oil and petroleum product imported weighted by the quantities imported. See **Crude Oil Imports** and **Petroleum Products Imports**.

**Unfinished Oils**. EIA assumed the thermal conversion factor to be 5.825 million Btu per barrel or equal to that for **Distillate Fuel Oil** and first published it in EIA's *Annual Report to Congress, Volume 3, 1977*.

**Unfractionated Stream**. EIA assumed the thermal conversion factor to be 5.418 million Btu per barrel or equal to that for **Plant Condensate** and first published it in EIA's *Annual Report to Congress, Volume 2, 1981*.

**Waxes**. EIA adopted the thermal conversion factor of 5.537 million Btu per barrel as estimated by the Bureau of Mines and first published in the *Petroleum Statement, Annual, 1956*.

## Approximate Heat Content of Biofuels

**Biodiesel.** EIA estimated the thermal conversion factor for biodiesel to be 5.359 million Btu per barrel, or 17,253 Btu per pound.

**Biodiesel Feedstock.** EIA used soybean oil input to the production of biodiesel (million Btu soybean oil per barrel biodiesel) as the factor to estimate total biomass inputs to the production of biodiesel. EIA 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. EIA also assumed that soybean oil has a gross heat content of 16,909 Btu per pound, or 5.483 million Btu per barrel.

**Ethanol (Undenatured).** EIA adopted the thermal conversion factor of 3.539 million Btu per barrel published in "Oxygenate Flexibility for Future Fuels," a paper presented by William J. Piel of the ARCO Chemical Company at the National Conference on Reformulated Gasolines and Clean Air Act Implementation, Washington, DC, October 1991.

**Fuel Ethanol (Denatured).** • 1981–2008: EIA used the 2009 factor. • 2009 forward: Calculated by EIA as the annual quantity-weighted average of the thermal conversion factors for undenatured ethanol (3.539 million Btu per barrel), natural gasoline used as denaturant (4.620 million Btu per barrel), and conventional motor gasoline and motor gasoline blending components used as denaturant (5.253 million Btu per barrel). The quantity of ethanol consumed is from EIA's *Petroleum Supply Annual (PSA)* and *Petroleum Supply Monthly (PSM)*, Table 1, data for renewable fuels and oxygenate plant net production of fuel ethanol. The quantity of natural gasoline used as denaturant is from PSA/PSM, Table 1, data for renewable fuels and oxygenate plant net production of natural gasoline, multiplied by -1. The quantity of conventional motor gasoline and motor gasoline blending components used as denaturant is from PSA/PSM, Table 1, data for renewable fuels and oxygenate plant net production of conventional motor gasoline and motor gasoline blending components, multiplied by -1.

**Fuel Ethanol Feedstock.** EIA used corn input to the production of undenatured ethanol (million Btu corn per barrel undenatured ethanol) as the annual factor to estimate total biomass inputs to the production of undenatured ethanol. EIA used the following observed ethanol yields (in gallons undenatured ethanol per bushel of corn) from U.S. Department of Agriculture: 2.5 in 1980, 2.666 in 1998, 2.68 in 2002; and from University of Illinois at Chicago, Energy Resources Center, "2012 Corn Ethanol: Emerging Plant Energy and Environmental Technologies": 2.78 in 2008, and 2.82 in 2012. EIA estimated the ethanol yields in other years. EIA also assumed that corn has a gross heat content of 0.392 million Btu per bushel.

## Approximate Heat Content of Natural Gas

**Natural Gas Consumption, Electric Power Sector**. Calculated annually by EIA by dividing the heat content of natural gas consumed by the electric power sector by the quantity consumed. Data are from Form EIA-923, "Power Plant Operations Report," and predecessor forms.

**Natural Gas Consumption, End-Use Sectors**. Calculated annually by EIA by dividing the heat content of natural gas consumed by the end-use sectors (residential, commercial, industrial, and transportation) by the quantity consumed. Data are from Form EIA-176, "Annual Report of Natural and Supplemental Gas Supply and Disposition."

**Natural Gas Consumption, Total**. • 1949–1962: EIA adopted the thermal conversion factor of 1,035 Btu per cubic foot as estimated by the Bureau of Mines and first published in the *Petroleum Statement, Annual, 1956*. • 1963–1979: EIA adopted the thermal conversion factor calculated annually by the American Gas Association (AGA) and published in *Gas Facts*, an AGA annual publication. • 1980 forward: Calculated annually by EIA by dividing the total heat content of natural gas consumed by the total quantity consumed.

**Natural Gas Exports**. • 1949–1972: Assumed by EIA to be equal to the thermal conversion factor for dry natural gas consumed (see **Natural Gas Consumption, Total**). • 1973 forward: Calculated annually by EIA by dividing the heat content of natural gas exported by the quantity exported. For 1973–1995, data are from Form FPC-14, "Annual Report for Importers and Exporters of Natural Gas." Beginning in 1996, data are from U.S. Department of Energy, Office of Fossil Energy, *Natural Gas Imports and Exports*.

**Natural Gas Imports**. • 1949–1972: Assumed by EIA to be equal to the thermal conversion factor for dry natural gas consumed (see **Natural Gas Consumption, Total**). • 1973 forward: Calculated annually by EIA by dividing the heat content of natural gas imported by the quantity imported. For 1973–1995, data are from Form FPC-14, "Annual Report for Importers and Exporters of Natural Gas." Beginning in 1996, data are from U.S. Department of Energy, Office of Fossil Energy, *Natural Gas Imports and Exports*.

**Natural Gas Production, Dry**. Assumed by EIA to be equal to the thermal conversion factor for dry natural gas consumed. See **Natural Gas Consumption, Total**.

**Natural Gas Production, Marketed**. Calculated annually by EIA by dividing the heat content of dry natural gas produced (see **Natural Gas Production, Dry**) and natural gas liquids produced (see **Natural Gas Liquids Production**) by the total quantity of marketed natural gas produced.

## Approximate Heat Content of Coal and Coal Coke

**Coal Coke Imports and Exports**. EIA adopted the Bureau of Mines estimate of 24.800 million Btu per short ton.

**Coal Consumption, Electric Power Sector**. Calculated annually by EIA by dividing the heat content of coal consumed by the electric power sector by the quantity consumed. Data are from Form EIA-923, "Power Plant Operations Report," and predecessor forms.

**Coal Consumption, Industrial Sector, Coke Plants**.
• 1949–2011: Calculated annually by EIA based on the reported volatility (low, medium, or high) of coal received by coke plants. (For 2011, EIA used the following volatility factors, in million Btu per short ton: low volatile—26.680; medium volatile—27.506; and high volatile—25.652.) Data are from Form EIA-5, "Quarterly Coal Consumption and Quality Report—Coke Plants," and predecessor forms. • 2012 forward: Calculated annually by EIA by dividing the heat content of coal received by coke plants by the

quantity received. Through June 2014, data are from Form EIA-5, "Quarterly Coal Consumption and Quality Report—Coke Plants"; beginning in July 2014, data are from Form EIA-3, "Quarterly Survey of Industrial, Commercial, and Institutional Coal Users" (formerly called "Quarterly Survey of Non-Electric Sector Coal Data").

**Coal Consumption, Industrial Sector, Other**.
• 1949–2007: Calculated annually by EIA by dividing the heat content of coal received by manufacturing plants by the quantity received. Data are from Form EIA-3, "Quarterly Coal Consumption and Quality Report—Manufacturing Plants," and predecessor forms. • 2008 forward: Calculated annually by EIA by dividing the heat content of coal received by manufacturing, gasification, and liquefaction plants by the quantity received. Data are from Form EIA-3, "Quarterly Survey of Industrial, Commercial, and Institutional Coal Users" (formerly called "Quarterly Survey of Non-Electric Sector Coal Data").

**Coal Consumption, Residential and Commercial Sectors**. • 1949–1999: Calculated annually by EIA by dividing the heat content of coal received by the residential and commercial sectors by the quantity received. Data are from Form EIA-6, "Coal Distribution Report," and predecessor forms. • 2000–2007: Calculated annually by EIA by dividing the heat content of coal consumed by commercial combined-heat-and-power (CHP) plants by the quantity consumed. Data are from Form EIA-923, "Power Plant Operations Report," and predecessor forms. • 2008 forward: Calculated annually by EIA by dividing the heat content of coal received by commercial and institutional users by the quantity received. Data are from Form EIA-3, "Quarterly Survey of Industrial, Commercial, and Institutional Coal Users" (formerly called "Quarterly Survey of Non-Electric Sector Coal Data").

**Coal Consumption, Total**. Calculated annually by EIA by dividing the total heat content of coal consumed by all sectors by the total quantity consumed.

**Coal Exports**. • 1949–2011: Calculated annually by EIA by dividing the heat content of steam coal and metallurgical coal exported by the quantity exported. Data are from U.S. Department of Commerce, U.S. Census Bureau, "Monthly Report EM 545," and predecessor forms. • 2012 forward: Calculated annually by EIA by dividing the heat content of steam coal and metallurgical coal exported by the quantity exported. The average heat content of steam coal is derived from receipts data from Form EIA-3, "Quarterly Survey of Industrial, Commercial, and Institutional Coal Users" (formerly called "Quarterly Survey of Non-Electric Sector Coal Data"), and Form EIA-923, "Power Plant Operations Report." Through June 2014, the average heat content of metallurgical coal is derived from receipts data from Form EIA-5, "Quarterly Coal Consumption and Quality Report—Coke Plants"; beginning in July 2014, the average heat content of metallurgical coal is derived from receipts data from Form EIA-3, "Quarterly Survey of Industrial, Commercial, and Institutional Coal Users" (formerly called "Quarterly Survey of Non-Electric Sector Coal Data"). Data for export quantities are from U.S. Department of Commerce, U.S. Census Bureau, "Monthly Report EM 545."

**Coal Imports**. • 1949–1963: Calculated annually by EIA by dividing the heat content of coal imported by the quantity imported. Data are from U.S. Department of Commerce, U.S. Census Bureau, "Monthly Report IM 145," and predecessor forms. • 1964–2011: Assumed by EIA to be 25.000 million Btu per short ton. • 2012 forward: Calculated annually by EIA by dividing the heat content of coal imported (received) by the quantity imported (received). Data are from Form EIA-3, "Quarterly Survey of Industrial, Commercial, and Institutional Coal Users" (formerly called "Quarterly Survey of Non-Electric Sector Coal Data"); Form EIA-5, "Quarterly Coal Consumption and Quality Report—Coke Plants" (data through June 2014); and Form EIA-923, "Power Plant Operations Report."

**Coal Production**. • 1949–2011: Calculated annually by EIA by dividing the heat content of domestic coal (excluding waste coal) received by the quantity received. Data are from Form EIA-3, "Quarterly Coal Consumption and Quality Report—Manufacturing and Transformation/ Processing Coal Plants and Commercial and Institutional Users"; Form EIA-5, "Quarterly Coal Consumption and Quality Report—Coke Plants"; Form EIA-923, "Power Plant Operations Report"; and predecessor forms. • 2012 forward: Calculated annually by EIA by dividing the heat content of domestic coal (excluding waste coal) received and exported by the quantity received and exported. Data are from Form EIA-3, "Quarterly Survey of Industrial, Commercial, and Institutional Coal Users" (formerly called "Quarterly Survey of Non-Electric Sector Coal Data"); Form EIA-5, "Quarterly Coal Consumption and Quality Report—Coke Plants" (data through June 2014); Form EIA-923, "Power Plant Operations Report"; U.S. Department of Commerce, U.S. Census Bureau, "Monthly Report EM 545"; and predecessor forms.

**Waste Coal Supplied**. • 1989–2000: Calculated annually by EIA by dividing the heat content of waste coal consumed by the quantity consumed. Data are from Form EIA-860B, "Annual Electric Generator Report—Nonutility," and predecessor form. • 2001 forward: Calculated by EIA by dividing the heat content of waste coal received (or consumed) by the quantity received (or consumed). Receipts data are from Form EIA-3, "Quarterly Survey of Industrial, Commercial, and Institutional Coal Users" (formerly called "Quarterly Survey of Non-Electric Sector Coal Data"), and predecessor form. Consumption data are from Form EIA-923, "Power Plant Operations Report," and predecessor forms.

## Approximate Heat Rates for Electricity

**Electricity Net Generation, Coal.** • 2001 forward: Calculated annually by EIA by using fuel consumption and net generation data reported on Form EIA-923, "Power Plant

Operations Report," and predecessor forms. The computation includes data for all electric utilities and electricity-only independent power producers using anthracite, bituminous coal, subbituminous coal, lignite, and beginning in 2002, waste coal and coal synfuel.

**Electricity Net Generation, Natural Gas.** • 2001 forward: Calculated annually by EIA by using fuel consumption and net generation data reported on Form EIA-923, "Power Plant Operations Report," and predecessor forms. The computation includes data for all electric utilities and electricity-only independent power producers using natural gas and supplemental gaseous fuels.

**Electricity Net Generation, Noncombustible Renewable Energy.** There is no generally accepted practice for measuring the thermal conversion rates for power plants that generate electricity from hydro, geothermal, solar thermal, photovoltaic, and wind energy sources. Therefore, EIA calculates a rate factor that is equal to the annual average heat rate factor for fossil-fueled power plants in the United States (see "Electricity Net Generation, Total Fossil Fuels"). By using that factor it is possible to evaluate fossil fuel requirements for replacing those sources during periods of interruption, such as droughts. See Appendix E for more information.

**Electricity Net Generation, Nuclear.** • 1957–1984: Calculated annually by dividing the total heat content consumed in nuclear generating units by the total (net) electricity generated by nuclear generating units. The heat content and electricity generation were reported on Form FERC-1, "Annual Report of Major Electric Utilities, Licensees, and Others"; Form EIA-412, "Annual Report of Public Electric Utilities"; and predecessor forms. For 1982, the factors were published in EIA, *Historical Plant Cost and Annual Production Expenses for Selected Electric Plants 1982*, page 215. For 1983 and 1984, the factors were published in EIA, *Electric Plant Cost and Power Production Expenses 1991*, Table 13. • 1985 forward: Calculated annually by EIA by using the heat rate data reported on Form EIA-860, "Annual Electric Generator Report," and predecessor forms.

**Electricity Net Generation, Petroleum.** • 2001 forward: Calculated annually by EIA by using fuel consumption and net generation data reported on Form EIA-923, "Power Plant Operations Report," and predecessor forms. The computation includes data for all electric utilities and electricity-only independent power producers using distillate fuel oil, residual fuel oil, jet fuel, kerosene, petroleum coke, and waste oil.

**Electricity Net Generation, Total Fossil Fuels.**
• 1949–1955: The weighted annual average heat rate for fossil-fueled steam-electric power plants in the United States, as published by EIA in *Thermal-Electric Plant Construction Cost and Annual Production Expenses—1981* and *Steam-Electric Plant Construction Cost and Annual Production Expenses—1978*. • 1956–1988: The weighted annual average heat rate for fossil-fueled steam-electric power plants in the United States, as published in EIA, *Electric Plant Cost and Power Production Expenses 1991*, Table 9. • 1989–2000: Calculated annually by EIA by using heat rate data reported on Form EIA-860, "Annual Electric Generator Report," and predecessor forms; and net generation data reported on Form EIA-759, "Monthly Power Plant Report." The computation includes data for all electric utility steam-electric plants using fossil fuels.
• 2001 forward: Calculated annually by EIA by using fuel consumption and net generation data reported on Form EIA-923, "Power Plant Operations Report," and predecessor forms. The computation includes data for all electric utilities and electricity-only independent power producers using coal, petroleum, natural gas, and other gases (blast furnace gas, propane gas, and other manufactured and waste gases derived from fossil fuels).

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# Appendix B

## Metric Conversion Factors, Metric Prefixes, and Other Physical Conversion Factors

Data presented in the *Monthly Energy Review* and in other U.S. Energy Information Administration publications are expressed predominately in units that historically have been used in the United States, such as British thermal units, barrels, cubic feet, and short tons. The metric conversion factors presented in Table B1 can be used to calculate the metric-unit equivalents of values expressed in U.S. Customary units. For example, 500 short tons are the equivalent of 453.6 metric tons (500 short tons x 0.9071847 metric tons/short ton = 453.6 metric tons).

In the metric system of weights and measures, the names of multiples and subdivisions of any unit may be derived by combining the name of the unit with prefixes, such as deka, hecto, and kilo, meaning, respectively, 10, 100, 1,000, and deci, centi, and milli, meaning, respectively, one-tenth, one-hundredth, and one-thousandth. Common metric prefixes can be found in Table B2.

The conversion factors presented in Table B3 can be used to calculate equivalents in various physical units commonly used in energy analyses. For example, 10 barrels are the equivalent of 420 U.S. gallons (10 barrels x 42 gallons/barrel = 420 gallons).

