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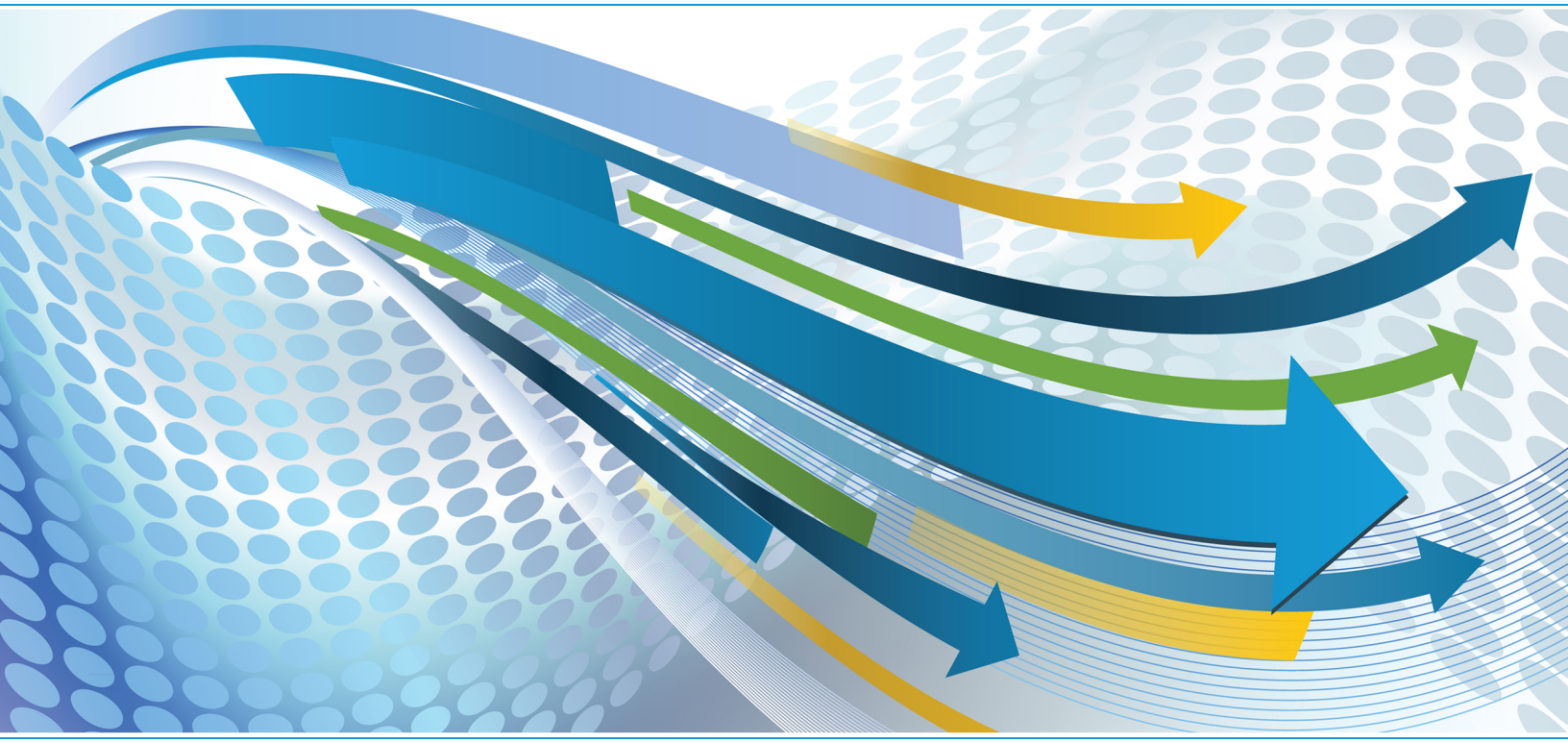
March 2018

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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- Graphs: PDF files and data browser

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Monthly Energy Review

March 2018

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Office of Energy Statistics
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Contacts

The *Monthly Energy Review* is prepared by the U.S. Energy Information Administration, Office of Energy Statistics, Office of Survey Development and Statistical Integration, Integrated Energy Statistics Team, under the direction of Nanda Srinivasan, 202-586-7777 (nanda.srinivasan@eia.gov). Questions and comments specifically related to the *Monthly Energy Review* may be addressed to Alexander Sun, 202-287-5948 (alexander.sun@eia.gov).

For assistance in acquiring data, please contact EIA's Office of Communications at 202-586-8800 (infoctr@eia.gov). Questions about the collection, processing, or interpretation of the information may be directed to the following subject specialists:

Section	**1.**	**Energy Overview**	Dianne R. Dunn	202-586-2792 dianne.dunn@eia.gov
Section	**2.**	**Energy Consumption by Sector**	Dianne R. Dunn	202-586-2792 dianne.dunn@eia.gov
Section	**3.**	**Petroleum**	Jennifer Barrick	202-586-6254 jennifer.barrick@eia.gov
Section	**4.**	**Natural Gas**	Jennifer Wade	202-586-4749 jennifer.wade@eia.gov
Section	**5.**	**Crude Oil and Natural Gas Resource Development**	Gary Long	202-586-3467 gary.long@eia.gov
Section	**6.**	**Coal**	Rosalyn Berry	202-586-6393 rosalyn.berry@eia.gov
Section	**7.**	**Electricity**	Lisa Cabral	202-287-6533 lisa.cabral@eia.gov
Section	**8.**	**Nuclear Energy**	Tim Shear	202-586-0403 tim.shear@eia.gov
Section	**9.**	**Energy Prices**		
		Petroleum	Maureen Klein	202-586-8013 maureen.klein@eia.gov
		Natural Gas	Jennifer Wade	202-586-4749 jennifer.wade@eia.gov
		Average Retail Prices of Electricity	Peter Wong	202-586-7574 peter.wong@eia.gov
		Cost of Fuel at Electric Generating Plants	Rebecca Peterson	202-586-4509 rebecca.peterson@eia.gov
Section	**10.**	**Renewable Energy**	Lolita Jamison	202-586-9567 lolita.jamison@eia.gov
Section	**11.**	**International Petroleum**	Patricia Smith	202-586-6925 patricia.smith@eia.gov
Section	**12.**	**Environment**	Perry Lindstrom	202-586-0934 perry.lindstrom@eia.gov

Contents

			Page
Section	1.	Energy Overview	1
Section	2.	Energy Consumption by Sector	29
Section	3.	Petroleum	49
Section	4.	Natural Gas	83
Section	5.	Crude Oil and Natural Gas Resource Development	91
Section	6.	Coal	97
Section	7.	Electricity	107
Section	8.	Nuclear Energy	129
Section	9.	Energy Prices	133
Section	10.	Renewable Energy	151
Section	11.	International Petroleum	169
Section	12.	Environment	179
Appendix	A.	British Thermal Unit Conversion Factors	193
Appendix	B.	Metric Conversion Factors, Metric Prefixes, and Other Physical Conversion Factors	207
Appendix	C.	Population, U.S. Gross Domestic Product, and U.S. Gross Output	211
Appendix	D.	Estimated Primary Energy Consumption in the United States, Selected Years, 1635–1945	213
Appendix	E.	Alternative Approaches for Deriving Energy Contents of Noncombustible Renewables	215
Glossary			219

Tables

		Page
Section 1.	**Energy Overview**	
1.1	Primary Energy Overview	3
1.2	Primary Energy Production by Source	5
1.3	Primary Energy Consumption by Source	7
1.4a	Primary Energy Imports by Source	10
1.4b	Primary Energy Exports by Source and Total Net Imports	11
1.5	Merchandise Trade Value	13
1.6	Cost of Fuels to End Users in Real (1982–1984) Dollars	15
1.7	Primary Energy Consumption, Energy Expenditures, and Carbon Dioxide Emissions Indicators	17
1.8	Motor Vehicle Mileage, Fuel Consumption, and Fuel Economy	19
1.9	Heating Degree Days by Census Division	20
1.10	Cooling Degree Days by Census Division	21
1.11a	Non-Combustion Use of Fossil Fuels in Physical Units	22
1.11b	Heat Content of Non-Combustion Use of Fossil Fuels	23
Section 2.	**Energy Consumption by Sector**	
2.1	Energy Consumption by Sector	31
2.2	Residential Sector Energy Consumption	33
2.3	Commercial Sector Energy Consumption	35
2.4	Industrial Sector Energy Consumption	37
2.5	Transportation Sector Energy Consumption	39
2.6	Electric Power Sector Energy Consumption	41
2.7	U.S. Government Energy Consumption by Agency, Fiscal Years	42
2.8	U.S. Government Energy Consumption by Source, Fiscal Years	43
Section 3.	**Petroleum**	
3.1	Petroleum Overview	51
3.2	Refinery and Blender Net Inputs and Net Production	53
3.3	Petroleum Trade	
	3.3a Overview	55
	3.3b Imports and Exports by Type	57
	3.3c Imports From OPEC Countries	58
	3.3d Imports From Non-OPEC Countries	59
3.4	Petroleum Stocks	61
3.5	Petroleum Products Supplied by Type	63
3.6	Heat Content of Petroleum Products Supplied by Type	65
3.7	Petroleum Consumption	
	3.7a Residential and Commercial Sectors	67
	3.7b Industrial Sector	68
	3.7c Transportation and Electric Power Sectors	69
3.8	Heat Content of Petroleum Consumption	
	3.8a Residential and Commercial Sectors	72
	3.8b Industrial Sector	73
	3.8c Transportation and Electric Power Sectors	74
Section 4.	**Natural Gas**	
4.1	Natural Gas Overview	85
4.2	Natural Gas Trade by Country	86
4.3	Natural Gas Consumption by Sector	87
4.4	Natural Gas in Underground Storage	88

Tables

Page

Section 5. Crude Oil and Natural Gas Resource Development
5.1 Crude Oil and Natural Gas Drilling Activity Measurements. . . . 93
5.2 Crude Oil and Natural Gas Exploratory and Development Wells. . . . 94

Section 6. Coal
6.1 Coal Overview. . . . 99
6.2 Coal Consumption by Sector. . . . 100
6.3 Coal Stocks by Sector. . . . 101

Section 7. Electricity
7.1 Electricity Overview. . . . 109
7.2 Electricity Net Generation
7.2a Total (All Sectors). . . . 111
7.2b Electric Power Sector. . . . 112
7.2c Commercial and Industrial Sectors. . . . 113
7.3 Consumption of Combustible Fuels for Electricity Generation
7.3a Total (All Sectors). . . . 115
7.3b Electric Power Sector. . . . 116
7.3c Commercial and Industrial Sectors (Selected Fuels). . . . 117
7.4 Consumption of Combustible Fuels for Electricity Generation and Useful Thermal Output
7.4a Total (All Sectors). . . . 119
7.4b Electric Power Sector. . . . 120
7.4c Commercial and Industrial Sectors (Selected Fuels). . . . 121
7.5 Stocks of Coal and Petroleum: Electric Power Sector. . . . 123
7.6 Electricity End Use. . . . 125

Section 8. Nuclear Energy
8.1 Nuclear Energy Overview. . . . 131

Section 9. Energy Prices
9.1 Crude Oil Price Summary. . . . 135
9.2 F.O.B. Costs of Crude Oil Imports From Selected Countries. . . . 136
9.3 Landed Costs of Crude Oil Imports From Selected Countries. . . . 137
9.4 Retail Motor Gasoline and On-Highway Diesel Fuel Prices. . . . 138
9.5 Refiner Prices of Residual Fuel Oil. . . . 139
9.6 Refiner Prices of Petroleum Products for Resale. . . . 140
9.7 Refiner Prices of Petroleum Products to End Users. . . . 141
9.8 Average Retail Prices of Electricity. . . . 143
9.9 Cost of Fossil-Fuel Receipts at Electric Generating Plants. . . . 145
9.10 Natural Gas Prices. . . . 147

Section 10. Renewable Energy
10.1 Renewable Energy Production and Consumption by Source. . . . 153
10.2 Renewable Energy Consumption
10.2a Residential and Commercial Sectors. . . . 154
10.2b Industrial and Transportation Sectors. . . . 155
10.2c Electric Power Sector 156
10.3 Fuel Ethanol Overview. . . . 157
10.4 Biodiesel and Other Renewable Fuels Overview. . . . 158
10.5 Solar Energy Consumption. . . . 159
10.6 Solar Electricity Net Generation. . . . 160

Tables

Page

Section 11. International Petroleum
11.1 World Crude Oil Production
11.1a OPEC Members. . . . 172
11.1b Persian Gulf Nations, Non-OPEC, and World. . . . 173
11.2 Petroleum Consumption in OECD Countries. . . . 175
11.3 Petroleum Stocks in OECD Countries. . . . 177

Section 12. Environment
12.1 Carbon Dioxide Emissions From Energy Consumption by Source . . . 181
12.2 Carbon Dioxide Emissions From Energy Consumption: Residential Sector . . . 183
12.3 Carbon Dioxide Emissions From Energy Consumption: Commercial Sector. . . . 184
12.4 Carbon Dioxide Emissions From Energy Consumption: Industrial Sector. . . . 185
12.5 Carbon Dioxide Emissions From Energy Consumption: Transportation Sector. . . . 186
12.6 Carbon Dioxide Emissions From Energy Consumption: Electric Power Sector. . . . 187
12.7 Carbon Dioxide Emissions From Biomass Energy Consumption . . . 188

Appendix A. British Thermal Unit Conversion Factors
A1 Approximate Heat Content of Petroleum and Other Liquids. . . . 193
A2 Approximate Heat Content of Petroleum Production, Imports, and Exports. . . . 194
A3 Approximate Heat Content of Petroleum Consumption and Fuel Ethanol. . . . 195
A4 Approximate Heat Content of Natural Gas. . . . 196
A5 Approximate Heat Content of Coal and Coal Coke. . . . 197
A6 Approximate Heat Rates for Electricity, and Heat Content of Electricity. . . . 198

Appendix B. Metric Conversion Factors, Metric Prefixes, and Other Physical Conversion Factors
B1 Metric Conversion Factors. . . . 208
B2 Metric Prefixes. . . . 209
B3 Other Physical Conversion Factors. . . . 209

Appendix C. Population, U.S. Gross Domestic Product, and U.S. Gross Output
C1 Population, U.S. Gross Domestic Product, and U.S. Gross Output. . . . 211

Appendix D. Estimated Primary Energy Consumption in the United States, Selected Years, 1635–1945
D1 Estimated Primary Energy Consumption in the United States, Selected Years, 1635–1945. . . . 213

Appendix E. Alternative Approaches for Deriving Energy Contents of Noncombustible Renewables
E1 Noncombustible Renewable Primary Energy Consumption:
E1a Conventional Hydroelectric Power, Geothermal, and Wind. . . . 216
E1b Solar and Total. . . . 217

Figures

Page

Section 1. Energy Overview
1.1 Primary Energy Overview. . . . 2
1.2 Primary Energy Production. . . . 4
1.3 Primary Energy Consumption. . . . 6
1.4a Primary Energy Imports and Exports. . . . 8
1.4b Primary Energy Net Imports. . . . 9
1.5 Merchandise Trade Value. . . . 12
1.6 Cost of Fuels to End Users in Real (1982–1984) Dollars. . . . 14
1.7 Primary Energy Consumption and Energy Expenditures Indicators. . . . 16
1.8 Motor Vehicle Mileage, Fuel Consumption, and Fuel Economy, 1949–2016 18

Section 2. Energy Consumption by Sector
2.1 Energy Consumption by Sector. . . . 30
2.2 Residential Sector Energy Consumption. . . . 32
2.3 Commercial Sector Energy Consumption. . . . 34
2.4 Industrial Sector Energy Consumption. . . . 36
2.5 Transportation Sector Energy Consumption. . . . 38
2.6 Electric Power Sector Energy Consumption. . . . 40

Section 3. Petroleum
3.1 Petroleum Overview 50
3.2 Refinery and Blender Net Inputs and Net Production. . . . 52
3.3 Petroleum Trade
3.3a Overview. . . . 54
3.3b Imports. . . . 56
3.4 Petroleum Stocks. . . . 60
3.5 Petroleum Products Supplied by Type. . . . 62
3.6 Heat Content of Petroleum Products Supplied by Type. . . . 64
3.7 Petroleum Consumption by Sector. . . . 66
3.8a Heat Content of Petroleum Consumption by End-User Sector, 1949–2017. . . . 70
3.8b Heat Content of Petroleum Consumption by End-User Sector, Monthly. . . . 71

Section 4. Natural Gas
4.1 Natural Gas. . . . 84

Section 5. Crude Oil and Natural Gas Resource Development
5.1 Crude Oil and Natural Gas Resource Development Indicators. . . . 92

Section 6. Coal
6.1 Coal. . . . 98

Section 7. Electricity
7.1 Electricity Overview. . . . 108
7.2 Electricity Net Generation. . . . 110
7.3 Consumption of Selected Combustible Fuels for Electricity Generation. . . . 114
7.4 Consumption of Selected Combustible Fuels for Electricity Generation and Useful Thermal Output. . . . 118
7.5 Stocks of Coal and Petroleum: Electric Power Sector. . . . 122
7.6 Electricity End Use. . . . 124

Figures

Page

Section 8. Nuclear Energy
8.1 Nuclear Energy Overview. 130

Section 9. Energy Prices
9.1 Petroleum Prices. 134
9.2 Average Retail Prices of Electricity. 142
9.3 Cost of Fossil-Fuel Receipts at Electric Generating Plants. 144
9.4 Natural Gas Prices. 146

Section 10. Renewable Energy
10.1 Renewable Energy Consumption. 152

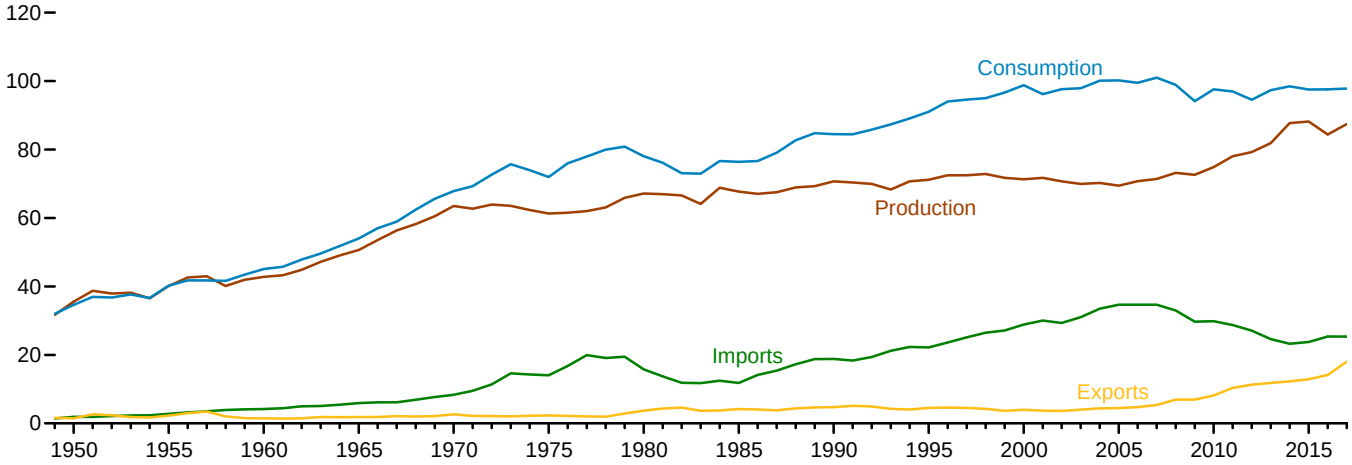
Section 11. International Petroleum
11.1 World Crude Oil Production
11.1a Overview. 170
11.1b By Selected Countries. 171
11.2 Petroleum Consumption in OECD Countries. 174
11.3 Petroleum Stocks in OECD Countries. 176

Section 12. Environment
12.1 Carbon Dioxide Emissions From Energy Consumption by Source 180
12.2 Carbon Dioxide Emissions From Energy Consumption by Sector. 182

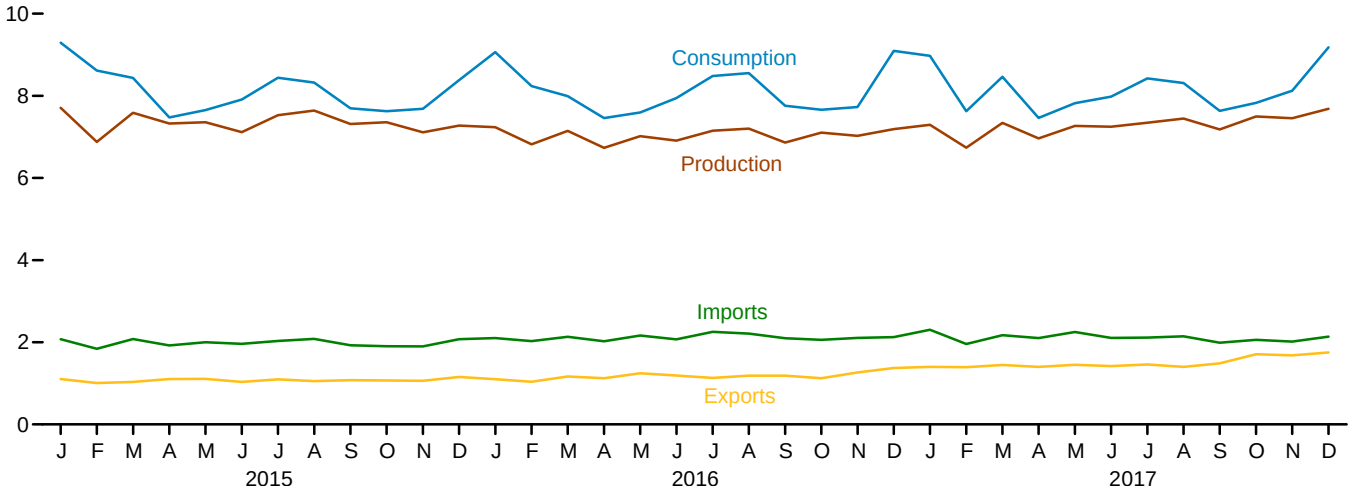
1. Energy Overview

Figure 1.1 Primary Energy Overview
(Quadrillion Btu)

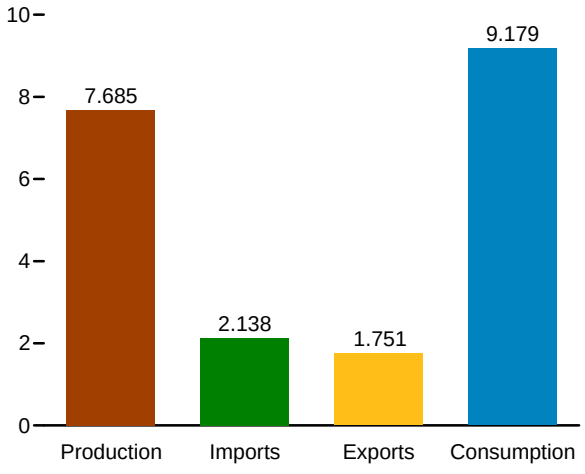
Overview, 1949–2017



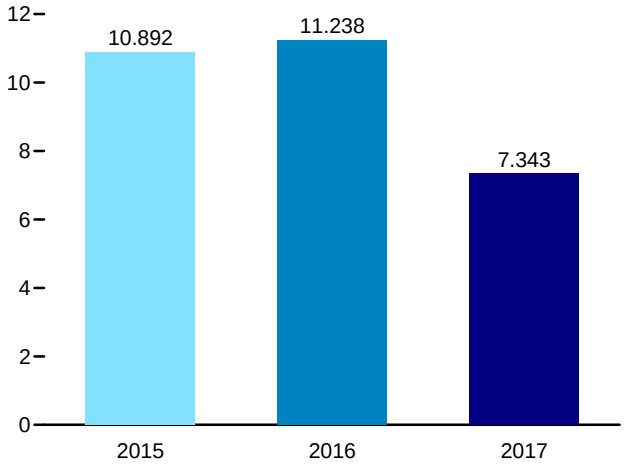
Overview, Monthly



Overview, December 2017



Net Imports, January–December



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**	**8.212**	**74.863**	**29.866**	**8.176**	**21.690**	**1.027**	**80.891**	**8.434**	**8.166**	**97.580**
2011 Total	**60.543**	**8.269**	**9.224**	**78.036**	**28.748**	**10.373**	**18.375**	**.564**	**79.452**	**8.269**	**9.128**	**96.975**
2012 Total	**62.324**	**8.062**	**8.866**	**79.252**	**27.068**	**11.267**	**15.801**	**-.518**	**77.482**	**8.062**	**8.829**	**94.535**
2013 Total	**64.199**	**8.244**	**9.427**	**81.870**	**24.623**	**11.788**	**12.835**	**2.636**	**79.446**	**8.244**	**9.453**	**97.341**
2014 Total	**69.631**	**8.338**	**R 9.774**	**R 87.742**	**23.241**	**12.270**	**10.971**	**-.224**	**80.233**	**8.338**	**R 9.738**	**R 98.490**
2015 January	6.108	.777	R .822	7.707	2.075	1.103	.972	.614	7.692	.777	R .807	9.294
February	5.449	.664	R .765	R 6.878	1.840	1.006	.834	.901	7.174	.664	R .761	R 8.613
March	6.082	.675	.831	7.588	2.079	1.035	1.044	-.195	6.915	.675	.827	R 8.436
April	5.872	.625	R .827	R 7.324	1.922	1.105	.816	-.669	6.001	.625	.826	7.472
May	5.849	.688	.821	R 7.358	2.000	1.110	.890	-.595	6.122	.688	R .822	R 7.653
June	5.614	.717	R .786	7.117	1.963	1.032	.930	-.137	6.385	.717	R .788	R 7.910
July	5.971	.747	.812	R 7.529	2.032	1.095	.937	-.027	6.858	.747	R .813	R 8.439
August	6.100	.757	R .785	7.643	2.082	1.054	1.028	-.348	6.754	.757	.790	8.323
September	5.882	.695	R .736	R 7.313	1.925	1.076	.849	-.467	6.237	.695	R .743	R 7.695
October	5.956	.633	.769	7.358	1.901	1.070	.832	-.563	6.208	.633	R .769	R 7.626
November	5.661	.630	.821	7.112	1.899	1.060	.839	-.265	6.220	.630	.818	R 7.685
December	5.670	.728	R .876	R 7.274	2.076	1.156	.920	.186	6.763	.728	.871	8.380
Total	**70.213**	**8.337**	**R 9.651**	**R 88.201**	**23.794**	**12.902**	**10.892**	**-1.566**	**79.328**	**8.337**	**R 9.635**	**R 97.527**
2016 January	5.609	.759	R .867	R 7.234	2.102	1.100	1.003	.826	7.437	.759	R .848	R 9.063
February	5.277	.687	R .857	R 6.821	2.026	1.038	.988	.428	6.687	.687	R .848	R 8.237
March	5.522	.692	R .933	R 7.147	2.135	1.168	.967	-.122	6.359	.692	R .924	R 7.992
April	5.195	.656	R .884	R 6.734	2.026	1.123	.902	-.179	5.911	.656	R .877	R 7.457
May	5.426	.696	R .894	R 7.016	2.165	1.243	.921	-.344	5.990	.696	R .891	R 7.593
June	5.356	.703	R .851	R 6.909	2.070	1.191	.879	.156	6.377	.703	R .845	R 7.944
July	5.551	.736	R .862	R 7.149	2.253	1.132	1.121	.213	6.863	.736	R .863	R 8.483
August	5.640	.748	R .814	R 7.202	2.210	1.188	1.023	.327	6.969	.748	R .813	R 8.551
September	5.395	.685	R .780	R 6.860	2.097	1.186	.911	-.012	6.282	.685	R .780	R 7.760
October	5.643	.635	R .827	R 7.105	2.057	1.125	.932	-.375	6.189	.635	R .822	R 7.662
November	5.516	.682	R .827	R 7.025	2.104	1.264	.841	-.139	6.202	.682	R .825	R 7.727
December	5.506	.750	R .933	R 7.188	2.123	1.372	.751	1.154	7.404	.750	R .924	R 9.093
Total	**65.635**	**8.427**	**R 10.329**	**R 84.391**	**25.368**	**14.130**	**11.238**	**1.933**	**78.669**	**8.427**	**R 10.261**	**R 97.562**
2017 January	R 5.599	.765	R .932	R 7.296	R 2.303	R 1.399	R .903	R .774	7.285	.765	R .907	R 8.973
February	R 5.196	R .665	R .877	R 6.738	R 1.959	R 1.392	R .567	R .323	R 6.089	R .665	R .862	R 7.627
March	R 5.629	.681	R 1.029	R 7.340	R 2.171	R 1.448	R .723	R .401	R 6.754	.681	R 1.017	R 8.464
April	R 5.376	.593	R .995	R 6.964	R 2.101	R 1.402	R .699	R -.200	R 5.865	.593	R .990	R 7.463
May	R 5.604	.641	R 1.022	R 7.267	R 2.249	R 1.451	R .797	R -.244	R 6.145	.641	R 1.020	R 7.821
June	R 5.565	.701	R .980	R 7.246	R 2.104	R 1.421	R .683	R .049	R 6.281	.701	R .981	R 7.979
July	R 5.691	.746	R .908	R 7.345	R 2.112	R 1.457	R .655	R .424	R 6.758	.746	R .905	R 8.424
August	R 5.838	.757	R .850	R 7.445	R 2.145	R 1.399	R .746	R .120	R 6.693	.757	R .844	R 8.311
September	R 5.636	.712	R .834	R 7.181	R 1.987	R 1.488	R .499	R -.046	R 6.084	.712	R .825	R 7.634
October	R 5.908	.690	R .898	R 7.496	2.058	R 1.708	R .350	R -.019	R 6.236	.690	R .888	R 7.828
November	R 5.867	.697	R .890	R 7.453	2.016	R 1.682	R .334	R .336	R 6.538	.697	R .875	R 8.124
December	5.992	.771	.923	7.685	2.138	1.751	.386	1.107	7.490	.771	.903	9.179
Total	**67.901**	**8.419**	**11.138**	**87.458**	**25.342**	**17.999**	**7.343**	**3.026**	**78.219**	**8.419**	**11.017**	**97.827**

[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.

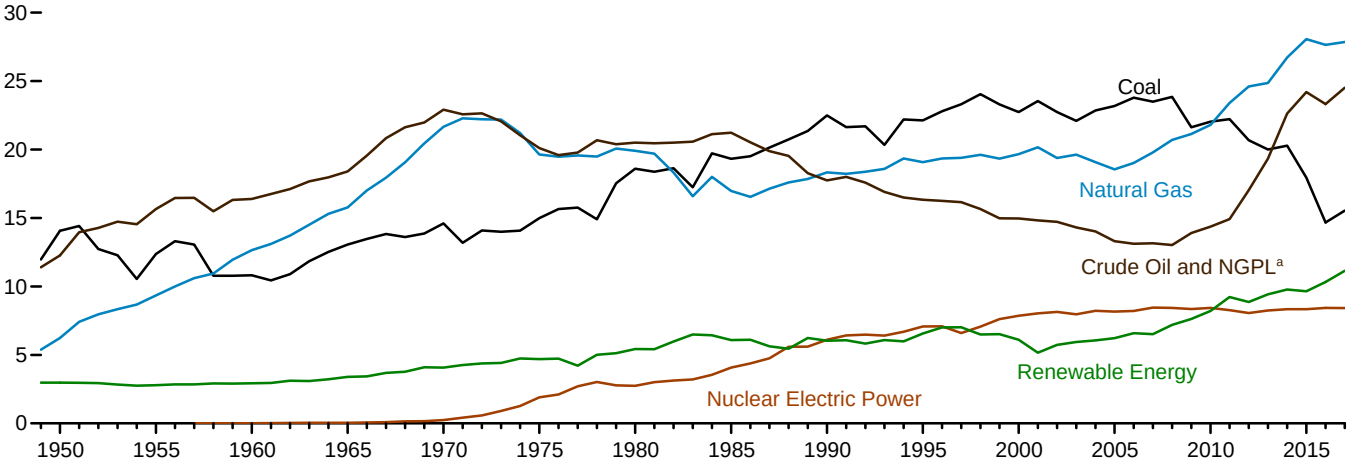
Notes: • See "Primary Energy," "Primary Energy Production," and "Primary Energy Consumption," in Glossary. • Totals may not equal sum of components due to independent rounding. • Geographic coverage is the 50 states and the District of Columbia.

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.

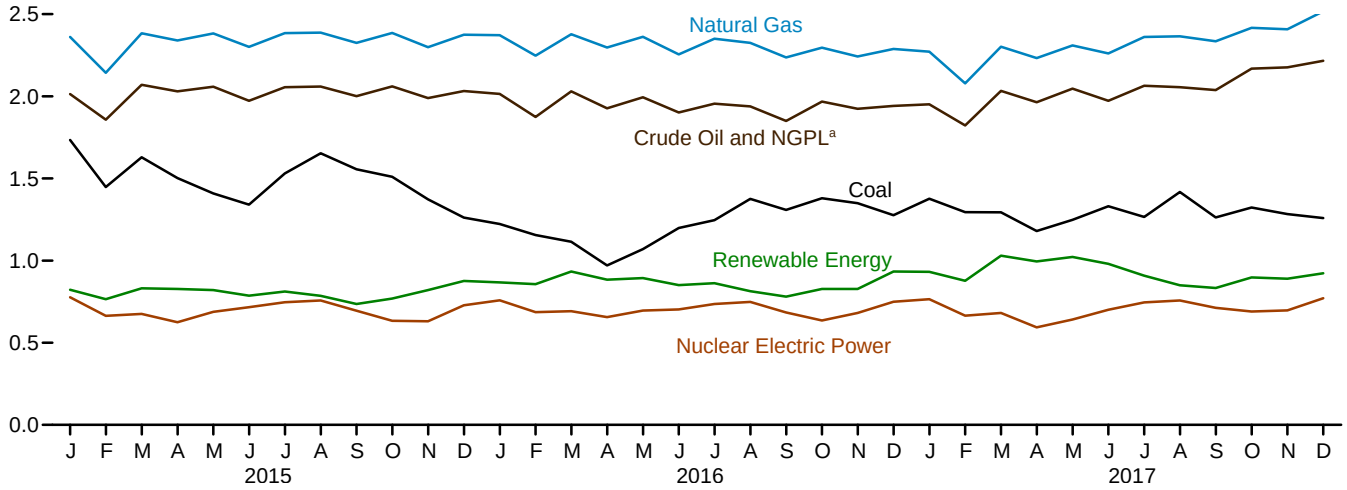
Sources: • **Production:** Table 1.2. • **Trade:** Tables 1.4a and 1.4b. • **Stock Change and Other:** Calculated as consumption minus production and net imports. • **Consumption:** Table 1.3.