## Table B1. Metric Conversion Factors

| Type of Unit | U.S. Unit | | Equivalent in Metric Units | |
|---|---|---|---|---|
| **Mass** | 1 short ton (2,000 lb) | = | 0.907 184 7 | metric tons (t) |
| | 1 long ton | = | 1.016 047 | metric tons (t) |
| | 1 pound (lb) | = | 0.453 592 37[a] | kilograms (kg) |
| | 1 pound uranium oxide (lb $U_3O_8$) | = | 0.384 647[b] | kilograms uranium (kgU) |
| | 1 ounce, avoirdupois (avdp oz) | = | 28.349 52 | grams (g) |
| **Volume** | 1 barrel of oil (bbl) | = | 0.158 987 3 | cubic meters ($m^3$) |
| | 1 cubic yard ($yd^3$) | = | 0.764 555 | cubic meters ($m^3$) |
| | 1 cubic foot ($ft^3$) | = | 0.028 316 85 | cubic meters ($m^3$) |
| | 1 U.S. gallon (gal) | = | 3.785 412 | liters (L) |
| | 1 ounce, fluid (fl oz) | = | 29.573 53 | milliliters (mL) |
| | 1 cubic inch ($in^3$) | = | 16.387 06 | milliliters (mL) |
| **Length** | 1 mile (mi) | = | 1.609 344[a] | kilometers (km) |
| | 1 yard (yd) | = | 0.914 4[a] | meters (m) |
| | 1 foot (ft) | = | 0.304 8[a] | meters (m) |
| | 1 inch (in) | = | 2.54[a] | centimeters (cm) |
| **Area** | 1 acre | = | 0.404 69 | hectares (ha) |
| | 1 square mile ($mi^2$) | = | 2.589 988 | square kilometers ($km^2$) |
| | 1 square yard ($yd^2$) | = | 0.836 127 4 | square meters ($m^2$) |
| | 1 square foot ($ft^2$) | = | 0.092 903 04[a] | square meters ($m^2$) |
| | 1 square inch ($in^2$) | = | 6.451 6[a] | square centimeters ($cm^2$) |
| **Energy** | 1 British thermal unit (Btu)[c] | = | 1,055.055 852 62[a] | joules (J) |
| | 1 calorie (cal) | = | 4.186 8[a] | joules (J) |
| | 1 kilowatthour (kWh) | = | 3.6[a] | megajoules (MJ) |
| **Temperature[d]** | 32 degrees Fahrenheit (°F) | = | 0[a] | degrees Celsius (°C) |
| | 212 degrees Fahrenheit (°F) | = | 100[a] | degrees Celsius (°C) |

[a]Exact conversion.
[b]Calculated by the U.S. Energy Information Administration.
[c]The Btu used in this table is the International Table Btu adopted by the Fifth International Conference on Properties of Steam, London, 1956.
[d]To convert degrees Fahrenheit (°F) to degrees Celsius (°C) exactly, subtract 32, then multiply by 5/9.

Notes: • Spaces have been inserted after every third digit to the right of the decimal for ease of reading. • Most metric units belong to the International System of Units (SI), and the liter, hectare, and metric ton are accepted for use with the SI units. For more information about the SI units, see http://physics.nist.gov/cuu/Units/index.html.

Web Page: http://www.eia.gov/totalenergy/data/monthly/#appendices.

Sources: • General Services Administration, Federal Standard 376B, *Preferred Metric Units for General Use by the Federal Government* (Washington, DC, January 1993), pp. 9–11, 13, and 16. • U.S. Department of Commerce, National Institute of Standards and Technology, Special Publications 330, 811, and 814. • American National Standards Institute/Institute of Electrical and Electronic Engineers, ANSI/IEEE Std 268-1992, pp. 28 and 29.

## Table B2. Metric Prefixes

| Unit Multiple | Prefix | Symbol | Unit Subdivision | Prefix | Symbol |
|---|---|---|---|---|---|
| $10^{1}$ | deka | da | $10^{-1}$ | deci | d |
| $10^{2}$ | hecto | h | $10^{-2}$ | centi | c |
| $10^{3}$ | kilo | k | $10^{-3}$ | milli | m |
| $10^{6}$ | mega | M | $10^{-6}$ | micro | µ |
| $10^{9}$ | giga | G | $10^{-9}$ | nano | n |
| $10^{12}$ | tera | T | $10^{-12}$ | pico | p |
| $10^{15}$ | peta | P | $10^{-15}$ | femto | f |
| $10^{18}$ | exa | E | $10^{-18}$ | atto | a |
| $10^{21}$ | zetta | Z | $10^{-21}$ | zepto | z |
| $10^{24}$ | yotta | Y | $10^{-24}$ | yocto | y |

Web Page: http ://www.eia.gov/totalenergy/data/monthly/#appendices.
Source: U.S. Department of Commerce, National Institute of Standards and Technology, *The International System of Units (SI)*, NIST Special Publication 330, 1991 Edition (Washington, DC, August 1991), p.10.

## Table B3. Other Physical Conversion Factors

| Energy Source | Original Unit | | Equivalent in Final Units | |
|---|---|---|---|---|
| **Petroleum** | 1 barrel (bbl) | = | 42[a] | U.S. gallons (gal) |
| **Coal** | 1 short ton | = | 2,000[a] | pounds (lb) |
| | 1 long ton | = | 2,240[a] | pounds (lb) |
| | 1 metric ton (t) | = | 1,000[a] | kilograms (kg) |
| **Wood** | 1 cord (cd) | = | 1.25[b] | shorts tons |
| | 1 cord (cd) | = | 128[a] | cubic feet ($ft^3$) |

[a]Exact conversion.
[b]Calculated by the U.S. Energy Information Administration.
Web Page: http://www.eia.gov/totalenergy/data/monthly/#appendices.
Source: U.S. Department of Commerce, National Institute of Standards and Technology, *Specifications, Tolerances, and Other Technical Requirements for Weighing and Measuring Devices*, NIST Handbook 44, 1994 Edition (Washington, DC, October 1993), pp. B-10, C-17, and C-21.

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# Appendix C
## Population, U.S. Gross Domestic Product, and U.S. Gross Output

### Table C1. Population, U.S. Gross Domestic Product, and U.S. Gross Output

| | Population | | | U.S. Gross Domestic Product | | | U.S. Gross Output[a] |
|---|---|---|---|---|---|---|---|
| | United States[b] | World | United States as Share of World | Billion Nominal Dollars[d] | Billion Chained (2009) Dollars[e] | Implicit Price Deflator[c] (2009 = 1.00000) | Billion Nominal Dollars[d] |
| | Million People | | Percent | | | | |
| 1950 | 152.3 | 2,557.6 | 6.0 | 300.2 | 2,184.0 | 0.13745 | NA |
| 1955 | 165.9 | 2,782.1 | 6.0 | 426.2 | 2,739.0 | .15559 | NA |
| 1960 | 180.7 | 3,043.0 | 5.9 | 543.3 | 3,108.7 | .17476 | NA |
| 1965 | 194.3 | 3,350.4 | 5.8 | 743.7 | 3,976.7 | .18702 | NA |
| 1970 | 205.1 | 3,712.7 | 5.5 | 1,075.9 | 4,722.0 | .22784 | NA |
| 1975 | 216.0 | 4,088.0 | 5.3 | 1,688.9 | 5,385.4 | .31361 | NA |
| 1980 | 227.2 | 4,444.5 | 5.1 | 2,862.5 | 6,450.4 | .44377 | NA |
| 1981 | 229.5 | 4,525.9 | 5.1 | 3,211.0 | 6,617.7 | .48520 | NA |
| 1982 | 231.7 | 4,606.3 | 5.0 | 3,345.0 | 6,491.3 | .51530 | NA |
| 1983 | 233.8 | 4,687.6 | 5.0 | 3,638.1 | 6,792.0 | .53565 | NA |
| 1984 | 235.8 | 4,766.7 | 4.9 | 4,040.7 | 7,285.0 | .55466 | NA |
| 1985 | 237.9 | 4,848.8 | 4.9 | 4,346.7 | 7,593.8 | .57240 | NA |
| 1986 | 240.1 | 4,933.1 | 4.9 | 4,590.2 | 7,860.5 | .58395 | NA |
| 1987 | 242.3 | 5,020.0 | 4.8 | 4,870.2 | 8,132.6 | .59885 | 8,639.9 |
| 1988 | 244.5 | 5,107.8 | 4.8 | 5,252.6 | 8,474.5 | .61982 | 9,359.5 |
| 1989 | 246.8 | 5,195.2 | 4.8 | 5,657.7 | 8,786.4 | .64392 | 9,969.6 |
| 1990 | 249.6 | 5,283.3 | 4.7 | 5,979.6 | 8,955.0 | .66773 | 10,511.1 |
| 1991 | 253.0 | 5,366.4 | 4.7 | 6,174.0 | 8,948.4 | .68996 | 10,676.5 |
| 1992 | 256.5 | 5,451.4 | 4.7 | 6,539.3 | 9,266.6 | .70569 | 11,242.4 |
| 1993 | 259.9 | 5,533.9 | 4.7 | 6,878.7 | 9,521.0 | .72248 | 11,857.6 |
| 1994 | 263.1 | 5,614.7 | 4.7 | 7,308.8 | 9,905.4 | .73785 | 12,647.2 |
| 1995 | 266.3 | 5,695.5 | 4.7 | 7,664.1 | 10,174.8 | .75324 | 13,451.6 |
| 1996 | 269.4 | 5,775.8 | 4.7 | 8,100.2 | 10,561.0 | .76699 | 14,259.9 |
| 1997 | 272.6 | 5,854.3 | 4.7 | 8,608.5 | 11,034.9 | .78012 | 15,355.4 |
| 1998 | 275.9 | 5,931.5 | 4.7 | 9,089.2 | 11,525.9 | .78859 | 16,171.3 |
| 1999 | 279.0 | 6,008.3 | 4.6 | 9,660.6 | 12,065.9 | .80065 | 17,244.8 |
| 2000 | 282.2 | 6,084.5 | 4.6 | 10,284.8 | 12,559.7 | .81887 | 18,564.6 |
| 2001 | 285.0 | 6,160.8 | 4.6 | 10,621.8 | 12,682.2 | .83754 | 18,863.1 |
| 2002 | 287.6 | 6,237.3 | 4.6 | 10,977.5 | 12,908.8 | .85039 | 19,175.0 |
| 2003 | 290.1 | 6,313.4 | 4.6 | 11,510.7 | 13,271.1 | .86735 | 20,135.1 |
| 2004 | 292.8 | 6,389.9 | 4.6 | 12,274.9 | 13,773.5 | .89120 | 21,697.3 |
| 2005 | 295.5 | 6,466.5 | 4.6 | 13,093.7 | 14,234.2 | .91988 | 23,514.9 |
| 2006 | 298.4 | 6,544.0 | 4.6 | 13,855.9 | 14,613.8 | .94814 | 24,888.0 |
| 2007 | 301.2 | 6,621.9 | 4.5 | 14,477.6 | 14,873.7 | .97337 | 26,151.3 |
| 2008 | 304.1 | 6,700.3 | 4.5 | 14,718.6 | 14,830.4 | .99246 | 26,825.7 |
| 2009 | 306.8 | 6,778.8 | 4.5 | 14,418.7 | 14,418.7 | 1.00000 | 24,657.2 |
| 2010 | 309.3 | 6,856.6 | 4.5 | 14,964.4 | 14,783.8 | 1.01221 | 26,093.5 |
| 2011 | 311.7 | 6,934.1 | 4.5 | 15,517.9 | 15,020.6 | 1.03311 | 27,536.0 |
| 2012 | 314.0 | 7,012.2 | 4.5 | 16,155.3 | 15,354.6 | 1.05214 | 28,663.2 |
| 2013 | 316.2 | 7,090.4 | 4.5 | 16,691.5 | 15,612.2 | 1.06913 | 29,601.2 |
| 2014 | 318.6 | 7,167.9 | 4.4 | 17,393.1 | 15,982.3 | 1.08828 | 30,895.4 |
| 2015 | 320.9 | 7,245.3 | 4.4 | 18,036.6 | 16,397.2 | 1.09998 | 31,397.0 |
| 2016 | 323.1 | 7,323.2 | 4.4 | 18,569.1 | 16,662.1 | 1.11445 | 32,188.6 |

[a] Gross output is the value of gross domestic product (GDP) plus the value of intermediate inputs used to produce GDP.

[b] Resident population of the 50 states and the District of Columbia estimated for July 1 of each year.

[c] The gross domestic product implicit price deflator is used to convert nominal dollars to chained (2009) dollars.

[d] See "Nominal Dollars" in Glossary.

[e] See "Chained Dollars" in Glossary.

NA=Not available.

Notes: • Data are estimates. • U.S. geographic coverage is the 50 states and the District of Columbia.

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

Sources: • **United States Population: 1949–1989—**U.S. Department of Commerce (DOC), U.S. Census Bureau, Current Population Reports Series P-25 (June 2000). **1990–1999—**DOC, U.S. Census Bureau, "Time Series of Intercensal State Population Estimates" (April 2002). **2000–2009—**DOC, U.S. Census Bureau, "Intercensal Estimates of the Resident Population for the United States, Regions, States, and Puerto Rico" (September 2011). **2010 forward—**DOC, U.S. Census Bureau, "Annual Estimates of the Resident Population for the United States, Regions, States, and Puerto Rico" (December 2016). • **World Population: 1950 forward—**DOC, U.S. Census Bureau, International Database (August 2016). • **United States as Share of World Population:** Calculated as U.S. population divided by world population. • **U.S. Gross Domestic Product: 1949 forward—**DOC, Bureau of Economic Analysis (BEA), National Income and Product Accounts (March 2017), Tables 1.1.5, 1.1.6, and 1.1.9. • **U.S. Gross Output: 1987 forward—**DOC, BEA, GDP by Industry data (April 2017).

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# Appendix D

## Estimated Primary Energy Consumption in the United States, Selected Years, 1635–1945

### Table D1. Estimated Primary Energy Consumption in the United States, Selected Years, 1635–1945 (Quadrillion Btu)

| | Fossil Fuels | | | | Renewable Energy | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | Conventional Hydroelectric Power | Biomass | | Electricity Net Imports[b] | Total |
| | Coal | Natural Gas | Petroleum | Total | | Wood [a] | Total | | |
| 1635 | NA | – – | – – | NA | – – | (s) | (s) | – – | (s) |
| 1645 | NA | – – | – – | NA | – – | 0.001 | 0.001 | – – | 0.001 |
| 1655 | NA | – – | – – | NA | – – | .002 | .002 | – – | .002 |
| 1665 | NA | – – | – – | NA | – – | .005 | .005 | – – | .005 |
| 1675 | NA | – – | – – | NA | – – | .007 | .007 | – – | .007 |
| 1685 | NA | – – | – – | NA | – – | .009 | .009 | – – | .009 |
| 1695 | NA | – – | – – | NA | – – | .014 | .014 | – – | .014 |
| 1705 | NA | – – | – – | NA | – – | .022 | .022 | – – | .022 |
| 1715 | NA | – – | – – | NA | – – | .037 | .037 | – – | .037 |
| 1725 | NA | – – | – – | NA | – – | .056 | .056 | – – | .056 |
| 1735 | NA | – – | – – | NA | – – | .080 | .080 | – – | .080 |
| 1745 | NA | – – | – – | NA | – – | .112 | .112 | – – | .112 |
| 1755 | NA | – – | – – | NA | – – | .155 | .155 | – – | .155 |
| 1765 | NA | – – | – – | NA | – – | .200 | .200 | – – | .200 |
| 1775 | NA | – – | – – | NA | – – | .249 | .249 | – – | .249 |
| 1785 | NA | – – | – – | NA | – – | .310 | .310 | – – | .310 |
| 1795 | NA | – – | – – | NA | – – | .402 | .402 | – – | .402 |
| 1805 | NA | – – | – – | NA | – – | .537 | .537 | – – | .537 |
| 1815 | NA | – – | – – | NA | – – | .714 | .714 | – – | .714 |
| 1825 | NA | – – | – – | NA | – – | .960 | .960 | – – | .960 |
| 1835 | NA | – – | – – | NA | – – | 1.305 | 1.305 | – – | 1.305 |
| 1845 | NA | – – | – – | NA | – – | 1.757 | 1.757 | – – | 1.757 |
| 1850 | 0.219 | – – | – – | 0.219 | – – | 2.138 | 2.138 | – – | 2.357 |
| 1855 | .421 | – – | – – | .421 | – – | 2.389 | 2.389 | – – | 2.810 |
| 1860 | .518 | – – | 0.003 | .521 | – – | 2.641 | 2.641 | – – | 3.162 |
| 1865 | .632 | – – | .010 | .642 | – – | 2.767 | 2.767 | – – | 3.409 |
| 1870 | 1.048 | – – | .011 | 1.059 | – – | 2.893 | 2.893 | – – | 3.952 |
| 1875 | 1.440 | – – | .011 | 1.451 | – – | 2.872 | 2.872 | – – | 4.323 |
| 1880 | 2.054 | – – | .096 | 2.150 | – – | 2.851 | 2.851 | – – | 5.001 |
| 1885 | 2.840 | 0.082 | .040 | 2.962 | – – | 2.683 | 2.683 | – – | 5.645 |
| 1890 | 4.062 | .257 | .156 | 4.475 | 0.022 | 2.515 | 2.537 | – – | 7.012 |
| 1895 | 4.950 | .147 | .168 | 5.265 | .090 | 2.306 | 2.396 | – – | 7.661 |
| 1900 | 6.841 | .252 | .229 | 7.322 | .250 | 2.015 | 2.265 | – – | 9.587 |
| 1905 | 10.001 | .372 | .610 | 10.983 | .386 | 1.843 | 2.229 | – – | 13.212 |
| 1910 | 12.714 | .540 | 1.007 | 14.261 | .539 | 1.765 | 2.304 | – – | 16.565 |
| 1915 | 13.294 | .673 | 1.418 | 15.385 | .659 | 1.688 | 2.347 | 0.002 | 17.734 |
| 1920 | 15.504 | .813 | 2.676 | 18.993 | .738 | 1.610 | 2.348 | .003 | 21.344 |
| 1925 | 14.706 | 1.191 | 4.280 | 20.177 | .668 | 1.533 | 2.201 | .004 | 22.382 |
| 1930 | 13.639 | 1.932 | 5.897 | 21.468 | .752 | 1.455 | 2.207 | .005 | 23.680 |
| 1935 | 10.634 | 1.919 | 5.675 | 18.228 | .806 | 1.397 | 2.203 | .005 | 20.436 |
| 1940 | 12.535 | 2.665 | 7.760 | 22.960 | .880 | 1.358 | 2.238 | .007 | 25.205 |
| 1945 | 15.972 | 3.871 | 10.110 | 29.953 | 1.442 | [a]1.261 | 2.703 | .009 | 32.665 |

[a] There is a discontinuity in the "Wood" time series between 1945 (in this table) and 1949 (in Table 10.1). Through 1945, data are for fuelwood only; beginning in 1949, data are for wood and wood-derived fuels.

[b] Electricity transmitted across U.S. borders. Net imports equal imports minus exports.

NA=Not available. – – =Not applicable. (s)=Less than 0.5 trillion Btu.

Notes: • For years not shown, data are not available. • See Tables 1.3 and 10.1 for continuation of these data series beginning in 1949. • See Note, "Geographic Coverage of Statistics for 1635–1945," at end of section.

Sources: • **Fossil Fuels:** *Energy in the American Economy, 1850–1975,* Table VII. • **Conventional Hydroelectric Power:** *Energy in the American Economy, 1850–1975,* Table II. • **Wood: 1635–1845—**U.S. Department of Agriculture, Circular No. 641, *Fuel Wood Used in the United States 1630–1930,* February 1942. This source estimates fuelwood consumption in cords per decade, which were converted to Btu using the conversion factor of 20 million Btu per cord. The annual average value for each decade was assigned to the fifth year of the decade on the assumption that annual use was likely to increase during any given decade and the average annual value was more likely to reflect mid-decade yearly consumption than use at either the beginning or end of the decade. Values thus begin in 1635 and are plotted at 10-year intervals. **1850–1945—***Energy in the American Economy, 1850–1975,* Table VII. • **Electricity Net Imports:** *Energy in the American Economy, 1850–1975,* Tables I and VI. Electricity net imports are assumed to equal hydroelectric consumption minus hydroelectric production (data are converted to Btu by multiplying by 3,412 Btu per kilowatthour).

**Note. Geographic Coverage of Statistics for 1635–1945**. Table D1 presents estimates of U.S. energy consumption by energy source for a period that begins a century and a half before the original 13 colonies formed a political union and continues through the decades during which the United States was still expanding territorially. The question thus arises, what exactly is meant by "U.S. consumption" of an energy source for those years when the United States did not formally exist or consisted of less territory than is now encompassed by the 50 states and the District of Columbia?

The documents used to assemble the estimates, and (as far as possible) the sources of those documents, were reviewed carefully for clues to geographic coverage. For most energy sources, the extent of coverage expanded more rapidly than the nation, defined as all the official states and the District of Columbia. Estimates or measurements of consumption of each energy source generally appear to follow settlement patterns. That is, they were made for areas of the continent that were settled enough to have economically significant consumption even though those areas were not to become states for years. The wood data series, for example, begins in 1635 and includes 12 of the original colonies (excepting Georgia), as well as Maine, Vermont, and the area that would become the District of Columbia. By the time the series reaches 1810, the rest of the continental states are all included, although the last of the 48 states to achieve statehood did not do so until 1912. Likewise, the coal data series begins in 1850 but includes consumption in areas, such as Utah and Washington (state), which were significant coal producing regions but had not yet attained statehood. (Note: No data were available on state-level historical coal consumption. The coal data shown in Table D1 through 1945 describe *apparent* consumption, i.e., production plus imports minus exports. The geographic coverage for coal was therefore based on a tally of coal-*producing* states listed in various historical issues of *Minerals Yearbook*. It is likely that coal was consumed in states where it was not mined in significant quantities.)

By energy source, the extent of coverage can be summarized as follows: • **Coal**—35 coal-producing states by 1885. • **Natural Gas**—All 48 contiguous states, the District of Columbia, and Alaska by 1885. • **Petroleum**—All 48 contiguous states, the District of Columbia, and Alaska by 1885. • **Conventional Hydroelectric Power**—Coverage for 1890 and 1895 is uncertain, but probably the 48 contiguous states and the District of Columbia. Coverage for 1900–1945 is the 48 contiguous states, and the District of Columbia. • **Wood**—All 48 contiguous states and the District of Columbia by 1810.

# Appendix E
## Alternative Approaches for Deriving Energy Contents of Noncombustible Renewables

EIA compiles data on most energy sources in physical units, such as barrels and cubic feet, in order to calculate total primary energy consumption. To sum data for different energy sources, EIA converts the data to the common unit of British thermal units (Btu), a measure that is based on the thermal conversion of energy resources to heat and power.

Noncombustible renewables are resources from which energy is extracted without burning or combusting fuel. They include hydroelectric, geothermal, solar, and wind energy. When noncombustible renewables are used to generate electricity, there is no fuel combustion and, therefore, no set Btu conversion factors for the energy sources.[1] However, there are several possible approaches for converting that electricity to Btu. Three of these approaches are described below.

### Fossil Fuel Equivalency Approach

In Sections 1, 2, and 10 of the *Monthly Energy Review*, EIA calculates total primary energy consumption for noncombustible renewable electricity in Btu by applying a fossil fuel equivalency factor. Under that approach, the primary energy consumption of noncombustible renewable electricity can be viewed as the sum of captured energy "transformed into electricity" and an "adjustment for fossil fuel equivalency."

The adjustment for fossil fuel equivalency is equal to the difference between total primary consumption of noncombustible renewables for electricity generation in Btu (calculated using the fossil fuels heat rate in Table A6) and the captured energy of that electricity (calculated using the constant conversion factor of 3,412 Btu per kWh). The fossil fuels heat rate is equal to the thermal efficiency across fossil fuel-fired generating stations based on net generation. The fossil fuel equivalency adjustment represents the energy that would have been consumed if electricity had been generated by fossil fuels. By using that factor, it is possible, for example, to evaluate fossil fuel requirements for replacing electricity generation during periods of interruptions, such as droughts.

### Captured Energy Approach

Captured energy (Tables E1a and E1b) reflects the primary energy captured for economic use and does not include losses. Thus, it is the net energy available for direct consumption after transformation of a noncombustible renewable into electricity. In other words, captured energy is the energy measured as the "output" of a generating unit, such as electricity from a wind turbine or solar plant. The captured energy approach is often used to show the economically significant energy transformations in the United States. There is no market for the resource-specific energy apart from its immediate, site-specific energy conversion, and there is no substantive opportunity cost to its continued exploitation.[2]

### Incident Energy Approach

Incident energy is the mechanical, radiation, or thermal energy that is measurable as the "input" of the device. EIA defines "incident energy" for noncombustible renewables as the gross energy that first strikes an energy conversion device:

- For hydroelectric, the energy contained in the water passing through the penstock (a closed conduit for carrying water to the turbines)
- For geothermal, the energy contained in the hot fluid at the surface of the wellbore
- For wind, the energy contained in the wind that passes through the rotor disc
- For solar, the energy contained in the sunlight that strikes the panel or collector mirror

The incident energy approach to converting noncombustible renewable electricity to Btu could, in theory, be used to account for "losses" that are due to the inability to convert 100% of incident energy to a useful form of energy. EIA does not publish total primary energy consumption estimates based on the incident energy approach because it would be difficult to obtain accurate estimates of input energy without creating undue burden on survey respondents. Few renewable electricity power plants track cumulative input energy due to its lack of economic significance or other purpose. In addition, estimated energy efficiencies of renewable conversion technologies vary significantly across technologies, site-specific configurations, and environmental factors.[3]

[1]Direct use of noncombustible renewables in the form of heat (e.g., solar thermal heating) is estimated separately and is measured in Btu.
[2]There is an initial opportunity cost when a facility is first built: water behind a dam might flood land that could have been used for other purposes, or a solar panel might shade an area that could have used the sunlight. But that is a "fixed" opportunity cost that does not change during the operation of the plant.
[3]Based on EIA research conducted in 2016, engineering estimates of conversion efficiencies for noncombustible renewables range from less than 20% for solar photovoltaics and geothermal to 90% for large-scale hydroelectricity plants. Those estimates are notional indications of the energy output as a percent of energy input at each technology based on typical equipment operating within the normal operating range for that technology.

## Table E1a. Noncombustible Renewable Primary Energy Consumption: Conventional Hydroelectric Power, Geothermal, and Wind (Trillion Btu)

| | Conventional Hydroelectric Power[a] | | | Geothermal[b] | | | | Wind[c] | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Transformed Into Electricity[d,e] | Adjustment for Fossil Fuel Equivalence[f] | Total Primary Energy[g] | Direct Consumption[h] | Transformed Into Electricity[d,i] | Adjustment for Fossil Fuel Equivalence[f] | Total Primary Energy[j] | Transformed Into Electricity[d,i] | Adjustment for Fossil Fuel Equivalence[f] | Total Primary Energy[g] |
| 1950 | 344 | 1,071 | 1,415 | NA | NA | NA | NA | NA | NA | NA |
| 1955 | 397 | 963 | 1,360 | NA | NA | NA | NA | NA | NA | NA |
| 1960 | 510 | 1,098 | 1,608 | NA | (s) | (s) | (s) | NA | NA | NA |
| 1965 | 672 | 1,387 | 2,059 | NA | 1 | 1 | 2 | NA | NA | NA |
| 1970 | 856 | 1,777 | 2,634 | NA | 2 | 4 | 6 | NA | NA | NA |
| 1975 | 1,034 | 2,120 | 3,155 | NA | 11 | 23 | 34 | NA | NA | NA |
| 1980 | 953 | 1,948 | 2,900 | NA | 17 | 35 | 53 | NA | NA | NA |
| 1981 | 900 | 1,858 | 2,758 | NA | 19 | 40 | 59 | NA | NA | NA |
| 1982 | 1,066 | 2,200 | 3,266 | NA | 17 | 34 | 51 | NA | NA | NA |
| 1983 | 1,144 | 2,383 | 3,527 | NA | 21 | 43 | 64 | (s) | (s) | (s) |
| 1984 | 1,107 | 2,279 | 3,386 | NA | 26 | 54 | 81 | (s) | (s) | (s) |
| 1985 | 970 | 2,000 | 2,970 | NA | 32 | 66 | 97 | (s) | (s) | (s) |
| 1986 | 1,003 | 2,068 | 3,071 | NA | 35 | 73 | 108 | (s) | (s) | (s) |
| 1987 | 863 | 1,772 | 2,635 | NA | 37 | 76 | 112 | (s) | (s) | (s) |
| 1988 | 771 | 1,563 | 2,334 | NA | 35 | 71 | 106 | (s) | (s) | (s) |
| 1989 | [e] 928 | 1,909 | 2,837 | 9 | [i] 50 | 102 | 162 | [i] 7 | 15 | 22 |
| 1990 | 999 | 2,047 | 3,046 | 10 | 53 | 108 | 171 | 10 | 19 | 29 |
| 1991 | 986 | 2,030 | 3,016 | 11 | 54 | 112 | 178 | 10 | 21 | 31 |
| 1992 | 864 | 1,754 | 2,617 | 12 | 55 | 112 | 179 | 10 | 20 | 30 |
| 1993 | 957 | 1,935 | 2,892 | 13 | 57 | 116 | 186 | 10 | 21 | 31 |
| 1994 | 888 | 1,796 | 2,683 | 13 | 53 | 107 | 173 | 12 | 24 | 36 |
| 1995 | 1,061 | 2,145 | 3,205 | 14 | 46 | 92 | 152 | 11 | 22 | 33 |
| 1996 | 1,185 | 2,405 | 3,590 | 15 | 49 | 99 | 163 | 11 | 22 | 33 |
| 1997 | 1,216 | 2,424 | 3,640 | 16 | 50 | 100 | 167 | 11 | 22 | 34 |
| 1998 | 1,103 | 2,194 | 3,297 | 18 | 50 | 100 | 168 | 10 | 21 | 31 |
| 1999 | 1,090 | 2,177 | 3,268 | 19 | 51 | 101 | 171 | 15 | 31 | 46 |
| 2000 | 940 | 1,871 | 2,811 | 21 | 48 | 96 | 164 | 19 | 38 | 57 |
| 2001 | 740 | 1,502 | 2,242 | 22 | 47 | 95 | 164 | 23 | 47 | 70 |
| 2002 | 902 | 1,787 | 2,689 | 24 | 49 | 98 | 171 | 35 | 70 | 105 |
| 2003 | 941 | 1,851 | 2,793 | 27 | 49 | 97 | 173 | 38 | 75 | 113 |
| 2004 | 916 | 1,773 | 2,688 | 30 | 51 | 98 | 178 | 48 | 93 | 142 |
| 2005 | 922 | 1,781 | 2,703 | 34 | 50 | 97 | 181 | 61 | 117 | 178 |
| 2006 | 987 | 1,882 | 2,869 | 37 | 50 | 95 | 181 | 91 | 173 | 264 |
| 2007 | 845 | 1,602 | 2,446 | 41 | 50 | 95 | 186 | 118 | 223 | 341 |
| 2008 | 869 | 1,642 | 2,511 | 46 | 51 | 96 | 192 | 189 | 357 | 546 |
| 2009 | 933 | 1,736 | 2,669 | 54 | 51 | 95 | 200 | 252 | 469 | 721 |
| 2010 | 888 | 1,651 | 2,539 | 60 | 52 | 97 | 208 | 323 | 600 | 923 |
| 2011 | 1,090 | 2,013 | 3,103 | 64 | 52 | 97 | 212 | 410 | 758 | 1,168 |
| 2012 | 943 | 1,686 | 2,629 | 64 | 53 | 95 | 212 | 480 | 860 | 1,340 |
| 2013 | 916 | 1,646 | 2,562 | 64 | 54 | 97 | 214 | 573 | 1,029 | 1,601 |
| 2014 | 885 | 1,582 | 2,467 | 64 | 54 | 97 | 214 | 620 | 1,108 | 1,728 |
| 2015 | 850 | 1,471 | 2,321 | 64 | 54 | 94 | 212 | 651 | 1,127 | 1,777 |
| 2016 | 907 | 1,570 | 2,477 | 64 | 59 | 103 | 226 | 774 | 1,340 | 2,114 |

[a] Conventional hydroelectricity net generation. Through 1989, also includes hydroelectric pumped storage.

[b] Geothermal heat pump and direct use energy; and geothermal electricity net generation.

[c] Wind electricity net generation.

[d] Electricity net generation in kilowatthours (kWh) multiplied by 3,412 Btu/kWh, the heat content of electricity (see Table A6).

[e] Through 1988, data are for electric utilities and industrial plants. Beginning in 1989, data are for electric utilities, independent power producers, commercial plants, and industrial plants.

[f] Equals the difference between the fossil-fuel equivalent value of electricity and the captured energy consumed as electricity. The fossil-fuel equivalent value of electricity equals electricity net generation in kilowatthours multiplied by the total fossil fuels heat rate factors (see Table A6). The captured energy consumed as electricity equals electricity net generation in kilowatthours multiplied by 3,412 Btu/kWh, the heat content of electricity (see Table A6).