Figure 1.2 Primary Energy Production
(Quadrillion Btu)

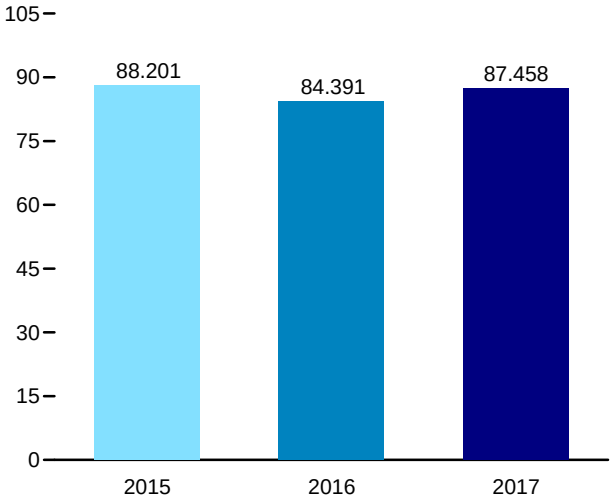
By Source, 1949–2017



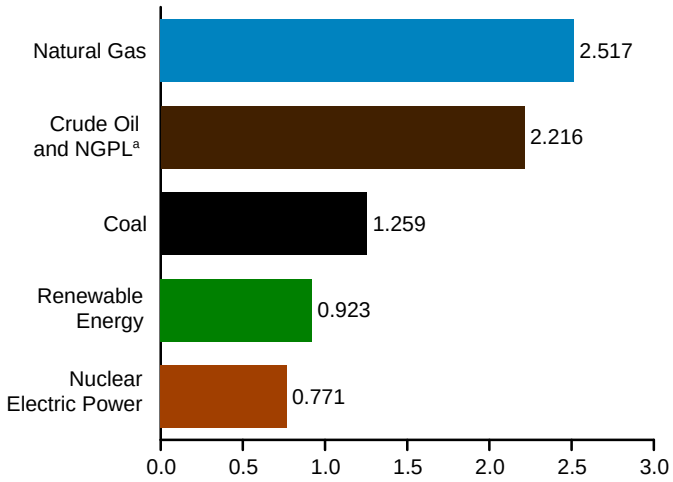
By Source, Monthly



Total, January–December



By Source, December 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**	**4.452**	**8.212**	**74.863**
2011 Total	**22.221**	**23.406**	**11.946**	**2.970**	**60.543**	**8.269**	**3.103**	**.212**	**.111**	**1.168**	**4.630**	**9.224**	**78.036**
2012 Total	**20.677**	**24.610**	**13.791**	**3.246**	**62.324**	**8.062**	**2.629**	**.212**	**.157**	**1.340**	**4.529**	**8.866**	**79.252**
2013 Total	**20.001**	**24.859**	**15.806**	**3.532**	**64.199**	**8.244**	**2.562**	**.214**	**.225**	**1.601**	**4.824**	**9.427**	**81.870**
2014 Total	**20.286**	**26.718**	**18.531**	**4.096**	**69.631**	**8.338**	**2.467**	**.214**	**.337**	**1.728**	**R 5.029**	**R 9.774**	**R 87.742**
2015 January	1.734	2.361	1.659	.355	6.108	.777	.225	.018	.021	.141	.417	R .822	7.707
February	1.448	2.143	1.527	.331	5.449	.664	.208	.017	.025	.139	.377	R .765	R 6.878
March	1.628	2.383	1.694	.376	6.082	.675	.226	.018	.035	.143	.409	.831	7.588
April	1.502	2.340	1.651	.379	5.872	.625	.209	.017	.040	.167	.395	R .827	R 7.324
May	1.409	2.383	1.671	.387	5.849	.688	.188	.018	.043	.160	R .412	.821	R 7.358
June	1.341	2.301	1.600	.373	5.614	.717	.190	.017	.043	.125	R .410	R .786	7.117
July	1.531	2.385	1.666	.389	5.971	.747	.196	.018	.045	.127	R .425	.812	R 7.529
August	1.654	2.388	1.662	.397	6.100	.757	.178	.018	.045	.122	R .422	R .785	7.643
September	1.555	2.325	1.615	.386	5.882	.695	.150	.016	.039	.130	.401	R .736	R 7.313
October	1.510	2.385	1.655	.405	5.956	.633	.155	.018	.034	.153	R .409	.769	7.358
November	1.373	2.298	1.596	.393	5.661	.630	.180	.018	.030	.183	.410	.821	7.112
December	1.262	2.375	1.636	.397	5.670	.728	.216	.018	.027	.187	.428	R .876	R 7.274
Total	**17.946**	**28.067**	**19.632**	**4.567**	**70.213**	**8.337**	**2.321**	**.212**	**.426**	**1.777**	**R 4.914**	**R 9.651**	**R 88.201**
2016 January	1.222	2.372	1.630	.385	5.609	.759	.236	.018	.026	.170	R .417	R .867	R 7.234
February	1.156	2.247	1.511	.363	5.277	.687	.223	.017	.035	.186	R .396	R .857	R 6.821
March	1.115	2.377	1.620	.409	5.522	.692	.253	.018	.043	.203	R .417	R .933	R 7.147
April	.971	2.297	1.529	.398	5.195	.656	.239	.016	.048	.192	R .388	R .884	R 6.734
May	1.069	2.363	1.571	.423	5.426	.696	.235	.018	.055	.174	R .411	R .894	R 7.016
June	1.198	2.255	1.494	.408	5.356	.703	.215	.017	.056	.151	R .412	R .851	R 6.909
July	1.246	2.350	1.540	.415	5.551	.736	.198	.017	.062	.163	R .422	R .862	R 7.149
August	1.376	2.325	1.546	.393	5.640	.748	.181	.018	.061	.125	R .429	R .814	R 7.202
September	1.309	2.237	1.468	.382	5.395	.685	.151	.017	.055	.151	R .405	R .780	R 6.860
October	1.379	2.296	1.559	.408	5.643	.635	.160	.018	.049	.188	R .412	R .827	R 7.105
November	1.350	2.242	1.524	.401	5.516	.682	.174	.018	.041	.179	R .415	R .827	R 7.025
December	1.276	2.288	1.556	.386	5.506	.750	.208	.019	.037	.214	R .456	R .933	R 7.188
Total	**14.667**	**27.649**	**18.548**	**4.770**	**65.635**	**8.427**	**2.472**	**.210**	**.570**	**2.096**	**R 4.982**	**R 10.329**	**R 84.391**
2017 January	1.376	E 2.272	E 1.565	R .386	R 5.599	.765	.257	.018	.035	R .192	R .430	R .932	R 7.296
February	1.295	E 2.079	E 1.449	R .373	R 5.196	R .665	.227	.016	.040	R .205	R .389	R .877	R 6.738
March	1.294	E 2.302	E 1.615	R .418	R 5.629	.681	.279	.018	.064	R .241	R .427	R 1.029	R 7.340
April	1.179	E 2.232	E 1.561	R .403	R 5.376	.593	.271	.018	.070	R .238	R .399	R .995	R 6.964
May	1.248	E 2.309	E 1.620	R .427	R 5.604	.641	.297	.017	.082	.209	R .417	R 1.022	R 7.267
June	1.331	E 2.261	E 1.557	R .416	R 5.565	.701	.281	.017	.087	R .182	R .413	R .980	R 7.246
July	1.265	E 2.361	E 1.633	R .431	R 5.691	.746	.238	.018	.081	.146	R .426	R .908	R 7.345
August	1.417	E 2.365	E 1.631	R .425	R 5.838	.757	.196	.018	.079	.121	R .436	R .850	R 7.445
September	1.263	E 2.335	E 1.628	R .410	R 5.636	.712	.175	.017	.074	R .159	R .407	R .834	R 7.181
October	1.323	RE 2.417	E 1.713	R .455	R 5.908	.690	.159	.017	R .069	.229	R .424	R .898	R 7.496
November	1.283	E 2.407	RE 1.726	R .450	R 5.867	.697	.183	.018	R .048	.215	R .426	R .890	R 7.453
December	1.259	E 2.517	E 1.765	.451	5.992	.771	.208	.018	.046	.210	.440	.923	7.685
Total	**15.534**	**E 27.857**	**E 19.464**	**5.046**	**67.901**	**8.419**	**2.770**	**.211**	**.775**	**2.347**	**5.034**	**11.138**	**87.458**

[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.

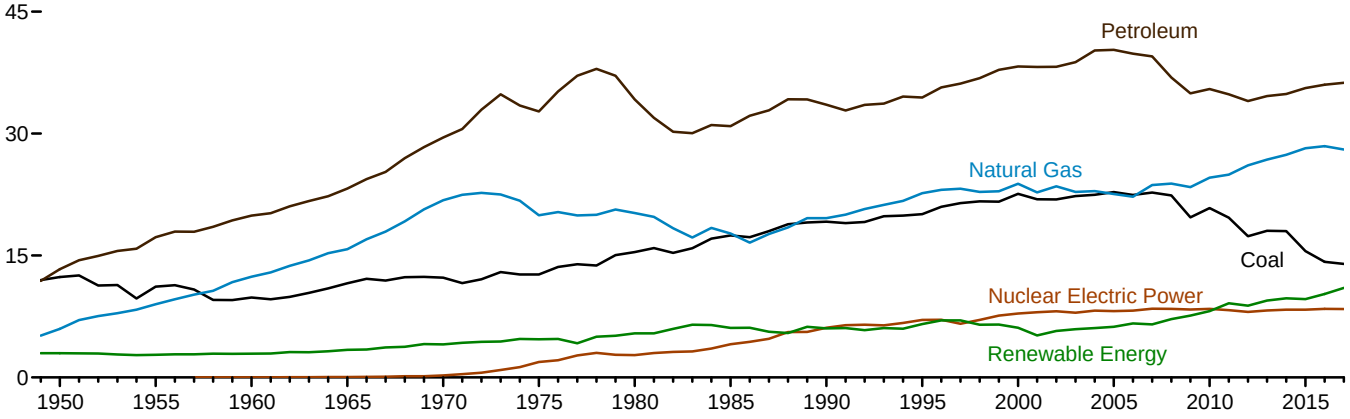
Notes: • See "Primary Energy Production" in Glossary. • Totals may not equal sum of components due to independent rounding. • Geographic coverage is the 50 states and the District of Columbia.

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.

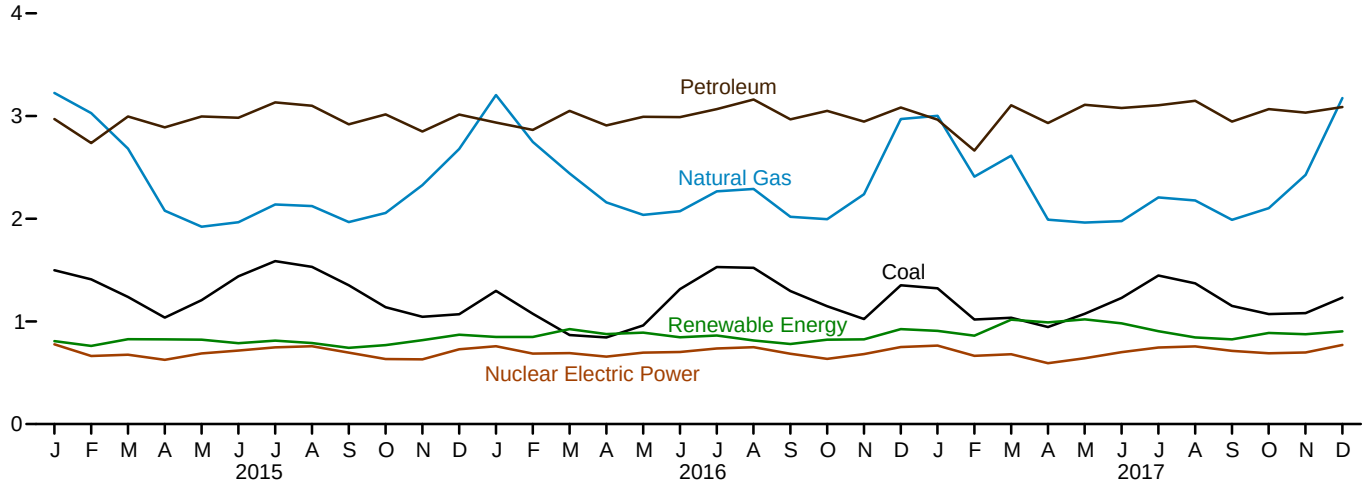
Sources: See end of section.

Figure 1.3 Primary Energy Consumption
(Quadrillion Btu)

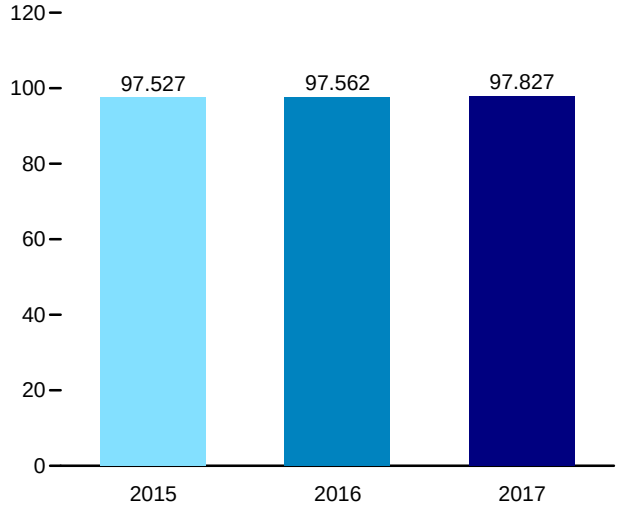
By Source,[a] 1949–2017



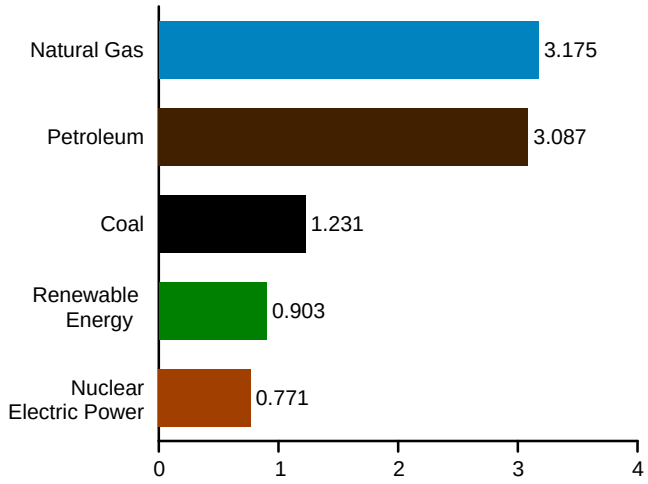
By Source,[a] Monthly



Total, January–December



By Source,[a] December 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]	Petro-leum[d]	Total[e]	Nuclear Electric Power	Hydro-electric Power[f]	Geo-thermal	Solar	Wind	Bio-mass	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**	**4.405**	**8.166**	**97.580**
2011 Total	**19.658**	**24.955**	**34.828**	**79.452**	**8.269**	**3.103**	**.212**	**.111**	**1.168**	**4.534**	**9.128**	**96.975**
2012 Total	**17.378**	**26.089**	**34.012**	**77.482**	**8.062**	**2.629**	**.212**	**.157**	**1.340**	**4.492**	**8.829**	**94.535**
2013 Total	**18.039**	**26.805**	**34.619**	**79.446**	**8.244**	**2.562**	**.214**	**.225**	**1.601**	**4.850**	**9.453**	**97.341**
2014 Total	**17.998**	**27.383**	**34.874**	**80.233**	**8.338**	**2.467**	**.214**	**.337**	**1.728**	**R 4.992**	**R 9.738**	**R 98.490**
2015 January	1.498	3.225	2.971	7.692	.777	.225	.018	.021	.141	R .402	R .807	9.294
February	1.409	3.029	2.738	7.174	.664	.208	.017	.025	.139	.373	R .761	R 8.613
March	1.238	2.682	2.995	6.915	.675	.226	.018	.035	.143	R .404	.827	R 8.436
April	1.037	2.077	2.889	6.001	.625	.209	.017	.040	.167	R .393	.826	7.472
May	1.206	1.922	2.996	6.122	.688	.188	.018	.043	.160	R .414	R .822	R 7.653
June	1.439	1.965	2.984	6.385	.717	.190	.017	.043	.125	R .412	R .788	R 7.910
July	1.587	2.139	3.133	6.858	.747	.196	.018	.045	.127	.427	R .813	R 8.439
August	1.531	2.124	3.100	6.754	.757	.178	.018	.045	.122	R .426	.790	8.323
September	1.351	1.967	2.919	6.237	.695	.150	.016	.039	.130	.408	R .743	R 7.695
October	1.138	2.056	3.016	6.208	.633	.155	.018	.034	.153	.410	R .769	R 7.626
November	1.045	2.327	2.850	6.220	.630	.180	.018	.030	.183	.407	.818	R 7.685
December	1.070	2.679	3.015	6.763	.728	.216	.018	.027	.187	R .422	.871	8.380
Total	**15.549**	**28.191**	**35.605**	**79.328**	**8.337**	**2.321**	**.212**	**.426**	**1.777**	**R 4.898**	**R 9.635**	**R 97.527**
2016 January	1.297	3.204	2.936	7.437	.759	.236	.018	.026	.170	R .398	R .848	R 9.063
February	1.074	2.748	2.864	6.687	.687	.223	.017	.035	.186	R .387	R .848	R 8.237
March	.867	2.442	3.051	6.359	.692	.253	.018	.043	.203	R .408	R .924	R 7.992
April	.844	2.159	2.908	5.911	.656	.239	.016	.048	.192	R .382	R .877	R 7.457
May	.960	2.038	2.993	5.990	.696	.235	.018	.055	.174	R .408	R .891	R 7.593
June	1.314	2.074	2.989	6.377	.703	.215	.017	.056	.151	R .407	R .845	R 7.944
July	1.529	2.267	3.068	6.863	.736	.198	.017	.062	.163	R .423	R .863	R 8.483
August	1.521	2.290	3.161	6.969	.748	.181	.018	.061	.125	R .429	R .813	R 8.551
September	1.296	2.019	2.968	6.282	.685	.151	.017	.055	.151	R .404	R .780	R 7.760
October	1.147	1.995	3.050	6.189	.635	.160	.018	.049	.188	R .407	R .822	R 7.662
November	1.022	2.238	2.946	6.202	.682	.174	.018	.041	.179	R .413	R .825	R 7.727
December	1.352	2.971	3.083	7.404	.750	.208	.019	.037	.214	R .447	R .924	R 9.093
Total	**14.226**	**28.445**	**36.017**	**78.669**	**8.427**	**2.472**	**.210**	**.570**	**2.096**	**R 4.913**	**R 10.261**	**R 97.562**
2017 January	1.322	R 3.001	2.964	7.285	.765	.257	.018	.035	R .192	R .405	R .907	R 8.973
February	1.018	R 2.410	2.663	R 6.089	R .665	.227	.016	.040	R .205	R .374	R .862	R 7.627
March	1.036	R 2.614	3.106	R 6.754	.681	.279	.018	.064	R .241	R .414	R 1.017	R 8.464
April	.944	R 1.990	2.932	R 5.865	.593	.271	.018	.070	R .238	R .393	R .990	R 7.463
May	R 1.074	R 1.963	3.110	R 6.145	.641	.297	.017	.082	.209	R .415	R 1.020	R 7.821
June	1.229	R 1.977	3.079	R 6.281	.701	.281	.017	.087	R .182	R .414	R .981	R 7.979
July	1.447	R 2.207	3.106	R 6.758	.746	.238	.018	.081	.146	R .423	R .905	R 8.424
August	R 1.370	R 2.178	3.148	R 6.693	.757	.196	.018	.079	.121	R .430	R .844	R 8.311
September	1.151	R 1.989	2.946	R 6.084	.712	.175	.017	.074	R .159	R .399	R .825	R 7.634
October	1.072	R 2.102	3.067	R 6.236	.690	.159	.017	R .069	.229	R .414	R .888	R 7.828
November	R 1.081	R 2.428	3.033	R 6.538	.697	.183	.018	R .048	.215	R .411	R .875	R 8.124
December	1.231	3.175	3.087	7.490	.771	.208	.018	.046	.210	.421	.903	9.179
Total	**13.973**	**28.033**	**36.241**	**78.219**	**8.419**	**2.770**	**.211**	**.775**	**2.347**	**4.913**	**11.017**	**97.827**

[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.

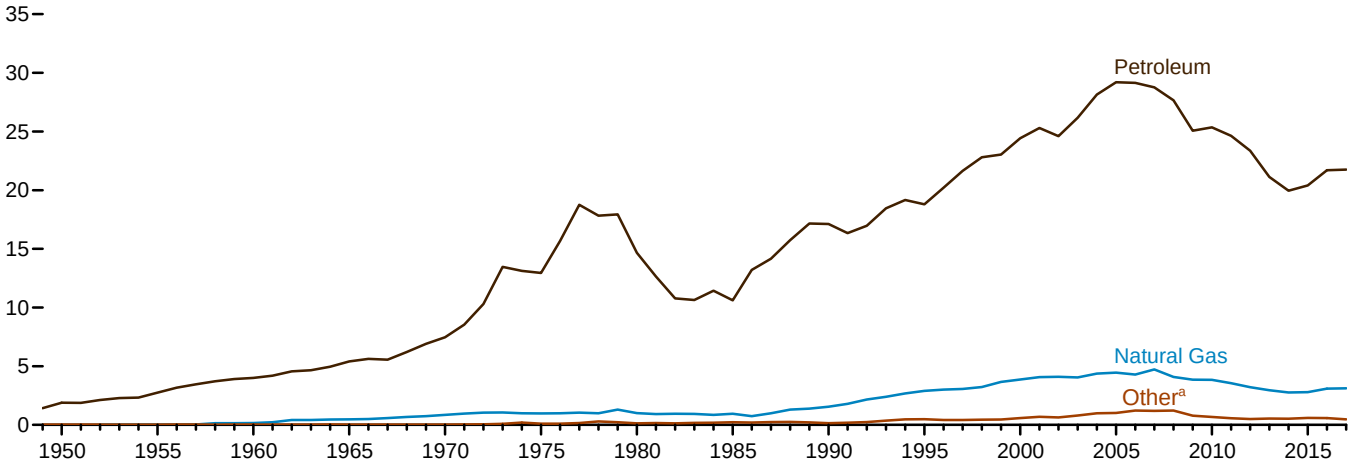
Notes: • See "Primary Energy Consumption" in Glossary. • See Table D1 for estimated energy consumption for 1635–1945. • Totals may not equal sum of components due to independent rounding. • Geographic coverage is the 50 states and the District of Columbia.

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.

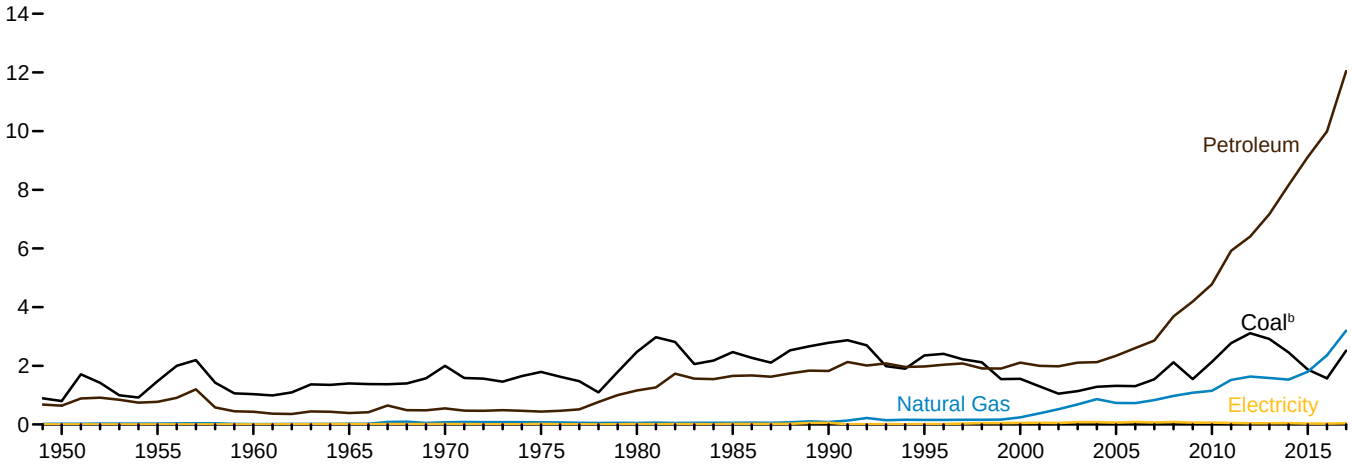
Sources: See end of section.

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

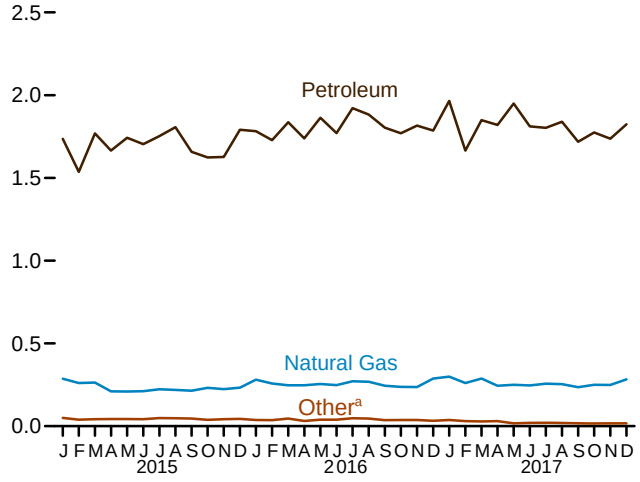
Imports by Source, 1949–2017



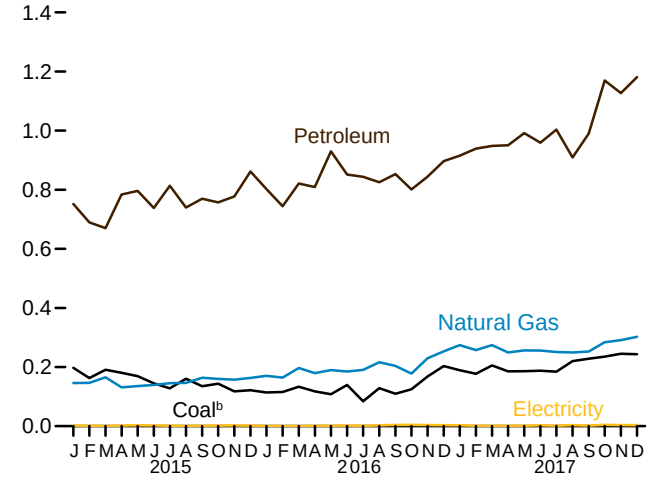
Exports by Source, 1949–2017



Imports by Source, Monthly



Exports by Major Source, Monthly



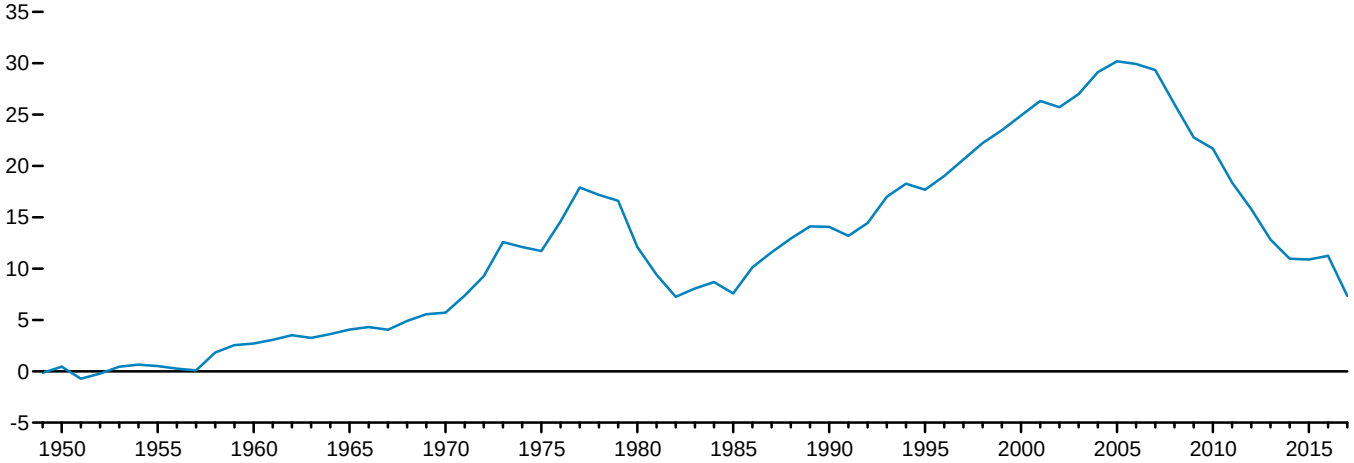
[a] Coal, coal coke, biomass, and electricity.
[b] Includes coal coke.

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

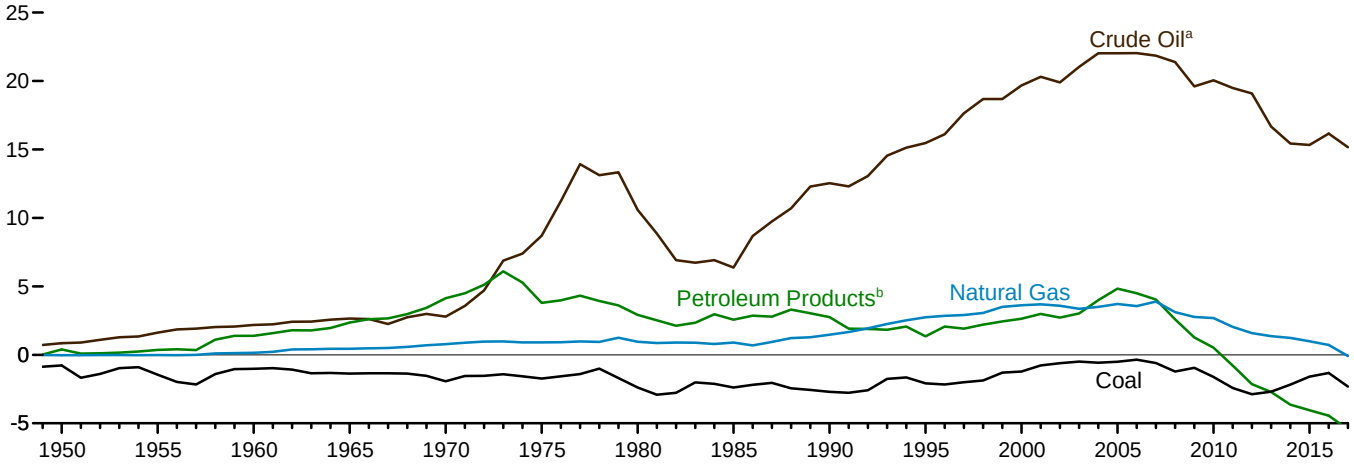
Figure 1.4b Primary Energy Net Imports

(Quadrillion Btu)

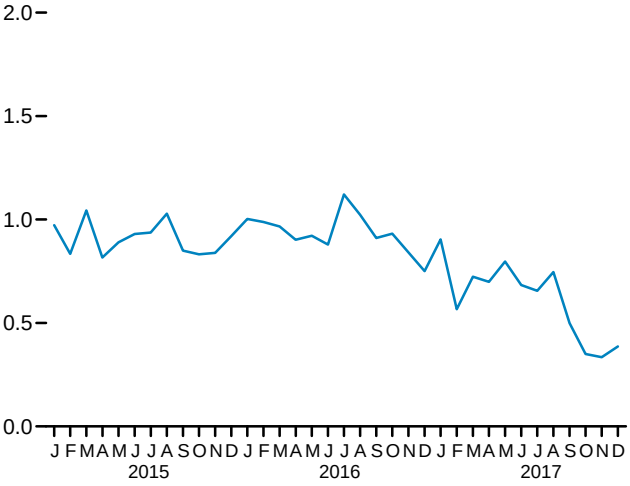
Total, 1949–2017



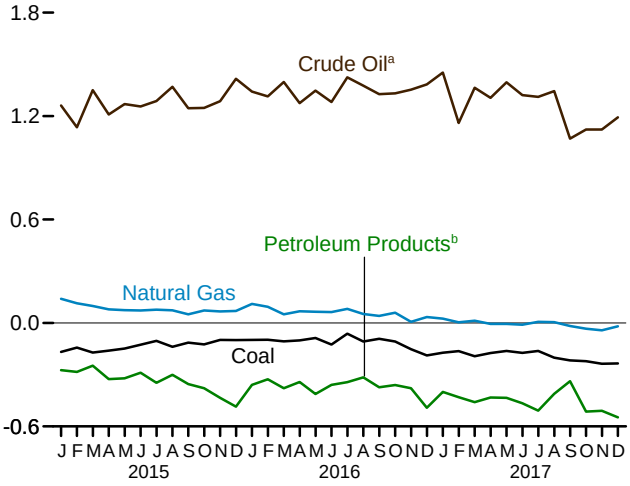
By Major Source, 1949–2017



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	.015	(s)	.280	1.429	.353	1.782	.003	.021	2.102
February	.018	(s)	.258	1.389	.339	1.728	.003	.018	2.026
March	.026	(s)	.247	1.503	.333	1.837	.005	.019	2.135
April	.017	(s)	.247	1.382	.357	1.739	.008	.015	2.026
May	.020	.001	.255	1.488	.376	1.864	.008	.018	2.165
June	.014	.002	.248	1.373	.398	1.771	.013	.022	2.070
July	.022	(s)	.272	1.519	.402	1.921	.012	.025	2.253
August	.021	(s)	.269	1.504	.379	1.883	.014	.024	2.210
September	.018	.002	.244	1.460	.343	1.804	.012	.017	2.097
October	.017	.001	.237	1.420	.350	1.770	.013	.019	2.057
November	.016	(s)	.237	1.457	.359	1.816	.015	.021	2.104
December	.015	(s)	.288	1.467	.319	1.786	.017	.018	2.123
Total	**.220**	**.006**	**3.082**	**17.392**	**4.309**	**21.700**	**.123**	**.237**	**25.368**
2017 January	.017	(s)	.299	R 1.585	.380	R 1.965	.003	.019	R 2.303
February	.014	(s)	.261	R 1.339	.326	R 1.665	.004	.015	R 1.959
March	.012	(s)	.288	R 1.512	.336	R 1.849	.006	.016	R 2.171
April	.011	(s)	.244	R 1.478	.342	R 1.820	.006	.019	R 2.101
May	.024	(s)	.250	R 1.578	.372	R 1.950	.008	.017	R 2.249
June	.015	.001	.246	R 1.457	.355	R 1.811	.013	.020	R 2.104
July	.021	(s)	.257	R 1.470	.333	R 1.803	.012	.019	R 2.112
August	.019	(s)	.254	R 1.482	.357	R 1.840	.011	.021	R 2.145
September	.011	(s)	.235	R 1.323	.395	R 1.718	.005	.017	R 1.987
October	.013	(s)	.250	R 1.430	.345	R 1.775	.004	R .016	2.058
November	.008	(s)	.249	R 1.386	.351	R 1.737	.005	R .017	2.016
December	.009	(s)	.283	1.462	.362	1.824	.004	.017	2.138
Total	**.174**	**.001**	**3.115**	**17.503**	**4.254**	**21.756**	**.083**	**.213**	**25.342**

[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.

R=Revised. 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	.114	.001	.170	.087	.713	.800	.013	.002	1.100	1.003
February	.116	(s)	.164	.075	.666	.742	.014	.002	1.038	.988
March	.134	.001	.197	.106	.712	.818	.016	.003	1.168	.967
April	.118	.001	.179	.107	.699	.807	.016	.002	1.123	.902
May	.108	.001	.190	.140	.788	.928	.014	.002	1.243	.921
June	.139	.002	.185	.091	.757	.848	.014	.003	1.191	.879
July	.084	.001	.190	.095	.746	.841	.012	.003	1.132	1.121
August	.128	.003	.216	.128	.694	.822	.015	.003	1.188	1.023
September	.110	.003	.204	.133	.716	.850	.016	.003	1.186	.911
October	.125	.004	.178	.089	.710	.799	.017	.003	1.125	.932
November	.168	.005	.230	.104	.738	.842	.016	.002	1.264	.841
December	.203	.002	.253	.083	.811	.894	.017	.003	1.372	.751
Total	**1.546**	**.025**	**2.356**	**1.238**	**8.752**	**9.990**	**.181**	**.032**	**14.130**	**11.238**
2017 January	.189	.003	.274	R .133	R .780	R .912	.017	.003	R 1.399	R .903
February	.177	.001	.257	.179	R .757	R .936	.017	.003	R 1.392	R .567
March	.206	.002	.274	.148	R .796	R .944	.018	.004	R 1.448	R .723
April	.186	.001	.249	.172	R .774	R .946	.015	.004	R 1.402	R .699
May	.186	.001	.256	.182	R .807	R .989	.017	.003	R 1.451	R .797
June	.188	.003	.256	.135	R .820	R .955	.016	.004	R 1.421	R .683
July	.184	.001	.251	.159	R .841	R 1.000	.018	.004	R 1.457	R .655
August	.220	.004	.249	.137	R .768	R .906	.017	.004	R 1.399	R .746
September	.228	.002	.253	.253	R .733	R .986	.015	.004	R 1.488	R .499
October	.235	.005	.284	R .308	R .859	R 1.167	.015	.003	R 1.708	R .350
November	.245	.003	.291	R .264	R .860	R 1.124	.015	.003	R 1.682	R .334
December	.244	.003	.302	.269	.909	1.178	.021	.003	1.751	.386
Total	**2.487**	**.030**	**3.196**	**2.340**	**9.704**	**12.044**	**.201**	**.040**	**17.999**	**7.343**

[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.