[g] Electricity net generation in kilowatthours multiplied by the total fossil fuels heat rate factors (see Table A6).

[h] Geothermal heat pump and direct use energy.

[i] Through 1988, data are for electric utilities only. Beginning in 1989, data are for electric utilities, independent power producers, commercial plants, and industrial plants.

[j] Direct consumption of energy; and energy used to generate electricity, calculated as electricity net generation in kilowatthours multiplied by the total fossil fuels heat rate factors (see Table A6).

NA=Not available. (s)=Less than 0.5 trillion Btu.

Notes: • Geothermal direct consumption data are estimates. • Totals may not equal sum of components due to independent rounding. • Geographic coverage is the 50 states and the District of Columbia.

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

Sources: • **Conventional Hydroelectric Power** and **Wind:** Tables 7.2a, 10.1, and A6. • **Geothermal:** Tables 7.2a, 10.1, 10.2a, 10.2b, and A6.

# Table E1b. Noncombustible Renewable Primary Energy Consumption: Solar and Total

(Trillion Btu)

| | Solar[a] | | | | | | Total[b] | | |
|---|---|---|---|---|---|---|---|---|---|
| | Distributed[c] | | | Utility-Scale[d] | | | | | |
| | Direct Consumption[e] | Transformed Into Electricity[f] | Adjustment for Fossil Fuel Equivalence[g] | Transformed Into Electricity[f,h] | Adjustment for Fossil Fuel Equivalence[g] | Total Primary Energy[i] | Captured Energy[j] | Adjustment for Fossil Fuel Equivalence[g] | Total Primary Energy[i] |
| 1950 | NA | NA | NA | NA | NA | NA | 344 | 1,071 | 1,415 |
| 1955 | NA | NA | NA | NA | NA | NA | 397 | 963 | 1,360 |
| 1960 | NA | NA | NA | NA | NA | NA | 510 | 1,098 | 1,608 |
| 1965 | NA | NA | NA | NA | NA | NA | 673 | 1,388 | 2,061 |
| 1970 | NA | NA | NA | NA | NA | NA | 858 | 1,781 | 2,639 |
| 1975 | NA | NA | NA | NA | NA | NA | 1,045 | 2,143 | 3,188 |
| 1980 | NA | NA | NA | NA | NA | NA | 970 | 1,983 | 2,953 |
| 1981 | NA | NA | NA | NA | NA | NA | 920 | 1,898 | 2,817 |
| 1982 | NA | NA | NA | NA | NA | NA | 1,082 | 2,234 | 3,316 |
| 1983 | NA | NA | NA | NA | NA | NA | 1,165 | 2,426 | 3,591 |
| 1984 | NA | NA | NA | (s) | (s) | (s) | 1,133 | 2,334 | 3,467 |
| 1985 | NA | NA | NA | (s) | (s) | (s) | 1,002 | 2,066 | 3,068 |
| 1986 | NA | NA | NA | (s) | (s) | (s) | 1,038 | 2,141 | 3,179 |
| 1987 | NA | NA | NA | (s) | (s) | (s) | 900 | 1,847 | 2,747 |
| 1988 | NA | NA | NA | (s) | (s) | (s) | 807 | 1,634 | 2,441 |
| 1989 | 52 | (s) | (s) | [h] 1 | 2 | 54 | 1,047 | 2,029 | 3,075 |
| 1990 | 55 | (s) | (s) | 1 | 3 | 59 | 1,128 | 2,177 | 3,305 |
| 1991 | 56 | (s) | (s) | 2 | 3 | 62 | 1,120 | 2,166 | 3,286 |
| 1992 | 58 | (s) | (s) | 1 | 3 | 63 | 1,000 | 1,889 | 2,889 |
| 1993 | 60 | (s) | (s) | 2 | 3 | 65 | 1,099 | 2,075 | 3,173 |
| 1994 | 62 | (s) | (s) | 2 | 3 | 67 | 1,029 | 1,931 | 2,960 |
| 1995 | 63 | (s) | (s) | 2 | 3 | 68 | 1,196 | 2,263 | 3,458 |
| 1996 | 63 | (s) | (s) | 2 | 4 | 69 | 1,325 | 2,531 | 3,856 |
| 1997 | 62 | (s) | (s) | 2 | 3 | 68 | 1,358 | 2,551 | 3,909 |
| 1998 | 61 | (s) | 1 | 2 | 3 | 67 | 1,245 | 2,319 | 3,564 |
| 1999 | 60 | (s) | 1 | 2 | 3 | 66 | 1,237 | 2,313 | 3,550 |
| 2000 | 57 | (s) | 1 | 2 | 3 | 63 | 1,087 | 2,009 | 3,096 |
| 2001 | 55 | (s) | 1 | 2 | 4 | 62 | 890 | 1,648 | 2,538 |
| 2002 | 53 | 1 | 1 | 2 | 4 | 60 | 1,066 | 1,960 | 3,025 |
| 2003 | 51 | 1 | 1 | 2 | 4 | 58 | 1,109 | 2,028 | 3,138 |
| 2004 | 50 | 1 | 1 | 2 | 4 | 58 | 1,097 | 1,969 | 3,067 |
| 2005 | 49 | 1 | 2 | 2 | 4 | 58 | 1,119 | 2,001 | 3,120 |
| 2006 | 51 | 2 | 3 | 2 | 3 | 61 | 1,218 | 2,156 | 3,375 |
| 2007 | 53 | 2 | 4 | 2 | 4 | 65 | 1,110 | 1,928 | 3,038 |
| 2008 | 54 | 4 | 7 | 3 | 6 | 74 | 1,216 | 2,107 | 3,323 |
| 2009 | 55 | 5 | 9 | 3 | 6 | 78 | 1,353 | 2,315 | 3,668 |
| 2010 | 56 | 8 | 15 | 4 | 8 | 90 | 1,390 | 2,370 | 3,760 |
| 2011 | 58 | 13 | 23 | 6 | 11 | 111 | 1,692 | 2,902 | 4,594 |
| 2012 | 59 | 20 | 36 | 15 | 26 | 157 | 1,634 | 2,703 | 4,337 |
| 2013 | 61 | 28 | 50 | 31 | 55 | 225 | 1,726 | 2,877 | 4,603 |
| 2014 | 62 | 38 | 68 | 60 | 108 | 337 | 1,783 | 2,963 | 4,745 |
| 2015 | 63 | 48 | 84 | 85 | 147 | 426 | 1,814 | 2,922 | 4,737 |
| 2016 | 63 | 66 | 115 | 125 | 217 | 587 | 2,059 | 3,345 | 5,404 |

[a] Solar thermal direct use energy; and solar photovoltaic (PV) and solar thermal electricity net generation.

[b] Conventional hydroelectricity net generation; geothermal heat pump and direct use energy; geothermal electricity net generation; wind electricity net generation; solar thermal direct use energy; and solar photovoltaic (PV) and solar thermal electricity net generation.

[c] Distributed (small-scale) facilities (electric generators have a combined generator nameplate capacity of less than 1 megawatt).

[d] Utility-scale facilities (combined generator nameplate capacity of 1 megawatt or more).

[e] Solar thermal direct use energy.

[f] Electricity net generation in kilowatthours (kWh) multiplied by 3,412 Btu/kWh, the heat content of electricity (see Table A6).

[g] Equals the difference between the fossil-fuel equivalent value of electricity and the captured energy consumed as electricity. The fossil-fuel equivalent value of electricity equals electricity net generation in kilowatthours multiplied by the total fossil fuels heat rate factors (see Table A6). The captured energy consumed as electricity equals electricity net generation in kilowatthours multiplied by 3,412 Btu/kWh, the heat content of electricity (see Table A6).

[h] Through 1988, data are for electric utilities only. Beginning in 1989, data are for electric utilities, independent power producers, commercial plants, and industrial plants.

[i] Direct consumption of energy; and energy used to generate electricity, calculated as electricity net generation in kilowatthours multiplied by the total fossil fuels heat rate factors (see Table A6).

[j] Direct consumption of energy plus captured energy consumed as electricity, which is calculated as electricity net generation in kilowatthours (kWh) multiplied by 3,412 Btu/kWh, the heat content of electricity (see Table A6).

NA=Not available. (s)=Less than 0.5 trillion Btu.

Notes: • Beginning in 1989, data for distributed solar and total captured energy are estimates. For the current year, data for utility-scale solar are estimates. • Totals may not equal sum of components due to independent rounding. • Geographic coverage is the 50 states and the District of Columbia.

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

Sources: • **Solar:** Tables 10.5, 10.6, and A6. • **Total:** Tables 7.2a, 10.1, 10.2a, 10.2b, 10.5, 10.6, and A6.

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# Glossary

**Alcohol:** The family name of a group of organic chemical compounds composed of carbon, hydrogen, and oxygen. The series of molecules vary in chain length and are composed of a **hydrocarbon** plus a hydroxyl group; $CH(3)-(CH(2))_n-OH$ (e.g., **methanol**, **ethanol**, and tertiary butyl alcohol). See **Fuel Ethanol.**

**Alternative Fuel:** Alternative fuels, for transportation applications, include the following: **methanol**; denatured **ethanol**, and other **alcohols**; fuel mixtures containing 85 percent or more by volume of methanol, denatured ethanol, and other alcohols with **motor gasoline** or other fuels; **natural gas**; **liquefied petroleum gas** (**propane**); **hydrogen**; **coal**-derived liquid fuels; fuels (other than alcohol) derived from biological materials (**biofuels** such as soy **diesel fuel**); **electricity** (including electricity from **solar energy**); and "... any other fuel the Secretary determines, by rule, is substantially not **petroleum** and would yield substantial energy security benefits and substantial environmental benefits." The term "alternative fuel" does not include alcohol or other blended portions of primarily petroleum-based fuels used as **oxygenates** or extenders, i.e., **MTBE**, ETBE, other ethers, and the 10-percent ethanol portion of **gasohol**.

**Alternative-Fuel Vehicle (AFV):** A vehicle designed to operate on an **alternative fuel** (e.g., compressed **natural gas**, **methane** blend, or **electricity**). The vehicle could be either a dedicated vehicle designed to operate exclusively on alternative fuel or a nondedicated vehicle designed to operate on alternative fuel and/or a traditional fuel.

**Anthracite:** The highest rank of **coal**; used primarily for residential and commercial space heating. It is a hard, brittle, and black lustrous coal, often referred to as hard coal, containing a high percentage of fixed carbon and a low percentage of volatile matter. The moisture content of fresh-mined anthracite generally is less than 15 percent. The heat content of anthracite ranges from 22 to 28 million **Btu** per **short ton** on a moist, mineral-matter-free basis. The heat content of anthracite coal consumed in the United States averages 25 million Btu per short ton, on the as-received basis (i.e., containing both inherent moisture and mineral matter). *Note:* Since the 1980's, anthracite refuse or mine waste has been used for steam-electric power generation. This fuel typically has a heat content of 15 million Btu per ton or less.

**Anthropogenic:** Made or generated by a human or caused by human activity. The term is used in the context of global **climate change** to refer to gaseous emissions that are the result of human activities, as well as other potentially climate-altering activities, such as deforestation.

**Asphalt:** A dark brown-to-black cement-like material obtained by **petroleum** processing and containing bitumens as the predominant component; used primarily for road construction. It includes crude asphalt as well as the following finished products: cements, fluxes, the asphalt content of emulsions (exclusive of water), and petroleum distillates blended with asphalt to make cutback asphalts. *Note*: The conversion factor for asphalt is 5.5 barrels per short ton.

**ASTM:** The American Society for Testing and Materials.

**Aviation Gasoline Blending Components:** **Naphtha**s that will be used for blending or compounding into finished aviation gasoline (e.g., straight run gasoline, alkylate, reformate, benzene, toluene, and xylene). Excludes **oxygenates** (**alcohol**s, **ether**s), **butane**, and **natural gasoline**. Oxygenates are reported as **other hydrocarbons**, **hydrogen**, and oxygenates. See **Aviation Gasoline, Finished**.

**Aviation Gasoline, Finished:** A complex mixture of relatively volatile hydrocarbons with or without small quantities of additives, blended to form a fuel suitable for use in aviation reciprocating engines. Fuel specifications are provided in ASTM Specification D 910 and Military Specification MIL-G-5572. *Note:* Data on blending components are not counted in data on finished aviation gasoline.

**Barrel (Petroleum):** A unit of volume equal to 42 U.S. Gallons.

**Base Gas:** The quantity of **natural gas** needed to maintain adequate reservoir pressures and deliverability rates throughout the withdrawal season. Base gas usually is not withdrawn and remains in the reservoir. All natural gas native to a depleted reservoir is included in the base gas volume.

**Biodiesel:** A fuel typically made from soybean, canola, or other vegetable oils; animal fats; and recycled grease. It can serve as a substitute for **petroleum**-derived **diesel fuel** or **distillate fuel oil**. For U.S. Energy Information Administration reporting, it is a fuel composed of mono-alkyl esters of long chain fatty acids derived from vegetable oils or animal fats, designated B100, and meeting the requirements of ASTM (American Society for Testing & Materials) D 6751.

**Biofuels:** Liquid fuels and blending components produced from **biomass** (plant) feedstocks, used primarily for transportation. See **Biodiesel** and **Fuel Ethanol**.

**Biogenic:** Produced by biological processes of living organisms. *Note*: EIA uses the term “biogenic” to refer only to organic nonfossil material of biological origin.

**Biomass:** Organic nonfossil material of biological origin constituting a **renewable energy** source. See **Biodiesel**, **Biofuels**, **Biomass Waste, Densified Biomass, Fuel Ethanol**, and **Wood and Wood-Derived Fuels**.

**Biomass-Based Diesel Fuel:** Biodiesel and other renewable **diesel fuel** or diesel fuel blending components derived from **biomass**, but excluding renewable diesel fuel coprocessed with petroleum feedstocks. See **Renewable Diesel Fuel (Other)**.

**Biomass Waste:** Organic non-fossil material of biological origin that is a byproduct or a discarded product. "Biomass waste" includes municipal solid waste from **biogenic** sources, landfill gas, sludge waste, agricultural crop byproducts, straw, and other **biomass** solids, liquids, and gases; but excludes **wood and wood-derived fuels** (including **black liquor**), **biofuels** feedstock, **biodiesel**, and **fuel ethanol**. *Note:* EIA "biomass waste" data also include energy crops grown specifically for energy production, which would not normally constitute waste.

**Bituminous Coal:** A dense **coal**, usually black, sometimes dark brown, often with well-defined bands of bright and dull material, used primarily as fuel in steam-electric power generation, with substantial quantities also used for heat and power applications in manufacturing and to make **coke**. Bituminous coal is the most abundant coal in active U.S. mining regions. Its moisture content usually is less than 20 percent. The heat content of bituminous coal ranges from 21 to 30 million **Btu** per **short ton** on a moist, mineral-matter-free basis. The heat content of bituminous coal consumed in the United States averages 24 million Btu per short ton, on the as-received basis (i.e., containing both inherent moisture and mineral matter).

**Black Liquor:** A byproduct of the paper production process, alkaline spent liquor, that can be used as a source of energy. Alkaline spent liquor is removed from the digesters in the process of chemically pulping wood. After evaporation, the residual "black" liquor is burned as a fuel in a recovery furnace that permits the recovery of certain basic chemicals.

**British Thermal Unit (Btu):** The quantity of heat required to raise the temperature of 1 pound of liquid water by 1 degree Fahrenheit at the temperature at which water has its greatest density (approximately 39 degrees Fahrenheit). See **Heat Content**.

**Btu:** See **British Thermal Unit.**

**Btu Conversion Factor:** A factor for converting **energy** data between one unit of measurement and **British thermal units (Btu)**. Btu conversion factors are generally used to convert energy data from physical units of measure (such as **barrels**, **cubic feet**, or **short tons**) into the energy-equivalent measure of Btu. (See http://www.eia.gov/totalenergy/data/monthly/#appendices for further information on Btu conversion factors.)

**Butane ($C_4H_{10}$):** A straight-chain or branch-chain **hydrocarbon** extracted from **natural gas** or **refinery gas** streams, which is gaseous at standard temperature and pressure. It includes **isobutane** and **normal butane** and is designated in ASTM Specification D1835 and Gas Processors Association specifications for commercial butane.

*Isobutane* ($C_4H_{10}$)**:** A branch-chain saturated (paraffinic) **hydrocarbon** extracted from both **natural gas** and **refinery gas** streams, which is gaseous at standard temperature and pressure. It is a colorless gas that boils at a temperature of 11 degrees Fahrenheit. See **Paraffinic Hydrocarbons**.