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

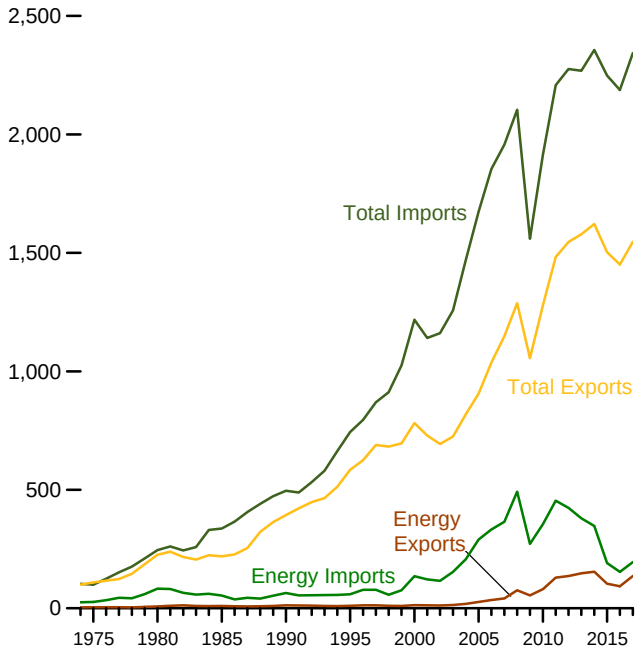
Notes: • See "Primary Energy" in Glossary. • Totals may not equal sum of components due to independent rounding. • Geographic coverage is the 50 states and the District of Columbia.

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.

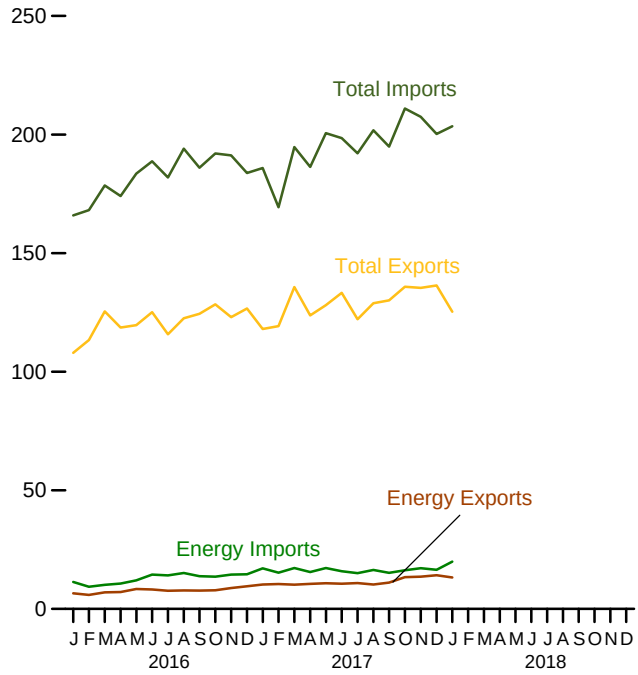
Sources: See end of section.

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

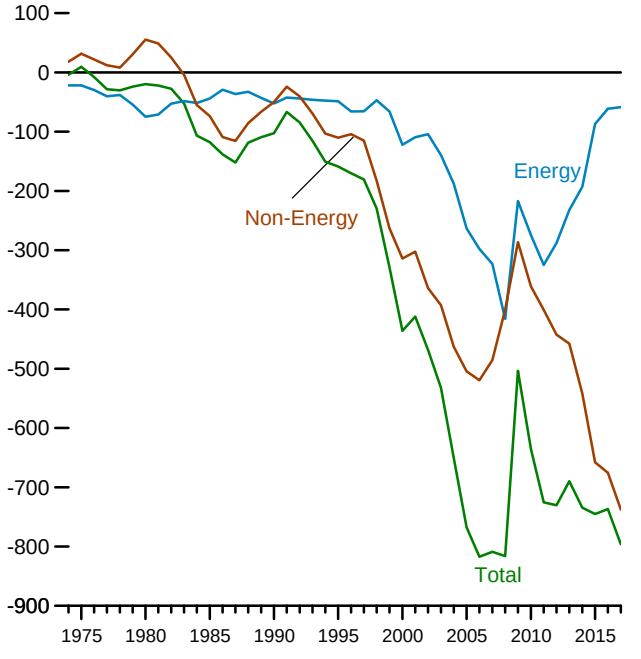
Imports and Exports, 1974–2017



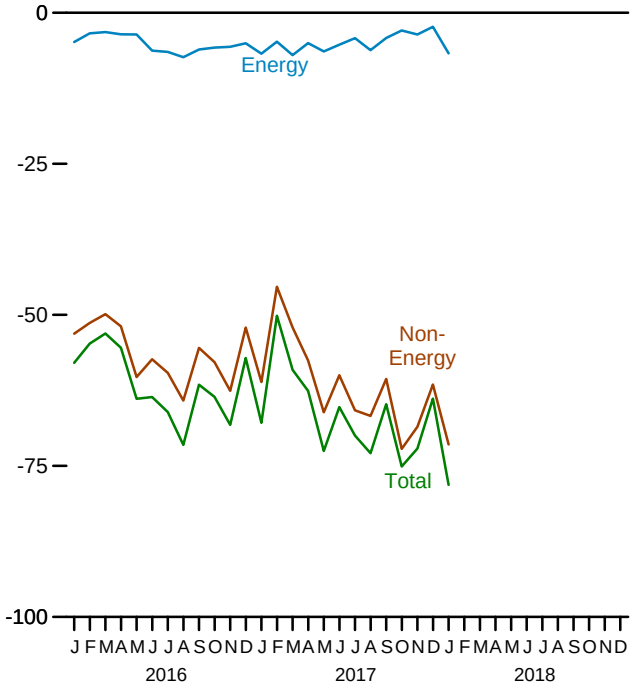
Imports and Exports, Monthly



Trade Balance, 1974–2017



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	-66,711	128,892	201,788	-72,896
September	8,376	14,184	-5,808	11,070	15,235	-4,165	-60,617	130,112	194,895	-64,782
October	10,294	15,231	-4,937	13,366	16,281	-2,915	-72,188	135,856	210,959	-75,103
November	10,445	16,123	-5,678	13,569	17,149	-3,580	-68,536	135,370	207,486	-72,116
December	10,921	14,978	-4,057	14,174	16,488	-2,314	[R] -61,540	[R] 136,386	[R] 200,240	[R] -63,854
Total	**103,801**	**181,320**	**-77,519**	**136,358**	**194,945**	**-58,587**	**[R] -737,607**	**[R] 1,546,725**	**[R] 2,342,919**	**[R] -796,194**
2018 January	10,139	18,086	-7,947	13,231	19,944	-6,713	-71,436	125,329	203,478	-78,149

[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.

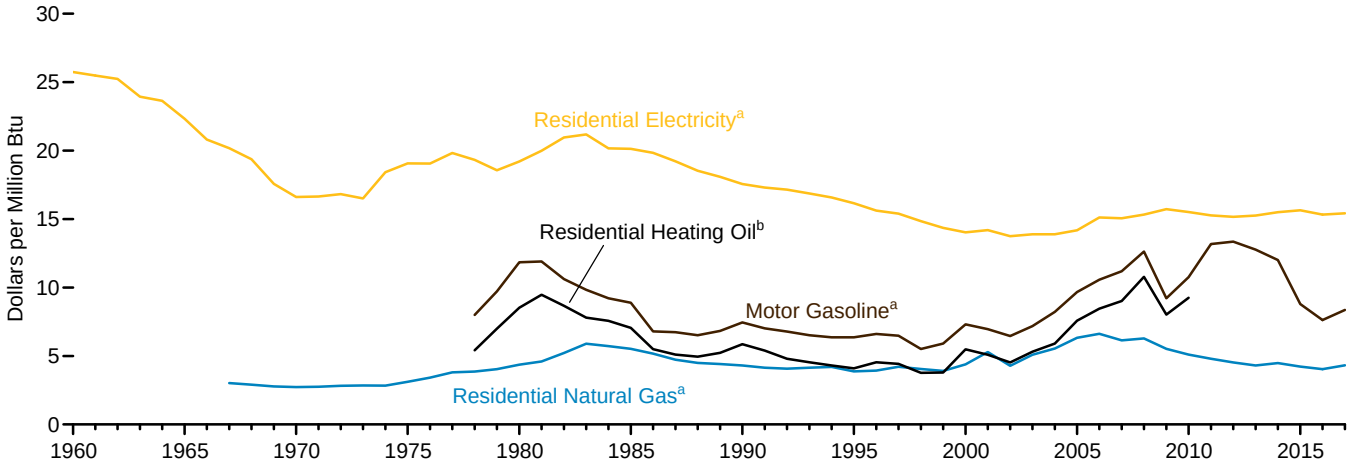
Notes: • Monthly data are not adjusted for seasonal variations. • See Note 1, "Merchandise Trade Value," at end of section. • Totals may not equal sum of components due to independent rounding. • The U.S. import statistics reflect both government and nongovernment imports of merchandise from foreign 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.

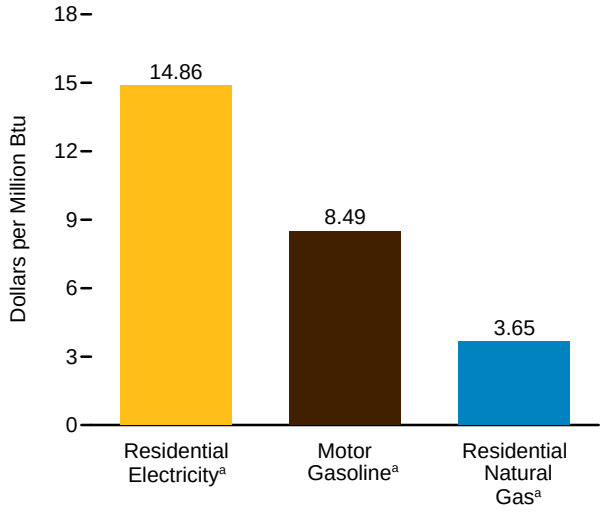
Sources: See end of section.

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

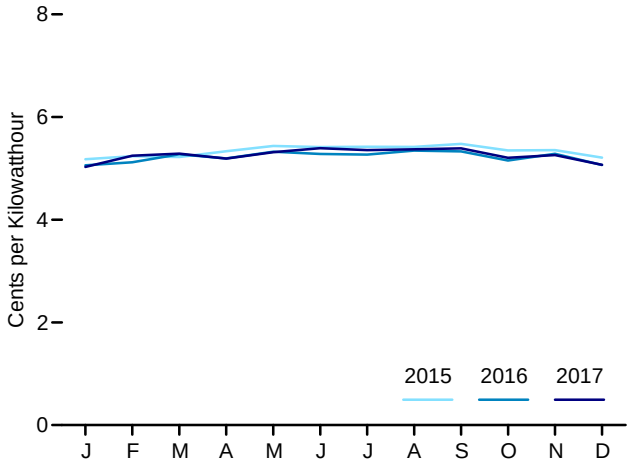
Costs, 1960–2017



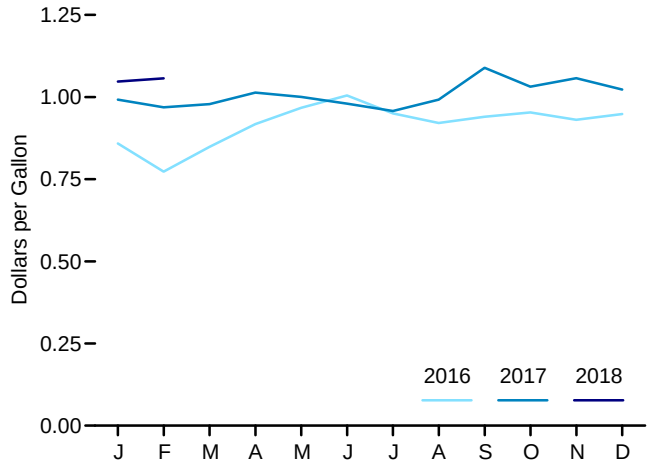
Costs, December 2017



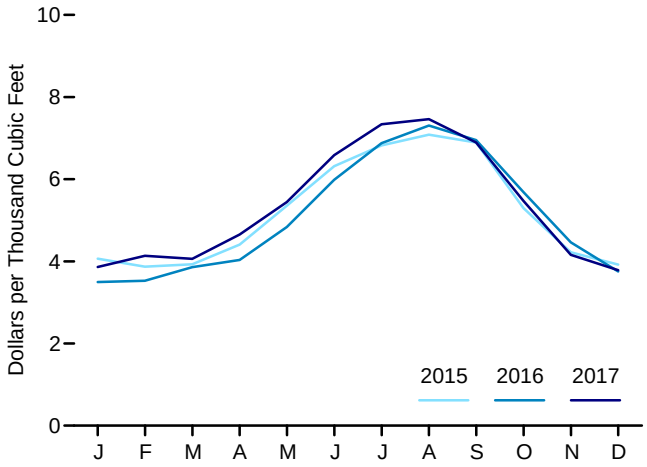
Residential Electricity,[a] Monthly



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	14.83
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	5.27	15.46
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	15.48
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	5.35	15.67
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	5.07	14.85
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	R 14.74
February	243.603	0.969	8.04	NA	NA	4.13	3.99	5.25	15.38
March	243.801	0.979	R 8.13	NA	NA	4.06	3.92	5.29	R 15.50
April	244.524	1.014	8.42	NA	NA	4.65	4.49	5.19	15.21
May	244.733	1.000	R 8.31	NA	NA	5.44	5.25	5.32	R 15.58
June	244.955	0.980	R 8.14	NA	NA	6.59	6.35	R 5.39	R 15.81
July	244.786	0.958	7.95	NA	NA	7.34	7.08	5.36	R 15.70
August	245.519	0.992	8.24	NA	NA	7.46	7.20	5.37	15.75
September	246.819	1.089	9.04	NA	NA	6.89	6.65	5.39	15.79
October	246.663	1.032	8.57	NA	NA	5.47	5.28	5.21	15.26
November	246.669	1.057	8.78	NA	NA	4.16	4.01	R 5.26	R 15.41
December	246.524	1.023	8.49	NA	NA	R 3.79	R 3.65	R 5.07	R 14.86
Average	**245.120**	**1.007**	**8.36**	**NA**	**NA**	R **4.48**	R **4.32**	R **5.26**	R **15.42**
2018 January	247.867	1.047	8.70	NA	NA	NA	NA	NA	NA
February	248.991	1.057	8.78	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.

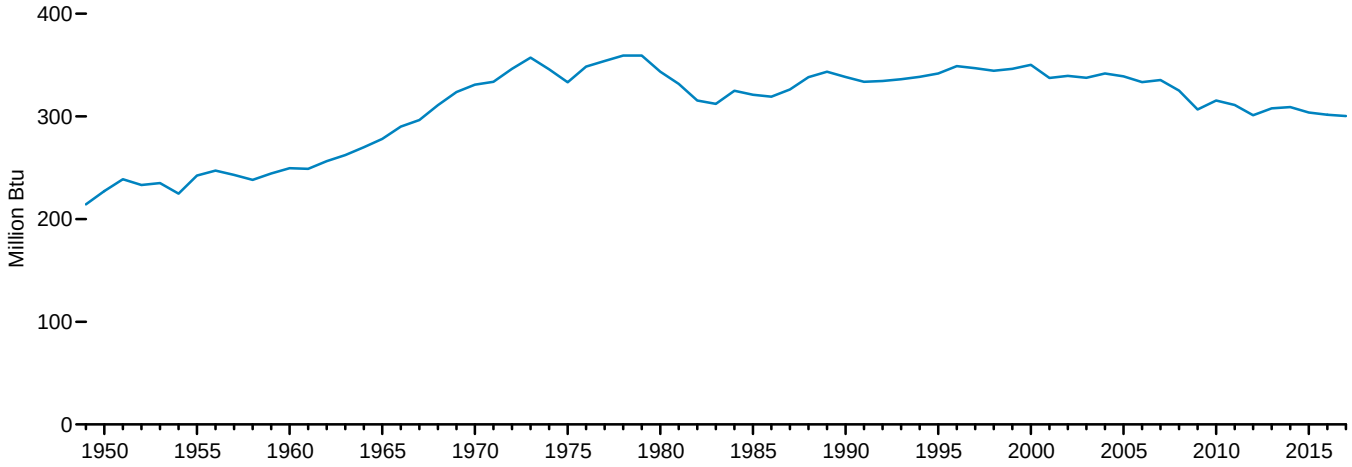
Notes: • See "Real Dollars" in Glossary. • Fuel costs are calculated by using the Urban Consumer Price Index (CPI) developed by the Bureau of Labor Statistics. • Annual averages may not equal average of months due to independent rounding. • Geographic coverage is the 50 states and the District of Columbia.

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.

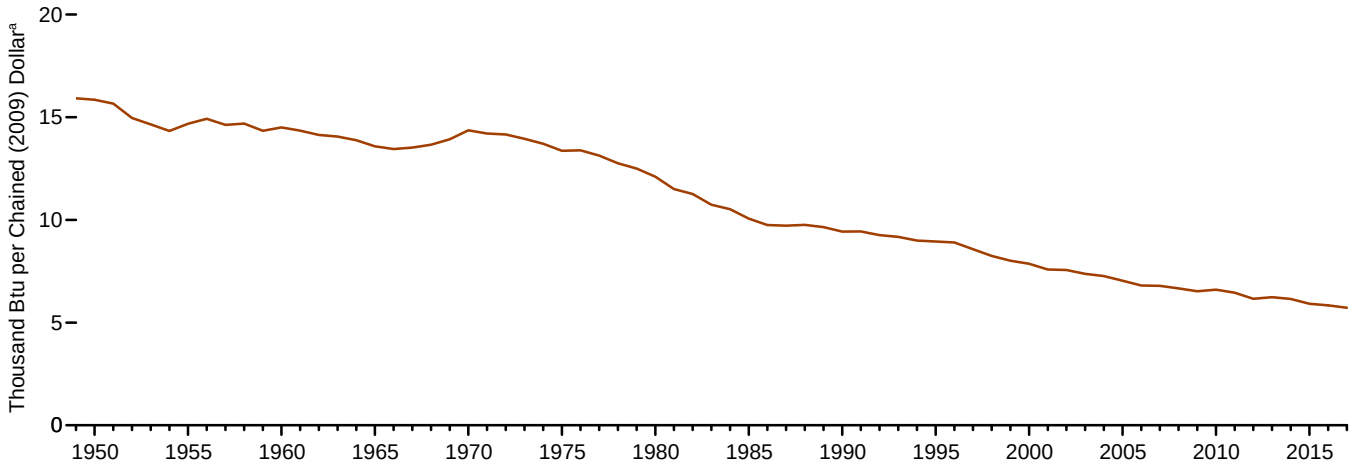
Sources: • **Fuel Prices:** Tables 9.4 (All Grades), 9.8, and 9.10, adjusted by the CPI; and *Monthy Energy Review*, September 2012, Table 9.8c. • **Consumer Price Index, All Urban Consumers:** U.S. Department of Labor, Bureau of Labor Statistics, series ID CUUR0000SA0. • **Conversion Factors:** Tables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

Figure 1.7 Primary Energy Consumption and Energy Expenditures Indicators

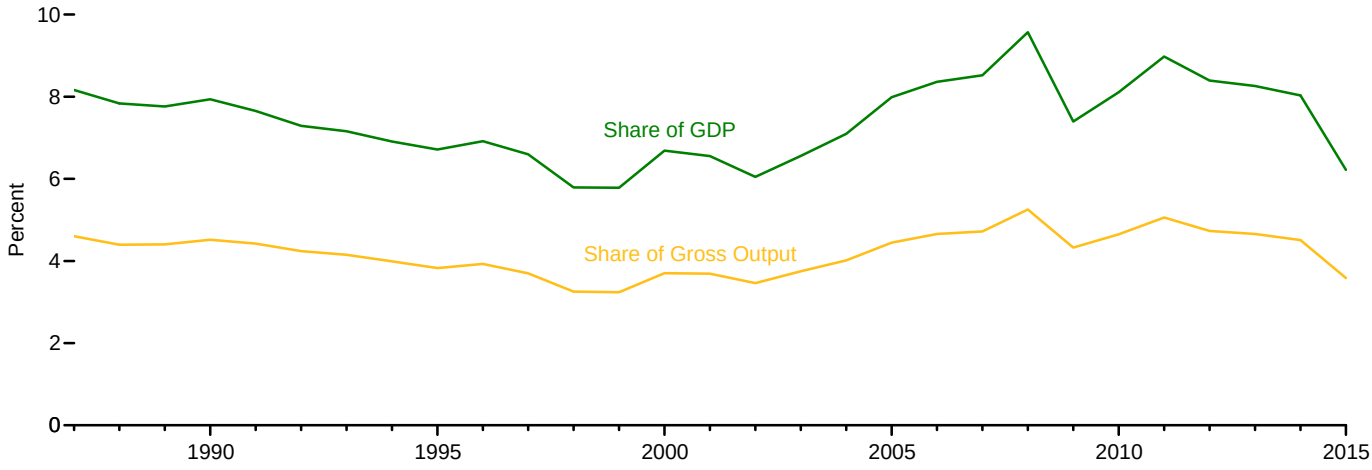
Energy Consumption per Capita, 1949–2017



Primary Energy Consumption per Real Dollar [a] of Gross Domestic Product, 1949–2017



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	4,421	20.5	821
1980	78.067	344	12.10	374,347	1,647	13.1	NA	4,750	20.9	736
1981	76.106	332	11.50	427,898	1,865	13.3	NA	4,625	20.2	699
1982	73.099	316	11.26	426,479	1,841	12.7	NA	4,393	19.0	677
1983	72.971	312	10.74	417,617	1,786	11.5	NA	4,371	18.7	644
1984	76.632	325	10.52	435,309	1,846	10.8	NA	4,600	19.5	631
1985	76.392	321	10.06	438,339	1,842	10.1	NA	4,593	19.3	605
1986	76.647	319	9.75	384,088	1,599	8.4	NA	4,598	19.1	585
1987	79.054	326	9.72	397,623	1,641	8.2	4.6	4,757	19.6	585
1988	82.709	338	9.76	411,565	1,683	7.8	4.4	4,982	20.4	588
1989	84.785	344	9.65	439,046	1,779	7.8	4.4	5,065	20.5	577
1990	84.484	338	9.43	474,647	1,901	7.9	4.5	5,039	20.2	563
1991	84.437	334	9.44	472,434	1,867	7.7	4.4	4,993	19.7	558
1992	85.782	334	9.26	476,840	1,859	7.3	4.2	5,090	19.8	549
1993	87.365	336	9.18	492,267	1,894	7.2	4.2	5,184	19.9	545
1994	89.087	339	8.99	504,854	1,919	6.9	4.0	5,261	20.0	531
1995	91.031	342	8.95	514,622	1,933	6.7	3.8	5,324	20.0	523
1996	94.021	349	8.90	560,292	2,080	6.9	3.9	5,511	20.5	522
1997	94.600	347	8.57	567,960	2,083	6.6	3.7	5,584	20.5	506
1998	95.018	344	8.24	526,280	1,908	5.8	3.3	5,637	20.4	489
1999	96.648	346	8.01	558,624	2,002	5.8	3.2	5,690	20.4	472
2000	98.817	350	7.87	687,708	2,437	6.7	3.7	5,867	20.8	467
2001	96.170	337	7.58	696,240	2,443	6.6	3.7	5,762	20.2	454
2002	97.643	339	7.56	663,962	2,308	6.0	3.5	5,805	20.2	450
2003	97.918	338	7.38	755,068	2,603	6.6	3.8	5,855	20.2	441
2004	100.090	342	7.27	871,209	2,975	7.1	4.0	5,971	20.4	433
2005	100.188	339	7.04	1,045,729	3,539	8.0	4.4	5,992	20.3	421
2006	99.485	333	6.81	1,158,819	3,884	8.4	4.7	5,912	19.8	405
2007	101.015	335	6.79	1,233,864	4,096	8.5	4.7	6,005	19.9	404
2008	98.891	325	6.67	1,408,750	4,633	9.6	5.3	5,815	19.1	392
2009	94.118	307	6.53	1,066,275	3,476	7.4	4.3	5,396	17.6	374
2010	97.580	315	6.60	1,213,336	3,922	8.1	4.6	5,591	18.1	378
2011	96.975	311	6.46	1,392,945	4,470	9.0	5.1	5,454	17.5	363
2012	94.535	301	6.16	1,356,215	4,319	8.4	4.7	5,243	16.7	341
2013	97.341	308	6.23	1,378,885	4,360	8.3	4.7	5,372	17.0	344
2014	R 98.490	309	6.15	1,399,486	4,392	8.0	4.5	5,419	17.0	338
2015	R 97.527	304	5.92	1,127,132	3,511	6.2	3.6	5,274	16.4	320
2016	R 97.562	302	5.84	NA	NA	NA	NA	5,187	16.0	310
2017	97.827	300	5.72	NA	NA	NA	NA	5,153	15.8	301

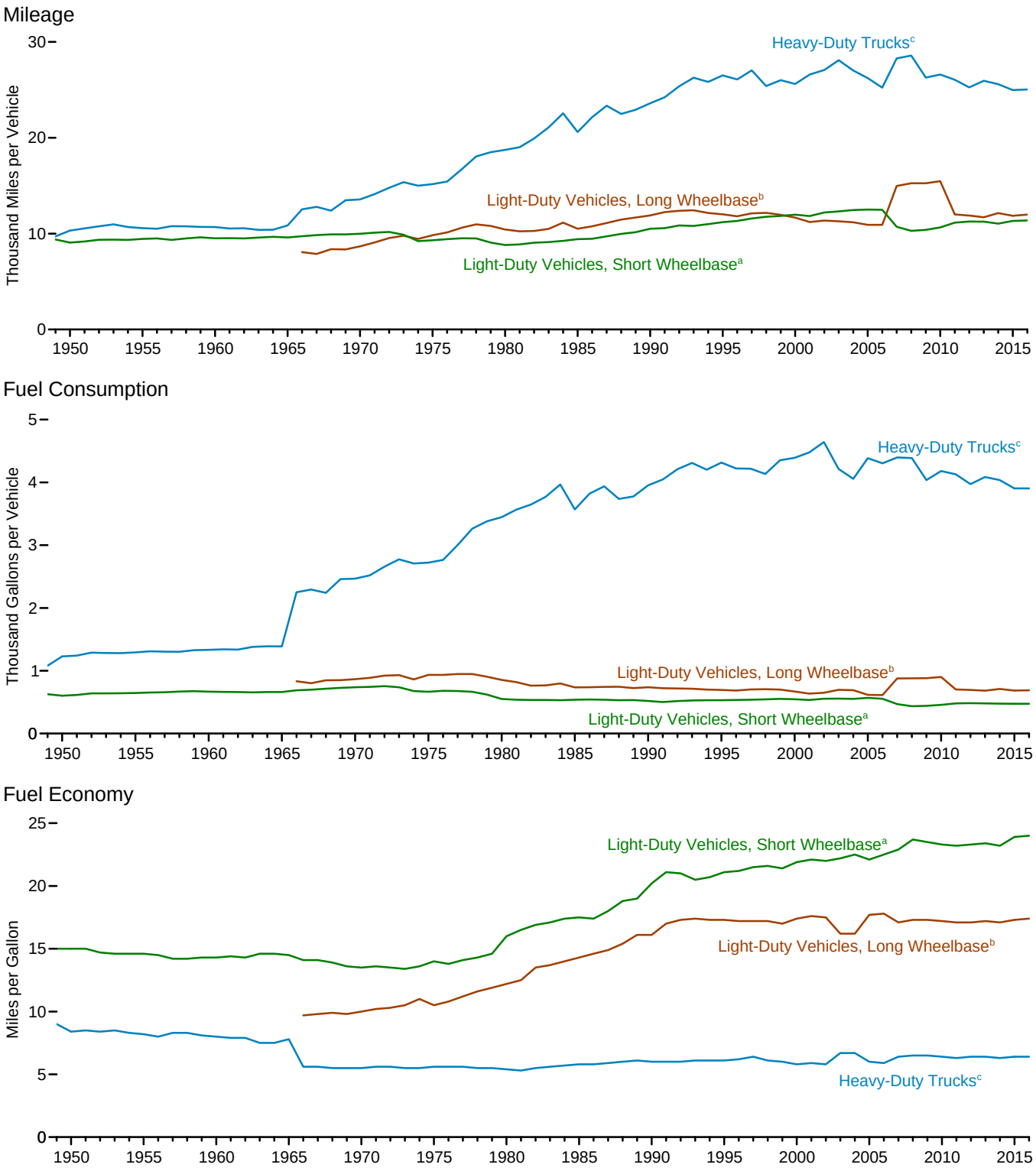
[a] See "Primary Energy Consumption" in Glossary.
[b] Expenditures include taxes where data are available.
[c] Carbon dioxide emissions from energy consumption. See Table 12.1.
[d] See "Chained Dollars" and "Real Dollars" in Glossary.
[e] See "Gross Domestic Product (GDP)" in Glossary.
[f] Gross output 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 2015" (June 2017), 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, 1949–2016



[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	11,327	475	23.9	11,855	684	17.3	24,979	3,904	6.4	11,742	656	17.9
2016[P]	11,370	475	24.0	11,991	689	17.4	25,037	3,904	6.4	11,810	658	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	294	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	57	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**	**6,165**	**6,088**	**2,487**	**3,222**	**2,087**	**4,602**	**2,898**	**4,087**
2016 January	1,127	1,119	1,241	1,303	659	857	565	918	569	871
February	957	901	957	937	483	574	310	619	341	628
March	754	644	670	653	240	324	179	543	395	450
April	605	515	506	424	152	162	61	381	242	309
May	251	213	221	207	58	71	17	254	181	151
June	45	22	25	27	1	0	0	42	44	21
July	4	1	2	11	0	0	0	15	20	6
August	5	1	5	17	0	0	0	31	12	6
September	67	38	40	75	2	5	1	115	66	39
October	388	316	285	304	91	89	22	265	200	198
November	672	609	582	569	290	339	154	513	331	418
December	1,053	975	1,166	1,257	479	672	444	927	627	783
Total	**5,928**	**5,353**	**5,701**	**5,786**	**2,456**	**3,094**	**1,752**	**4,621**	**3,029**	**3,879**
2017 January	R 1,039	971	R 1,081	1,211	R 477	579	R 418	R 959	668	767
February	907	778	R 775	817	323	R 409	208	R 626	R 499	548
March	R 1,040	908	834	783	R 347	387	R 147	R 467	R 394	R 543
April	R 454	343	R 349	401	76	R 93	R 52	402	R 311	249
May	R 307	R 234	250	224	47	57	14	R 233	172	154
June	R 45	25	28	37	2	3	0	R 58	R 50	25
July	R 9	3	7	10	0	0	0	7	14	5
August	27	17	34	50	1	1	0	27	9	15
September	58	52	65	78	14	R 24	3	R 120	R 45	45
October	R 239	R 216	292	363	89	R 146	59	355	178	193
November	R 747	R 700	774	806	R 322	408	R 180	R 486	351	R 490
December	1,190	1,087	1,197	1,217	535	726	501	812	504	797
Total	**6,061**	**5,337**	**5,687**	**5,997**	**2,232**	**2,833**	**1,582**	**4,552**	**3,196**	**3,831**

[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**	**2,405**	**1,718**	**2,741**	**1,478**	**1,068**	**1,488**
2016 January	0	0	0	0	25	2	9	0	8	7
February	0	0	0	0	24	3	25	10	15	11
March	0	0	3	10	89	36	86	24	13	35
April	0	0	1	8	87	37	123	42	27	42
May	7	17	42	49	185	124	238	90	37	97
June	75	129	188	263	379	371	475	331	166	271
July	242	310	277	306	509	473	619	408	236	384
August	241	312	297	268	484	460	547	305	234	362
September	61	114	131	138	352	321	429	173	122	219
October	0	6	19	28	156	113	233	99	47	86
November	0	0	0	2	56	12	80	14	17	26
December	0	0	0	0	65	4	17	0	8	17
Total	**626**	**887**	**958**	**1,073**	**2,412**	**1,957**	**2,882**	**1,496**	**929**	**1,558**
2017 January	0	0	0	0	50	20	35	0	7	16
February	0	0	0	3	54	18	R 67	5	7	22
March	0	0	1	6	55	28	R 112	31	17	32
April	0	2	8	9	R 123	R 75	142	R 51	25	56
May	3	14	37	50	R 211	135	R 241	R 111	46	R 106
June	R 71	123	R 167	R 206	R 336	271	R 446	R 309	148	R 241
July	R 171	250	241	331	468	R 430	R 584	R 413	283	R 363
August	127	162	R 147	R 165	405	340	R 508	328	278	291
September	65	88	R 92	127	280	R 194	368	178	R 139	184
October	11	R 21	15	14	158	R 66	R 144	R 92	67	77
November	0	0	0	0	R 66	R 7	67	R 29	21	27
December	0	0	0	0	38	2	6	1	10	10
Total	**448**	**660**	**707**	**910**	**2,245**	**1,584**	**2,720**	**1,548**	**1,047**	**1,424**

[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	37	69	195	2,075	136	377	31	47	107	2,968
February	38	63	230	1,970	148	373	29	53	95	2,899
March	40	63	254	1,932	143	368	29	58	108	2,892
April	37	59	301	1,840	131	370	22	46	109	2,820
May	38	58	394	1,828	132	359	21	59	101	2,894
June	39	55	482	1,751	146	363	18	40	107	2,907
July	40	57	472	1,853	115	384	25	47	112	3,007
August	39	58	524	1,760	124	371	36	43	110	2,968
September	37	56	439	1,817	125	364	21	56	107	2,928
October	37	58	417	1,920	131	365	26	41	90	2,991
November	37	62	310	1,865	121	373	42	49	108	2,868
December	40	70	195	1,969	115	390	32	45	107	2,853
Total	**460**	**728**	**351**	**1,882**	**130**	**371**	**28**	**49**	**105**	**2,917**
2017 January	40	70	192	2,106	105	368	34	49	104	2,958
February	38	61	241	1,938	123	409	21	58	106	2,896
March	40	66	265	1,952	133	435	13	50	111	2,959
April	40	59	318	1,878	105	429	29	43	105	2,907
May	41	59	365	1,878	108	438	28	51	112	2,981
June	39	57	477	1,948	108	442	21	56	113	3,164
July	42	58	441	1,956	98	403	39	49	110	3,097
August	43	59	542	1,644	91	383	25	55	107	2,848
September	41	58	447	1,717	108	356	30	45	98	2,800
October	57	62	413	1,926	124	372	14	57	102	3,008
November	45	66	307	2,121	113	373	34	59	119	3,126
December	58	72	218	2,258	92	381	31	55	108	3,143
Total	**523**	**746**	**353**	**1,944**	**109**	**399**	**27**	**52**	**108**	**2,991**