*Normal Butane* ($C_4H_{10}$)**:** A straight-chain saturated (paraffinic) **hydrocarbon** extracted from both **natural gas** and **refinery gas** streams, which is gaseous at standard temperature and pressure. It is a colorless gas that boils at a temperature of 31 degrees Fahrenheit. See **Paraffinic Hydrocarbons**.

**Butylene ($C_4H_8$):** An olefinic **hydrocarbon** recovered from refinery or petrochemical processes, which is gaseous at standard temperature and pressure. Butylene is used in the production of gasoline and various petrochemical products. See **Olefinic Hydrocarbons (Olefins)**.

**Capacity Factor:** The ratio of the electrical energy produced by a generating unit for a given period of time to the electrical energy that could have been produced at continuous full-power operation during the same period.

**Carbon Dioxide ($CO_2$):** A colorless, odorless, nonpoisonous gas that is a normal part of Earth's atmosphere. Carbon dioxide is a product of **fossil-fuel** combustion as well as other processes. It is considered a **greenhouse gas** as it traps heat (infrared energy) radiated by the Earth into the atmosphere and thereby contributes to the potential for **global warming**. The **global warming potential** (GWP) of other greenhouse gases is measured in relation to that of carbon dioxide, which by international scientific convention is assigned a value of one (1).

**Chained Dollars:** A measure used to express **real prices**. Real prices are those that have been adjusted to remove the effect of changes in the purchasing power of the dollar; they usually reflect buying power relative to a reference year. Prior to 1996, real prices were expressed in constant dollars, a measure based on the weights of goods and services in a single year, usually a recent year. In 1996, the U.S. Department of Commerce introduced the chained-dollar measure. The new measure is based on the average weights of goods and services in successive pairs of years. It is "chained" because the second year in each pair, with its weights, becomes the first year of the next pair. The advantage of using the chained-dollar measure is that it is

more closely related to any given period and is therefore subject to less distortion over time.

**CIF:** See **Cost, Insurance, Freight**.

**Citygate:** A point or measuring station at which a distribution gas utility receives gas from a **natural gas** pipeline company or transmission system.

**Climate Change:** A term used to refer to all forms of climatic inconsistency, but especially to significant change from one prevailing climatic condition to another. In some cases, "climate change" has been used synonymously with the term "**global warming**"; scientists, however, tend to use the term in a wider sense inclusive of natural changes in climate, including climatic cooling.

**Coal:** A readily combustible black or brownish-black rock whose composition, including inherent moisture, consists of more than 50 percent by weight and more than 70 percent by volume of carbonaceous material. It is formed from plant remains that have been compacted, hardened, chemically altered, and metamorphosed by heat and pressure over geologic time. See **Anthracite, Bituminous Coal**, **Lignite**, **Subbituminous Coal**, **Waste Coal**, and **Coal Synfuel**.

**Coal Coke:** A solid carbonaceous residue derived from low-ash, low-sulfur **bituminous coal** from which the volatile constituents are driven off by baking in an oven at temperatures as high as 2,000 degrees Fahrenheit so that the fixed carbon and residual ash are fused together. Coke is used as a fuel and as a reducing agent in smelting iron ore in a blast furnace. Coke from coal is grey, hard, and porous and has a heating value of 24.8 million Btu per ton.

**Coal Stocks:** Coal quantities that are held in storage for future use and disposition. *Note:* When coal data are collected for a particular reporting period (month, quarter, or year), coal stocks are commonly measured as of the last day of the period.

**Coal Synfuel:** **Coal**-based solid fuel that has been processed by a **coal synfuel plant**; and coal-based fuels such as briquettes, pellets, or extrusions, which are formed from fresh or recycled coal and binding materials.

**Coal Synfuel Plant:** A plant engaged in the chemical transformation of **coal** into **coal synfuel**.

**Coke:** See **Coal Coke** and **Petroleum Coke**.

**Coking Coal:** Bituminous coal suitable for making coke. See **Coal Coke**.

**Combined-Heat-and-Power (CHP) Plant:** A plant designed to produce both heat and electricity from a single heat source. *Note:* This term is being used in place of the term "cogenerator" that was used by EIA in the past. CHP better describes the facilities because some of the plants included do not produce heat and power in a sequential fashion and, as a result, do not meet the legal definition of cogeneration specified in the Public Utility Regulatory Policies Act (PURPA).

**Commercial Sector:** An energy-consuming sector that consists of service-providing facilities and equipment of: businesses; federal, state, and local governments; and other private and public organizations, such as religious, social, or fraternal groups. The commercial sector includes institutional living quarters. It also includes sewage treatment facilities. Common uses of energy associated with this sector include space heating, water heating, air conditioning, lighting, refrigeration, cooking, and running a wide variety of other equipment. *Note*: This sector includes generators that produce electricity and/or useful thermal output primarily to support the activities of the above-mentioned commercial establishments. See **End-Use Sectors** and **Energy-Use Sectors**.

**Completion:** The installation of permanent equipment for the production of oil or gas. If a well is equipped to produce only oil or gas from one zone or reservoir, the definition of a well (classified as an oil well or gas well) and the definition of a completion are identical. However, if a well is equipped to produce oil and/or gas separately from more than one reservoir, a well is not synonymous with a completion.

**Conventional Hydroelectric Power:** Hydroelectric power generated from flowing water that is not created by **hydroelectric pumped storage**.

**Conventional Motor Gasoline:** See **Motor Gasoline Conventional**.

**Conversion Factor:** A factor for converting data between one unit of measurement and another (such as between **short tons** and **British thermal units**, or between **barrels** and gallons). (See http://www.eia.gov/totalenergy/data/monthly/#appendices for further information on conversion factors.) See **Btu Conversion Factor** and **Thermal Conversion Factor**.

**Cost, Insurance, Freight (CIF):** A sales transaction in which the seller pays for the transportation and insurance of the goods to the port of destination specified by the buyer.

**Crude Oil:** A mixture of hydrocarbons that exists in liquid phase in natural underground reservoirs and remains liquid at atmospheric pressure after passing through surface separating facilities. Depending upon the characteristics of the crude stream, it may also include: 1) small amounts of hydrocarbons that exist in gaseous phase in natural underground reservoirs but are liquid at atmospheric pressure after being recovered from oil well (casing head) gas in lease separators and are subsequently commingled with the crude stream without being separately measured. Lease condensate recovered as a liquid from natural gas wells in

lease or field separation facilities and later mixed into the crude stream is also included; 2) small amounts of nonhydrocarbons produced with the oil, such as sulfur and various metals; and 3) drip gases, and liquid hydrocarbons produced from tar sands, oil sands, gilsonite, and oil shale. Liquids produced at natural gas processing plants are excluded. Crude oil is refined to produce a wide array of petroleum products, including heating oils; gasoline, diesel and jet fuels; lubricants; asphalt; ethane, propane, and butane; and many other products used for their energy or chemical content.

**Crude Oil F.O.B. Price:** The crude oil price actually charged at the oil-producing country's port of loading. Includes deductions for any rebates and discounts or additions of premiums, where applicable. It is the actual price paid with no adjustment for credit terms.

**Crude Oil (Including Lease Condensate):** A mixture of hydrocarbons that exists in liquid phase in underground reservoirs and remains liquid at atmospheric pressure after passing through surface separating facilities. Included are lease condensate and liquid hydrocarbons produced from tar sands, gilsonite, and oil shale. Drip gases are also included, but topped crude oil (residual oil) and other unfinished oils are excluded. Where identifiable, liquids produced at natural gas processing plants and mixed with crude oil are likewise excluded.

**Crude Oil Landed Cost:** The price of crude oil at the port of discharge, including charges associated with the purchase, transporting, and insuring of a cargo from the purchase point to the port of discharge. The cost does not include charges incurred at the discharge port (e.g., import tariffs or fees, wharfage charges, and demurrage).

**Crude Oil Refinery Input:** The total crude oil put into processing units at refineries.

**Crude Oil Stocks:** Stocks of crude oil and lease condensate held at refineries, in pipelines, at pipeline terminals, and on leases.

**Crude Oil Used Directly:** Crude oil consumed as fuel by crude oil pipelines and on crude oil leases.

**Crude Oil Well:** A well completed for the production of crude oil from one or more oil zones or reservoirs. Wells producing both crude oil and natural gas are classified as oil wells.

**Cubic Foot (Natural Gas):** The amount of **natural gas** contained at standard temperature and pressure (60 degrees Fahrenheit and 14.73 pounds standard per square inch) in a cube whose edges are one foot long.

**Degree Day Normals:** Simple arithmetic averages of monthly or annual degree days over a long period of time (usually the 30-year period 1961–1990). The averages may be simple degree day normals or population-weighted degree day normals.

**Degree Days, Cooling (CDD):** A measure of how warm a location is over a period of time relative to a base temperature, most commonly specified as 65 degrees Fahrenheit. The measure is computed for each day by subtracting the base temperature (65 degrees) from the average of the day's high and low temperatures, with negative values set equal to zero. Each day's cooling degree days are summed to create a cooling degree day measure for a specified reference period. Cooling degree days are used in energy analysis as an indicator of air conditioning energy requirements or use.

**Degree Days, Heating (HDD):** A measure of how cold a location is over a period of time relative to a base temperature, most commonly specified as 65 degrees Fahrenheit. The measure is computed for each day by subtracting the average of the day's high and low temperatures from the base temperature (65 degrees), with negative values set equal to zero. Each day's heating degree days are summed to create a heating degree day measure for a specified reference period. Heating degree days are used in energy analysis as an indicator of space heating energy requirements or use.

**Degree Days, Population-Weighted:** Heating or cooling degree days weighted by the population of the area in which the degree days are recorded. To compute state population-weighted degree days, each state is divided into from one to nine climatically homogeneous divisions, which are assigned weights based on the ratio of the population of the division to the total population of the state. Degree day readings for each division are multiplied by the corresponding population weight for each division and those products are then summed to arrive at the state population-weighted degree day figure. To compute national population-weighted degree days, the nation is divided into nine Census regions, each comprising from three to eight states, which are assigned weights based on the ratio of the population of the region to the total population of the nation. Degree day readings for each region are multiplied by the corresponding population weight for each region and those products are then summed to arrive at the national population-weighted degree day figure.

**Denaturant: Petroleum**, typically **natural gasoline** or **conventional motor gasoline**, added to **fuel ethanol** to make it unfit for human consumption. Fuel ethanol is denatured, usually prior to transport from the ethanol production facility, by adding 2 to 5 volume percent denaturant. See **Fuel Ethanol** and **Fuel Ethanol Minus Denaturant**.

**Densified Biomass:** Raw **biomass**, primarily wood, that has been condensed into a homogenously sized, energy-dense product, such as wood pellets, intended for use as

fuel. It is mainly used for residential and commercial space heating and electricity generation.

**Design Electrical Rating, Net:** The nominal net electrical output of a nuclear unit as specified by the electric utility for the purpose of plant design.

**Development Well:** A well drilled within the proved area of an oil or gas reservoir to the depth of a stratigraphic horizon known to be productive.

**Diesel Fuel:** A fuel composed of **distillate fuel oils** obtained in petroleum refining operation or blends of such distillate fuel oils with **residual fuel oil** used in motor vehicles. The boiling point and specific gravity are higher for diesel fuels than for gasoline.

**Direct Use:** Use of electricity that 1) is self-generated, 2) is produced by either the same entity that consumes the power or an affiliate, and 3) is used in direct support of a service or industrial process located within the same facility or group of facilities that house the generating equipment. Direct use is exclusive of **station use**.

**Distillate Fuel Oil:** A general classification for one of the **petroleum** fractions produced in conventional distillation operations. It includes **diesel fuels** and fuel oils. Products known as No. 1, No. 2, and No. 4 diesel fuel are used in on-highway diesel engines, such as those in trucks and automobiles, as well as off-highway engines, such as those in railroad locomotives and agricultural machinery. Products known as No. 1, No. 2, and No. 4 fuel oils are used primarily for space heating and **electricity generation**.

**Dry Hole:** An exploratory or development well found to be incapable of producing either oil or gas in sufficient quantities to justify completion as an oil or gas well.

**Dry Natural Gas Production:** See **Natural Gas (Dry) Production**.

**E85:** A fuel containing a mixture of 85 percent **ethanol** and 15 percent **motor gasoline**.

**Electric Power Plant:** A station containing prime movers, electric generators, and auxiliary equipment for converting mechanical, chemical, and/or fission energy into electric energy.

**Electric Power Sector:** An energy-consuming sector that consists of electricity-only and combined-heat-and-power (CHP) plants whose primary business is to sell electricity, or electricity and heat, to the public-i.e., North American Industry Classification System 22 plants. See also **Combined-Heat-and-Power (CHP) Plant**, **Electricity-Only Plant**, **Electric Utility**, and **Independent Power Producer**.

**Electric Utility:** Any entity that generates, transmits, or distributes **electricity** and recovers the cost of its generation, transmission or distribution assets and operations, either directly or indirectly, through cost-based rates set by a separate regulatory authority (e.g., State Public Service Commission), or is owned by a governmental unit or the consumers that the entity serves. Examples of these entities include: investor-owned entities, public power districts, public utility districts, municipalities, rural electric cooperatives, and state and federal agencies. Electric utilities may have Federal Energy Regulatory Commission approval for interconnection agreements and wholesale trade tariffs covering either cost-of-service and/or market-based rates under the authority of the Federal Power Act. See **Electric Power Sector**.

**Electrical System Energy Losses:** The amount of energy lost during generation, transmission, and distribution of electricity, including plant and unaccounted-for uses.

**Electricity:** A form of energy characterized by the presence and motion of elementary charged particles generated by friction, induction, or chemical change.

**Electricity Generation:** The process of producing electric energy, or the amount of electric energy produced by transforming other forms of energy, commonly expressed in **kilowatthours** (kWh) or megawatthours (MWh).

**Electricity Generation, Gross:** The total amount of electric energy produced by generating units and measured at the generating terminal in **kilowatthours** (kWh) or megawatthours (MWh).

**Electricity Generation, Net:** The amount of **gross electricity generation** less **station use** (the **electric energy** consumed at the generating station(s) for station service or auxiliaries). *Note*: Electricity required for pumping at **hydroelectric pumped-storage** plants is regarded as electricity for station service and is deducted from gross generation.

**Electricity-Only Plant:** A plant designed to produce electricity only. See also **Combined-Heat-and-Power (CHP) Plant**.

**Electricity Retail Sales:** The amount of electricity sold to customers purchasing electricity for their own use and not for resale.

**End-Use Sectors:** The **residential**, **commercial**, **industrial**, and **transportation** sectors of the economy.

**Energy:** The capacity for doing work as measured by the capability of doing work (potential energy) or the conversion of this capability to motion (kinetic energy). Energy has several forms, some of which are easily convertible and can be changed to another form useful for work. Most of the world's convertible energy comes from fossil fuels that are burned to produce heat that is then used as a transfer medium to mechanical or other means in order to accomplish tasks. Electrical energy is usually measured in kilowatthours, while heat energy is usually measured in British thermal units.

**Energy Consumption:** The use of energy as a source of heat or power or as an input in the manufacturing process.

**Energy Service Provider:** An energy entity that provides service to a retail or end-use customer.

**Energy-Use Sectors:** A group of major energy-consuming components of U.S. society developed to measure and analyze energy use. The sectors most commonly referred to in EIA are: **residential**, **commercial**, **industrial**, **transportation**, and **electric power**.

**Ethane ($C_2H_6$):** A straight-chain saturated (paraffinic) **hydrocarbon** extracted predominantly from the **natural gas** stream, which is gaseous at standard temperature and pressure. It is a colorless gas that boils at a temperature of -127 degrees Fahrenheit. See **Paraffinic Hydrocarbons**.

**Ethanol ($C_2H_5OH$):** A clear, colorless, flammable **alcohol**. Ethanol is typically produced biologically from **biomass** feedstocks such as agricultural crops and cellulosic residues from agricultural crops or wood. Ethanol can also be produced chemically from **ethylene**. See **Biomass**, **Fuel Ethanol**, and **Fuel Ethanol Minus Denaturant**.

**Ether:** A generic term applied to a group of organic chemical compounds composed of carbon, **hydrogen**, and oxygen, characterized by an oxygen atom attached to two carbon atoms (e.g., **methyl tertiary butyl ether**).

**Ethylene ($C_2H_4$):** An olefinic **hydrocarbon** recovered from refinery or petrochemical processes, which is gaseous at standard temperature and pressure. Ethylene is used as a petrochemical feedstock for many chemical applications and the production of consumer goods. See **Olefinic Hydrocarbons (Olefins)**.

**Exploratory Well:** A well drilled to find and produce oil or gas in an area previously considered an unproductive area, to find a new reservoir in a known field (i.e., one previously found to be producing oil or gas in another reservoir), or to extend the limit of a known oil or gas reservoir.