[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 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**	**0.088**	**0.169**	**0.290**	**3.914**	**4.829**	**6.4**
1975 Total	**.095**	**.688**	**1.014**	**.921**	**.304**	**.675**	**.085**	**.144**	**.341**	**3.485**	**4.268**	**5.9**
1980 Total	**.076**	**.690**	**.962**	**1.147**	**.354**	**1.464**	**.081**	**.193**	**.379**	**4.580**	**5.345**	**6.8**
1985 Total	**.034**	**.590**	**1.029**	**1.251**	**.322**	**.747**	**.090**	**.159**	**.242**	**3.841**	**4.465**	**5.8**
1990 Total	**.021**	**.733**	**1.170**	**1.393**	**.362**	**1.138**	**.117**	**.107**	**.198**	**4.486**	**5.240**	**6.2**
1995 Total	**.029**	**.892**	**1.178**	**1.764**	**.346**	**1.222**	**.115**	**.071**	**.185**	**4.879**	**5.800**	**6.4**
1996 Total	**.028**	**.921**	**1.176**	**1.856**	**.335**	**1.211**	**.113**	**.075**	**.185**	**4.951**	**5.900**	**6.3**
1997 Total	**.027**	**.933**	**1.224**	**1.894**	**.354**	**1.410**	**.083**	**.072**	**.183**	**5.220**	**6.181**	**6.5**
1998 Total	**.025**	**.969**	**1.263**	**1.789**	**.371**	**1.409**	**.143**	**.107**	**.229**	**5.310**	**6.304**	**6.6**
1999 Total	**.025**	**.932**	**1.324**	**2.098**	**.375**	**1.336**	**.205**	**.145**	**.211**	**5.695**	**6.652**	**6.9**
2000 Total	**.026**	**.942**	**1.276**	**2.065**	**.369**	**1.353**	**.094**	**.097**	**.222**	**5.476**	**6.443**	**6.5**
2001 Total	**.023**	**.863**	**1.257**	**1.844**	**.338**	**1.205**	**.165**	**.078**	**.223**	**5.112**	**5.998**	**6.2**
2002 Total	**.021**	**.856**	**1.240**	**1.945**	**.334**	**1.276**	**.138**	**.102**	**.220**	**5.257**	**6.134**	**6.3**
2003 Total	**.022**	**.832**	**1.220**	**1.869**	**.309**	**1.371**	**.117**	**.080**	**.217**	**5.183**	**6.037**	**6.2**
2004 Total	**.021**	**.840**	**1.304**	**1.924**	**.313**	**1.592**	**.207**	**.051**	**.211**	**5.602**	**6.463**	**6.5**
2005 Total	**.021**	**.782**	**1.323**	**1.812**	**.312**	**1.474**	**.177**	**.063**	**.218**	**5.380**	**6.183**	**6.2**
2006 Total	**.020**	**.600**	**1.261**	**1.871**	**.303**	**1.477**	**.203**	**.070**	**.242**	**5.427**	**6.048**	**6.1**
2007 Total	**.020**	**.614**	**1.197**	**1.872**	**.313**	**1.351**	**.191**	**.078**	**.223**	**5.224**	**5.859**	**5.8**
2008 Total	**.020**	**.625**	**1.012**	**1.722**	**.291**	**1.172**	**.214**	**.085**	**.230**	**4.725**	**5.370**	**5.4**
2009 Total	**.014**	**.537**	**.873**	**1.839**	**.262**	**1.031**	**.172**	**.046**	**.212**	**4.434**	**4.985**	**5.3**
2010 Total	**.019**	**.669**	**.878**	**2.010**	**.291**	**1.096**	**.058**	**.026**	**.213**	**4.570**	**5.257**	**5.4**
2011 Total	**.019**	**.695**	**.859**	**2.027**	**.276**	**1.057**	**.059**	**.023**	**.221**	**4.522**	**5.236**	**5.4**
2012 Total	**.019**	**.724**	**.827**	**2.062**	**.254**	**.901**	**.064**	**.015**	**.201**	**4.324**	**5.066**	**5.4**
2013 Total	**.019**	**.741**	**.783**	**2.248**	**.268**	**.901**	**.059**	**.100**	**.206**	**4.566**	**5.327**	**5.5**
2014 Total	**.019**	**.749**	**.793**	**2.233**	**.280**	**.827**	**.058**	**.106**	**.214**	**4.512**	**5.280**	**5.4**
2015 January	.002	.071	.041	.220	.029	.069	.006	.011	.018	.393	.466	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	.428	5.1
April	.001	.060	.060	.183	.027	.060	.005	.008	.018	.362	.423	5.7
May	.001	.059	.070	.190	.030	.064	.006	.008	.017	.385	.445	5.8
June	.002	.055	.094	.187	.024	.057	.006	.008	.018	.393	.449	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	.441	5.7
October	.001	.059	.082	.201	.027	.065	.005	.007	.017	.404	.464	6.1
November	.001	.062	.057	.197	.019	.063	.004	.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**	**.059**	**.099**	**.215**	**4.622**	**5.369**	**5.5**
2016 January	.001	.072	.040	.223	.026	.065	.006	.008	.019	.386	.458	5.1
February	.001	.066	.044	.196	.026	.060	.005	.008	.016	.355	.422	5.1
March	.001	.065	.052	.204	.027	.063	.005	.010	.019	.380	.447	5.6
April	.001	.061	.060	.189	.024	.061	.004	.007	.019	.364	.426	5.7
May	.001	.060	.081	.193	.025	.062	.004	.010	.018	.392	.453	6.0
June	.001	.057	.096	.180	.027	.060	.003	.006	.019	.391	.449	5.6
July	.001	.059	.097	.195	.022	.066	.004	.008	.020	.412	.473	5.6
August	.001	.060	.108	.185	.023	.064	.006	.007	.020	.413	.475	5.6
September	.001	.058	.087	.188	.023	.061	.004	.009	.019	.390	.450	5.8
October	.001	.061	.086	.205	.025	.063	.005	.007	.016	.406	.467	6.1
November	.001	.064	.062	.190	.022	.062	.007	.008	.019	.370	.435	5.6
December	.001	.073	.040	.210	.022	.067	.006	.007	.019	.371	.445	4.9
Total	**.015**	**.755**	**.853**	**2.358**	**.289**	**.754**	**.058**	**.094**	**.223**	**4.629**	**5.399**	**5.5**
2017 January	.001	.072	.039	.225	.020	.063	.006	.008	.019	.380	.453	5.1
February	.001	.064	.045	.183	.021	.063	.003	.009	.017	.341	.406	5.3
March	.001	.068	.054	.207	.025	.075	.002	.008	.020	.392	.461	R 5.5
April	.001	.061	.063	.193	.019	.072	.005	.007	.018	.377	.439	5.9
May	.001	.061	.075	.197	.020	.076	.005	.008	.020	.402	.464	5.9
June	.001	.059	.095	.197	.020	.074	.004	.009	.020	.417	.478	6.0
July	.001	.060	.091	.207	.019	.070	.007	.008	.020	.420	.481	5.7
August	.001	.062	.112	.172	.017	.066	.004	.009	.019	.399	.462	R 5.6
September	.001	.060	.089	.176	.020	.060	.005	.007	.017	.373	.434	5.7
October	.002	.064	.085	.203	.023	.064	.002	.009	.018	.406	.471	6.0
November	.001	.068	.061	.215	.021	.062	.006	.009	.021	.395	.464	5.7
December	.002	.075	.045	.238	.017	.065	.006	.009	.020	.399	.476	5.2
Total	**.017**	**.774**	**.854**	**2.412**	**.241**	**.808**	**.055**	**.100**	**.229**	**4.701**	**5.491**	**5.6**

[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.

R=Revised.

Notes: • Data are estimates. • Non-combustion use estimates are included in total energy consumption. See Table 1.3. • 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. • **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 in the industrial and transportation sectors. For Table 1.11b, lubricants values 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 5.719 million Btu/barrel (the approximate heat content of petroleum coke) 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.

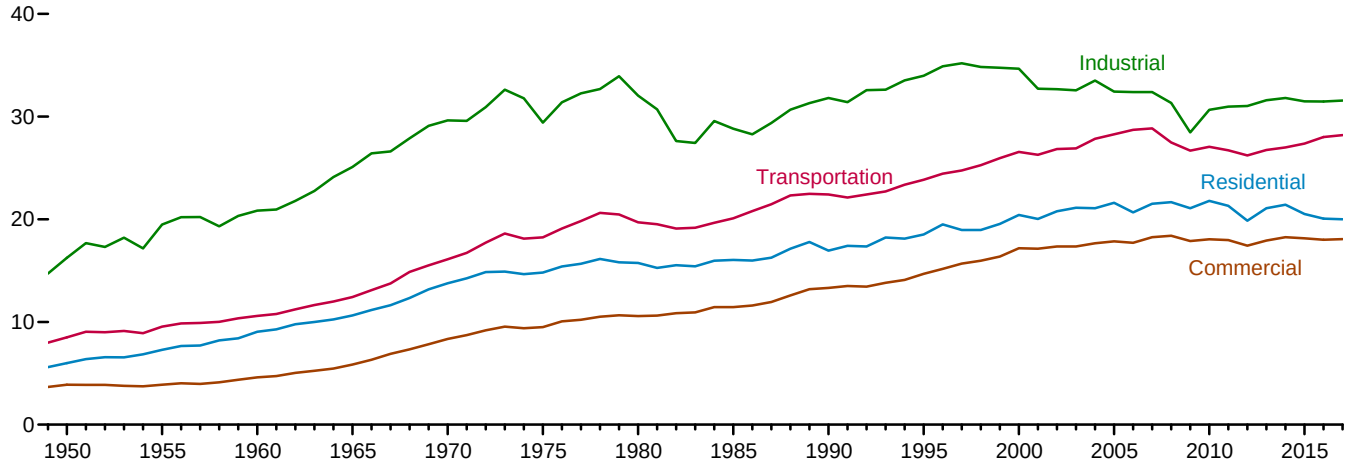
Non-Energy Balance
1974 forward: The non-energy balance is calculated by EIA as the total merchandise balance minus the energy balance.

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.

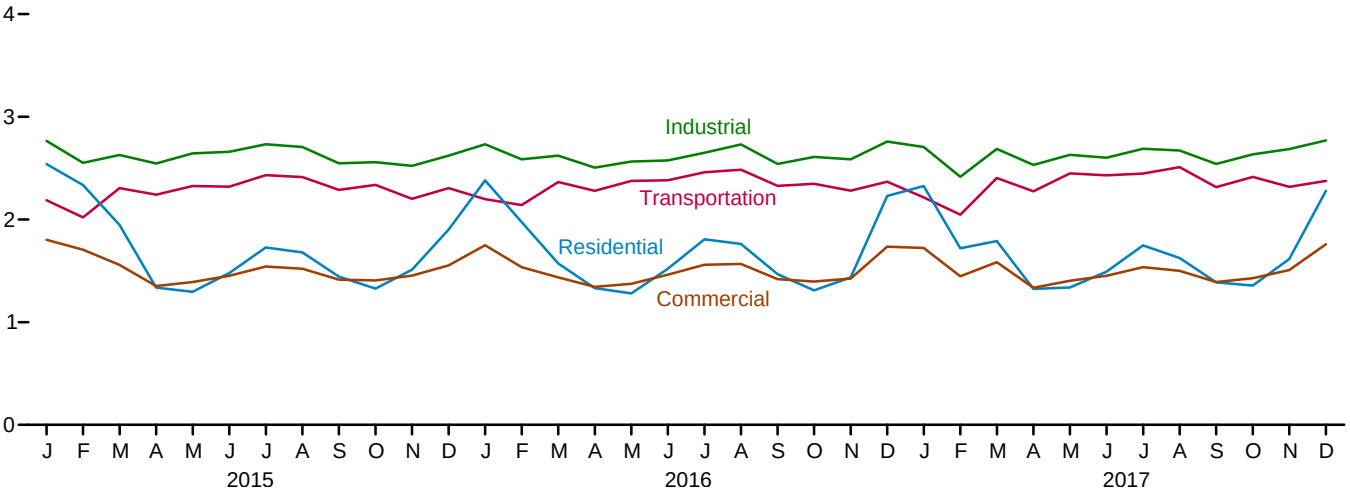
2. Energy Consumption by Sector

Figure 2.1 Energy Consumption by Sector
(Quadrillion Btu)

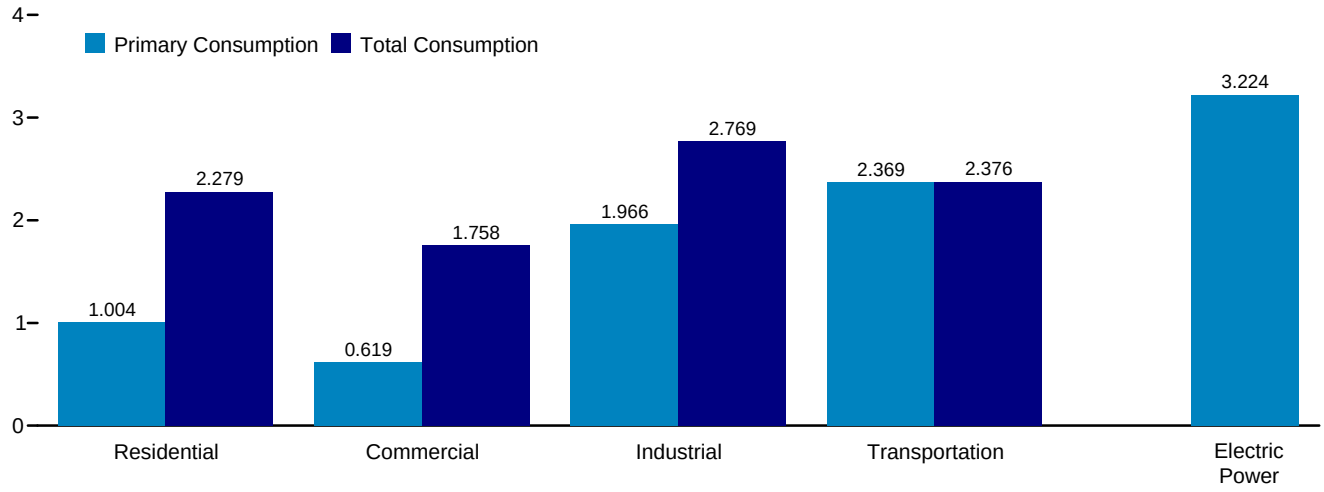
Total Consumption by End-Use Sector, 1949–2017



Total Consumption by End-Use Sector, Monthly



By Sector, December 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**	**20,413**	**30,661**	**26,978**	**27,059**	**39,619**	**7**	**97,580**
2011 Total	**6,393**	**21,302**	**4,063**	**17,979**	**20,588**	**30,975**	**26,632**	**26,712**	**39,293**	**8**	**96,975**
2012 Total	**5,672**	**19,857**	**3,725**	**17,422**	**20,861**	**31,034**	**26,144**	**26,219**	**38,131**	**2**	**94,535**
2013 Total	**6,706**	**21,069**	**4,164**	**17,932**	**21,444**	**31,591**	**26,671**	**26,750**	**38,357**	**-1**	**97,341**
2014 Total	[R] **6,985**	[R] **21,425**	[R] **4,381**	[R] **18,255**	**21,572**	**31,808**	**26,917**	**26,996**	**38,629**	**6**	[R] **98,490**
2015 January	1,137	2,540	666	1,803	1,954	2,765	2,180	2,187	3,357	-1	9,294
February	[R] 1,082	2,335	[R] 638	1,706	1,776	2,552	2,013	2,020	3,103	1	[R] 8,613
March	795	1,947	498	1,558	1,845	2,628	2,298	2,305	3,002	-2	[R] 8,436
April	444	1,336	322	1,352	1,750	2,546	2,236	2,242	2,723	-3	7,472
May	[R] 303	1,295	[R] 250	1,390	1,779	2,643	2,319	2,326	3,002	-1	[R] 7,653
June	232	[R] 1,478	215	1,451	1,765	2,659	2,314	2,320	3,383	2	[R] 7,910
July	222	[R] 1,727	218	[R] 1,542	1,828	2,732	2,425	2,432	3,741	5	[R] 8,439
August	[R] 220	[R] 1,679	222	1,519	1,814	2,706	2,407	2,413	3,655	5	8,323
September	220	[R] 1,444	220	[R] 1,413	1,719	2,547	2,282	2,288	3,251	3	[R] 7,695
October	359	1,327	306	1,406	1,747	2,558	2,330	2,336	2,886	-2	[R] 7,626
November	573	1,511	399	1,453	1,728	2,523	2,196	2,202	2,792	-3	[R] 7,685
December	778	1,902	[R] 478	1,554	1,835	2,622	2,299	2,305	2,993	-2	8,380
Total	[R] **6,363**	[R] **20,516**	[R] **4,433**	[R] **18,149**	**21,541**	**31,485**	**27,299**	**27,376**	**37,890**	**1**	[R] **97,527**
2016 January	[R] 1,048	[R] 2,381	625	1,748	1,929	2,732	2,191	2,198	3,265	4	[R] 9,063
February	[R] 846	[R] 1,975	529	1,536	1,838	2,585	2,134	2,141	2,888	(s)	[R] 8,237
March	[R] 593	[R] 1,572	403	1,436	1,848	2,622	2,359	2,365	2,793	-4	[R] 7,992
April	[R] 452	[R] 1,331	327	[R] 1,344	1,722	2,505	2,273	2,279	2,685	-3	[R] 7,457
May	[R] 315	[R] 1,280	[R] 264	1,374	1,729	2,564	2,370	2,376	2,916	-1	[R] 7,593
June	[R] 228	[R] 1,519	221	[R] 1,463	1,712	2,575	2,375	2,382	3,402	5	[R] 7,944
July	[R] 218	[R] 1,807	221	1,559	1,753	2,649	2,453	2,459	3,831	8	[R] 8,483
August	[R] 204	[R] 1,761	223	1,567	1,843	2,730	2,478	2,484	3,794	9	[R] 8,551
September	[R] 221	[R] 1,468	229	1,419	1,739	2,541	2,321	2,327	3,245	5	[R] 7,760
October	[R] 315	[R] 1,309	288	1,395	1,810	2,609	2,341	2,347	2,906	2	[R] 7,662
November	[R] 510	[R] 1,436	381	1,425	1,807	2,586	2,274	2,280	2,755	(s)	[R] 7,727
December	[R] 970	[R] 2,229	592	1,735	1,943	2,758	2,361	2,367	3,224	4	[R] 9,093
Total	[R] **5,919**	[R] **20,060**	[R] **4,302**	[R] **18,004**	**21,674**	**31,462**	**27,931**	**28,006**	**37,705**	**30**	[R] **97,562**
2017 January	[R] 1,008	[R] 2,326	608	[R] 1,723	[R] 1,933	[R] 2,705	[R] 2,209	[R] 2,215	[R] 3,212	4	[R] 8,973
February	[R] 721	[R] 1,719	466	1,446	[R] 1,708	[R] 2,416	[R] 2,041	[R] 2,047	[R] 2,693	-1	[R] 7,627
March	[R] 729	[R] 1,790	484	[R] 1,584	[R] 1,892	[R] 2,688	[R] 2,397	[R] 2,403	[R] 2,963	-1	[R] 8,464
April	[R] 407	[R] 1,324	309	[R] 1,335	[R] 1,766	[R] 2,531	[R] 2,268	[R] 2,274	[R] 2,716	-2	[R] 7,463
May	[R] 317	[R] 1,338	[R] 269	[R] 1,404	[R] 1,802	[R] 2,630	[R] 2,443	[R] 2,449	2,989	(s)	[R] 7,821
June	[R] 242	[R] 1,492	231	[R] 1,452	[R] 1,759	[R] 2,601	[R] 2,424	[R] 2,431	[R] 3,320	3	[R] 7,979
July	[R] 217	[R] 1,747	[R] 220	[R] 1,536	[R] 1,824	[R] 2,688	[R] 2,441	[R] 2,447	[R] 3,716	6	[R] 8,424
August	[R] 213	[R] 1,624	228	[R] 1,501	[R] 1,818	[R] 2,671	[R] 2,504	[R] 2,510	[R] 3,544	5	[R] 8,311
September	[R] 224	[R] 1,387	[R] 230	[R] 1,391	[R] 1,757	[R] 2,540	[R] 2,308	[R] 2,314	[R] 3,113	1	[R] 7,634
October	[R] 323	[R] 1,357	294	[R] 1,428	[R] 1,837	[R] 2,634	[R] 2,408	[R] 2,414	[R] 2,972	-5	[R] 7,828
November	[R] 611	[R] 1,615	432	[R] 1,508	[R] 1,903	[R] 2,685	[R] 2,312	[R] 2,318	[R] 2,868	-2	[R] 8,124
December	1,004	2,279	619	1,758	1,966	2,769	2,369	2,376	3,224	-3	9,179
Total	**6,017**	**19,996**	**4,388**	**18,067**	**21,964**	**31,560**	**28,123**	**28,199**	**37,330**	**5**	**97,827**

[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.

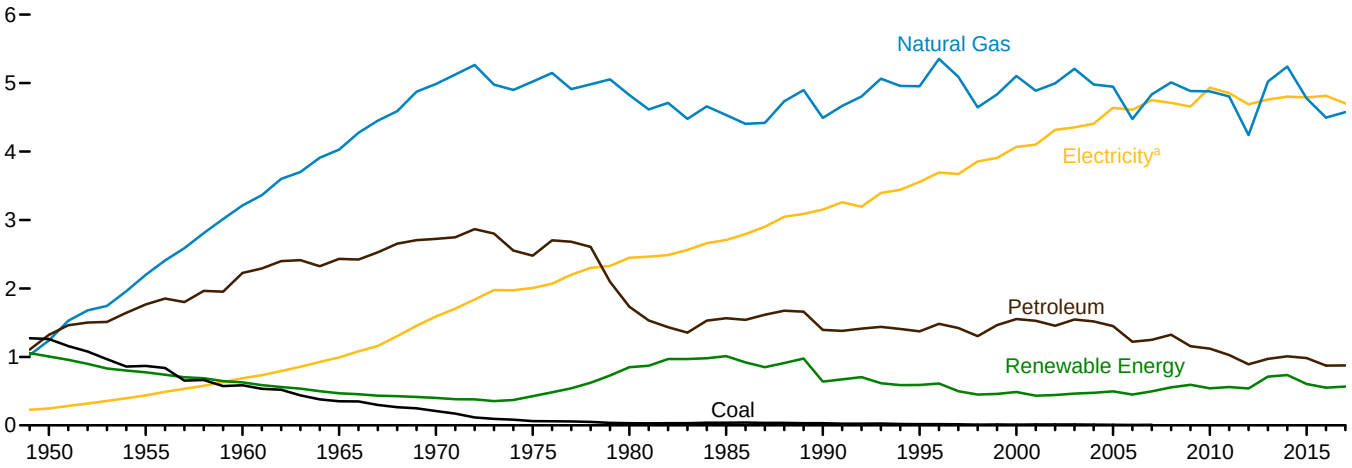
Notes: • Data are estimates, except for the electric power sector. • See Note 2, "Classification of Power Plants Into Energy-Use Sectors," at end of Section 7. • See Note 2, "Energy Consumption Data and Surveys," at end of section. • Totals may not equal sum of components due to independent rounding.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

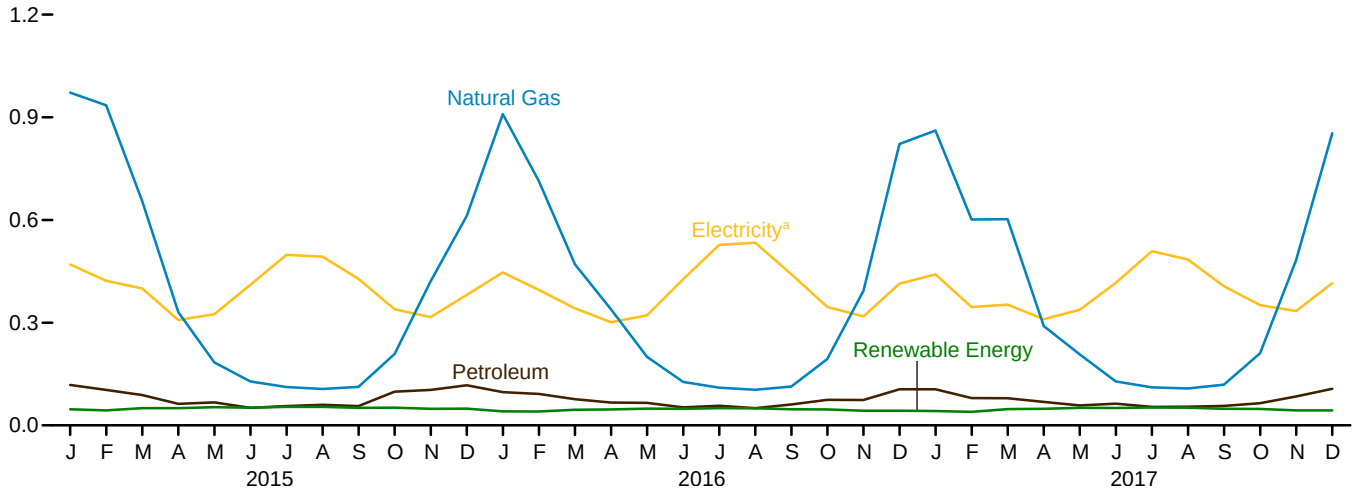
Sources: • **End-Use Sectors:** Tables 2.2–2.5. • **Electric Power Sector:** Table 2.6. • **Balancing Item:** Calculated as primary energy total consumption minus the sum of total energy consumption in the four end-use sectors. • **Primary Total:** Table 1.3.

Figure 2.2 Residential Sector Energy Consumption
(Quadrillion Btu)

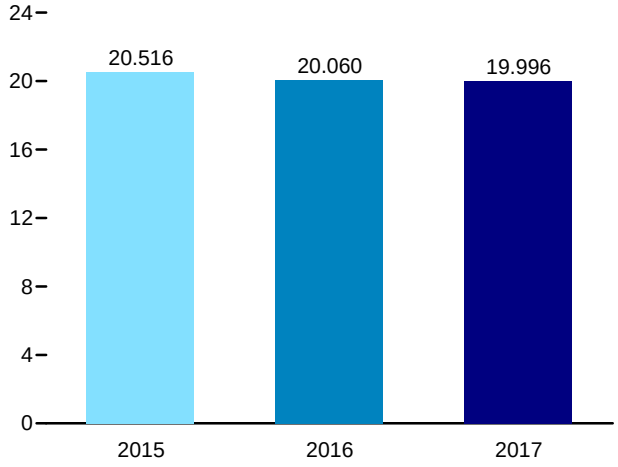
By Major Source, 1949–2017



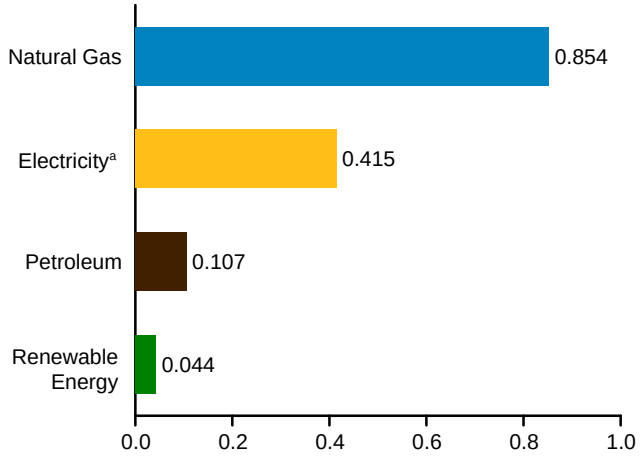
By Major Source, Monthly



Total, January–December



By Major Source, December 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**	**R 587**	**R 735**	**R 6,985**	**4,801**	**9,638**	**R 21,425**
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	R 33	44	R 1,082	423	830	2,335
March	NA	656	89	744	3	10	37	R 50	795	400	752	1,947
April	NA	331	63	394	3	11	36	R 50	444	308	584	1,336
May	NA	184	67	251	3	12	37	53	R 303	325	667	1,295
June	NA	128	51	180	3	13	36	52	232	410	836	R 1,478
July	NA	112	56	168	3	13	37	54	222	498	1,007	R 1,727
August	NA	106	60	166	3	13	37	54	R 220	493	966	R 1,679
September	NA	112	56	169	3	12	36	R 51	220	428	797	R 1,444
October	NA	209	98	307	3	11	37	R 51	359	339	630	1,327
November	NA	421	104	525	3	9	36	R 48	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**	**R 436**	**R 603**	**R 6,363**	**4,791**	**9,362**	**R 20,516**
2016 January	NA	910	97	1,007	3	8	R 30	R 41	R 1,048	447	886	R 2,381
February	NA	714	92	806	3	10	R 28	R 40	R 846	396	733	R 1,975
March	NA	471	76	547	3	13	R 30	R 46	R 593	342	637	R 1,572
April	NA	339	67	406	3	15	R 29	R 46	R 452	301	578	R 1,331
May	NA	200	66	266	3	16	R 30	R 49	R 315	321	643	R 1,280
June	NA	127	53	179	3	17	R 29	R 48	R 228	427	864	R 1,519
July	NA	110	57	168	3	17	R 30	R 50	R 218	527	1,062	R 1,807
August	NA	104	50	154	3	17	R 30	R 50	R 204	534	1,023	R 1,761
September	NA	113	61	175	3	15	R 29	R 47	R 221	441	805	R 1,468
October	NA	194	75	268	3	13	R 30	R 46	R 315	346	648	R 1,309
November	NA	393	74	467	3	11	R 29	R 43	R 510	318	608	R 1,436
December	NA	822	106	927	3	10	R 30	R 43	R 970	414	844	R 2,229
Total	**NA**	**4,496**	**873**	**5,369**	**40**	**161**	**R 349**	**R 550**	**R 5,919**	**4,815**	**9,326**	**R 20,060**
2017 January	NA	861	R 105	967	3	10	R 28	R 42	R 1,008	R 441	R 876	R 2,326
February	NA	602	80	R 681	3	11	R 26	R 40	R 721	R 346	R 652	R 1,719
March	NA	602	R 79	R 681	3	16	R 28	R 47	R 729	R 353	R 708	R 1,790
April	NA	290	69	359	3	R 17	R 27	R 48	R 407	310	R 607	R 1,324
May	NA	R 207	58	266	3	19	R 28	R 51	R 317	R 338	R 684	R 1,338
June	NA	128	R 63	192	3	20	R 27	R 51	R 242	416	R 833	R 1,492
July	NA	111	54	R 165	3	20	R 28	R 52	R 217	R 509	R 1,021	R 1,747
August	NA	108	R 54	162	3	20	R 28	R 52	R 213	R 485	R 926	R 1,624
September	NA	119	57	176	3	18	R 27	R 49	R 224	R 406	R 757	R 1,387
October	NA	211	65	276	3	16	R 28	R 48	R 323	351	R 682	R 1,357
November	NA	483	85	R 567	3	13	R 27	R 44	R 611	R 334	R 670	R 1,615
December	NA	854	107	960	3	12	28	44	1,004	415	860	2,279
Total	**NA**	**4,575**	**876**	**5,451**	**40**	**192**	**334**	**566**	**6,017**	**4,705**	**9,275**	**19,996**

[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.

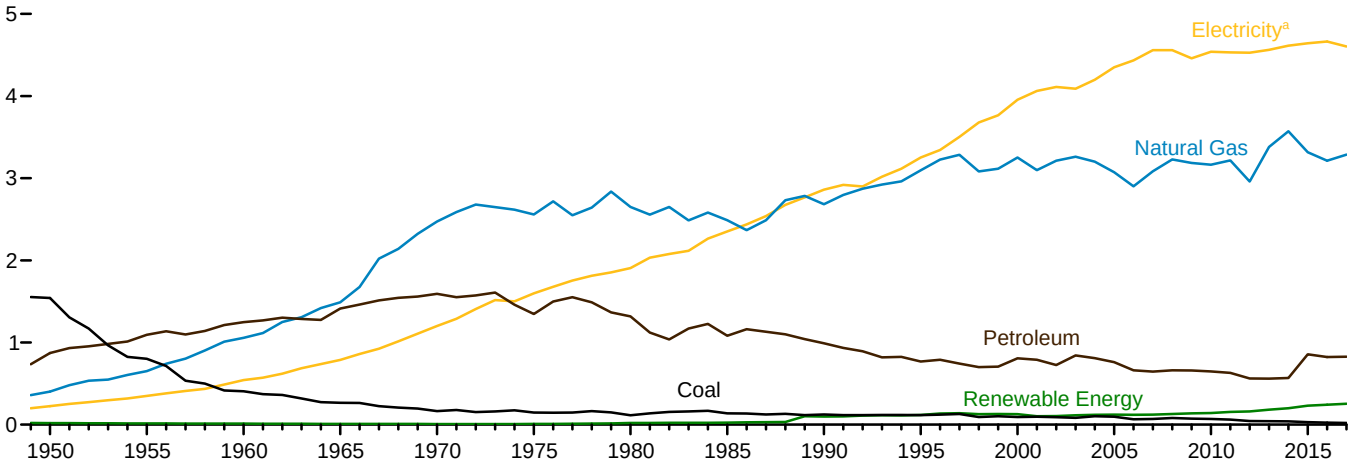
Notes: • Data are estimates, except for electricity retail sales. • See Note 2, "Energy Consumption Data and Surveys," at end of section. • Totals may not equal sum of components due to independent rounding. • Geographic coverage is the 50 states and the District of Columbia.

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.

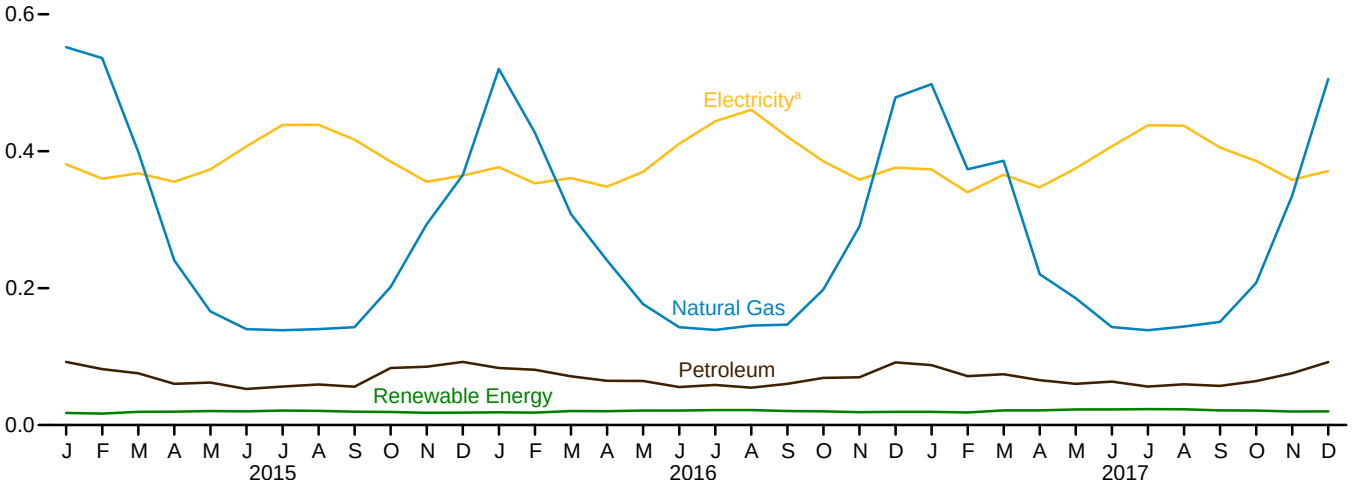
Sources: See end of section.