**Exports:** Shipments of goods from within the 50 states and the District of Columbia to U.S. possessions and territories or to foreign countries.

**Federal Energy Administration (FEA):** A predecessor of the U.S. Energy Information Administration.

**Federal Energy Regulatory Commission (FERC):** The Federal agency with jurisdiction over interstate electricity sales, wholesale electric rates, hydroelectric licensing, natural gas pricing, oil pipeline rates, and gas pipeline certification. FERC is an independent regulatory agency within the U.S. Department of Energy and is the successor to the Federal Power Commission.

**Federal Power Commission (FPC):** The predecessor agency of the Federal Energy Regulatory Commission. The Federal Power Commission was created by an Act of Congress under the Federal Water Power Act on June 10, 1920. It was charged originally with regulating the electric power and natural gas industries. It was abolished on September 30, 1977, when the U.S. Department of Energy was created. Its functions were divided between the U.S. Department of Energy and the Federal Energy Regulatory Commission, an independent regulatory agency.

**First Purchase Price:** The price for domestic crude oil reported by the company that owns the crude oil the first time it is removed from the lease boundary.

**Flared Natural Gas: Natural gas** burned in flares on the base site or at gas processing plants.

**F.O.B. (Free on Board):** A sales transaction in which the seller makes the product available for pick up at a specified port or terminal at a specified price and the buyer pays for the subsequent transportation and insurance.

**Footage Drilled:** Total footage for wells in various categories, as reported for any specified period, includes (1) the deepest total depth (length of well bores) of all wells drilled from the surface, (2) the total of all bypassed footage drilled in connection with reported wells, and (3) all new footage drilled for directional sidetrack wells. Footage reported for directional sidetrack wells does not include footage in the common bore, which is reported as footage for the original well. In the case of old wells drilled deeper, the reported footage is that which was drilled below the total depth of the old well.

**Former U.S.S.R.:** See **Union of Soviet Socialist Republics (U.S.S.R.).**

**Fossil Fuel:** An energy source formed in the Earth's crust from decayed organic material, such as **petroleum**, **coal**, and **natural gas**.

**Fossil-Fueled Steam-Electric Power Plant:** An electricity generation plant in which the prime mover is a turbine rotated by high-pressure steam produced in a boiler by heat from burning fossil fuels.

**Fuel Ethanol: Ethanol** intended for fuel use. Fuel ethanol in the United States must be anhydrous (less than 1 percent water). Fuel ethanol is denatured (made unfit for human consumption), usually prior to transport from the ethanol production facility, by adding 2 to 5 volume percent petroleum, typically **natural gasoline** or **conventional motor gasoline**. Fuel ethanol is used principally for blending in low concentrations with **motor gasoline** as an **oxygenate** or octane enhancer. In high concentrations, it is used to fuel **alternative-fuel vehicles** specially designed for its use. See **Alternative-Fuel Vehicle**,

**Denaturant**, **E85**, **Ethanol**, **Fuel Ethanol Minus Denaturant**, and **Oxygenates**.

**Fuel Ethanol Minus Denaturant:** An unobserved quantity of anhydrous, **biomass**-derived, undenatured **ethanol** for fuel use. The quantity is obtained by subtracting the estimated **denaturant** volume from **fuel ethanol** volume. Fuel ethanol minus denaturant is counted as **renewable energy**, while denaturant is counted as **nonrenewable fuel**. See **Denaturant**, **Ethanol**, **Fuel Ethanol**, **Nonrenewable Fuels**, **Oxygenates**, and **Renewable Energy**.

**Full-Power Operation:** Operation of a nuclear generating unit at 100 percent of its design capacity. Full-power operation precedes commercial operation.

**Gasohol:** A blend of finished motor gasoline containing alcohol (generally **ethanol** but sometimes methanol) at a concentration between 5.7 percent and 10 percent by volume. See **Motor Gasoline, Oxygenated**.

**Gas Well:** A well completed for production of natural gas from one or more gas zones or reservoirs. Such wells contain no completions for the production of crude oil.

**Geothermal Energy:** Hot water or steam extracted from geothermal reservoirs in the earth's crust and used for geothermal heat pumps, water heating, or electricity generation.

**Global Warming:** An increase in the near-surface temperature of the Earth. Global warming has occurred in the distant past as the result of natural influences, but the term is today most often used to refer to the warming some scientists predict will occur as a result of increased **anthropogenic** emissions of **greenhouse gases**. See **Climate Change**.

**Global Warming Potential (GWP):** An index used to compare the relative radiative forcing of different gases without directly calculating the changes in atmospheric concentrations. GWPs are calculated as the ratio of the radiative forcing that would result from the emission of one kilogram of a **greenhouse gas** to that from the emission of one kilogram of **carbon dioxide** over a fixed period of time, such as 100 years.

**Greenhouse Gases:** Those gases, such as water vapor, **carbon dioxide**, nitrous oxide, **methane**, hydrofluorocarbons (HFCs), perfluorocarbons (PFCs) and sulfur hexafluoride, that are transparent to solar (short-wave) radiation but opaque to long-wave (infrared) radiation, thus preventing long-wave radiant energy from leaving Earth's atmosphere. The net effect is a trapping of absorbed radiation and a tendency to warm the planet's surface.

**Gross Domestic Product (GDP):** The total value of goods and services produced by labor and property located in the United States. As long as the labor and property are located in the United States, the supplier (that is, the workers and, for property, the owners) may be either U.S. residents or residents of foreign countries.

**GT/IC:** Gas turbine and internal combustion plants.

**Heat Content:** The amount of heat energy available to be released by the transformation or use of a specified physical unit of an energy form (e.g., a ton of coal, a barrel of oil, a kilowatthour of electricity, a cubic foot of natural gas, or a pound of steam). The amount of heat energy is commonly expressed in **British thermal units (Btu)**. *Note*: Heat content of combustible energy forms can be expressed in terms of either gross heat content (higher or upper heating value) or net heat content (lower heating value), depending upon whether or not the available heat energy includes or excludes the energy used to vaporize water (contained in the original energy form or created during the combustion process). The U.S. Energy Information Administration typically uses gross heat content values.

**Heat Rate:** A measure of generating station thermal efficiency commonly stated as **Btu** per **kilowatthour**. *Note:* Heat rates can be expressed as either gross or net heat rates, depending whether the electricity output is gross or net generation. Heat rates are typically expressed as net heat rates.

**Hydrocarbon:** An organic chemical compound of **hydrogen** and carbon in the gaseous, liquid, or solid phase. The molecular structure of hydrocarbon compounds varies from the simplest (**methane**, the primary constituent of **natural gas**) to the very heavy and very complex.

**Hydrocarbon Gas Liquids (HGL):** A group of **hydrocarbons** including **ethane**, **propane**, **normal butane**, **isobutane**, and **natural gasoline**, and their associated **olefins**, including **ethylene**, **propylene**, **butylene**, and **isobutylene**. As marketed products, HGL represents all **natural gas liquids** (NGL) and olefins. EIA reports production of HGL from refineries (**liquefied refinery gases**, or LRG) and natural gas plants (**natural gas plant liquids**, or NGPL). Excludes **liquefied natural gas** (LNG). See **Olefinic Hydrocarbons (Olefins)**.

**Hydroelectric Power:** The production of electricity from the kinetic energy of falling water.

**Hydroelectric Power Plant:** A plant in which the turbine generators are driven by falling water.

**Hydroelectric Pumped Storage:** Hydroelectricity that is generated during peak load periods by using water previously pumped into an elevated storage reservoir during off-peak periods when excess generating capacity is available to do so. When additional generating capacity is needed, the water can be released from the reservoir through a conduit to turbine generators located in a power plant at a lower level.

**Hydrogen (H):** The lightest of all gases, hydrogen occurs chiefly in combination with oxygen in water. It also exists in acids, bases, **alcohols**, **petroleum**, and other **hydrocarbons**.

**Imports:** Receipts of goods into the 50 states and the District of Columbia from U.S. possessions and territories or from foreign countries.

**Independent Power Producer:** A corporation, person, agency, authority, or other legal entity or instrumentality that owns or operates facilities for the generation of electricity for use primarily by the public, and that is not an **electric utility**.

**Industrial Sector:** An **energy**-consuming sector that consists of all facilities and equipment used for producing, processing, or assembling goods. The industrial sector encompasses the following types of activity: manufacturing (**NAICS** codes 31-33); agriculture, forestry, fishing and hunting (NAICS code 11); mining, including oil and gas extraction (NAICS code 21); and construction (NAICS code 23). Overall energy use in this sector is largely for process heat and cooling and powering machinery, with lesser amounts used for facility heating, air conditioning, and lighting. Fossil fuels are also used as raw material inputs to manufactured products. *Note:* This sector includes **generators** that produce **electricity** and/or **useful thermal output** primarily to support the above-mentioned industrial activities. See **End-Use Sectors** and **Energy-Use Sectors**.

**Injections (Natural Gas): Natural gas** injected into storage reservoirs.

**Isobutane ($C_4H_{10}$):** A branch-chain saturated (paraffinic) **hydrocarbon** extracted from both **natural gas** and **refinery gas** streams, which is gaseous at standard temperature and pressure. It is a colorless gas that boils at a temperature of 11 degrees Fahrenheit. See **Paraffinic Hydrocarbons**.

**Isobutylene ($C_4H_8$):** A branch-chain olefinic **hydrocarbon** recovered from refinery or petrochemical processes, which is gaseous at standard temperature and pressure. Isobutylene is used in the production of gasoline and various petrochemical products. See **Olefinic Hydrocarbons (Olefins)**.

**Isopentane ($C_5H_{12}$):** A saturated branched-chain **hydrocarbon** obtained by fractionation of **natural gasoline** or isomerization of normal pentane.

**Jet Fuel:** A refined **petroleum** product used in jet aircraft engines. See **Jet Fuel, Kerosene-Type** and **Jet Fuel, Naphtha-Type**.

**Jet Fuel, Kerosene-Type:** A **kerosene**-based product having a maximum distillation temperature of 400 degrees Fahrenheit at the 10-percent recovery point and a final maximum boiling point of 572 degrees Fahrenheit and meeting ASTM Specification D 1655 and Military Specifications MIL-T-5624P and MIL-T-83133D (Grades JP-5 and JP-8). It is used for commercial and military turbo jet and turbo prop aircraft engines.

**Jet Fuel, Naphtha-Type:** A fuel in the heavy **naphtha** boiling range having an average gravity of 52.8 degrees API, 20% to 90% distillation temperatures of 290 degrees to 470 degrees Fahrenheit, and meeting Military Specification MIL-T-5624L (Grade JP-4). It is used primarily for military turbojet and turboprop aircraft engines because it has a lower freeze point than other aviation fuels and meets engine requirements at high altitudes and speeds.

**Kerosene:** A light **petroleum** distillate that is used in space heaters, cook stoves, and water heaters and is suitable for use as a light source when burned in wick-fed lamps. Kerosene has a maximum distillation temperature of 400 degrees Fahrenheit at the 10-percent recovery point, a final boiling point of 572 degrees Fahrenheit, and a minimum flash point of 100 degrees Fahrenheit. Included are No. 1-K and No. 2-K, the two grades recognized by ASTM Specification D 3699 as well as all other grades of kerosene called range or stove oil, which have properties similar to those of No. 1 fuel oil. See **Jet Fuel, Kerosene-Type**.

**Kilowatt:** A unit of electrical power equal to 1,000 **watts**.

**Kilowatthour (kWh):** A measure of electricity defined as a unit of work or energy, measured as 1 **kilowatt** (1,000 **watts**) of power expended for 1 hour. One kilowatthour is equivalent to 3,412 Btu. See **Watthour**.

**Landed Costs:** The dollar-per-barrel price of crude oil at the port of discharge. Included are the charges associated with the purchase, transporting, and insuring of a cargo from the purchase point to the port of discharge. Not included are charges incurred at the discharge port (e.g., import tariffs or fees, wharfage charges, and demurrage charges).

**Lease and Plant Fuel: Natural gas** used in well, field, and lease operations (such as gas used in drilling operations, heaters, dehydrators, and field compressors) and used as fuel in natural gas processing plants.

**Lease Condensate:** Light liquid **hydrocarbons** recovered from lease separators or field facilities at associated and non-associated **natural gas** wells. Mostly pentanes and heavier hydrocarbons. Normally enters the **crude oil** stream after production.

**Lignite:** The lowest rank of **coal**, often referred to as brown coal, used almost exclusively as fuel for steam-electric power generation. It is brownish-black and has a high inherent moisture content, sometimes as high as 45 percent. The heat content of lignite ranges from 9 to 17 million **Btu** per **short ton** on a moist, mineral-matter-free basis. The heat content of lignite consumed in the United States averages 13 million Btu per short ton, on the as-received basis (i.e., containing both inherent moisture and mineral matter).

**Liquefied Natural Gas (LNG): Natural gas** (primarily **methane**) that has been liquefied by reducing its temperature to -260 degrees Fahrenheit at atmospheric pressure.

**Liquefied Petroleum Gases (LPG):** A group of **hydrocarbon** gases, primarily **propane**, **normal butane**, and **isobutane**, derived from **crude oil** refining or **natural gas** processing. These gases may be marketed individually or mixed. They can be liquefied through pressurization (without requiring cryogenic refrigeration) for convenience of transportation or storage. Excludes **ethane** and **olefins**. *Note*: In some EIA publications, LPG includes ethane and marketed refinery olefin streams, in accordance with definitions used prior to January 2014.

**Liquefied Refinery Gases (LRG):** **Hydrocarbon gas liquids** produced in refineries from processing of **crude oil** and **unfinished oils**. They are retained in the liquid state through pressurization and/or refrigeration. The reported categories include **ethane**, **propane**, **normal butane**, **isobutane**, and refinery **olefins** (**ethylene**, **propylene**, **butylene**, and **isobutylene**).

**Low-Power Testing:** The period of time between a nuclear generating unit's initial fuel loading date and the issuance of its operating (full-power) license. The maximum level of operation during that period is 5 percent of the unit's design thermal rating.

**Lubricants:** Substances used to reduce friction between bearing surfaces or as process materials either incorporated into other materials used as processing aids in the manufacturing of other products or as carriers of other materials. Petroleum lubricants may be produced either from distillates or residues. Other substances may be added to impart or improve certain required properties. Excluded are byproducts of lubricating oil refining, such as aromatic extracts derived from solvent extraction or tars derived from deasphalting. Included are all grades of lubricating oils from spindle oil to cylinder oil and those used in greases. Lubricant categories are paraffinic and naphthenic.

**Marketed Production (Natural Gas):** See **Natural Gas Marketed Production**.

**Methane ($CH_4$):** A colorless, flammable, odorless **hydrocarbon** gas which is the major component of **natural gas**. It is also an important source of **hydrogen** in various industrial processes. Methane is a greenhouse gas. See **Greenhouse Gases**.

**Methanol ($CH_3OH$):** A light, volatile **alcohol** eligible for gasoline blending. See **Motor Gasoline Blending** and **Oxygenates**.

**Methyl Tertiary Butyl Ether (MTBE) ($(CH_3)_3COCH_3$)**: An **ether** intended for gasoline blending. See **Motor Gasoline Blending** and **Oxygenates**.

**Miscellaneous Petroleum Products:** All finished petroleum products not classified elsewhere—for example, petrolatum, lube refining byproducts (aromatic extracts and tars), absorption oils, ram-jet fuel, petroleum rocket fuels, synthetic natural gas feedstocks, and specialty oils.

**Motor Gasoline Blending Components:** Naphtha (e.g., straight-run gasoline, alkylate, reformate, benzene, toluene, xylene) used for blending or compounding into finished motor gasoline. These components include reformulated gasoline blendstock (RBOB) but exclude oxygenates (alcohols, ethers), butane, and natural gasoline. *Note*: Oxygenates are reported as individual components and are included in the total for other hydrocarbons, hydrogens, and oxygenates.

**Motor Gasoline, Conventional**: **Finished motor gasoline** not included in the **oxygenated** or **reformulated** motor gasoline categories. *Note*: This category excludes reformulated gasoline blendstock for oxygenate blending (RBOB) as well as other blendstock. Conventional motor gasoline can be leaded or unleaded; regular, midgrade, or premium. See **Motor Gasoline Grades**.

**Motor Gasoline (Finished):** A complex mixture of relatively volatile **hydrocarbon**s with or without small quantities of additives, blended to form a fuel suitable for use in spark-ignition engines. Motor gasoline, as defined in ASTM Specification D 4814 or Federal Specification VV-G-1690C, is characterized as having a boiling range of 122 to 158 degrees Fahrenheit at the 10 percent recovery point to 365 to 374 degrees Fahrenheit at the 90 percent recovery point. Motor gasoline includes conventional gasoline; all types of oxygenated gasoline, including **gasohol**; and reformulated gasoline, but excludes aviation gasoline. *Note*: Volumetric data on blending components, such as **oxygenates**, are not counted in data on finished motor gasoline until the blending components are blended into the gasoline. See **Motor Gasoline, Conventional**; **Motor Gasoline, Oxygenated**; and **Motor Gasoline, Reformulated**.

**Motor Gasoline Grades:** The classification of gasoline by octane ratings. Each type of gasoline (conventional, oxygenated, and reformulated) is classified by three grades: regular, midgrade, and premium. *Note*: Gasoline sales are reported by grade in accordance with their classification at the time of sale. In general, automotive octane requirements are lower at high altitudes. Therefore, in some areas of the United States, such as the Rocky Mountain States, the octane ratings for the gasoline grades may be 2 or more octane points lower.

*Regular Gasoline*: Gasoline having an antiknock index, i.e., octane rating, greater than or equal to 85 and less than 88. Note: Octane requirements may vary by altitude. See **Motor Gasoline Grades**.

*Midgrade Gasoline*: Gasoline having an antiknock index, i.e., octane rating, greater than or equal to 88 and less than or equal to 90. *Note:* Octane requirements may vary by altitude. See **Motor Gasoline Grades**.

*Premium Gasoline*: Gasoline having an antiknock index, i.e., octane rating, greater than 90. *Note:* Octane requirements may vary by altitude. See **Motor Gasoline Grades**.

**Motor Gasoline, Oxygenated:** Finished motor gasoline, other than reformulated gasoline, having an oxygen content of 2.7 percent or higher by weight and required by the U.S. Environmental Protection Agency (EPA) to be sold in areas designated by EPA as carbon monoxide (CO) nonattainment areas. *Note:* Oxygenated gasoline excludes oxygenated fuels program reformulated gasoline (OPRG) and reformulated gasoline blendstock for oxygenate blending (RBOB). Data on gasohol that has at least 2.7 percent oxygen, by weight, and is intended for sale inside CO nonattainment areas are included in data on oxygenated gasoline. Other data on gasohol are included in data on conventional gasoline.

**Motor Gasoline, Reformulated:** Finished motor gasoline formulated for use in motor vehicles, the composition and properties of which meet the requirements of the reformulated gasoline regulations promulgated by the U.S. Environmental Protection Agency under Section 211(k) of the Clean Air Act. *Note:* This category includes oxygenated fuels program reformulated gasoline (OPRG) but excludes reformulated gasoline blendstock for oxygenate blending (RBOB).

**Motor Gasoline Retail Prices:** Motor gasoline prices calculated each month by the Bureau of Labor Statistics (BLS) in conjunction with the construction of the Consumer Price Index (CPI). Those prices are collected in 85 urban areas selected to represent all urban consumers-about 80 percent of the total U.S. population. The service stations are selected initially, and on a replacement basis, in such a way that they represent the purchasing habits of the CPI population. Service stations in the current sample include those providing all types of service (i.e., full-, mini-, and self-service.

**Motor Gasoline (Total):** For stock level data, a sum including finished motor gasoline stocks plus stocks of motor gasoline blending components but excluding stocks of oxygenates.

**MTBE:** See **Methyl Tertiary Butyl Ether**.

**NAICS (North American Industry Classification System):** A coding system developed jointly by the United States, Canada, and Mexico to classify businesses and industries according to the type of economic activity in which they are engaged. NAICS replaces the Standard Industrial Classification (SIC) codes. For additional information on NAICS, go to http://www.census.gov/eos/www/naics/.

**Naphtha:** A generic term applied to a refined or partially refined **petroleum** fraction with an approximate boiling range between 122 degrees and 400 degrees Fahrenheit.

**Natural Gas:** A gaseous mixture of **hydrocarbon** compounds, primarily **methane**, used as a fuel for **electricity generation** and in a variety of ways in buildings, and as raw material input and fuel for industrial processes.

**Natural Gas, Dry: Natural gas** which remains after: 1) the liquefiable **hydrocarbon** portion has been removed from the gas stream (i.e., gas after lease, field, and/or plant separation); and 2) any volumes of **nonhydrocarbon gases** have been removed where they occur in sufficient quantity to render the gas unmarketable. *Note:* Dry natural gas is also known as consumer-grade natural gas. The parameters for measurement are cubic feet at 60 degrees Fahrenheit and 14.73 pounds per square inch absolute.

**Natural Gas (Dry) Production:** The process of producing consumer-grade **natural gas**. Natural gas withdrawn from reservoirs is reduced by volumes used at the production (lease) site and by processing losses. Volumes used at the production site include 1) the volume returned to reservoirs in cycling, **repressuring** of oil reservoirs, and conservation operations; and 2) **vented natural gas** and **flared natural gas**. Processing losses include 1) **nonhydrocarbon gases** (e.g., water vapor, carbon dioxide, helium, hydrogen sulfide, and nitrogen) removed from the gas stream; and 2) gas converted to liquid form, such as **lease condensate** and **natural gas plant liquids**. Volumes of dry gas withdrawn from gas storage reservoirs are not considered part of production. Dry natural gas production equals **natural gas marketed production** less **natural gas plant liquids** production.

**Natural Gas Liquids (NGL):** A group of **hydrocarbon**s including **ethane**, **propane**, **normal butane**, **isobutane**, and **natural gasoline**. Generally include **natural gas plant liquids** and all **liquefied refinery gases** except **olefins**. See **Paraffinic Hydrocarbons**.

**Natural Gas Marketed Production:** Gross withdrawals of **natural gas** from production reservoirs, less gas used for reservoir **repressuring**; **nonhydrocarbon gases** removed in treating and processing operations; and quantities of **vented natural gas** and **flared natural gas**.

**Natural Gas Plant Liquids (NGPL):** Those **hydrocarbons** in **natural gas** that are separated as liquids at natural gas processing, fractionating, and cycling plants. Products obtained include **ethane**, **liquefied petroleum gases** (**propane**, **normal butane**, and **isobutane**), and **natural gasoline**. Component products may be fractionated or mixed. **Lease condensate** and **plant condensate** are excluded. *Note:* Some EIA publications categorize NGPL production as field production, in accordance with definitions used prior to January 2014.

**Natural Gas Wellhead Price:** The **wellhead price** of **natural gas** is calculated by dividing the total reported value at the wellhead by the total quantity produced as reported by the appropriate agencies of individual

producing states and the U.S. Minerals Management Service. The price includes all costs prior to shipment from the lease, including gathering and compression costs, in addition to state production, severance, and similar charges.

**Natural Gasoline:** A commodity product commonly traded in **natural gas liquids** (NGL) markets that comprises liquid **hydrocarbons** (mostly pentanes and hexanes) and generally remains liquid at ambient temperatures and atmospheric pressure. Natural gasoline is equivalent to **pentanes plus**.

**Net Summer Capacity:** The maximum output, commonly expressed in **kilowatts** (kW) or megawatts (MW), that generating equipment can supply to system load, as demonstrated by a multi-hour test, at the time of summer peak demand (period of June 1 through September 30). This output reflects a reduction in capacity due to electricity use for station service or auxiliaries.

**Neutral Zone:** A 6,200 square-mile area shared equally between Kuwait and Saudi Arabia under a 1992 agreement. The Neutral Zone contains an estimated 5 billion barrels of oil and 8 trillion cubic feet of natural gas.

**Nominal Dollars:** A measure used to express **nominal price**.

**Nominal Price:** The price paid for a product or service at the time of the transaction. Nominal prices are those that have not been adjusted to remove the effect of changes in the purchasing power of the dollar; they reflect buying power in the year in which the transaction occurred.

**Non-Biomass Waste:** Material of non-biological origin that is a byproduct or a discarded product. "Non-biomass waste" includes municipal solid waste from non-biogenic sources**,** such as plastics, and tire-derived fuels.

**Non-Combustion Use:** Fossil fuels (coal, natural gas, and petroleum products) that are not burned to release energy and instead used directly as contruction materials, chemical, feedstocks, lubricants, solvents, waxes, and other products.

**Nonhydrocarbon Gases:** Typical nonhydrocarbon gases that may be present in reservoir **natural gas** are **carbon dioxide**, helium, hydrogen sulfide, and nitrogen.

**Nonrenewable Fuels:** Fuels that cannot be easily made or "renewed," such as **crude oil**, **natural gas**, and **coal**.

**Normal Butane ($C_4H_{10}$):** A straight-chain saturated (paraffinic) **hydrocarbon** extracted from both **natural gas** and **refinery gas** streams, which is gaseous at standard temperature and pressure. It is a colorless gas that boils at a temperature of 31 degrees Fahrenheit. See **Paraffinic Hydrocarbons**.

**Nuclear Electric Power (Nuclear Power):** Electricity generated by the use of the thermal energy released from the fission of nuclear fuel in a reactor.

**Nuclear Electric Power Plant:** A single-unit or multiunit facility in which heat produced in one or more reactors by the fissioning of nuclear fuel is used to drive one or more steam turbines.

**Nuclear Reactor:** An apparatus in which a nuclear fission chain reaction can be initiated, controlled, and sustained at a specific rate. A reactor includes fuel (fissionable material), moderating material to control the rate of fission, a heavy-walled pressure vessel to house reactor components, shielding to protect personnel, a system to conduct heat away from the reactor, and instrumentation for monitoring and controlling the reactor's systems.

**OECD:** See **Organization for Economic Cooperation and Development**.

**Offshore:** That geographic area that lies seaward of the coastline. In general, the coastline is the line of ordinary low water along with that portion of the coast that is in direct contact with the open sea or the line marking the seaward limit of inland water.

**Oil:** See **Crude Oil**.

**Olefinic Hydrocarbons (Olefins):** Unsaturated **hydrocarbon** compounds with the general formula $C_nH_{2n}$ containing at least one carbon-to-carbon double-bond. Olefins are produced at crude oil refineries and petrochemical plants and are not naturally occurring constituents of oil and natural gas. Sometimes referred to as alkenes or unsaturated hydrocarbons. Excludes aromatics.

**Olefins:** See **Olefinic Hydrocarbons (Olefins)**.

**OPEC:** See **Organization of the Petroleum Exporting Countries.**

**Operable Unit (Nuclear):** In the United States, a nuclear generating unit that has completed low-power testing and been issued a full-power operating license by the Nuclear Regulatory Commission, or equivalent permission to operate.

**Organization for Economic Cooperation and Development (OECD):** An international organization helping governments tackle the economic, social and governance challenges of a globalized economy. Its membership comprises about 30 member countries. With active relationships with some 70 other countries, non-governmental organizations (NGOs) and civil society, it has a global reach. For details about the organization, see http://www.oecd.org.

**Organization of the Petroleum Exporting Countries (OPEC):** An intergovernmental organization whose stated objective is to "coordinate and unify the petroleum policies of member countries." It was created at the Baghdad Conference on September 10–14, 1960. Current and former members (with years of membership) include Algeria (1969 forward), Angola (2007 forward), Ecuador (1973–1992 and 2007 forward), Equatorial Guinea (2017), Gabon (1974–1995 and 2016 forward), Indonesia (1962–2008 and 2016), Iran (1960 forward), Iraq (1960 forward), Kuwait (1960 forward), Libya (1962 forward), Nigeria (1971 forward), Qatar (1961 forward), Saudi Arabia (1960 forward), United Arab Emirates (1967 forward), and Venezuela (1960 forward).

**Other Hydrocarbons**: Materials received by a refinery and consumed as a raw material. Includes **hydrogen**, coal tar derivatives, gilsonite. Excludes **natural gas** used for fuel or hydrogen feedstock.

**Oxygenates:** Substances which, when added to gasoline, increase the amount of oxygen in that gasoline blend. **Ethanol, Methyl Tertiary Butyl Ether (MTBE),** Ethyl Tertiary Butyl Ether (ETBE), and methanol are common oxygenates.

**PAD Districts:** Petroleum Administration for Defense Districts. Geographic aggregations of the 50 states and the District of Columbia into five districts for the Petroleum Administration for Defense in 1950. The districts were originally instituted for economic and geographic reasons as Petroleum Administration for War (PAW) Districts, which were established in 1942.

**Paraffinic Hydrocarbons:** Saturated **hydrocarbon** compounds with the general formula $C_nH_{2n+2}$ containing only single bonds. Sometimes referred to as alkanes or **natural gas liquids**.

**Pentanes Plus:** A mixture of liquid **hydrocarbons**, mostly pentanes and heavier, extracted from **natural gas** in a gas processing plant. Pentanes plus is equivalent to **natural gasoline**.

**Petrochemical Feedstocks:** Chemical feedstocks derived from refined or partially refined **petroleum** fractions, principally for use in the manufacturing of chemicals, synthetic rubber, and a variety of plastics.

**Petroleum:** A broadly defined class of liquid hydrocarbon mixtures. Included are crude oil, lease condensate, unfinished oils, refined products obtained from the processing of crude oil, and natural gas plant liquids. *Note:* Volumes of finished petroleum products include nonhydrocarbon compounds, such as additives and detergents, after they have been blended into the products.

**Petroleum Coke:** A residue high in carbon content and low in **hydrogen** that is the final product of thermal decomposition in the condensation process in cracking. This product is reported as marketable coke or catalyst coke. The conversion is 5 barrels (of 42 U.S. gallons each) per short ton. See **Petroleum Coke, Catalyst** and **Petroleum Coke, Marketable**.

**Petroleum Coke, Catalyst:** The carbonaceous residue that is deposited on the catalyst used in many catalytic operations (e.g., catalytic cracking). Carbon is deposited on the catalyst, thus deactivating the catalyst. The catalyst is reactivated by burning off the carbon producing heat and **carbon dioxide (CO2)**. The carbonaceous residue is not recoverable as a product. See **Petroleum Coke**.

**Petroleum Coke, Marketable:** Those grades of coke produced in delayed or fluid cokers that may be recovered as relatively pure carbon. Marketable petroleum coke may be sold as is or further purified by calcining. See **Petroleum Coke**.

**Petroleum Consumption:** See **Products Supplied (Petroleum).**

**Petroleum Imports:** Imports of petroleum into the 50 states and the District of Columbia from foreign countries and from Puerto Rico, the Virgin Islands, and other U.S. territories and possessions. Included are imports for the Strategic Petroleum Reserve and withdrawals from bonded warehouses for onshore consumption, offshore bunker use, and military use. Excluded are receipts of foreign petroleum into bonded warehouses and into U.S. territories and U.S. Foreign Trade Zones.

**Petroleum Products:** Products obtained from the processing of crude oil (including lease condensate), natural gas, and other hydrocarbon compounds. Petroleum products include unfinished oils, hydrocarbon gas liquids, aviation gasoline, motor gasoline, naphtha-type jet fuel, kerosene-type jet fuel, kerosene, distillate fuel oil, residual fuel oil, petrochemical feedstocks, special naphthas, lubricants, waxes, petroleum coke, asphalt, road oil, still gas, and miscellaneous products.

**Petroleum Stocks, Primary:** For individual products, quantities that are held at refineries, in pipelines, and at bulk terminals that have a capacity of 50,000 barrels or more, or that are in transit thereto. Stocks held by product retailers and resellers, as well as tertiary stocks held at the point of consumption, are excluded. Stocks of individual products held at gas processing plants are excluded from individual product estimates but are included in other oils estimates and total.

**Pipeline Fuel:** Gas consumed in the operation of pipelines, primarily in compressors.

**Plant Condensate:** Liquid **hydrocarbon**s recovered at inlet separators or scrubbers in **natural gas** processing plants at atmospheric pressure and ambient temperatures. Mostly pentanes and heavier hydrocarbons.

**Primary Energy:** **Energy** in the form that it is first accounted for in a statistical energy balance, before any transformation to secondary or tertiary forms of energy. For example, **coal** can be converted to synthetic gas, which can be converted to **electricity**; in this example, coal is primary energy, synthetic gas is secondary energy, and electricity is tertiary energy. See **Primary Energy Production** and **Primary Energy Consumption**.