Figure 2.3 Commercial Sector Energy Consumption
(Quadrillion Btu)

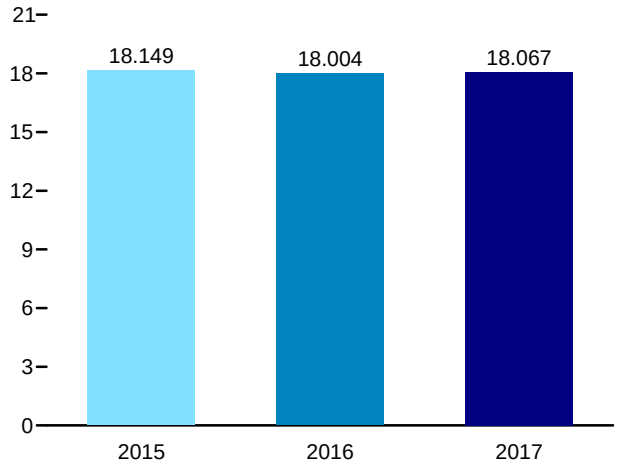
By Major Source, 1949–2017



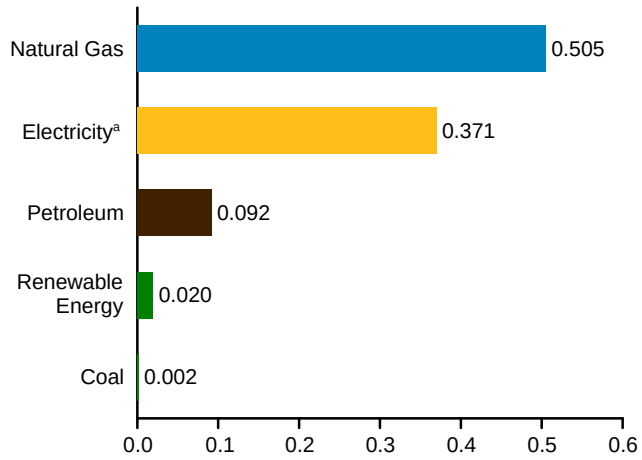
By Major Source, Monthly



Total, January–December



By Major Source, December 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**	**R 127**	**R 200**	**R 4,381**	**4,614**	**9,261**	**R 18,255**
2015 January	4	552	92	648	(s)	2	3	(s)	13	18	666	381	756	1,803
February	4	536	82	622	(s)	2	4	(s)	R 11	17	R 638	360	707	1,706
March	4	400	76	479	(s)	2	5	(s)	13	19	498	368	692	1,558
April	2	240	60	303	(s)	2	5	(s)	R 12	R 19	322	355	674	1,352
May	2	166	62	230	(s)	2	6	(s)	13	R 20	R 250	373	767	1,390
June	2	140	53	195	(s)	2	6	(s)	13	20	215	407	829	1,451
July	2	138	56	197	(s)	2	6	(s)	13	21	218	438	886	R 1,542
August	2	140	59	201	(s)	2	6	(s)	13	21	222	439	859	1,519
September	2	143	56	201	(s)	2	5	(s)	13	20	220	417	776	R 1,413
October	2	202	83	287	(s)	2	5	(s)	13	19	306	385	715	1,406
November	2	293	85	381	(s)	2	4	(s)	13	18	399	355	698	1,453
December	3	365	92	460	(s)	2	3	(s)	13	18	R 478	365	711	1,554
Total	**31**	**3,316**	**856**	**4,203**	**(s)**	**20**	**57**	**1**	**R 152**	**R 230**	**R 4,433**	**4,643**	**9,073**	**R 18,149**
2016 January	3	520	83	607	(s)	2	3	(s)	13	R 19	625	377	747	1,748
February	3	427	81	511	(s)	2	4	(s)	12	18	529	353	654	1,536
March	3	308	71	382	(s)	2	5	(s)	13	20	403	361	672	1,436
April	1	241	65	307	(s)	2	6	(s)	13	20	327	348	668	R 1,344
May	1	177	64	242	(s)	2	6	(s)	13	21	R 264	370	741	1,374
June	2	143	56	200	(s)	2	6	(s)	13	21	221	411	831	R 1,463
July	1	139	59	199	(s)	2	6	(s)	R 14	22	221	444	895	1,559
August	1	145	55	201	(s)	2	6	(s)	R 14	22	223	461	883	1,567
September	1	147	60	208	(s)	2	6	(s)	13	20	229	421	769	1,419
October	2	198	69	268	(s)	2	5	(s)	13	20	288	385	721	1,395
November	2	290	70	362	(s)	2	4	(s)	13	19	381	358	685	1,425
December	3	479	91	573	(s)	2	4	(s)	13	19	592	376	767	1,735
Total	**24**	**3,213**	**823**	**4,060**	**2**	**20**	**62**	**1**	**R 158**	**R 242**	**R 4,302**	**4,665**	**9,036**	**R 18,004**
2017 January	3	498	88	R 588	(s)	2	4	(s)	13	19	608	R 373	R 742	R 1,723
February	2	374	R 71	R 447	(s)	2	4	(s)	12	18	466	R 340	641	1,446
March	2	386	R 74	463	(s)	2	6	(s)	13	21	484	R 366	R 734	R 1,584
April	1	220	66	R 287	(s)	2	7	(s)	R 13	21	309	R 347	R 679	R 1,335
May	1	185	60	247	(s)	2	8	(s)	13	23	R 269	R 375	759	R 1,404
June	1	143	R 63	208	(s)	2	8	(s)	13	23	231	R 407	815	R 1,452
July	1	R 139	56	196	(s)	2	8	(s)	13	23	R 220	R 438	R 879	R 1,536
August	1	144	R 59	R 204	(s)	2	8	(s)	13	23	228	R 437	R 836	R 1,501
September	1	151	57	209	(s)	2	7	(s)	12	21	R 230	R 405	R 755	R 1,391
October	1	207	R 64	R 272	(s)	2	6	(s)	13	21	294	386	R 749	R 1,428
November	2	335	76	412	(s)	2	5	(s)	13	20	432	358	R 718	R 1,508
December	2	505	92	599	(s)	2	5	(s)	13	20	619	371	767	1,758
Total	**20**	**3,287**	**827**	**4,133**	**2**	**20**	**76**	**1**	**155**	**255**	**4,388**	**4,603**	**9,076**	**18,067**

[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.

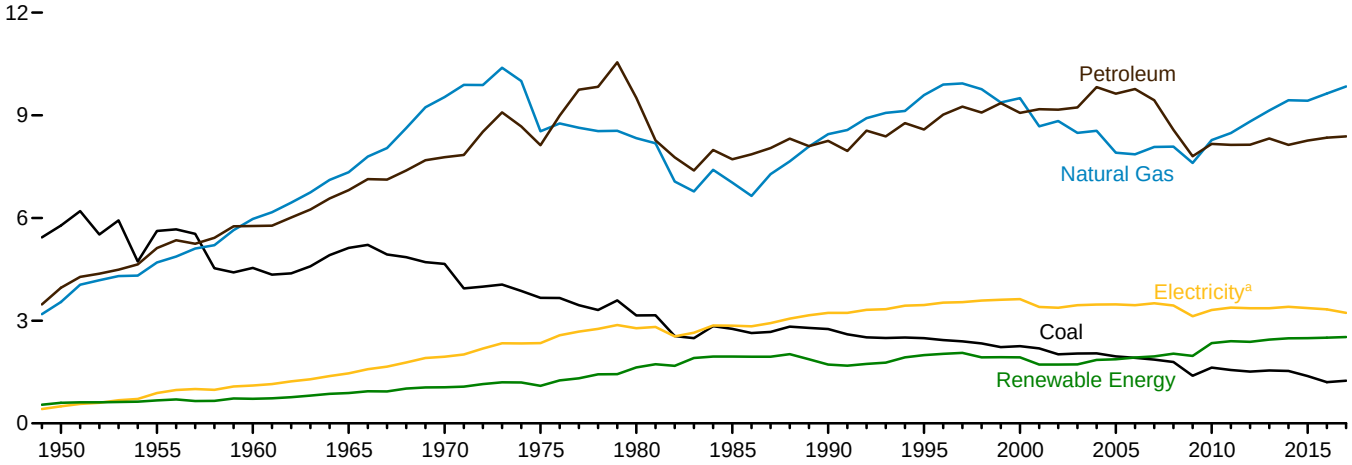
Notes: • Data are estimates, except for coal totals beginning in 2008; hydroelectric power; solar; wind; and electricity retail sales beginning in 1979. • The commercial sector includes commercial combined-heat-and-power (CHP) and commercial electricity-only plants. See Note 2, "Classification of Power 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.

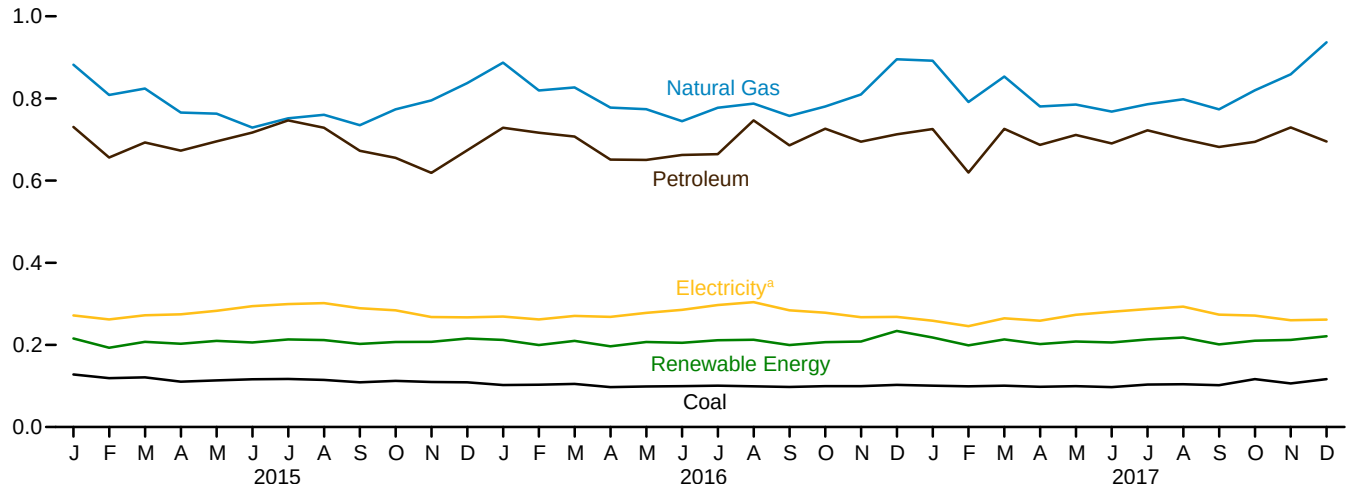
Sources: See end of section.

Figure 2.4 Industrial Sector Energy Consumption
(Quadrillion Btu)

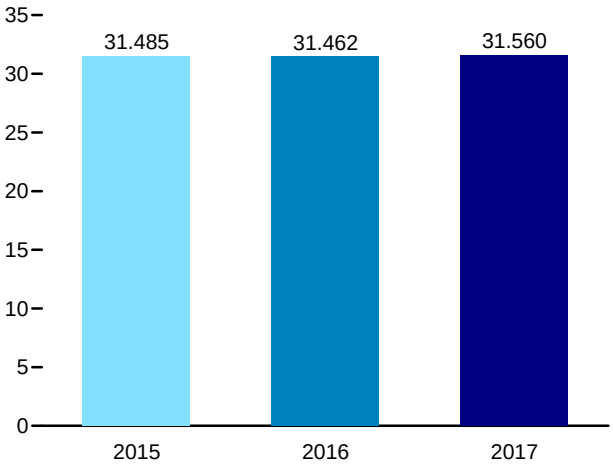
By Major Source, 1949–2017



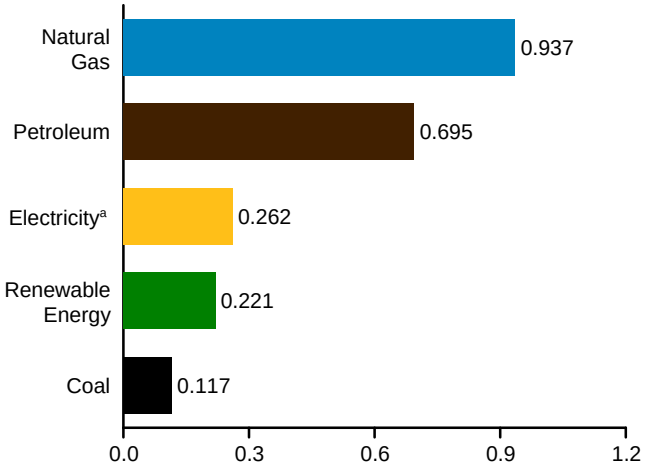
By Major Source, Monthly



Total, January–December



By Major Source, December 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**	**–**	**2,320**	**2,343**	**20,413**	**3,314**	**6,934**	**30,661**
2011 Total	**1,561**	**8,481**	**8,135**	**18,187**	**17**	**4**	**4**	**(s)**	**2,375**	**2,401**	**20,588**	**3,382**	**7,005**	**30,975**
2012 Total	**1,513**	**8,819**	**8,143**	**18,479**	**22**	**4**	**7**	**(s)**	**2,349**	**2,382**	**20,861**	**3,363**	**6,810**	**31,034**
2013 Total	**1,546**	**9,140**	**8,326**	**18,995**	**33**	**4**	**9**	**(s)**	**2,403**	**2,449**	**21,444**	**3,362**	**6,785**	**31,591**
2014 Total	**1,530**	**9,441**	**8,138**	**19,088**	**12**	**4**	**11**	**1**	**2,456**	**2,484**	**21,572**	**3,404**	**6,832**	**31,808**
2015 January	128	882	731	1,739	1	(s)	1	(s)	213	215	1,954	272	539	2,765
February	119	809	656	1,583	1	(s)	1	(s)	191	193	1,776	262	515	2,552
March	121	824	693	1,637	1	(s)	1	(s)	205	207	1,845	272	512	2,628
April	110	766	673	1,547	1	(s)	1	(s)	200	203	1,750	275	521	2,546
May	114	763	696	1,570	1	(s)	1	(s)	207	210	1,779	283	581	2,643
June	116	729	717	1,559	1	(s)	1	(s)	203	206	1,765	294	599	2,659
July	117	752	747	1,615	1	(s)	1	(s)	210	213	1,828	299	605	2,732
August	115	760	729	1,602	1	(s)	1	(s)	209	212	1,814	302	591	2,706
September	109	735	673	1,517	1	(s)	1	(s)	200	203	1,719	289	538	2,547
October	112	774	655	1,540	1	(s)	1	(s)	204	207	1,747	284	528	2,558
November	110	795	619	1,521	1	(s)	1	(s)	205	207	1,728	268	526	2,523
December	109	837	674	1,619	1	(s)	1	(s)	213	215	1,835	267	520	2,622
Total	**1,380**	**9,426**	**8,262**	**19,049**	**13**	**4**	**14**	**(s)**	**2,460**	**2,491**	**21,541**	**3,366**	**6,578**	**31,485**
2016 January	102	887	729	1,717	1	(s)	1	(s)	209	212	1,929	269	533	2,732
February	103	819	717	1,639	1	(s)	1	(s)	197	200	1,838	262	485	2,585
March	105	827	707	1,639	1	(s)	2	(s)	206	210	1,848	270	504	2,622
April	97	778	651	1,525	1	(s)	2	(s)	193	196	1,722	268	515	2,505
May	99	774	650	1,522	1	(s)	2	(s)	204	207	1,729	278	557	2,564
June	100	745	663	1,507	1	(s)	2	(s)	202	205	1,712	285	578	2,575
July	101	777	665	1,541	1	(s)	2	(s)	208	211	1,753	297	599	2,649
August	99	788	746	1,631	1	(s)	2	(s)	209	213	1,843	304	583	2,730
September	98	758	686	1,539	1	(s)	2	(s)	197	200	1,739	284	518	2,541
October	99	780	726	1,603	1	(s)	2	(s)	204	207	1,810	278	521	2,609
November	99	810	695	1,599	1	(s)	1	(s)	206	208	1,807	268	512	2,586
December	103	896	713	1,709	1	(s)	1	(s)	231	234	1,943	268	547	2,758
Total	**1,205**	**9,638**	**8,347**	**19,171**	**12**	**4**	**19**	**1**	**2,467**	**2,503**	**21,674**	**3,333**	**6,456**	**31,462**
2017 January	101	892	R 726	R 1,715	1	(s)	1	(s)	215	218	R 1,933	259	R 514	R 2,705
February	99	791	R 620	R 1,509	1	(s)	1	(s)	196	199	R 1,708	R 246	R 463	R 2,416
March	101	853	R 726	R 1,678	1	(s)	2	(s)	210	213	R 1,892	265	R 531	R 2,688
April	98	780	R 687	R 1,564	1	(s)	2	(s)	198	202	R 1,766	259	R 507	R 2,531
May	99	785	R 711	R 1,594	1	(s)	2	(s)	204	208	R 1,802	273	R 554	R 2,630
June	97	768	R 691	R 1,553	1	(s)	2	(s)	202	206	R 1,759	R 281	R 561	R 2,601
July	104	786	R 723	R 1,611	1	(s)	3	(s)	209	213	R 1,824	287	R 577	R 2,688
August	104	798	R 701	R 1,600	1	(s)	2	(s)	214	218	R 1,818	293	R 560	R 2,671
September	102	773	R 682	R 1,555	1	(s)	2	(s)	198	R 201	R 1,757	274	R 510	R 2,540
October	117	820	R 694	R 1,626	1	(s)	2	(s)	207	210	R 1,837	271	R 526	R 2,634
November	106	859	R 729	R 1,691	1	(s)	2	(s)	209	212	R 1,903	260	R 521	R 2,685
December	117	937	695	1,745	1	(s)	1	(s)	218	221	1,966	262	542	2,769
Total	**1,244**	**9,843**	**8,384**	**19,442**	**13**	**4**	**24**	**1**	**2,480**	**2,522**	**21,964**	**3,229**	**6,366**	**31,560**

[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.

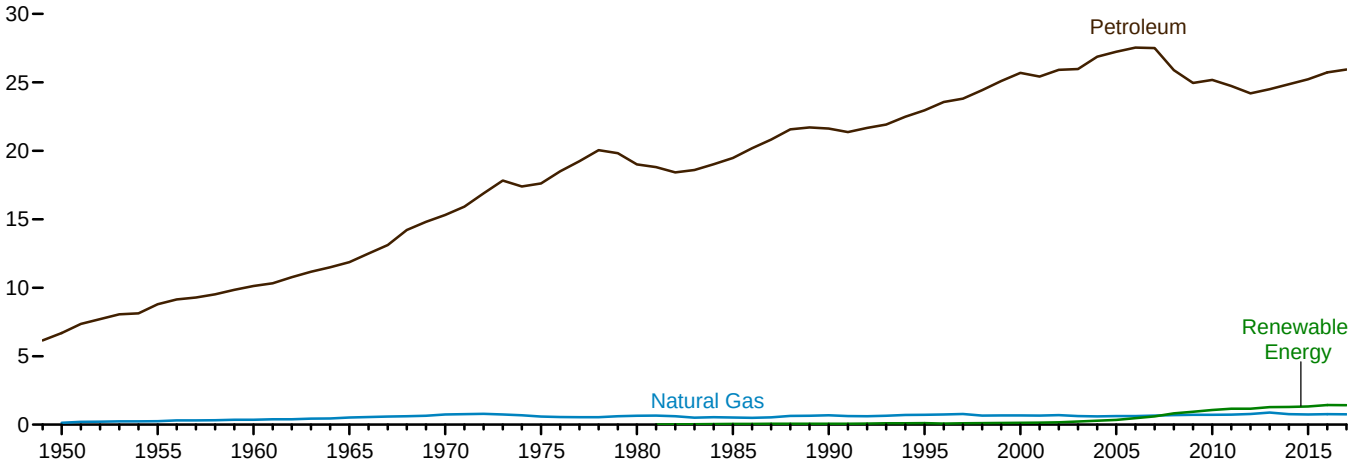
Notes: • Data are estimates, except for coal totals; hydroelectric power in 1949–1978 and 1989 forward; solar; wind; and electricity retail sales. • The industrial sector includes industrial combined-heat-and-power (CHP) and industrial electricity-only plants. See Note 2, "Classification of Power Plants 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.

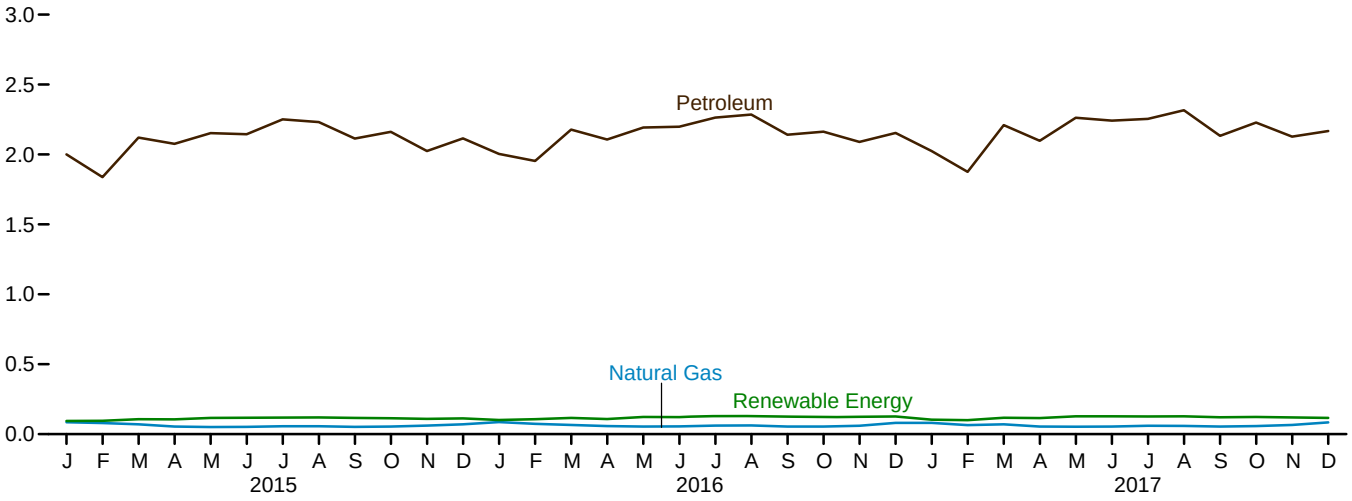
Sources: See end of section.

Figure 2.5 Transportation Sector Energy Consumption
(Quadrillion Btu)

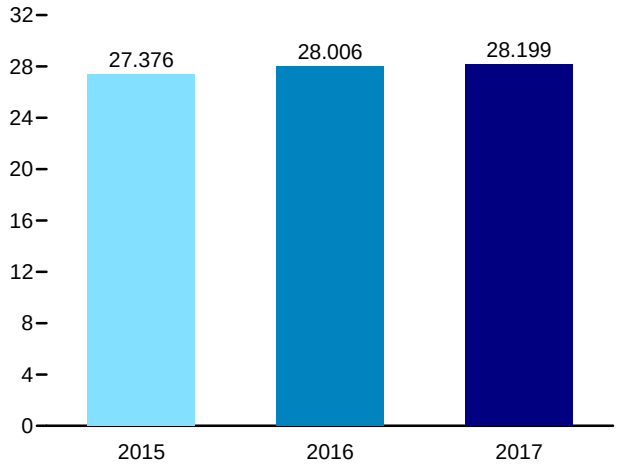
By Major Source, 1949–2017



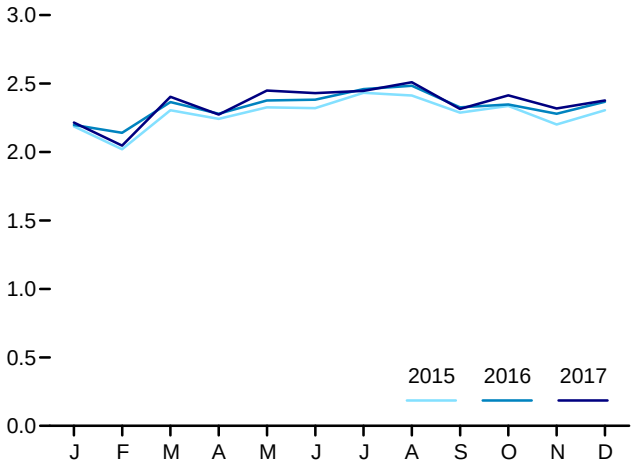
By Major Source, Monthly



Total, January–December



Total, Monthly



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

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	2,001	2,086	94	2,180	2	5	2,187
February	([g])	80	1,838	1,918	95	2,013	2	5	2,020
March	([g])	71	2,120	2,191	107	2,298	2	4	2,305
April	([g])	55	2,076	2,131	105	2,236	2	4	2,242
May	([g])	51	2,153	2,203	116	2,319	2	4	2,326
June	([g])	52	2,145	2,196	117	2,314	2	4	2,320
July	([g])	57	2,251	2,307	118	2,425	2	4	2,432
August	([g])	56	2,231	2,287	120	2,407	2	4	2,413
September	([g])	52	2,114	2,166	116	2,282	2	4	2,288
October	([g])	54	2,161	2,216	114	2,330	2	4	2,336
November	([g])	62	2,024	2,086	110	2,196	2	4	2,202
December	([g])	71	2,115	2,186	113	2,299	2	4	2,305
Total	**([g])**	**745**	**25,228**	**25,973**	**1,326**	**27,299**	**26**	**51**	**27,376**
2016 January	([g])	86	2,004	2,090	102	2,191	2	4	2,198
February	([g])	74	1,953	2,027	107	2,134	2	4	2,141
March	([g])	66	2,177	2,243	116	2,359	2	4	2,365
April	([g])	58	2,107	2,165	108	2,273	2	4	2,279
May	([g])	55	2,193	2,248	122	2,370	2	4	2,376
June	([g])	56	2,198	2,254	122	2,375	2	4	2,382
July	([g])	61	2,263	2,325	128	2,453	2	4	2,459
August	([g])	62	2,286	2,348	131	2,478	2	4	2,484
September	([g])	55	2,142	2,196	124	2,321	2	4	2,327
October	([g])	54	2,164	2,218	123	2,341	2	4	2,347
November	([g])	61	2,090	2,150	124	2,274	2	4	2,280
December	([g])	80	2,153	2,234	127	2,361	2	5	2,367
Total	**([g])**	**767**	**25,730**	**26,496**	**1,434**	**27,931**	**26**	**50**	**28,006**
2017 January	([g])	80	R 2,025	R 2,105	104	R 2,209	2	5	R 2,215
February	([g])	65	R 1,876	R 1,941	100	R 2,041	2	4	R 2,047
March	([g])	R 70	R 2,209	R 2,280	117	R 2,397	2	R 4	R 2,403
April	([g])	54	R 2,098	R 2,153	116	R 2,268	2	4	R 2,274
May	([g])	54	R 2,262	R 2,316	127	R 2,443	2	4	R 2,449
June	([g])	54	R 2,242	R 2,296	128	R 2,424	2	4	R 2,431
July	([g])	60	R 2,254	R 2,314	126	R 2,441	2	4	R 2,447
August	([g])	R 59	R 2,316	R 2,375	128	R 2,504	2	4	R 2,510
September	([g])	54	R 2,133	R 2,188	121	R 2,308	2	4	R 2,314
October	([g])	57	R 2,228	R 2,285	123	R 2,408	2	4	R 2,414
November	([g])	R 65	R 2,127	R 2,193	119	R 2,312	2	4	R 2,318
December	([g])	85	2,168	2,253	117	2,369	2	5	2,376
Total	**([g])**	**758**	**25,940**	**26,698**	**1,425**	**28,123**	**26**	**51**	**28,199**

[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.

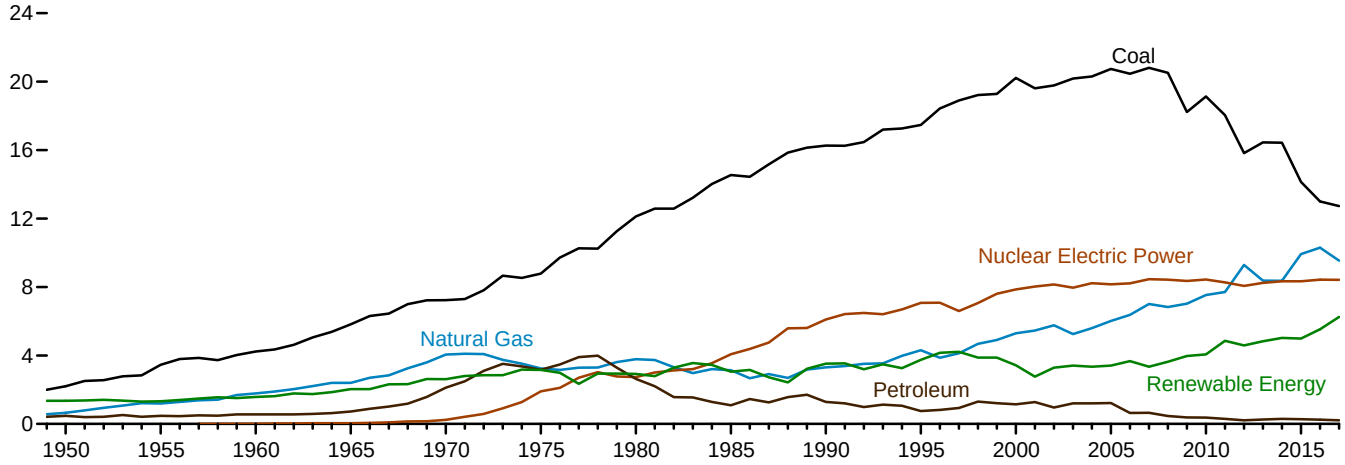
Notes: • Data are estimates, except for coal totals through 1977; and electricity retail sales beginning in 1979. • See Note 2, "Energy Consumption Data and Surveys," at end of section. • Totals may not equal sum of components due to independent rounding. • Geographic coverage is the 50 states and the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

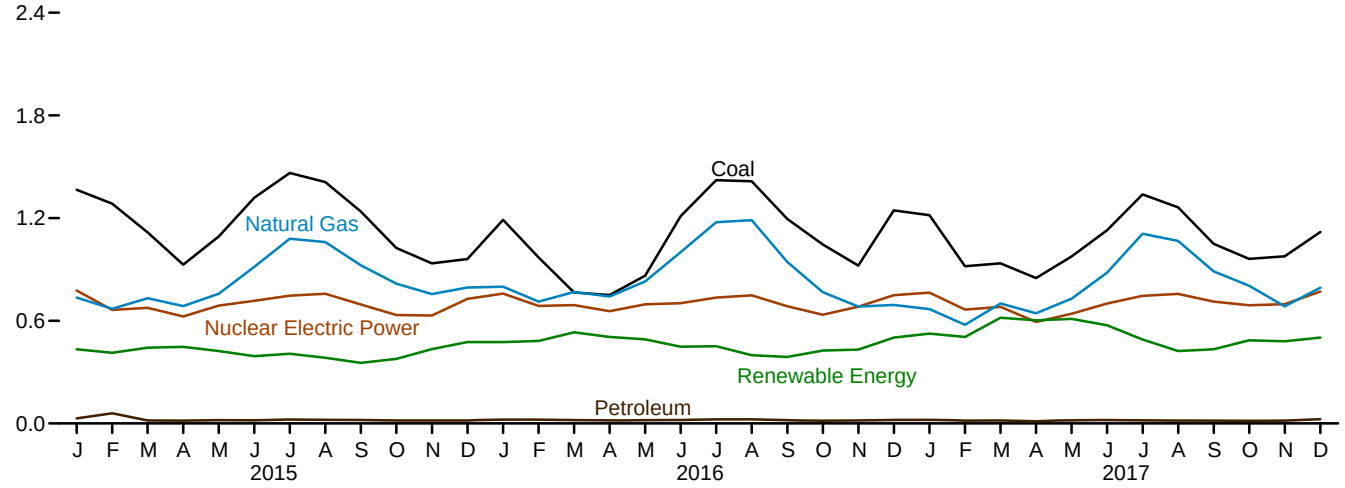
Sources: See end of section.