**Primary Energy Consumption:** Consumption of **primary energy**. (Energy sources that are produced from other energy sources—e.g., **coal coke** from **coal**—are included in primary energy consumption only if their energy content has not already been included as part of the original energy source. Thus, U.S. primary energy consumption does include net imports of coal coke, but not the coal coke produced from domestic coal.) The U.S. Energy Information Administration includes the following in U.S. primary energy consumption: coal consumption; coal coke net imports; **petroleum consumption** (**petroleum products supplied**, including **natural gas liquids** and **crude oil** burned as fuel); **dry natural gas**—excluding **supplemental gaseous fuels**—consumption; **nuclear electricity net generation** (converted to **Btu** using the nuclear plants **heat rate**); **conventional hydroelectricity** net generation (converted to Btu using the fossil-fueled plants heat rate); **geothermal** electricity net generation (converted to Btu using the fossil-fueled plants heat rate), and geothermal heat pump energy and geothermal direct use energy; **solar thermal** and **photovoltaic** electricity net generation (converted to Btu using the fossil-fueled plants heat rate), and solar thermal direct use energy; **wind** electricity net generation (converted to Btu using the fossil-fueled plants heat rate); **wood and wood-derived fuels** consumption; **biomass waste** consumption; **fuel ethanol** and **biodiesel** consumption; losses and co-products from the production of fuel ethanol and biodiesel; and electricity net imports (converted to Btu using the electricity heat content of 3,412 Btu per kilowatthour). Also includes all non-combustion use of fossil fuels. See **Total Energy Consumption**.

**Primary Energy Production:** Production of **primary energy**. The U.S. Energy Information Administration includes the following in U.S. primary energy production: **coal** production, **waste coal** supplied, and coal refuse recovery; **crude oil** and **lease condensate** production; **natural gas plant liquids** production; **dry natural gas**—excluding **supplemental gaseous fuels**—production; **nuclear electricity net generation** (converted to **Btu** using the nuclear plants **heat rate**); **conventional hydroelectricity** net generation (converted to Btu using the fossil-fueled plants heat rate); **geothermal** electricity net generation (converted to Btu using the fossil-fueled plants heat rate), and geothermal heat pump energy and geothermal direct use energy; **solar thermal** and **photovoltaic** electricity net generation (converted to Btu using the fossil-fueled plants heat rate), and solar thermal direct use energy; **wind** electricity net generation (converted to Btu using the fossil-fueled plants heat rate); **wood and wood-derived fuels** production; **biomass waste** consumption; and **biofuels** feedstock.

**Prime Mover:** The engine, turbine, water wheel, or similar machine that drives an electric generator; or, for reporting purposes, a device that converts energy to electricity directly.

**Product Supplied (Petroleum):** Approximately represents consumption of petroleum products because it measures the disappearance of these products from primary sources, i.e., refineries, natural gas-processing plants, blending plants, pipelines, and bulk terminals. In general, product supplied of each product in any given period is computed as follows: field production, plus refinery production, plus imports, plus unaccounted-for crude oil (plus net receipts when calculated on a PAD District basis) minus stock change, minus crude oil losses, minus refinery inputs, and minus exports.

**Propane ($C_3H_8$):** A straight-chain saturated (paraffinic) **hydrocarbon** extracted from **natural gas** or **refinery gas** streams, which is gaseous at standard temperature and pressure. It is a colorless gas that boils at a temperature of -44 degrees Fahrenheit. It includes all products designated in ASTM Specification D1835 and Gas Processors Association specifications for commercial (HD-5) propane. See **Paraffinic Hydrocarbons**.

**Propylene ($C_3H_6$):** An olefinic **hydrocarbon** recovered from refinery or petrochemical processes, which is gaseous at standard temperature and pressure. Propylene is an important petrochemical feedstock. See **Olefinic Hydrocarbons (Olefins)**.

**Real Dollars:** These are dollars that have been adjusted for inflation.

**Real Price:** A price that has been adjusted to remove the effect of changes in the purchasing power of the dollar. Real prices, which are expressed in constant dollars, usually reflect buying power relative to a base year.

**Refiner Acquisition Cost of Crude Oil:** The cost of crude oil to the refiner, including transportation and fees. The composite cost is the weighted average of domestic and imported crude oil costs.

**Refinery and Blender Net Inputs:** Raw materials, **unfinished oils**, and blending components processed at refineries, or blended at refineries or petroleum storage terminals to produce finished **petroleum products**. Included are gross inputs of **crude oil**, **natural gas liquids**, other **hydrocarbon** raw materials, **hydrogen**, **oxygenates** (excluding **fuel ethanol**), and renewable fuels (including fuel ethanol). Also included are net inputs of unfinished oils, **motor gasoline blending components**, and **aviation gasoline blending components**. Net inputs are calculated as gross inputs minus gross production.

Negative net inputs indicate gross inputs are less than gross production. Examples of negative net inputs include reformulated gasoline blendstock for oxygenate blending (RBOB) produced at refineries for shipment to blending terminals, and unfinished oils produced and added to inventory in advance of scheduled maintenance of a refinery crude oil distillation unit.

**Refinery and Blender Net Production:** Liquefied refinery gases, and finished **petroleum products** produced at a **refinery** or petroleum storage terminal blending facility. Net production equals gross production minus gross inputs. Negative net production indicates gross production is less than gross inputs for a finished petroleum product. Examples of negative net production include reclassification of one finished product to another finished product, or reclassification of a finished product to **unfinished oils** or blending components.

**Refinery Gas: Still gas** consumed as refinery fuel.

**Refinery (Petroleum):** An installation that manufactures finished petroleum products from crude oil, unfinished oils, natural gas liquids, other hydrocarbons, and alcohol.

**Refuse Mine:** A surface site where **coal** is recovered from previously mined coal. It may also be known as a silt bank, culm bank, refuse bank, slurry dam, or dredge operation.

**Refuse Recovery:** The recapture of **coal** from a **refuse mine** or the coal recaptured by that process. The resulting product has been cleaned to reduce the concentration of noncombustible materials.

**Renewable Diesel Fuel:** See **Biomass-Based Diesel Fuel** and **Renewable Diesel Fuel (Other).**

**Renewable Diesel Fuel (Other): Diesel fuel** and diesel fuel blending components produced from renewable sources that are coprocessed with **petroleum** feedstocks and meet requirements of advanced biofuels. *Note*: This category "other" pertains to the petroleum supply data system. See **Biomass-Based Diesel Fuel**.

**Renewable Energy:** Energy obtained from sources that are essentially inexhaustible (unlike, for example, the **fossil fuels**, of which there is a finite supply). Renewable sources of energy include **conventional hydroelectric power**, **biomass**, **geothermal**, **solar**, and **wind**.

**Renewable Fuels Except Fuel Ethanol:** See **Biomass-Based Diesel Fuel, Renewable Diesel Fuel (Other),** and **Renewable Fuels (Other).**

**Renewable Fuels (Other):** Fuels and fuel blending components, except **biomass-based diesel fuel**, **renewable diesel fuel (other)**, and **fuel ethanol**, produced from renewable **biomass**. *Note*: This category "other" pertains to the petroleum supply data system.

**Repressuring:** The injection of a pressurized fluid (such as air, gas, or water) into oil and gas reservoir formations to effect greater ultimate recovery.

**Residential Sector:** An energy-consuming sector that consists of living quarters for private households. Common uses of energy associated with this sector include space heating, water heating, air conditioning, lighting, refrigeration, cooking, and running a variety of other appliances. The residential sector excludes institutional living quarters. See **End-Use Sectors** and **Energy-Use Sectors**.

**Residual Fuel Oil:** A general classification for the heavier oils, known as No. 5 and No. 6 fuel oils, that remain after the **distillate fuel oil**s and lighter **hydrocarbon**s are distilled away in refinery operations. It conforms to ASTM Specifications D 396 and D 975 and Federal Specification VV-F-815C. No. 5, a residual fuel oil of medium viscosity, is also known as Navy Special and is defined in Military Specification MIL-F-859E, including Amendment 2 (NATO Symbol F-770). It is used in steam-powered vessels in government service and inshore power plants. No. 6 fuel oil includes Bunker C fuel oil and is used for the production of electric power, space heating, vessel bunkering, and various industrial purposes.

**Road Oil:** Any heavy petroleum oil, including residual asphaltic oil used as a dust palliative and surface treatment on roads and highways. It is generally produced in six grades, from 0, the most liquid, to 5, the most viscous.

**Rotary Rig:** A machine used for drilling wells that employs a rotating tube attached to a bit for boring holes through rock.

**Short Ton (Coal):** A unit of weight equal to 2,000 pounds.

**SIC (Standard Industrial Classification):** A set of codes developed by the U.S. Office of Management and Budget which categorizes industries into groups with similar economic activities. Replaced by **NAICS (North American Industry Classification System)**.

**Small-Scale:** Generators at a site that has a total generating nameplate capacity of less than 1 megawatt (MW).

**Solar Energy:** See **Solar Photovoltaic (PV) Energy** and **Solar Thermal Energy**.

**Solar Photovoltaic (PV) Energy:** Energy, radiated by the sun, that is converted into direct-current electricity by solar photovoltaic cells. Examples of solar PV technologies include solar panels on residential and commercial rooftops (generally small-scale solar PV energy) and mirrors or dishes that concentrate solar rays onto solar PV panels (concentrating PV or CPV). Utility-scale solar PV electric

generation typically relies on installations of solar PV panels on or near the ground (solar farms).

**Solar Thermal Energy:** Energy, radiated by the sun, that is converted into electricity or heat by means of solar concentrating collectors. Examples of solar thermal energy technologies include pool heaters, dark water bladders, or thermal panels (generally small-scale solar thermal energy). Utility-scale solar thermal electric generation typically relies on a large array of mirrors to heat fluids and turn a turbine, which generates electricity

**Special Naphthas:** All finished products within the **naphtha** boiling range that are used as paint thinners, cleaners, or solvents. These products are refined to a specified flash point. Special naphthas include all commercial hexane and cleaning solvents conforming to ASTM Specification D1836 and D484, respectively. Naphthas to be blended or marketed as motor gasoline or aviation gasoline, or that are to be used as petrochemical and synthetic natural gas (SNG) feedstocks are excluded.

**Station Use:** Energy that is used to operate an **electric power plant**. It includes energy consumed for plant lighting, power, and auxiliary facilities, regardless of whether the energy is produced at the plant or comes from another source.

**Steam Coal:** All nonmetallurgical coal.

**Steam-Electric Power Plant:** A plant in which the prime mover is a steam turbine. The steam used to drive the turbine is produced in a boiler where fossil fuels are burned.

**Still Gas:** Any form or mixture of gases produced in refineries by distillation, cracking, reforming, and other processes. The principal constituents are **methane** and **ethane**. May contain **hydrogen** and small/trace amounts of other gases. Still gas is typically consumed as refinery fuel or used as petrochemical feedstock. Still gas burned for refinery fuel may differ in composition from marketed still gas sold to other users. See **Refinery Gas**.

**Stocks:** See **Coal Stocks**, **Crude Oil Stocks**, or **Petroleum Stocks, Primary**.

**Strategic Petroleum Reserve (SPR):** Petroleum stocks maintained by the federal Government for use during periods of major supply interruption.

**Subbituminous Coal:** A **coal** whose properties range from those of **lignite** to those of **bituminous coal** and used primarily as fuel for steam-electric power generation. It may be dull, dark brown to black, soft and crumbly, at the lower end of the range, to bright, jet black, hard, and relatively strong, at the upper end. Subbituminous coal contains 20 to 30 percent inherent moisture by weight. The heat content of subbituminous coal ranges from 17 to 24 million **Btu** per **short ton** on a moist, mineral-matter-free basis. The heat content of subbituminous coal consumed in the United States averages 17 to 18 million Btu per ton, on the as-received basis (i.e., containing both inherent moisture and mineral matter).

**Supplemental Gaseous Fuels:** Synthetic **natural gas**, **propane**-air, coke oven gas, **still gas (refinery gas)**, **biomass** gas, air injected for Btu stabilization, and manufactured gas commingled and distributed with natural gas.

**Synthetic Natural Gas (SNG):** (Also referred to as substitute natural gas) A manufactured product, chemically similar in most respects to **natural gas**, resulting from the conversion or reforming of **hydrocarbons** that may easily be substituted for or interchanged with pipeline-quality natural gas.

**Thermal Conversion Factor:** A factor for converting data between physical units of measure (such as **barrels**, **cubic feet**, or **short tons**) and thermal units of measure (such as **British thermal units**, calories, or joules); or for converting data between different thermal units of measure. See **Btu Conversion Factor**.

**Total Energy Consumption**: **Primary energy consumption** in the **end-use sectors**, plus **electricity retail sales** and **electrical system energy losses**.

**Transportation Sector:** An energy-consuming sector that consists of all vehicles whose primary purpose is transporting people and/or goods from one physical location to another. Included are automobiles; trucks; buses; motorcycles; trains, subways, and other rail vehicles; aircraft; and ships, barges, and other waterborne vehicles. Vehicles whose primary purpose is not transportation (e.g., construction cranes and bulldozers, farming vehicles, and warehouse tractors and forklifts) are classified in the sector of their primary use. See **End-Use Sectors** and **Energy-Use Sectors**.

**Underground Storage:** The storage of **natural gas** in underground reservoirs at a different location from which it was produced.

**Unfinished Oils:** All oils requiring further processing, except those requiring only mechanical blending. Unfinished oils are produced by partial refining of **crude oil** and include **naphtha**s and lighter oils, **kerosene** and light gas oils, heavy gas oils, and residuum.

**Unfractionated Streams:** Mixtures of unsegregated **natural gas liquids** components, excluding those in **plant condensate**. This product is extracted from **natural gas**.

**Union of Soviet Socialist Republics (U.S.S.R.):** A political entity that consisted of 15 constituent republics: Armenia, Azerbaijan, Belarus, Estonia, Georgia, Kazakhstan, Kyrgyzstan, Latvia, Lithuania, Moldova, Russia, Tajikistan, Turkmenistan, Ukraine, and Uzbekistan. The U.S.S.R. ceased to exist as of December 31, 1991.

**United States:** The 50 states and the District of Columbia. *Note:* The United States has varying degrees of jurisdiction over a number of territories and other political entities outside the 50 states and the District of Columbia, including Puerto Rico, the U.S. Virgin Islands, Guam, American Samoa, Johnston Atoll, Midway Islands, Wake Island, and the Northern Mariana Islands. EIA data programs may include data from some or all of these areas in U.S. totals. For these programs, data products will contain notes explaining the extent of geographic coverage included under the term "United States."

**Useful Thermal Output:** The thermal energy made available in a combined-heat-and-power system for use in any industrial or commercial process, heating or cooling application, or delivered to other end users, i.e., total thermal energy made available for processes and applications other than electrical generation.

**U.S.S.R.:** See **Union of Soviet Socialist Republics (U.S.S.R.).**

**Utility-Scale:** Generators at a site that has a total generating nameplate capacity of 1 megawatt (MW) or more.

**Vented Natural Gas: Natural gas** released into the air on the production site or at processing plants.

**Vessel Bunkering:** Includes sales for the fueling of commercial or private boats, such as pleasure craft, fishing boats, tugboats, and ocean-going vessels, including vessels operated by oil companies. Excluded are volumes sold to the U.S. Armed Forces.

**Waste:** See **Biomass Waste** and **Non-Biomass Waste**.

**Waste Coal:** Usable material that is a byproduct of previous **coal** processing operations. Waste coal is usually composed of mixed coal, soil, and rock (mine waste). Most waste coal is burned as-is in unconventional fluidized-bed combustors. For some uses, waste coal may be partially cleaned by removing some extraneous noncombustible constituents. Examples of waste coal include fine coal, coal obtained from a refuse bank or slurry dam, anthracite culm, bituminous gob, and lignite waste.

**Watt (W):** The unit of electrical power equal to one ampere under a pressure of one volt. A watt is equal to 1/746 horsepower.

**Watthour (Wh):** The electrical energy unit of measure equal to one watt of power supplied to, or taken from, an electric circuit steadily for one hour.

**Wax:** A solid or semi-solid material consisting of a mixture of **hydrocarbon**s obtained or derived from **petroleum** fractions, or through a Fischer-Tropsch type process, in which the straight-chained paraffin series predominates. This includes all marketable wax, whether crude or refined, with a congealing point (ASTM D 938) between 100 and 200 degrees Fahrenheit and a maximum oil content (ASTM D 3235) of 50 weight percent.

**Wellhead Price:** The value of **crude oil** or **natural gas** at the mouth of the well.

**Wind Energy:** Kinetic energy present in wind motion that can be converted to mechanical energy for driving pumps, mills, and electric power generators.

**Wood and Wood-Derived Fuels:** Wood and products derived from wood that are used as fuel, including round wood (cord wood), limb wood, wood chips, bark, sawdust, forest residues, charcoal, paper pellets, railroad ties, utility poles, **black liquor**, red liquor, sludge wood, spent sulfite liquor, **densified biomass** (including wood pellets), and other wood-based solids and liquids.

**Working Gas:** The quantity of **natural gas** in the reservoir that is in addition to the cushion or **base gas**. It may or may not be completely withdrawn during any particular withdrawal season. Conditions permitting, the total working capacity could be used more than once during any season. Volumes of working gas are reported in thousand cubic feet at standard temperature and pressure.