Figure 2.6 Electric Power Sector Energy Consumption
(Quadrillion Btu)

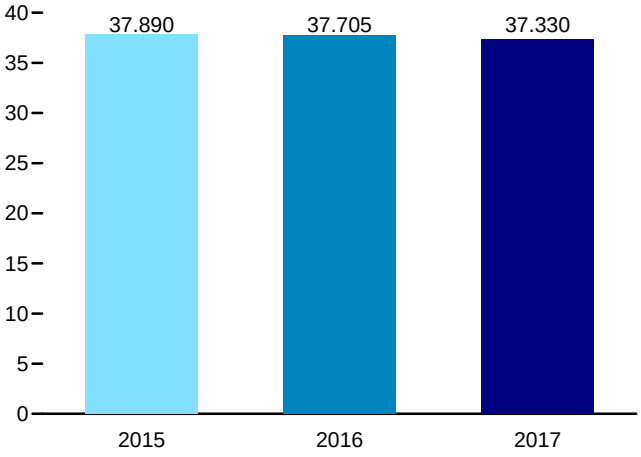
By Major Source, 1949–2017



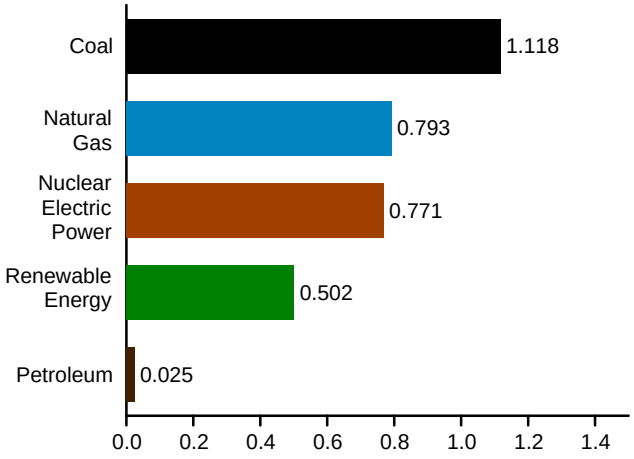
By Major Source, Monthly



Total, January–December



By Major Source, December 2017



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

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	1,190	799	23	2,012	759	235	12	13	170	44	475	19	3,265
February	970	712	22	1,704	687	222	11	20	186	43	482	16	2,888
March	765	768	18	1,552	692	251	12	24	202	43	533	16	2,793
April	750	741	19	1,510	656	238	11	26	192	39	506	13	2,685
May	863	830	19	1,712	696	234	12	31	174	40	491	16	2,916
June	1,211	1,001	20	2,232	703	213	12	32	150	41	448	19	3,402
July	1,422	1,176	24	2,622	736	197	12	36	163	44	451	22	3,831
August	1,415	1,188	24	2,627	748	180	12	36	125	45	399	20	3,794
September	1,195	944	20	2,158	685	150	12	33	151	41	388	13	3,245
October	1,046	767	16	1,830	635	159	12	29	188	37	426	16	2,906
November	923	683	18	1,623	682	173	13	25	179	42	432	19	2,755
December	1,245	692	20	1,958	750	207	13	22	213	46	501	15	3,224
Total	**12,996**	**10,301**	**244**	**23,542**	**8,427**	**2,459**	**146**	**328**	**2,094**	**505**	**5,531**	**206**	**37,705**
2017 January	1,217	R 668	21	R 1,906	765	256	13	20	R 191	45	R 525	16	R 3,212
February	919	R 577	16	R 1,511	R 665	225	11	23	R 205	41	R 505	12	R 2,693
March	935	R 701	17	R 1,653	681	278	13	40	R 241	46	R 618	12	R 2,963
April	849	R 643	13	R 1,505	593	269	13	R 44	R 238	40	R 603	15	R 2,716
May	R 975	R 729	19	1,723	641	296	12	R 53	209	42	R 611	14	2,989
June	1,129	R 881	19	R 2,029	701	279	12	57	R 182	R 44	573	16	R 3,320
July	1,339	R 1,108	18	R 2,465	746	236	13	50	R 145	46	R 490	15	R 3,716
August	R 1,263	R 1,066	17	R 2,346	757	195	13	49	121	46	423	17	R 3,544
September	1,049	R 889	17	R 1,955	712	174	12	47	R 159	41	433	13	R 3,113
October	R 962	R 804	16	R 1,782	690	158	12	44	229	43	R 486	R 13	R 2,972
November	R 977	R 684	16	R 1,676	697	182	12	28	215	43	480	R 14	R 2,868
December	1,118	793	25	1,936	771	207	13	28	210	45	502	14	3,224
Total	**12,732**	**9,543**	**214**	**22,489**	**8,419**	**2,755**	**147**	**483**	**2,345**	**519**	**6,249**	**173**	**37,330**

[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.
R=Revised. 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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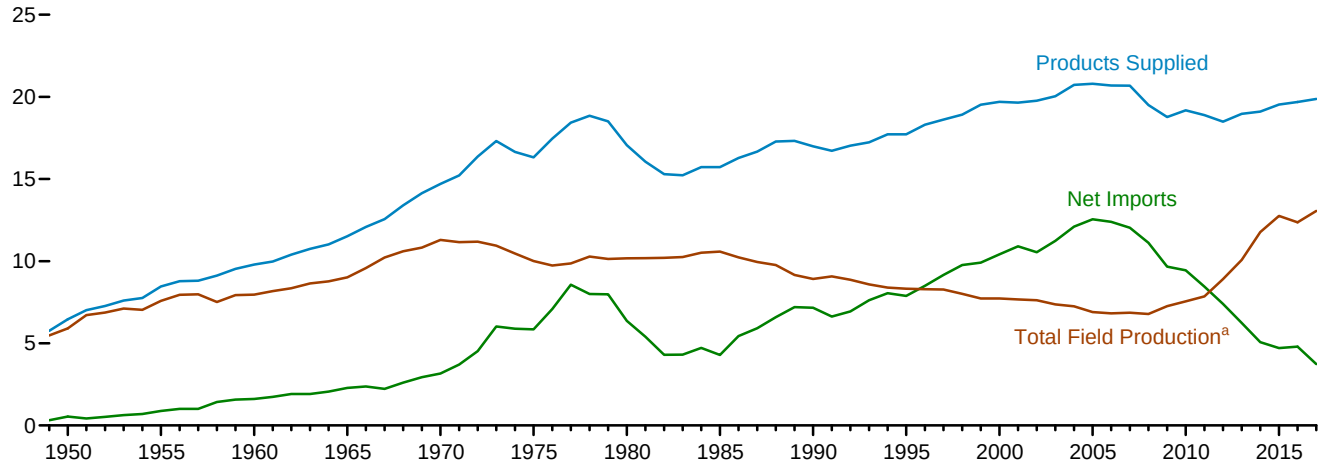
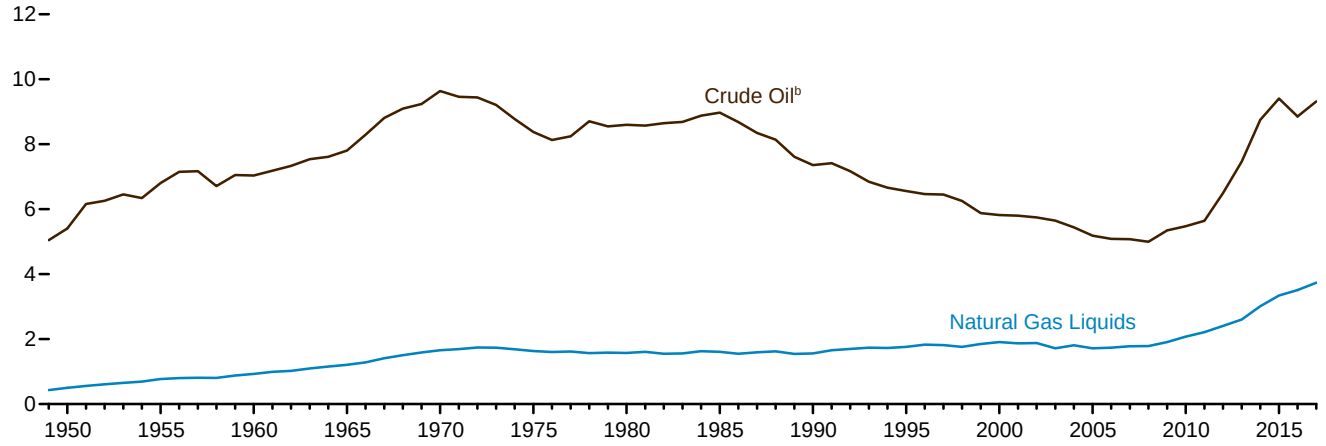
3. Petroleum

Figure 3.1 Petroleum Overview
(Million Barrels per Day)

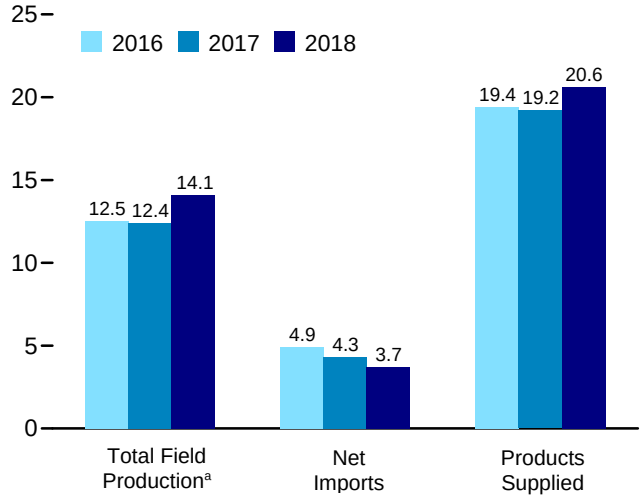
Overview, 1949–2017



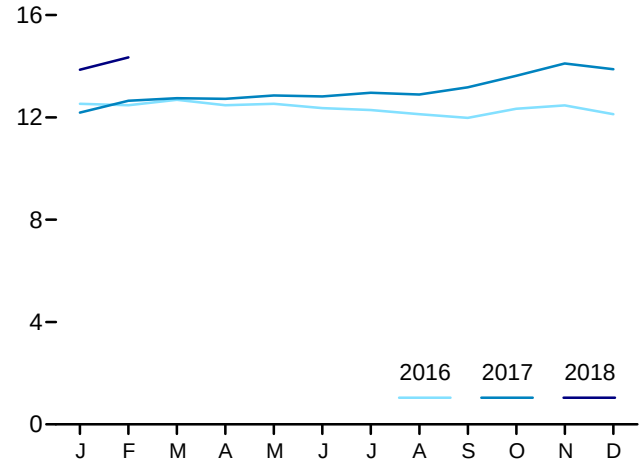
Crude Oil and Natural Gas Liquids Field Production, 1949–2017



Overview, January–February



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 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] 8,309	[E] 516	[E] 8,825	3,365	[E] 12,190	1,177	1,125	10,685	5,691	4,994	698	457	19,244
February	[E] 8,532	[E] 513	[E] 9,045	3,604	[E] 12,650	1,164	1,045	10,039	6,443	3,597	-94	610	19,159
March	[E] 8,581	[E] 526	[E] 9,107	3,644	[E] 12,751	1,172	1,108	10,059	5,886	4,174	-556	287	20,047
April	[E] 8,568	[E] 525	[E] 9,093	3,633	[E] 12,726	1,138	1,128	10,244	6,066	4,178	1	388	19,556
May	[E] 8,627	[E] 508	[E] 9,134	3,721	[E] 12,855	1,174	1,125	10,628	6,142	4,486	152	551	20,039
June	[E] 8,605	[E] 463	[E] 9,068	3,752	[E] 12,819	1,186	1,151	10,240	6,148	4,092	-824	422	20,494
July	[E] 8,786	[E] 423	[E] 9,209	3,755	[E] 12,964	1,188	1,091	9,850	6,232	3,618	-364	795	20,020
August	[E] 8,742	[E] 451	[E] 9,192	3,704	[E] 12,896	1,214	1,112	10,055	5,647	4,407	-377	153	20,161
September	[E] 9,003	[E] 482	[E] 9,485	3,693	[E] 13,177	1,176	1,016	9,707	6,263	3,444	-261	506	19,581
October	[RE] 9,152	[E] 507	[RE] 9,658	3,968	[RE] 13,626	1,208	1,081	9,661	7,163	2,498	-1,133	[R] 261	19,806
November	[RE] 9,547	[E] 510	[RE] 10,057	4,054	[RE] 14,110	1,262	1,146	9,783	7,158	2,624	-691	[R] 445	20,278
December	[RE] 9,437	[RE] 512	[RE] 9,949	[R] 3,936	[RE] 13,885	[R] 1,236	[R] 1,122	[R] 9,934	[R] 7,296	[R] 2,638	[R] -889	[R] 311	[R] 20,082
Average	**[RE] 8,825**	**[RE] 494**	**[RE] 9,320**	**[R] 3,736**	**[RE] 13,056**	**[R] 1,192**	**[R] 1,105**	**[R] 10,075**	**[R] 6,343**	**[R] 3,732**	**[R] -363**	**[R] 431**	**[R] 19,877**
2018 January	[E] 9,371	[E] 510	[E] 9,881	[E] 3,985	[E] 13,866	[E] 1,130	[E] 1,115	[E] 10,221	[E] 6,240	[E] 3,981	[E] -411	[E] 295	[E] 20,798
February	[E] 9,780	[E] 514	[E] 10,294	[E] 4,054	[E] 14,348	[E] 1,139	[E] 1,071	[E] 9,601	[E] 6,250	[E] 3,351	[E] -211	[E] 163	[E] 20,283
2-Month Average	**[E] 9,565**	**[E] 512**	**[E] 10,077**	**[E] 4,018**	**[E] 14,095**	**[E] 1,134**	**[E] 1,094**	**[E] 9,927**	**[E] 6,245**	**[E] 3,682**	**[E] -316**	**[E] 233**	**[E] 20,554**
2017 2-Month Average	**[E] 8,415**	**[E] 515**	**[E] 8,929**	**3,478**	**[E] 12,408**	**1,171**	**1,087**	**10,379**	**6,048**	**4,331**	**322**	**530**	**19,204**
2016 2-Month Average	**8,636**	**512**	**9,148**	**3,357**	**12,505**	**1,118**	**1,094**	**9,881**	**4,956**	**4,924**	**599**	**399**	**19,442**

[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.

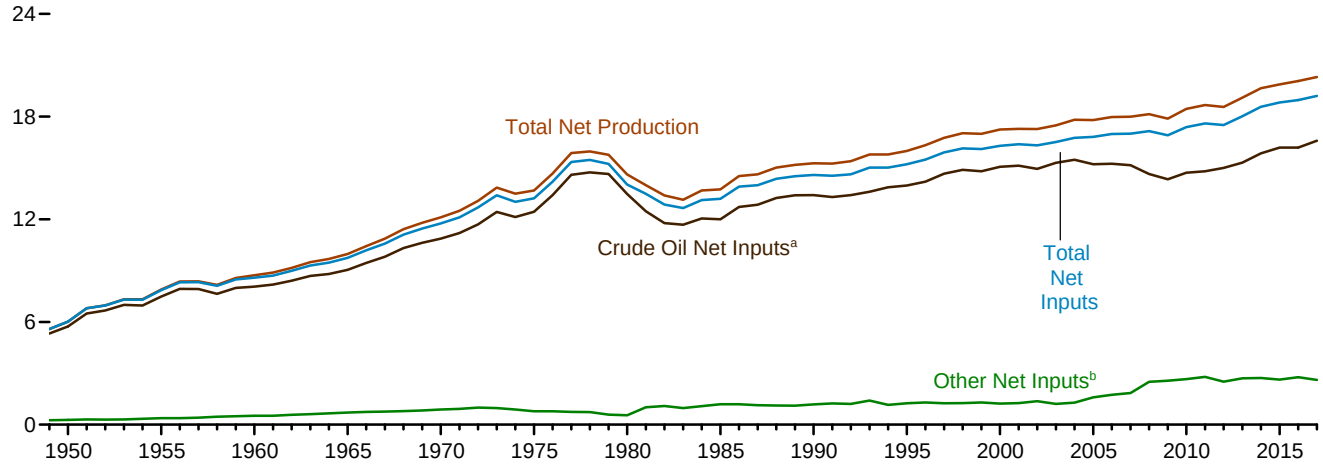
Notes: • Totals may not equal sum of components due to independent rounding. • Geographic coverage is the 50 states and the District of Columbia.

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.

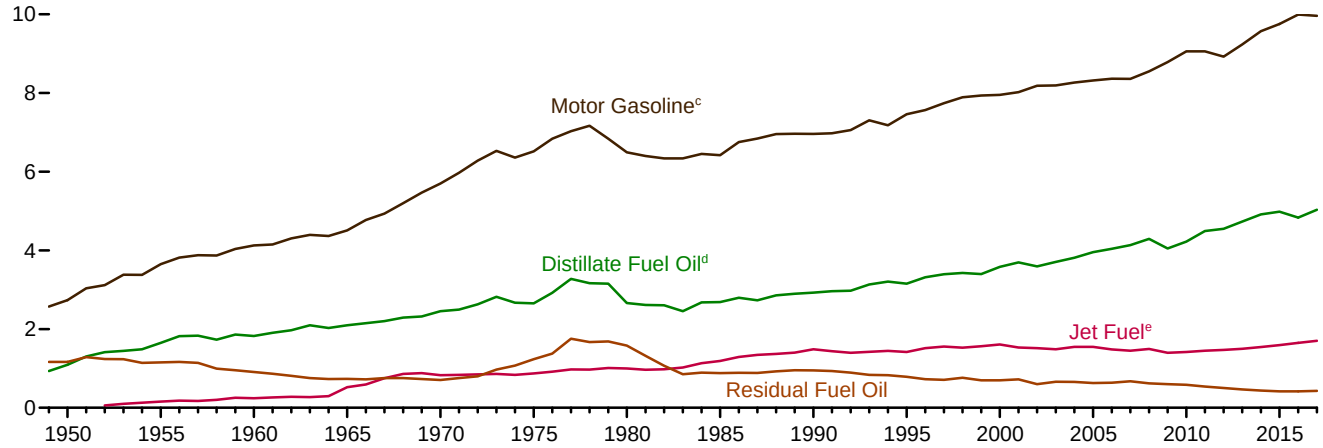
Sources: See end of section.

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

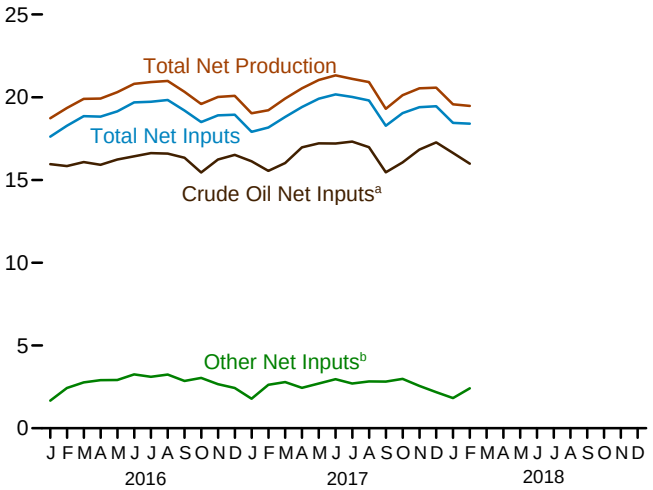
Net Inputs and Net Production, 1949–2017



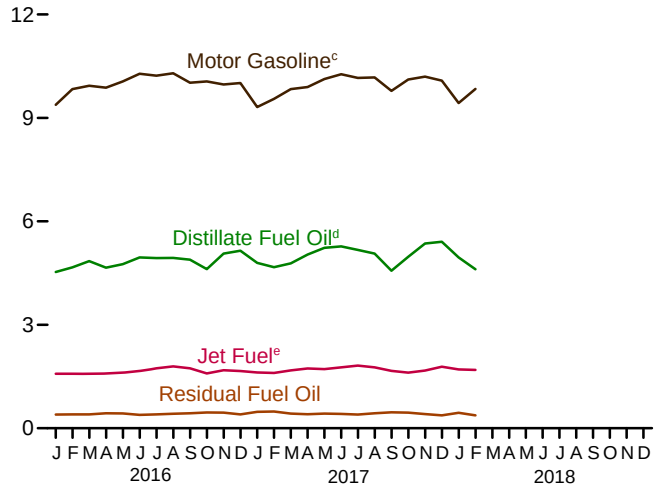
Net Production, Selected Products, 1949–2017



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 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	16,979	480	2,348	19,807	5,064	589	834	1,764	10,175	435	2,648	20,920
September	15,460	605	2,216	18,281	4,570	513	479	1,664	9,785	460	2,340	19,297
October	16,061	592	2,391	19,044	4,974	594	520	1,611	10,113	455	2,452	20,124
November	16,839	730	1,828	19,397	5,358	616	348	1,672	10,199	412	2,554	20,543
December	R 17,274	R 750	R 1,432	R 19,457	R 5,410	R 642	R 341	R 1,784	R 10,081	R 372	R 2,591	R 20,579
Average	**R 16,593**	**R 566**	**R 2,047**	**R 19,206**	**R 5,031**	**R 591**	**R 628**	**R 1,702**	**R 9,961**	**R 429**	**R 2,559**	**R 20,311**
2018 January	E 16,635	RF 647	RE 1,171	RF 18,453	E 4,953	RE 591	RF 379	E 1,705	E 9,432	E 448	RE 2,651	RE 19,568
February	E 15,984	F 590	E 1,826	F 18,400	E 4,610	E 593	F 444	E 1,690	E 9,841	E 374	E 2,512	E 19,471
2-Month Average	**E 16,326**	**F 620**	**E 1,481**	**F 18,428**	**E 4,790**	**E 592**	**F 410**	**E 1,698**	**E 9,626**	**E 413**	**E 2,585**	**E 19,522**
2017 2-Month Average	**15,853**	**620**	**1,559**	**18,032**	**4,738**	**554**	**381**	**1,610**	**9,428**	**478**	**2,483**	**19,119**
2016 2-Month Average	**15,899**	**622**	**1,415**	**17,936**	**4,597**	**581**	**389**	**1,580**	**9,599**	**399**	**2,467**	**19,030**

[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.

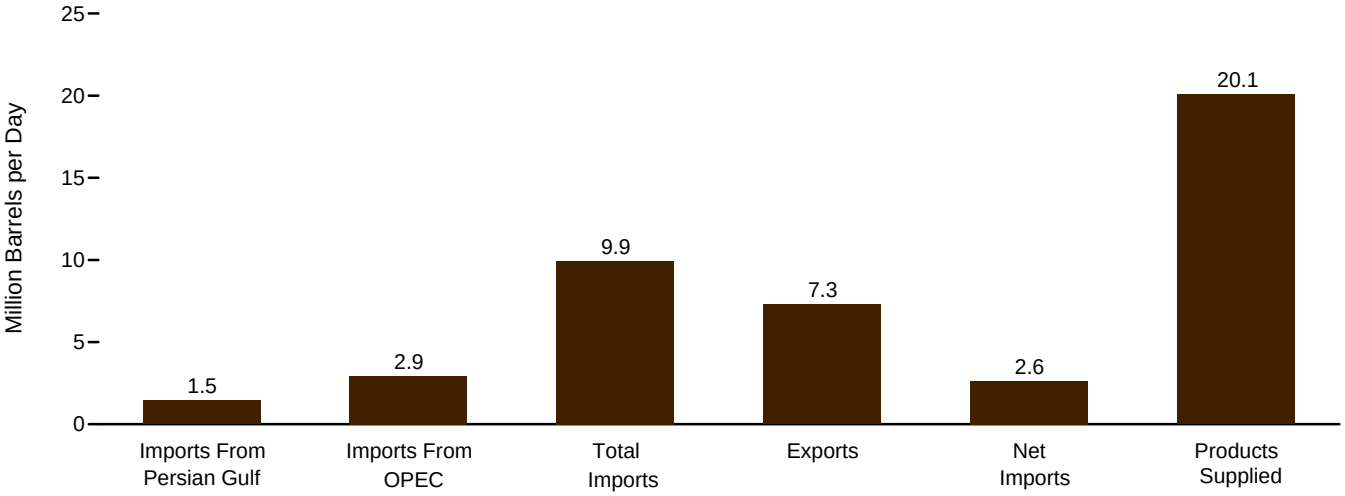
Notes: • Totals may not equal sum of components due to independent rounding. • Geographic coverage is the 50 states and the District of Columbia.

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.

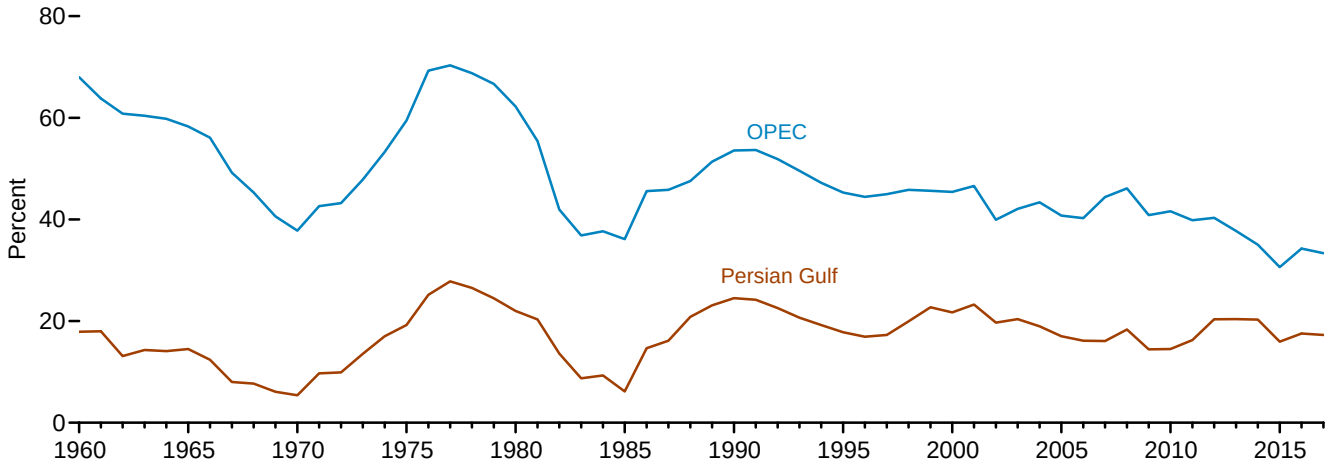
Sources: • **1949–1975:** Bureau of Mines, Mineral Industry Surveys, *Petroleum Statement, Annual,* annual reports. • **1976–1980:** U.S. Energy Information Administration (EIA), Energy Data Reports, *Petroleum Statement, Annual,* annual reports. • **1981–2016:** EIA, *Petroleum Supply Annual,* annual reports, and unpublished revisions. • **2017 and 2018:** 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

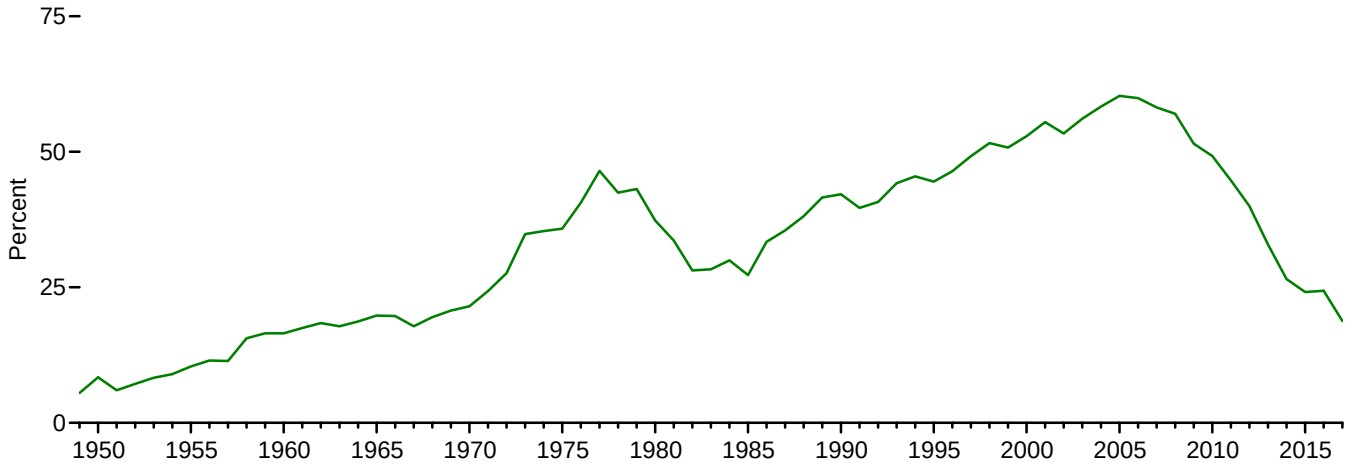
Overview, December 2017



Imports From OPEC and Persian Gulf as Share of Total Imports, 1960–2017



Net Imports as Share of Products Supplied, 1949–2017



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

	Thousand Barrels per Day						Percent					
	Imports From Persian Gulf[a]	Imports From OPEC[b]	Imports	Exports	Net Imports	Products Supplied	Imports From Persian Gulf[a]	Imports From OPEC[b]	Imports	Net Imports	Imports From Persian Gulf[a]	Imports From OPEC[b]
	As Share of Products Supplied						As Share of Total Imports					
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 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	1,363	3,181	10,055	5,647	4,407	20,161	6.8	15.8	49.9	21.9	13.6	31.6
September	1,370	2,880	9,707	6,263	3,444	19,581	7.0	14.7	49.6	17.6	14.1	29.7
October	1,472	3,135	9,661	7,163	2,498	19,806	7.4	15.8	48.8	12.6	15.2	32.4
November	1,555	3,042	9,783	7,158	2,624	20,278	7.7	15.0	48.2	12.9	15.9	31.1
December	R 1,460	R 2,939	R 9,934	R 7,296	R 2,638	R 20,082	R 7.3	R 14.6	R 49.5	R 13.1	R 14.7	R 29.6
Average	**R 1,741**	**R 3,360**	**R 10,075**	**R 6,343**	**R 3,732**	**R 19,877**	**R 8.8**	**R 16.9**	**R 50.7**	**R 18.8**	**R 17.3**	**R 33.4**
2018 January	NA	NA	E 10,221	E 6,240	E 3,981	E 20,798	NA	NA	E 49.1	E 19.1	NA	NA
February	NA	NA	E 9,601	E 6,250	E 3,351	E 20,283	NA	NA	E 47.3	E 16.5	NA	NA
2-Month Average	**NA**	**NA**	**E 9,927**	**E 6,245**	**E 3,682**	**E 20,554**	**NA**	**NA**	**E 48.3**	**E 17.9**	**NA**	**NA**
2017 2-Month Average	**2,051**	**3,628**	**10,379**	**6,048**	**4,331**	**19,204**	**10.7**	**18.9**	**54.0**	**22.6**	**19.8**	**35.0**
2016 2-Month Average	**1,555**	**3,139**	**9,881**	**4,956**	**4,924**	**19,442**	**8.0**	**16.1**	**50.8**	**25.3**	**15.7**	**31.8**

[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.

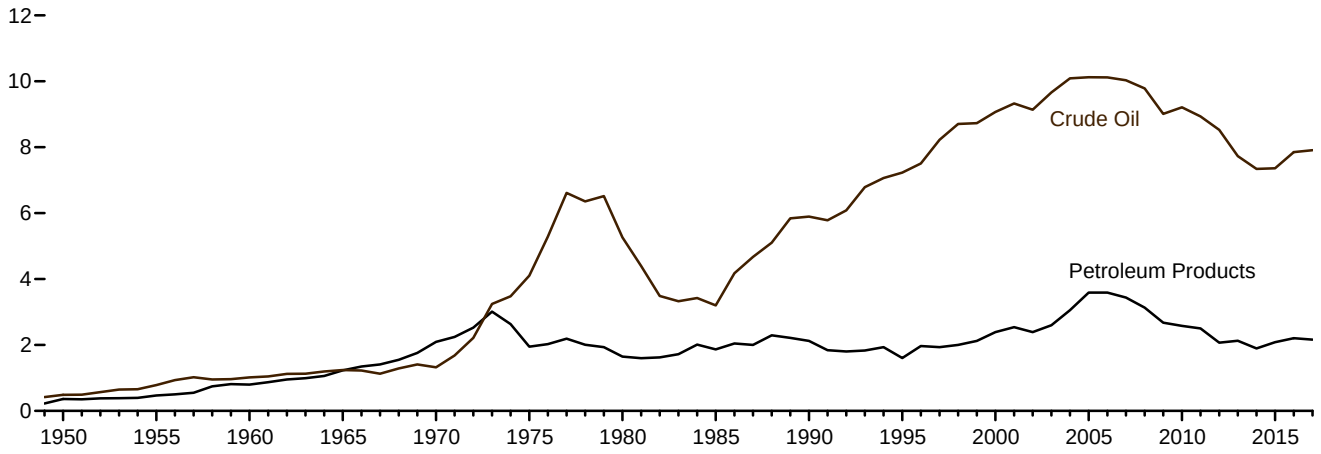
Notes: • For the feature article "Measuring Dependence on Imported Oil," published in the August 1995 *Monthly Energy Review,* see http://www.eia.gov/totalenergy/data/monthly/pdf/historical/imported_oil.pdf. • Beginning in October 1977, data include Strategic Petroleum Reserve imports. See Table 3.3b. • 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.

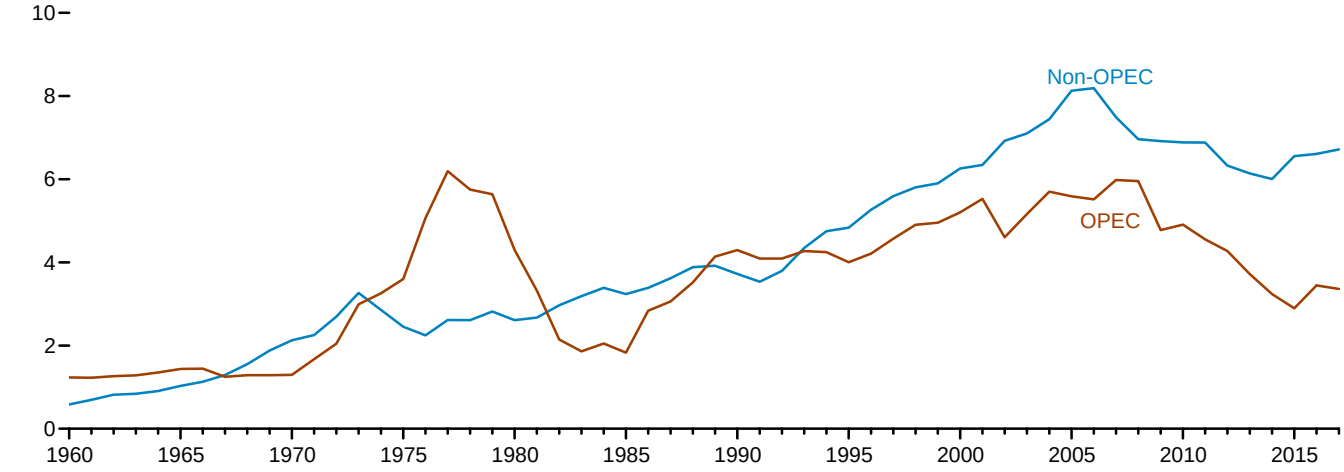
Sources: • **1949–1975:** Bureau of Mines, Mineral Industry Surveys, *Petroleum Statement, Annual,* annual reports. • **1976–1980:** U.S. Energy Information Administration (EIA), Energy Data Reports, *Petroleum Statement, Annual,* annual reports. • **1981–2016:** EIA, *Petroleum Supply Annual,* annual reports, and unpublished revisions. • **2017 and 2018:** 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)

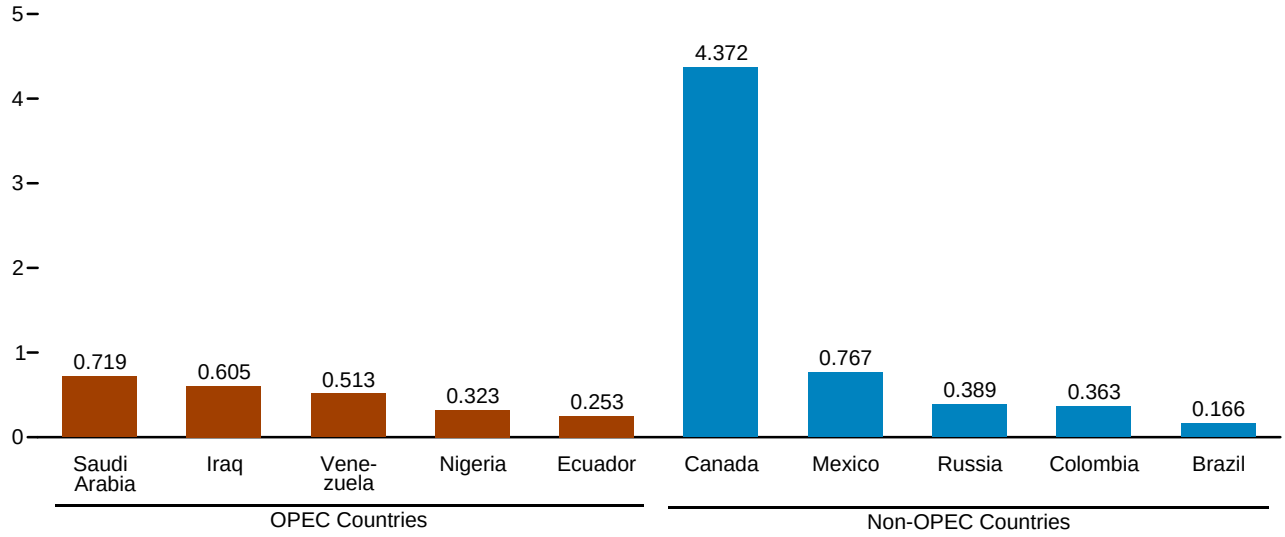
Overview, 1949–2017



OPEC and Non-OPEC, 1960–2017



From Selected Countries, December 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 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	–	7,890	112	108	146	174	24	150	1,558	10,055	772	4,876	5,647
September	–	7,275	112	131	165	206	41	204	1,702	9,707	1,473	4,791	6,263
October	–	7,611	134	130	176	230	33	151	1,326	9,661	1,731	5,432	7,163
November	–	7,623	180	173	214	194	10	209	1,352	9,783	1,534	5,624	7,158
December	–	R 7,782	R 282	R 189	R 230	R 151	R 32	R 187	R 1,269	R 9,934	R 1,515	R 5,781	R 7,296
Average	**–**	**R 7,912**	**R 149**	**R 151**	**R 190**	**R 161**	**R 32**	**R 188**	**R 1,444**	**R 10,075**	**R 1,118**	**R 5,225**	**R 6,343**
2018 January	–	E 8,030	E 305	E 212	NA	E 126	E 9	E 176	NA	E 10,221	E 1,379	E 4,861	E 6,240
February	–	E 7,545	E 239	E 192	NA	E 123	E 33	E 209	NA	E 9,601	E 1,570	E 4,680	E 6,250
2-Month Average	**–**	**E 7,800**	**E 274**	**E 203**	**NA**	**E 125**	**E 20**	**E 192**	**NA**	**E 9,927**	**E 1,470**	**E 4,775**	**E 6,245**
2017 2-Month Average	**–**	**8,176**	**202**	**229**	**269**	**144**	**35**	**199**	**1,354**	**10,379**	**922**	**5,126**	**6,048**
2016 2-Month Average	**–**	**7,759**	**200**	**187**	**231**	**136**	**63**	**224**	**1,267**	**9,881**	**472**	**4,484**	**4,956**

[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 and 2018:** 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
September	145	171	223	502	127	59	292	676	620	65	2,880
October	144	124	163	708	119	176	441	572	562	127	3,135
November	120	77	193	611	117	72	470	780	555	47	3,042
December	149	172	253	605	78	73	323	719	513	55	2,939
Average	**189**	**135**	**207**	**606**	**145**	**65**	**334**	**949**	**674**	**58**	**3,360**

[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
September	250	3,932	374	430	93	118	450	149	–	1,031	6,827
October	231	3,916	277	654	51	71	355	83	–	889	6,526
November	228	3,986	337	841	43	38	357	61	–	850	6,741
December	166	4,372	363	767	59	7	389	88	–	784	6,994
Average	**224**	**4,023**	**362**	**682**	**62**	**79**	**384**	**111**	**–**	**787**	**6,715**

[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.

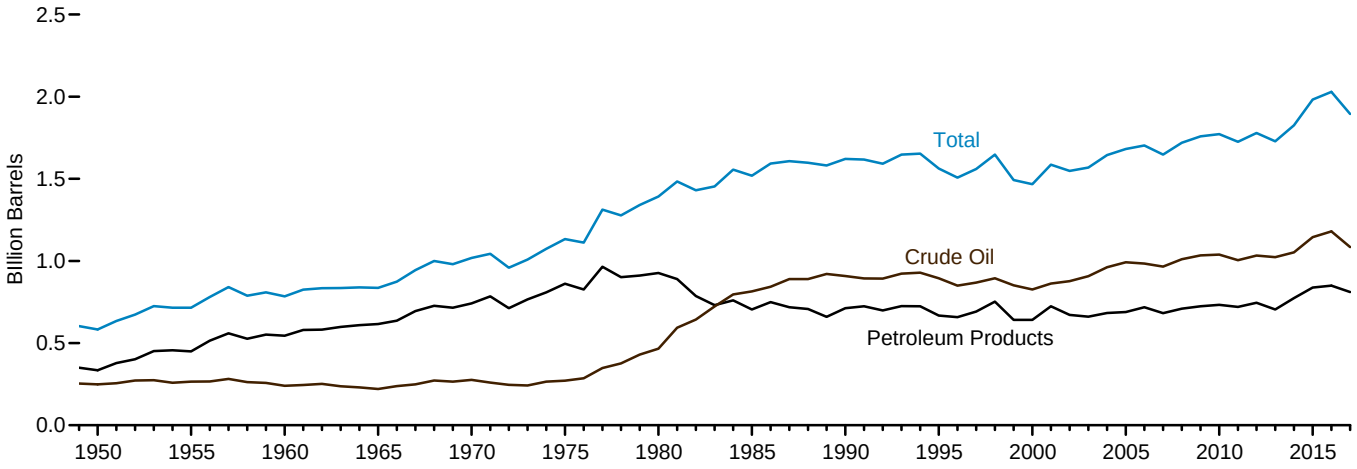
Notes: • See "Organization of the Petroleum Exporting Countries (OPEC)" in Glossary. Petroleum imports not classified as "OPEC" on Table 3.3c are included on this table. • The country of origin for petroleum products may not be the country of origin for the crude oil from which the products were produced. 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.

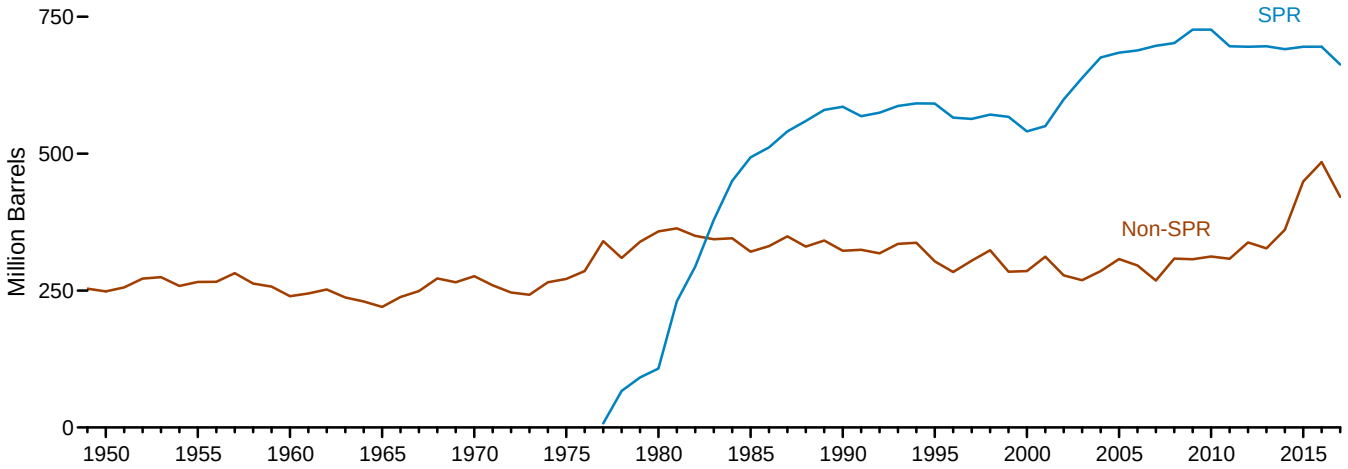
Sources: • **1960–1972:** Bureau of Mines, *Minerals Yearbook,* annual reports. • **1973–1975:** Bureau of Mines, Mineral Industry Surveys, *Petroleum Statement, Annual,* annual reports. • **1976–1980:** U.S. Energy Information Administration (EIA), Energy Data Reports, *Petroleum Statement, Annual,*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

Figure 3.4 Petroleum Stocks

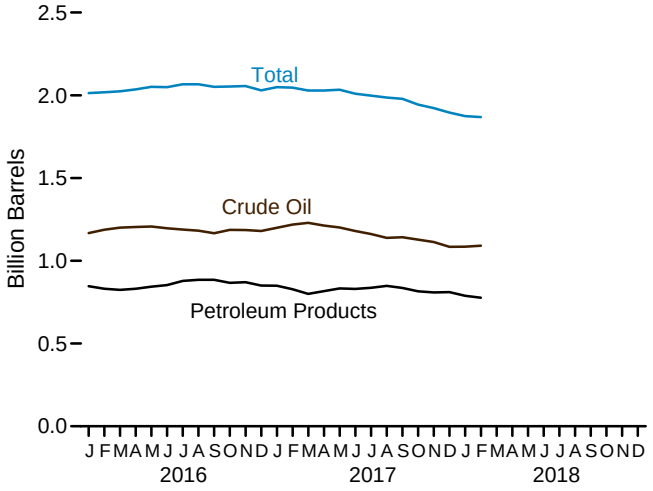
Overview, 1949–2017



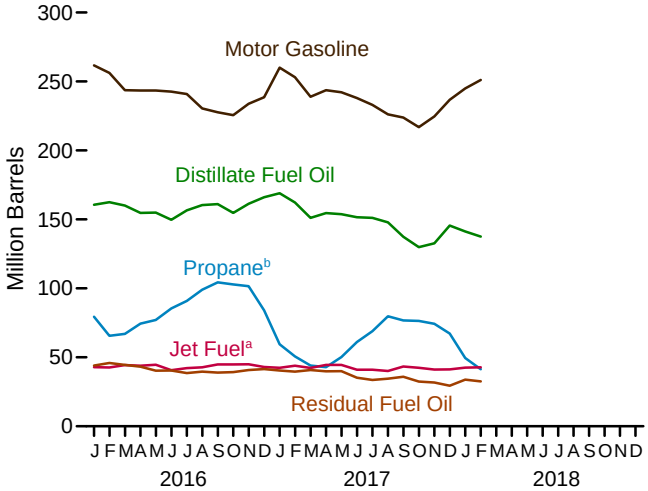
SPR and Non-SPR Crude Oil Stocks, 1949–2017



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 Year	**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	459	1,138	148	80	231	40	226	35	169	1,986
September	674	469	1,143	137	77	230	43	224	36	165	1,978
October	669	459	1,128	130	76	232	42	217	32	162	1,943
November	661	452	1,114	133	74	217	41	225	32	161	1,923
December	R **663**	R **421**	R **1,084**	R **146**	R **67**	R **191**	**41**	R **237**	R **29**	R **167**	R **1,895**
2018 January	E 665	E 420	E 1,085	E 141	E 50	RF 158	E 42	E 245	E 34	RE 169	E 1,874
February	E 665	E 426	E 1,091	E 138	E 41	F 142	E 43	E 251	E 33	E 171	E 1,868

[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.

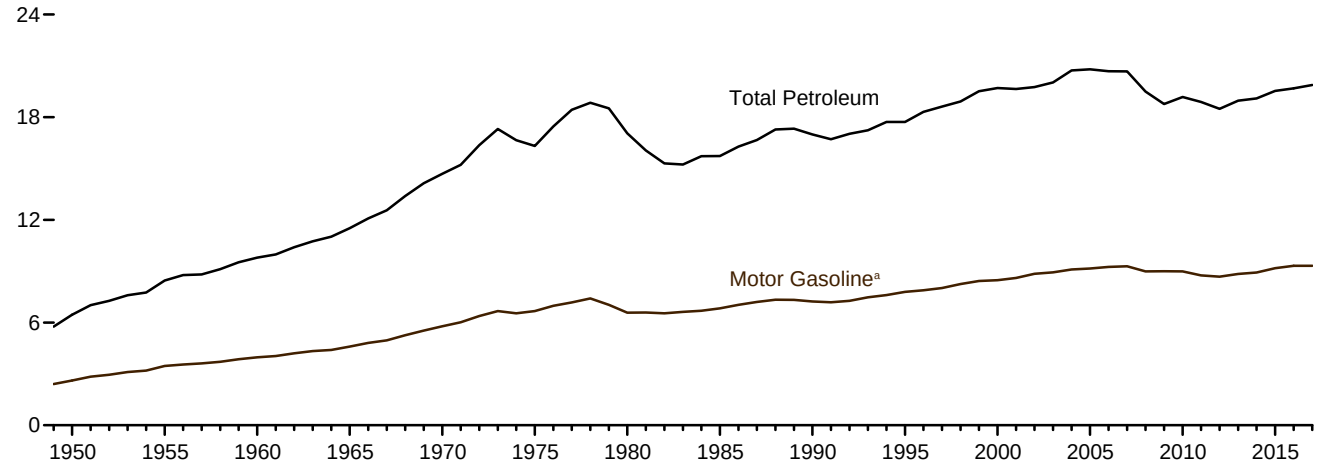
Notes: • Stocks are at end of period. • Totals may not equal sum of components due to independent rounding. • Geographic coverage is the 50 states and the District of Columbia.

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.

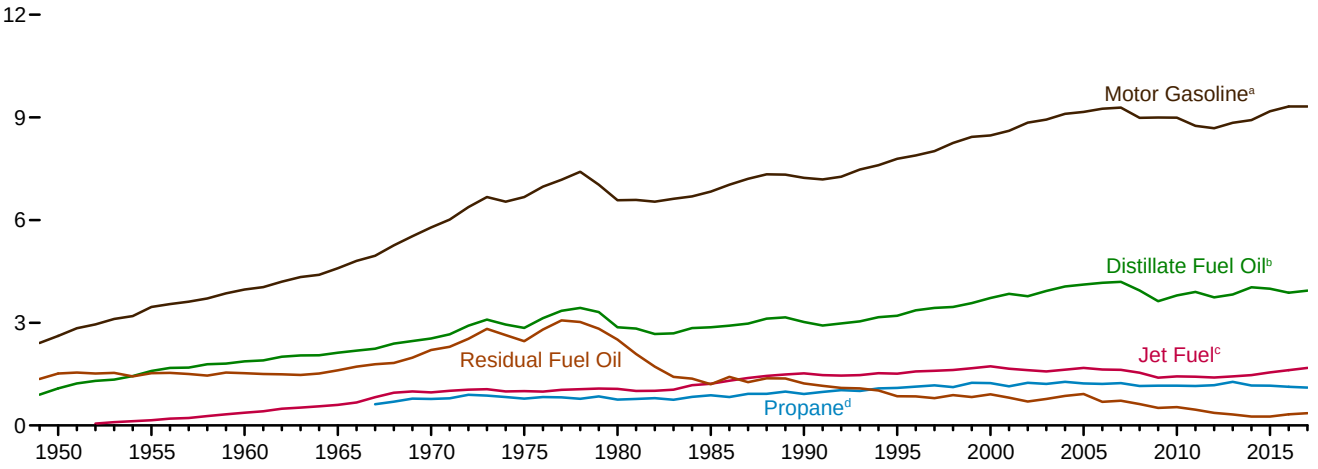
Sources: • **1949–1975:** Bureau of Mines, Mineral Industry Surveys, *Petroleum Statement, Annual,* annual reports. • **1976–1980:** U.S. Energy Information Administration (EIA), Energy Data Reports, *Petroleum Statement, Annual,* annual reports. • **1981–2016:** EIA, *Petroleum Supply Annual,* annual reports, and unpublished revisions. • **2017 and 2018:** 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)

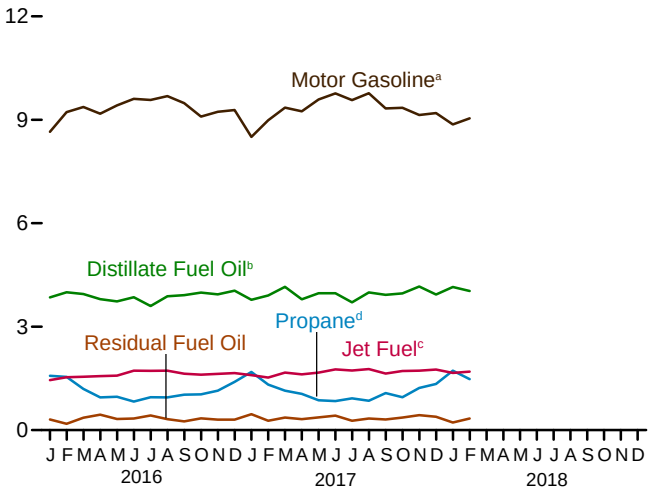
Total Petroleum and Motor Gasoline, 1949–2017



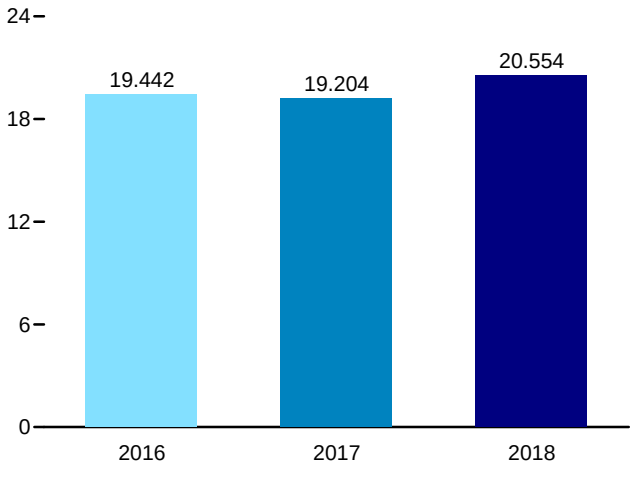
Selected Products,1949–2017



Selected Products, Monthly



Total, January–February



[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 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	542	14	3,992	851	2,145	1,769	1	91	9,770	307	335	1,196	20,161
September	447	10	3,922	1,076	2,346	1,639	14	108	9,329	351	307	1,108	19,581
October	413	9	3,966	952	2,551	1,713	1	124	9,347	180	363	1,139	19,806
November	307	11	4,165	1,222	2,833	1,723	3	113	9,141	396	433	1,154	20,278
December	[R] 218	[R] 12	[R] 3,934	[R] 1,338	[R] 3,045	[R] 1,755	[R] 1	[R] 92	[R] 9,196	[R] 371	[R] 389	[R] 1,069	[R] 20,082
Average	[R] **353**	**11**	[R] **3,938**	[R] **1,105**	[R] **2,597**	[R] **1,682**	[R] **4**	[R] **109**	[R] **9,319**	[R] **321**	[R] **359**	[R] **1,185**	[R] **19,877**
2018 January	[F] 235	[F] 8	[E] 4,151	[E] 1,726	[RF] 3,330	[E] 1,660	[RF] 5	[RF] 137	[E] 8,864	[F] 381	[E] 221	[RE] 1,806	[E] 20,798
February	[F] 245	[F] 8	[E] 4,033	[E] 1,480	[F] 3,009	[E] 1,694	[F] 3	[F] 136	[E] 9,043	[F] 317	[E] 336	[E] 1,459	[E] 20,283
2-Month Average	[F] **240**	[F] **8**	[E] **4,095**	[E] **1,609**	[F] **3,178**	[E] **1,676**	[F] **4**	[F] **136**	[E] **8,949**	[F] **351**	[E] **276**	[E] **1,641**	[E] **20,554**
2017 2-Month Average	**215**	**9**	**3,840**	**1,514**	**2,876**	**1,561**	**10**	**114**	**8,731**	**341**	**370**	**1,137**	**19,204**
2016 2-Month Average	**212**	**9**	**3,921**	**1,559**	**2,881**	**1,490**	**2**	**141**	**8,928**	**371**	**247**	**1,240**	**19,442**

[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.

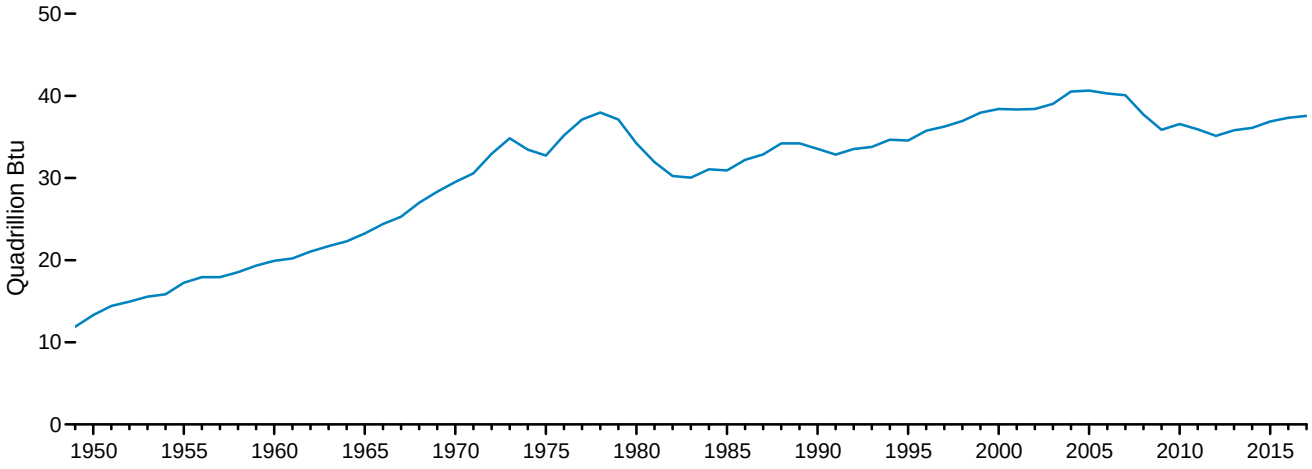
Notes: • Petroleum products supplied is an approximation of petroleum consumption and is synonymous with the term "petroleum consumption" in Tables 3.7a–3.8c. See Note 1, "Petroleum Products Supplied and Petroleum Consumption," at end of section. • Totals may not equal sum of components due to independent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

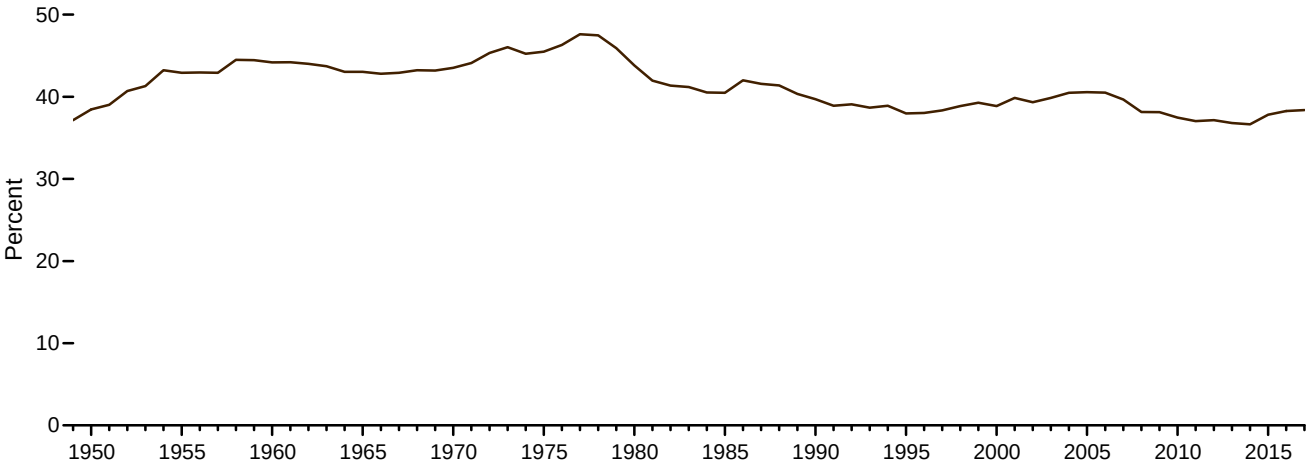
Sources: • **1949–1975:** Bureau of Mines, Mineral Industry Surveys, *Petroleum Statement, Annual,* annual reports. • **1976–1980:** U.S. Energy Information Administration (EIA), Energy Data Reports, *Petroleum Statement, Annual,* annual reports. • **1981–2016:** EIA, *Petroleum Supply Annual,* annual reports, and unpublished revisions. • **2017 and 2018:** 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

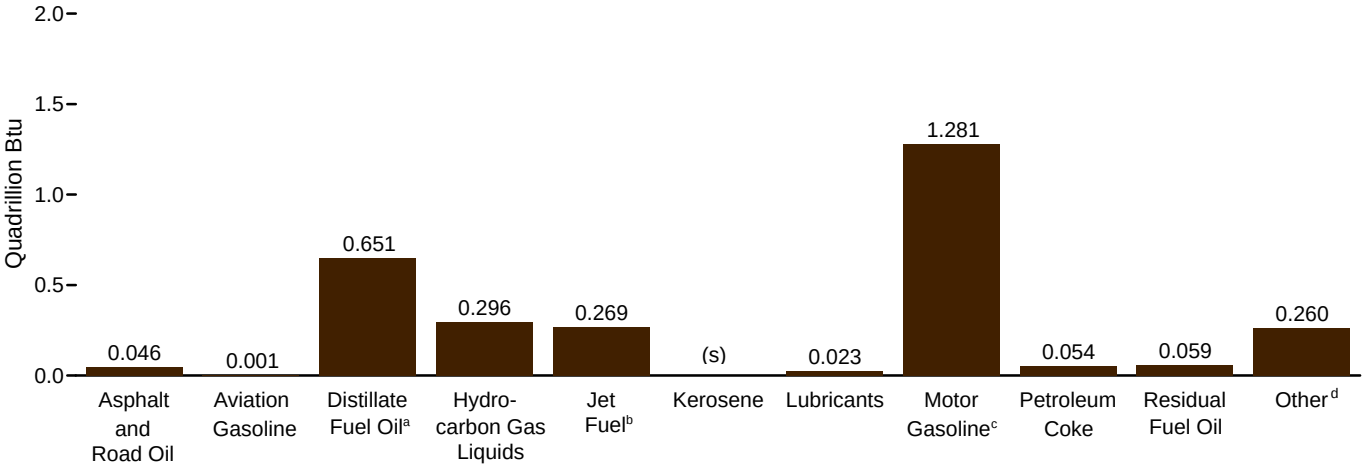
Total, 1949–2017



Petroleum Products Supplied as Share of Total Energy Consumption, 1949–2017



By Product, February 2018



[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.
(s)=Less than 0.5 trilllion Btu and greater than -0.5 trillion Btu.
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 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	R 1,466	33	71	237	3,215
April	63	2	656	121	267	275	1	19	R 1,403	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	R 50	79	226	3,194
July	91	2	663	110	274	304	(s)	19	1,501	87	53	225	3,218
August	112	2	714	101	232	311	(s)	17	1,532	58	65	221	3,264
September	89	1	678	124	249	279	2	20	1,416	R 65	58	199	3,056
October	85	1	709	113	280	301	(s)	23	1,466	34	71	210	3,181
November	61	2	721	141	298	293	1	21	1,387	R 73	82	206	R 3,143
December	R 45	R 2	R 703	R 159	R 333	R 309	R (s)	R 17	R 1,442	R 70	R 76	R 198	R 3,195
Total	**R 854**	**R 21**	**R 8,289**	**R 1,547**	**R 3,343**	**R 3,480**	**R 9**	**R 241**	**R 17,204**	**R 717**	**R 823**	**R 2,576**	**R 37,557**
2018 January	F 48	F 1	E 742	E 205	RF 362	E 292	F 1	RF 26	E 1,390	F 72	E 43	RE 361	RE 3,338
February	F 46	F 1	E 651	E 159	F 296	E 269	F (s)	F 23	E 1,281	F 54	E 59	E 260	E 2,940
2-Month Total	**F 94**	**F 2**	**E 1,393**	**E 364**	**F 657**	**E 561**	**F 1**	**F 49**	**E 2,671**	**F 127**	**E 102**	**E 621**	**E 6,278**
2017 2-Month Total	**84**	**3**	**1,307**	**343**	**602**	**522**	**3**	**41**	**2,606**	**123**	**137**	**399**	**5,827**
2016 2-Month Total	**84**	**3**	**1,357**	**359**	**617**	**507**	**1**	**51**	**2,710**	**136**	**93**	**443**	**6,002**

[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.

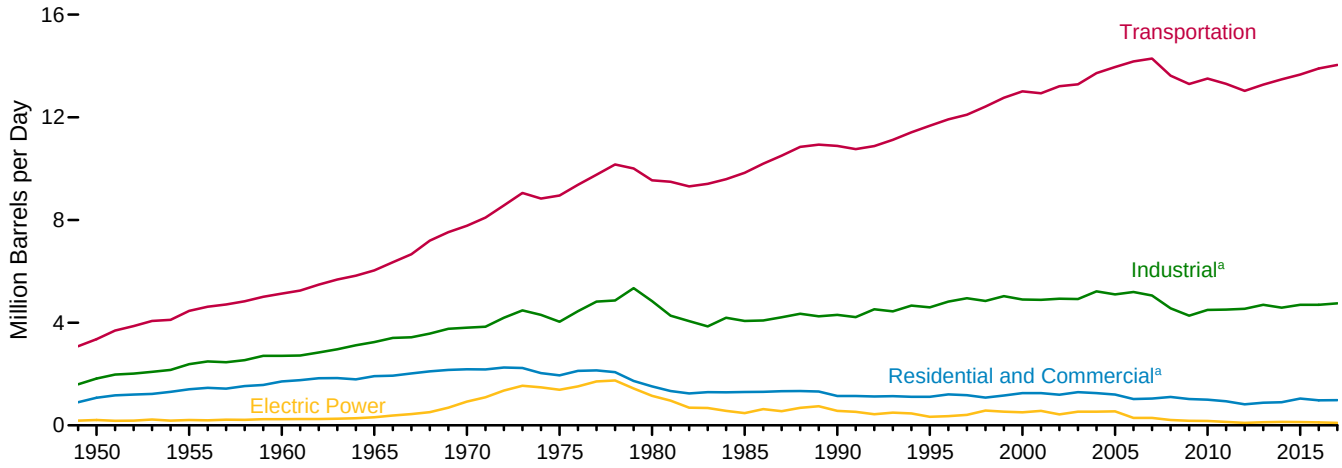
Notes: • Petroleum products supplied is an approximation of petroleum consumption and is synonymous with the term "petroleum consumption" in Tables 3.7a–3.8c. See Note 1, "Petroleum Products Supplied and Petroleum Consumption," at end of section. • Totals may not equal sum of components due to independent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

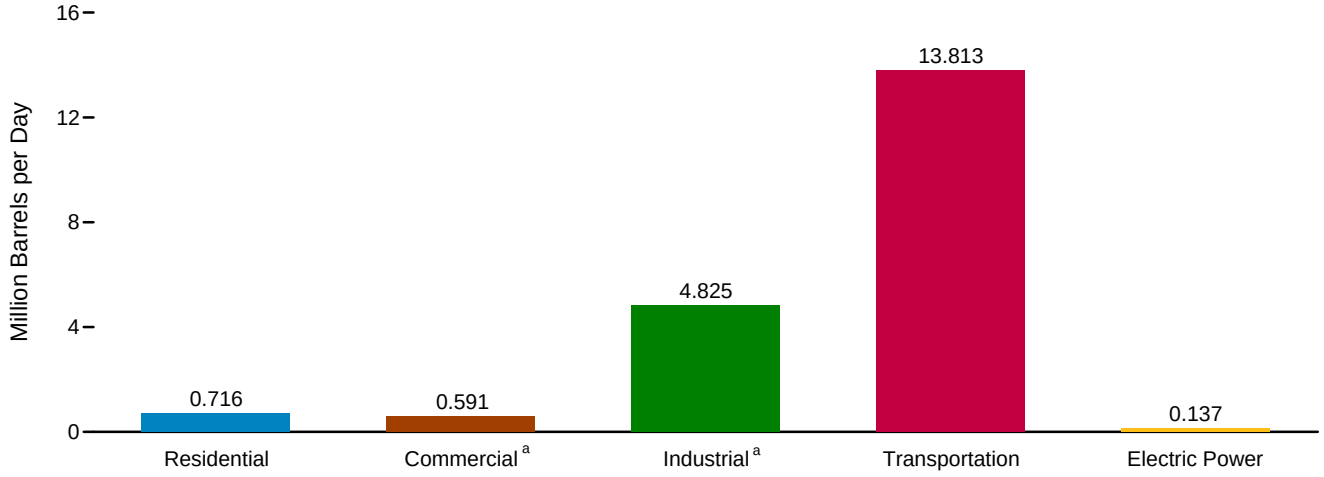
Sources: See end of section.

Figure 3.7 Petroleum Consumption by Sector

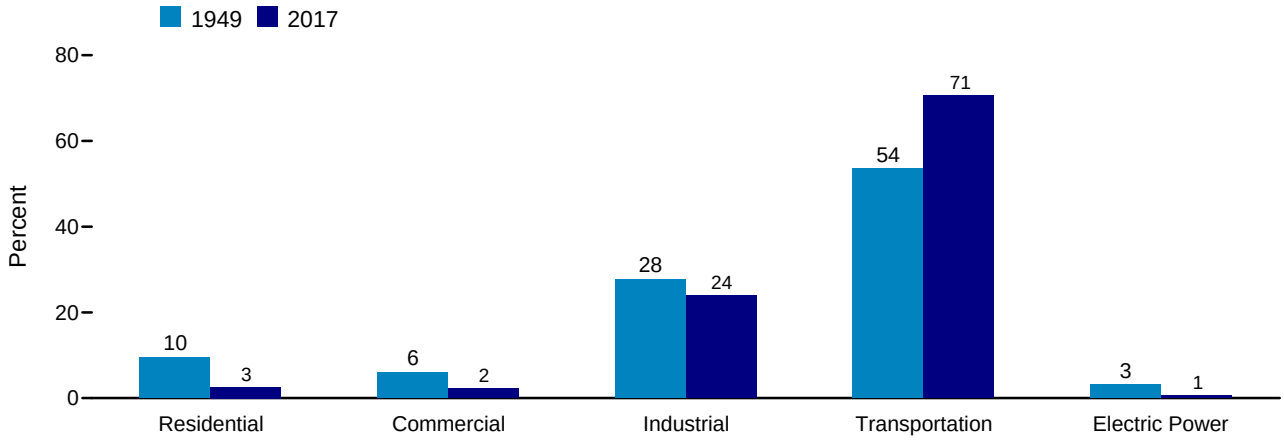
By Sector, 1949–2017



By Sector, December 2017



Sector Shares 1949 and 2017



[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] 192	(s)	3	589
February	405	344	7	757	265	114	1	196	(s)	3	579
March	290	295	9	594	190	98	1	201	(s)	2	492
April	181	276	1	457	118	92	(s)	204	(s)	1	415
May	175	276	16	467	114	92	2	206	(s)	1	415
June	106	286	(s)	393	69	95	(s)	209	0	1	374
July	118	293	1	412	77	97	(s)	210	0	1	386
August	147	282	1	430	96	94	(s)	210	(s)	1	401
September	144	271	(s)	415	94	90	(s)	206	(s)	1	392
October	353	294	2	649	230	98	(s)	205	(s)	2	536
November	391	311	1	704	256	103	(s)	202	(s)	3	564
December	412	336	19	766	269	112	3	203	(s)	3	589
Average	**262**	**301**	**5**	**568**	**171**	**100**	**1**	**204**	**(s)**	**2**	**477**
2016 January	306	355	1	662	229	118	(s)	188	(s)	3	539
February	319	343	2	663	239	114	(s)	200	(s)	3	557
March	211	312	8	531	158	104	1	204	(s)	2	469
April	192	288	3	482	144	96	(s)	199	(s)	2	441
May	168	289	6	463	126	96	1	205	0	2	429
June	119	267	8	393	89	89	1	209	(s)	1	389
July	122	287	8	418	92	95	1	208	(s)	1	398
August	95	278	1	373	71	92	(s)	211	0	1	375
September	150	290	10	450	112	96	2	206	0	1	418
October	204	298	14	517	153	99	2	198	0	2	454
November	228	300	2	529	171	100	(s)	201	(s)	2	474
December	358	326	16	700	268	108	2	202	(s)	3	585
Average	**206**	**303**	**7**	**515**	**154**	**101**	**1**	**203**	**(s)**	**2**	**460**
2017 January	[R] 338	362	10	[R] 710	[R] 253	120	2	185	(s)	3	[R] 564
February	[R] 278	317	5	[R] 600	[R] 209	105	1	195	(s)	3	[R] 513
March	[R] 236	309	1	[R] 546	[R] 177	103	(s)	203	(s)	2	[R] 486
April	[R] 195	295	5	[R] 495	[R] 146	98	1	201	(s)	2	[R] 448
May	[R] 135	283	2	[R] 420	[R] 101	94	(s)	208	(s)	1	[R] 405
June	[R] 168	296	2	[R] 466	[R] 126	98	(s)	212	(s)	2	[R] 439
July	[R] 103	300	(s)	[R] 403	[R] 77	100	(s)	208	(s)	1	[R] 386
August	[R] 134	254	1	[R] 388	[R] 101	84	(s)	212	(s)	1	[R] 399
September	[R] 135	276	11	[R] 421	[R] 101	92	2	203	(s)	1	[R] 399
October	[R] 171	287	1	[R] 458	[R] 128	95	(s)	203	(s)	2	[R] 429
November	[R] 264	335	2	[R] 601	[R] 198	111	(s)	199	(s)	3	[R] 511
December	357	358	1	716	268	119	(s)	200	(s)	4	591
Average	**209**	**306**	**3**	**518**	**157**	**102**	**1**	**203**	**(s)**	**2**	**464**

[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] 131	342	17	1,079	4,984
February	215	826	1,080	2,401	1	63	134	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	143	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	141	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	631	1,068	2,451	(s)	70	132	326	22	1,126	4,953
February	230	685	1,054	2,309	(s)	76	140	305	13	1,362	5,121
March	254	663	748	2,168	1	73	142	306	26	1,107	4,741
April	301	506	540	1,992	(s)	67	139	231	33	1,205	4,475
May	394	444	554	1,970	1	68	143	218	22	1,075	4,336
June	482	508	450	1,889	1	75	146	185	23	1,159	4,469
July	472	331	542	2,011	1	59	146	259	28	1,103	4,411
August	524	517	555	1,912	(s)	64	147	371	21	1,261	4,817
September	439	572	616	2,016	2	64	144	223	17	1,171	4,648
October	417	569	612	2,131	2	68	138	272	24	1,175	4,797
November	310	596	715	2,092	(s)	62	140	436	21	1,101	4,759
December	195	557	932	2,310	3	59	141	329	21	1,201	4,816
Average	**351**	**548**	**698**	**2,104**	**1**	**67**	**142**	**289**	**23**	**1,170**	**4,694**
2017 January	192	[R] 545	1,171	2,532	2	54	129	355	[R] 33	1,127	[R] 4,970
February	241	[R] 611	869	2,232	1	64	137	215	18	1,148	[R] 4,666
March	265	[R] 739	701	2,193	(s)	68	142	132	[R] 26	1,292	[R] 4,857
April	318	[R] 477	631	2,089	1	54	141	297	23	1,309	[R] 4,709
May	365	[R] 600	460	2,012	(s)	56	146	288	26	1,201	[R] 4,694
June	477	[R] 506	419	2,016	(s)	56	148	215	[R] 30	1,266	[R] 4,714
July	441	[R] 397	493	2,084	(s)	51	145	409	19	1,215	[R] 4,761
August	542	[R] 524	490	1,783	(s)	47	148	262	[R] 24	1,196	[R] 4,526
September	447	[R] 571	683	1,953	2	56	142	308	21	1,108	[R] 4,607
October	413	[R] 569	544	2,142	(s)	64	142	145	[R] 26	1,139	[R] 4,640
November	307	[R] 676	745	2,356	(s)	58	139	353	[R] 32	1,154	[R] 5,075
December	218	464	828	2,534	(s)	47	140	326	28	1,069	4,825
Average	**353**	**556**	**668**	**2,161**	**1**	**56**	**142**	**276**	**25**	**1,185**	**4,754**

[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] 8,316	218	12,754	41	61	57	159
February	8	2,931	32	1,445	60	8,498	35	13,010	132	71	149	352
March	9	2,913	28	1,548	74	8,718	217	13,507	27	43	28	97
April	14	3,058	26	1,527	72	8,846	133	13,676	21	47	27	95
May	13	2,996	26	1,519	77	8,916	194	13,742	26	53	25	105
June	12	3,153	27	1,654	64	9,065	158	14,134	26	50	29	105
July	18	3,168	28	1,650	76	9,116	269	14,324	23	65	38	126
August	11	3,165	27	1,601	59	9,106	247	14,216	22	61	33	116
September	11	3,142	26	1,534	62	8,941	221	13,936	21	61	30	112
October	14	2,967	28	1,614	70	8,899	193	13,785	20	47	27	94
November	9	2,740	29	1,524	51	8,771	250	13,374	26	42	30	99
December	9	2,731	32	1,578	63	8,805	270	13,488	24	43	26	93
Average	**11**	**2,974**	**28**	**1,548**	**67**	**8,835**	**202**	**13,666**	**33**	**54**	**41**	**128**
2016 January	7	2,645	33	1,449	66	8,334	248	12,782	40	53	34	127
February	11	2,721	32	1,534	72	8,881	128	13,379	31	55	39	126
March	10	2,892	29	1,547	69	9,027	311	13,885	22	58	22	102
April	14	2,936	27	1,566	64	8,837	392	13,836	21	63	23	107
May	11	2,968	27	1,578	64	9,069	275	13,992	26	57	24	107
June	12	3,113	25	1,723	71	9,253	285	14,481	23	61	29	114
July	12	3,027	27	1,720	56	9,224	351	14,417	26	63	43	132
August	14	3,172	26	1,722	60	9,329	254	14,578	24	66	41	131
September	11	3,057	27	1,635	61	9,133	205	14,130	21	62	29	111
October	10	3,039	28	1,610	64	8,757	284	13,792	20	39	30	89
November	12	2,916	28	1,632	59	8,892	258	13,797	27	49	25	101
December	10	2,830	31	1,653	56	8,940	252	13,772	30	53	29	112
Average	**11**	**2,944**	**29**	**1,614**	**63**	**8,973**	**271**	**13,904**	**26**	**57**	**31**	**113**
2017 January	9	[R] 2,615	34	1,593	51	8,187	[R] 396	[R] 12,886	30	57	28	115
February	9	[R] 2,782	30	1,525	60	8,654	[R] 222	[R] 13,281	26	46	26	[R] 98
March	10	[R] 2,976	29	1,669	64	9,007	[R] 310	[R] 14,065	26	43	24	[R] 93
April	10	[R] 2,951	28	1,617	51	8,906	[R] 270	[R] 13,833	22	25	24	71
May	11	[R] 3,108	27	1,671	52	9,236	313	[R] 14,417	25	50	27	103
June	17	[R] 3,147	28	1,762	53	9,406	356	[R] 14,768	22	55	30	108
July	13	[R] 3,108	28	1,728	48	9,219	[R] 225	[R] 14,370	22	52	26	100
August	14	[R] 3,213	24	1,769	44	9,409	280	[R] 14,753	21	[R] 44	30	95
September	10	[R] 3,091	26	1,639	52	8,984	257	[R] 14,059	[R] 24	43	28	95
October	9	[R] 3,074	27	1,713	60	9,002	308	[R] 14,193	24	35	28	87
November	11	[R] 3,003	32	1,723	55	8,803	[R] 374	[R] 14,000	24	43	[R] 25	[R] 92
December	12	2,798	34	1,755	45	8,856	312	13,813	46	45	46	137
Average	**11**	**2,990**	**29**	**1,682**	**53**	**8,974**	**302**	**14,041**	**26**	**45**	**29**	**100**

[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.

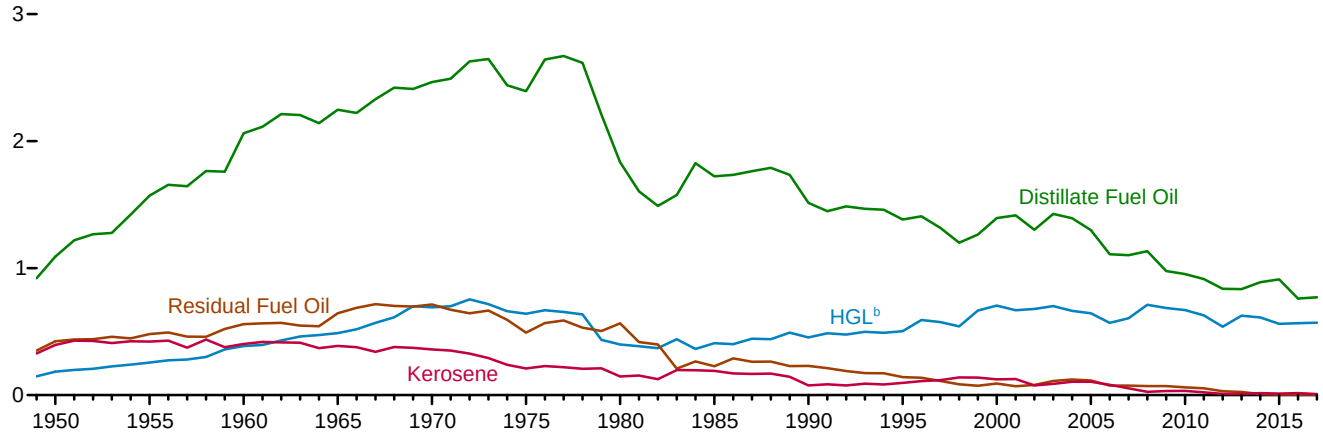
Web Page: See http://www.eia.gov/totalenergy/data/monthly/#petroleum (Excel and CSV files) for all available annual data beginning in 1949 and monthly data beginning in 1973.

Sources: See end of section.

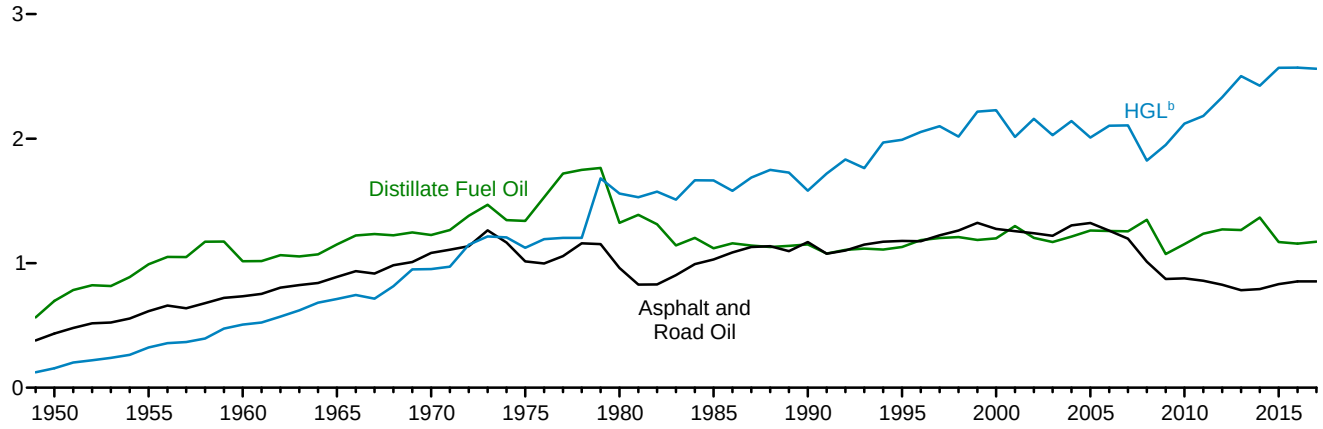
Figure 3.8a Heat Content of Petroleum Consumption by End-Use Sector, 1949–2017

(Quadrillion Btu)

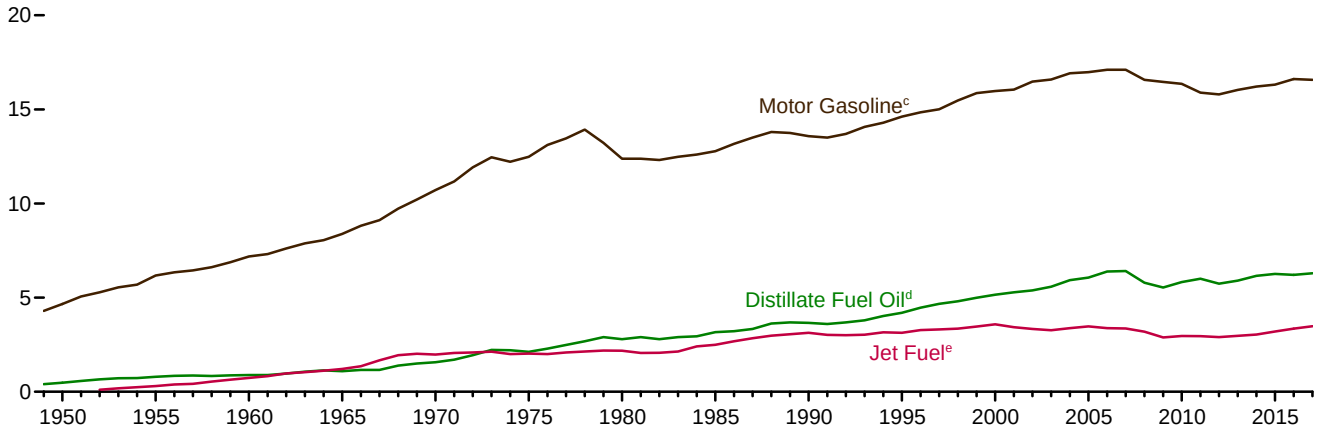
Residential and Commercial[a] Sectors, Selected Products



Industrial[a] Sector, Selected Products



Transportation Sector, Selected Products

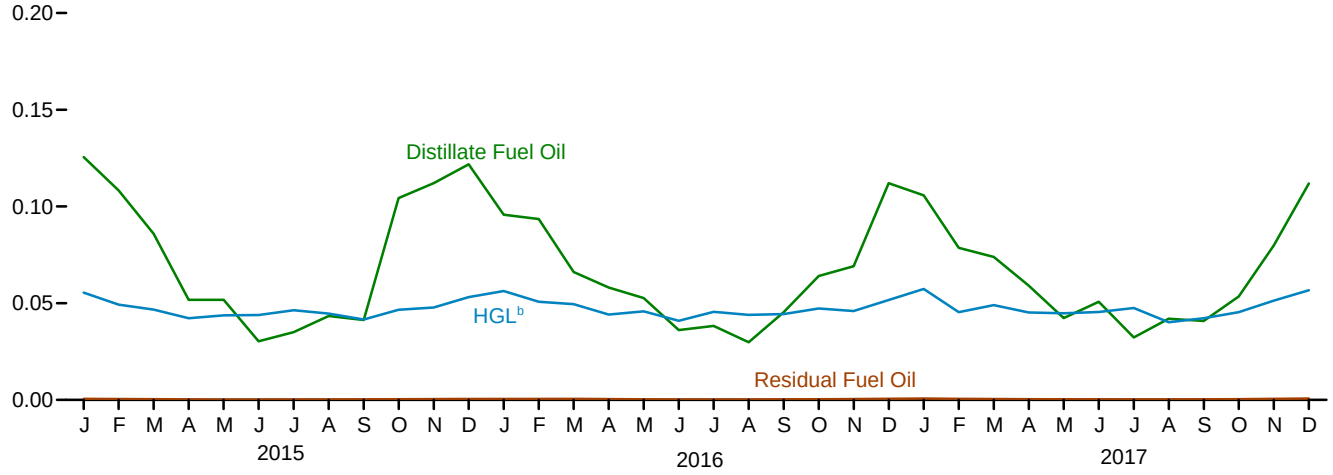


[a] Includes combined-heat-and-power plants and a small number of electricity-only plants.
[b] Hydrocarbon gas liquids.
[c] Beginning in 1993, includes fuel ethanol blended into motor gasoline.
[d] Beginning in 2009, includes renewable diesel fuel (including biodiesel) blended into distillate fuel oil.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

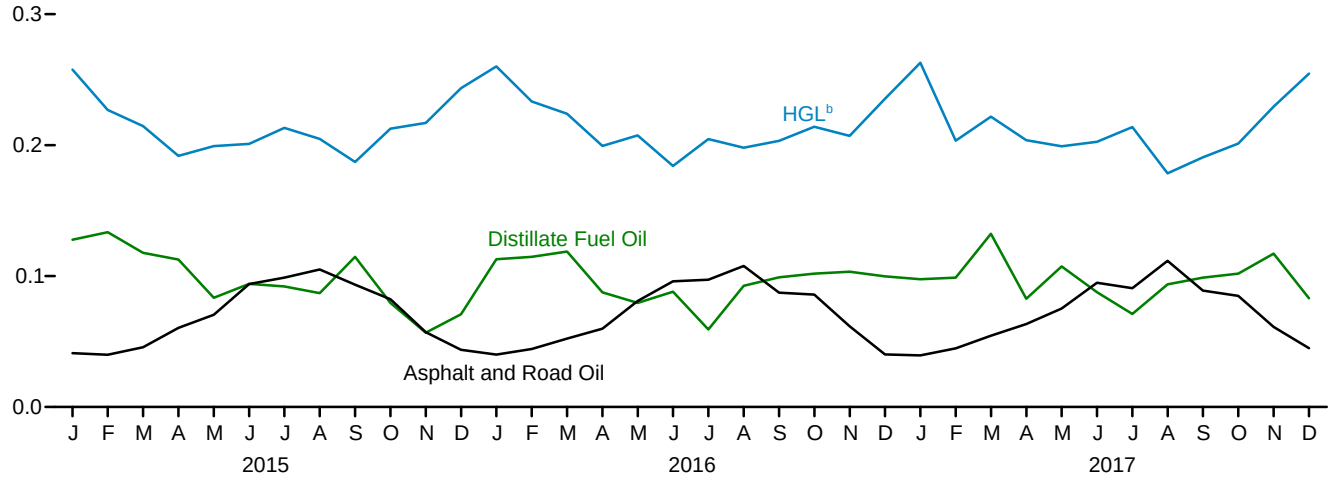
Note: Petroleum products supplied is an approximation of petroleum consumption and is synonymous with the term "petroleum consumption" in Tables 3.7a–3.8c. Other measurements of consumption by fuel type or sector may differ. For example, jet fuel product supplied may not equal jet fuel consumed by U.S.-flagged 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)

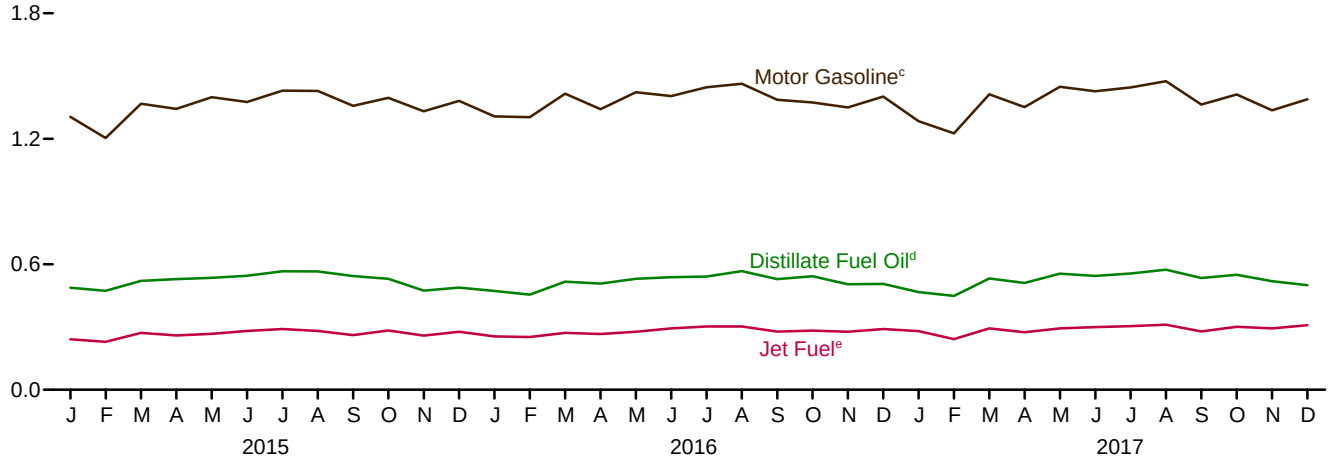
Residential and Commercial[a] Sectors, Selected Products



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] 30	(s)	1	94
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)	31	(s)	(s)	62
May	31	33	3	67	20	11	(s)	32	(s)	(s)	64
June	18	33	(s)	51	12	11	(s)	32	0	(s)	55
July	21	35	(s)	56	14	12	(s)	33	0	(s)	59
August	26	34	(s)	60	17	11	(s)	33	(s)	(s)	61
September	25	31	(s)	56	16	10	(s)	31	(s)	(s)	58
October	63	35	(s)	98	41	12	(s)	32	(s)	(s)	86
November	68	36	(s)	104	44	12	(s)	31	(s)	(s)	87
December	74	40	3	117	48	13	(s)	32	(s)	1	94
Total	**551**	**421**	**10**	**983**	**360**	**140**	**1**	**376**	**1**	**4**	**882**
2016 January	55	42	(s)	97	41	14	(s)	29	(s)	1	85
February	53	38	(s)	92	40	13	(s)	29	(s)	1	83
March	38	37	1	76	28	12	(s)	32	(s)	(s)	73
April	33	33	(s)	67	25	11	(s)	30	(s)	(s)	67
May	30	34	1	66	23	11	(s)	32	0	(s)	67
June	21	31	1	53	15	10	(s)	32	(s)	(s)	58
July	22	34	1	57	16	11	(s)	33	(s)	(s)	61
August	17	33	(s)	50	13	11	(s)	33	0	(s)	57
September	26	33	2	61	19	11	(s)	31	0	(s)	62
October	37	35	3	75	27	12	(s)	31	0	(s)	71
November	39	34	(s)	74	30	11	(s)	30	(s)	(s)	72
December	64	39	3	106	48	13	(s)	32	(s)	1	94
Total	**435**	**425**	**14**	**873**	**326**	**141**	**2**	**375**	**(s)**	**4**	**849**
2017 January	[R] 60	43	2	[R] 105	[R] 45	14	(s)	29	(s)	1	90
February	[R] 45	34	1	80	34	11	(s)	28	(s)	[R] 1	[R] 73
March	[R] 42	37	(s)	[R] 79	32	12	(s)	32	(s)	(s)	[R] 76
April	34	34	1	69	[R] 25	11	(s)	31	(s)	(s)	68
May	24	34	(s)	58	18	11	(s)	33	(s)	(s)	[R] 62
June	29	34	(s)	[R] 63	22	11	(s)	32	(s)	(s)	66
July	[R] 18	36	(s)	54	14	12	(s)	33	(s)	(s)	59
August	24	30	(s)	[R] 54	18	10	(s)	33	(s)	(s)	62
September	[R] 23	32	2	57	18	11	(s)	31	(s)	(s)	[R] 59
October	31	34	(s)	65	23	11	(s)	32	(s)	(s)	[R] 66
November	46	39	(s)	85	[R] 34	13	(s)	30	(s)	[R] 1	78
December	64	43	(s)	107	48	14	(s)	31	(s)	1	94
Total	**440**	**428**	**7**	**876**	**330**	**142**	**1**	**374**	**(s)**	**5**	**853**

[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	674
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**	**8,279**
2016 January	40	113	127	269	(s)	13	21	62	4	208	730
February	44	115	117	234	(s)	13	21	55	2	235	718
March	52	119	89	233	(s)	14	22	59	5	205	709
April	60	88	62	207	(s)	12	21	43	6	215	653
May	81	80	66	211	(s)	13	22	42	4	199	652
June	96	88	52	197	(s)	14	22	35	4	208	664
July	97	59	64	215	(s)	11	23	50	6	205	666
August	108	93	66	204	(s)	12	23	71	4	233	748
September	87	99	71	212	(s)	12	22	42	3	210	687
October	86	102	73	232	(s)	13	22	52	5	217	728
November	62	103	82	217	(s)	11	21	80	4	197	696
December	40	100	111	252	(s)	11	22	63	4	222	714
Total	**853**	**1,157**	**980**	**2,683**	**2**	**149**	**262**	**653**	**52**	**2,553**	**8,365**
2017 January	39	[R]98	139	276	(s)	10	20	68	6	208	[R]727
February	45	[R]99	93	216	(s)	11	19	37	3	190	[R]621
March	54	[R]132	83	237	(s)	13	22	26	5	237	[R]727
April	63	[R]83	73	218	(s)	10	21	55	4	234	[R]688
May	75	[R]107	55	215	(s)	10	23	55	5	222	[R]713
June	95	[R]88	48	205	(s)	10	23	40	6	226	[R]692
July	91	[R]71	59	223	(s)	10	23	78	4	225	[R]724
August	112	[R]94	58	189	(s)	9	23	50	5	221	[R]703
September	89	[R]99	79	204	(s)	10	22	57	4	199	[R]684
October	85	[R]102	65	232	(s)	12	22	28	5	210	[R]696
November	61	[R]117	86	244	(s)	11	21	65	6	206	[R]731
December	45	83	98	272	(s)	9	22	62	5	198	697
Total	**854**	**1,172**	**936**	**2,732**	**1**	**124**	**261**	**623**	**58**	**2,576**	**8,402**

[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	2,096	7	11	11	29
February	1	473	3	229	10	1,204	6	1,928	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	1,343	25	2,175	4	8	5	17
May	2	535	3	267	15	1,399	38	2,259	5	9	5	19
June	2	545	3	281	12	1,376	30	2,249	4	9	6	19
July	3	566	3	290	14	1,430	52	2,359	4	11	7	23
August	2	566	3	281	11	1,428	48	2,340	4	11	6	21
September	2	543	3	261	11	1,357	42	2,219	4	10	6	20
October	2	530	3	284	13	1,396	38	2,266	4	8	5	17
November	1	474	3	259	9	1,331	47	2,126	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**	**16,317**	**463**	**26,453**	**70**	**112**	**94**	**276**
2016 January	1	473	4	255	12	1,307	48	2,100	7	9	7	23
February	2	455	4	252	13	1,303	23	2,051	5	9	7	22
March	2	517	4	272	13	1,416	61	2,283	4	10	4	18
April	2	508	3	266	12	1,341	74	2,206	4	11	4	19
May	2	530	3	277	12	1,422	54	2,301	5	10	5	19
June	2	538	3	293	13	1,404	54	2,307	4	11	5	20
July	2	541	3	302	10	1,447	68	2,374	5	11	8	24
August	2	567	3	303	11	1,463	50	2,399	4	12	8	24
September	2	529	3	278	11	1,386	39	2,248	4	11	5	20
October	2	543	3	283	12	1,373	55	2,272	4	7	6	16
November	2	504	3	278	11	1,350	49	2,196	5	8	5	18
December	2	506	4	291	11	1,402	49	2,263	5	9	6	20
Total	**20**	**6,211**	**40**	**3,350**	**141**	**16,614**	**623**	**26,999**	**55**	**118**	**71**	**244**
2017 January	1	[R] 467	4	280	10	1,284	77	[R] 2,123	5	10	5	21
February	1	[R] 449	3	242	10	1,226	39	[R] 1,970	4	7	5	16
March	2	[R] 532	3	293	12	[R] 1,412	[R] 60	[R] 2,315	5	8	5	17
April	2	[R] 510	3	275	9	[R] 1,351	51	[R] 2,202	4	4	5	13
May	2	[R] 555	3	294	10	1,448	61	[R] 2,373	5	9	5	19
June	3	[R] 544	3	300	10	1,427	67	[R] 2,354	4	9	6	19
July	2	[R] 556	3	304	9	1,446	44	[R] 2,363	4	9	5	18
August	2	[R] 574	3	311	8	[R] 1,475	55	[R] 2,428	4	8	6	17
September	1	[R] 535	3	279	10	[R] 1,363	[R] 48	[R] 2,239	4	7	5	17
October	1	[R] 549	3	301	11	[R] 1,411	60	[R] 2,338	4	6	5	16
November	2	[R] 519	4	293	10	1,336	71	[R] 2,234	4	7	5	16
December	2	500	4	309	8	1,389	61	2,272	8	8	9	25
Total	**21**	**6,291**	**40**	**3,480**	**117**	**16,568**	**694**	**27,212**	**55**	**94**	**66**	**214**

[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.

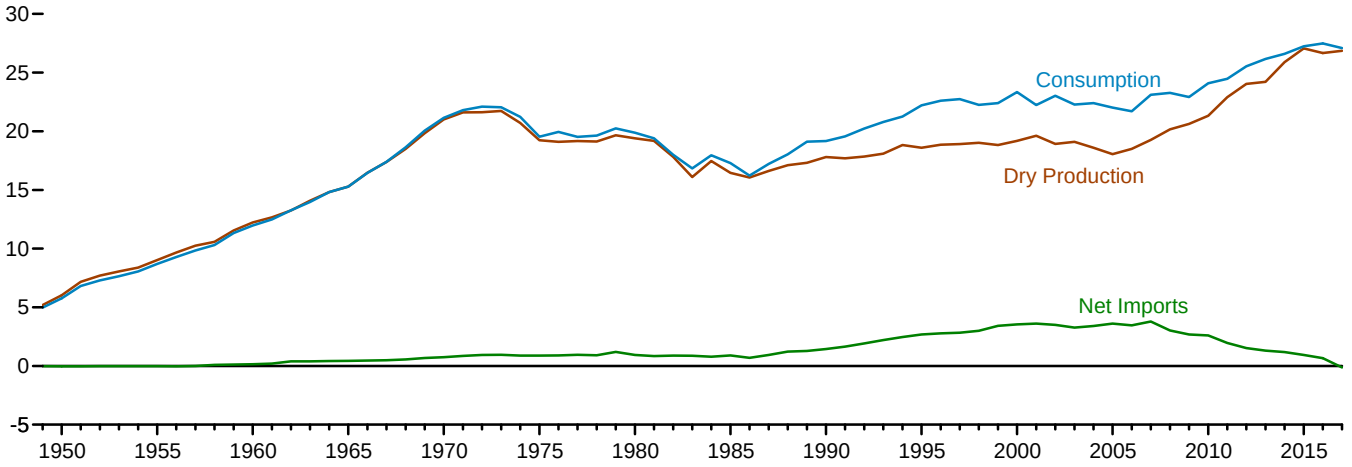
Total Petroleum

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.

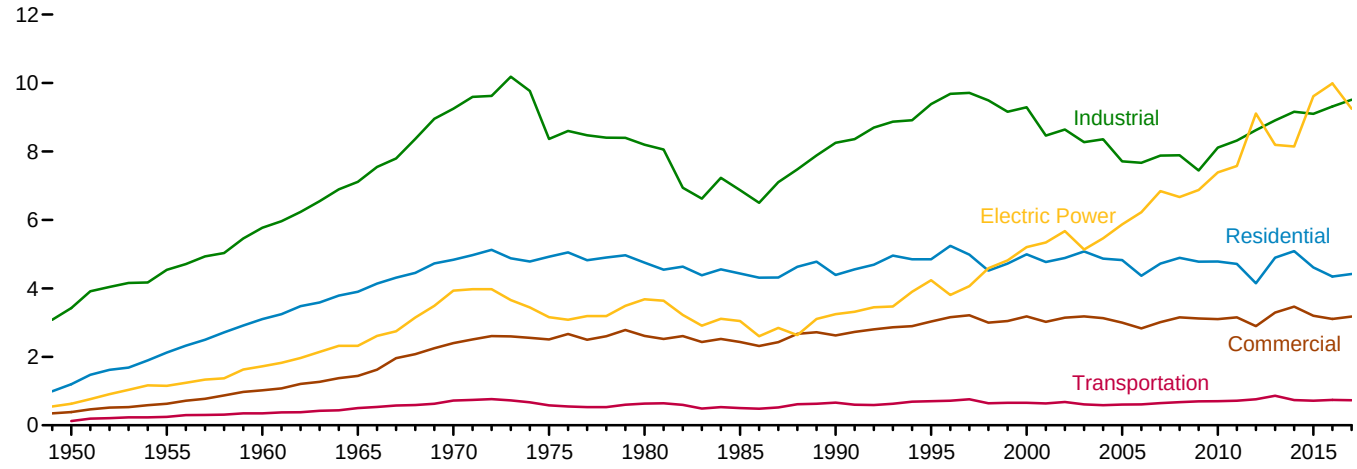
4. Natural Gas

Figure 4.1 Natural Gas
(Trillion Cubic Feet)

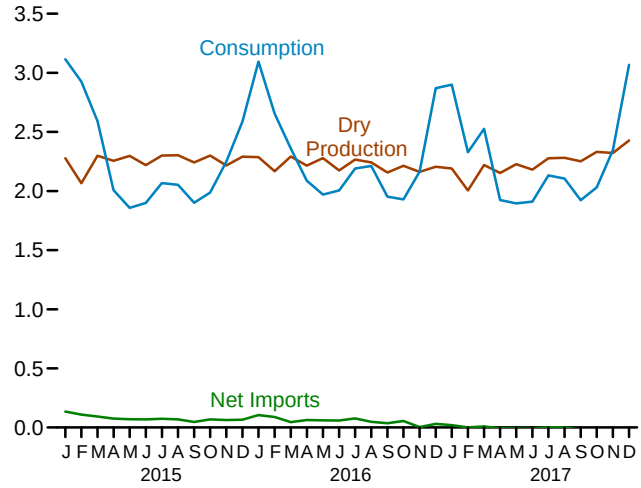
Overview, 1949–2017



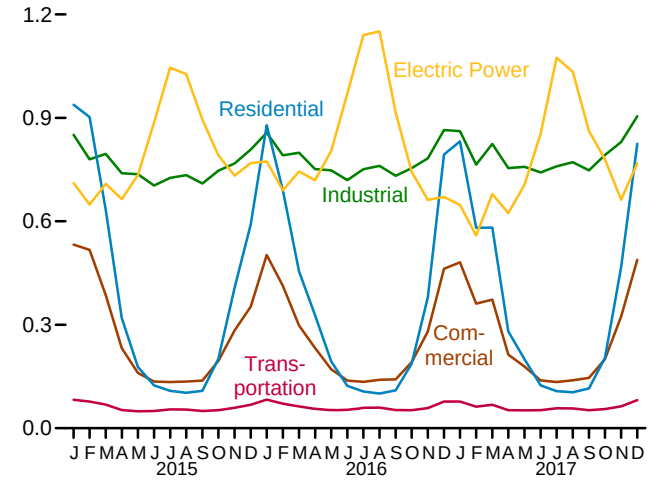
Consumption by Sector, 1949–2017



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	-43	3,095
February	2,656	2,315	148	2,167	5	252	163	89	411	-17	2,655
March	2,828	2,449	156	2,293	5	241	195	46	53	-37	2,359
April	2,681	2,366	151	2,215	5	241	178	63	-171	-26	2,087
May	2,787	2,433	155	2,278	5	248	188	60	-337	-36	1,970
June	2,636	2,323	148	2,175	5	242	183	59	-229	-5	2,004
July	2,730	2,421	154	2,266	5	265	189	76	-139	-17	2,191
August	2,726	2,395	153	2,242	5	262	214	48	-130	48	2,213
September	2,630	2,304	147	2,157	5	238	202	37	-270	24	1,952
October	2,718	2,365	151	2,214	5	231	176	55	-317	-28	1,929
November	2,673	2,310	147	2,162	5	231	228	3	39	-46	2,163
December	2,742	2,356	150	2,206	5	281	251	30	688	-59	2,869
Total	**32,636**	**28,479**	**1,817**	**26,663**	**57**	**3,006**	**2,335**	**671**	**339**	**-242**	**27,487**
2017 January	[E] 2,727	[E] 2,339	149	[E] 2,191	5	292	272	20	675	9	2,899
February	[E] 2,504	[E] 2,148	143	[E] 2,005	5	255	255	(s)	285	[R] 34	[R] 2,328
March	[E] 2,778	[E] 2,381	161	[E] 2,220	5	281	272	9	275	[R] 17	[R] 2,526
April	[E] 2,682	[E] 2,308	156	[E] 2,153	5	238	247	-9	-230	[R] 6	[R] 1,924
May	[E] 2,770	[E] 2,391	164	[E] 2,227	3	244	254	-10	-341	[R] 16	[R] 1,895
June	[E] 2,682	[E] 2,341	160	[E] 2,180	4	240	253	-14	-281	[R] 20	[R] 1,910
July	[E] 2,750	[E] 2,443	166	[E] 2,277	5	251	248	2	-150	[R] -1	[R] 2,133
August	[E] 2,764	[E] 2,444	163	[E] 2,281	5	248	247	1	-196	[R] 14	[R] 2,105
September	[E] 2,757	[E] 2,408	157	[E] 2,251	5	[R] 229	250	-21	-317	[R] 4	[R] 1,923
October	[RE] 2,888	[RE] 2,507	176	[RE] 2,331	4	244	281	-37	-248	[R] -19	[R] 2,031
November	[RE] 2,874	[RE] 2,496	174	[RE] 2,322	6	242	288	-46	85	[R] -20	[R] 2,347
December	[E] 2,994	[E] 2,600	173	[E] 2,427	5	276	299	-23	693	-34	3,067
Total	[E] **33,170**	[E] **28,807**	**1,943**	[E] **26,863**	**56**	**3,039**	**3,168**	**-129**	**251**	**47**	**27,089**

[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,* February 2018, 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
September	0	227	0	(s)	0	0	R 2	0	R 229	70	0	136	44	250
October	0	242	0	(s)	0	0	2	0	244	68	7	140	66	281
November	0	236	0	(s)	0	0	6	0	242	74	0	145	69	288
December	0	265	0	1	3	0	8	0	276	81	14	139	65	299
Total	**0**	**2,962**	**0**	**1**	**6**	**0**	**70**	**0**	**3,039**	**917**	**53**	**1,684**	**513**	**3,168**

[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 and 2017; Barbados in 2016 and 2017; Brazil in 2010–2012, and 2014–2017; Chile in 2011, 2016, and 2017; China in 2011, 2016, and 2017; Dominican Republic in 2016 and 2017; Egypt in 2015–2017; India in 2010–2012, 2016, and 2017; Italy in 2016 and 2017; Jordan in 2016 and 2017; Kuwait in 2016 and 2017; Lithuania in 2017; Malta in 2017; Netherlands in 2017; Pakistan in 2017; Poland 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 and 2017; Thailand in 2017; Turkey in 2015–2017; United Arab Emirates in 2016 and 2017; and United Kingdom in 2010 and 2011 and 2017.

R=Revised. (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,* February 2018, 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	103	617	720	857	80	3	83	774	3,095
February	690	413	129	95	567	662	791	68	3	71	690	2,655
March	455	298	137	99	563	662	799	60	3	63	745	2,359
April	328	233	132	95	525	620	752	53	3	56	719	2,087
May	194	171	136	98	515	612	748	49	3	53	804	1,970
June	123	138	130	101	489	590	720	51	3	54	970	2,004
July	106	134	135	107	509	616	751	55	4	59	1,140	2,191
August	100	140	134	108	519	627	761	56	4	60	1,151	2,213
September	110	142	129	101	502	604	732	49	4	53	915	1,952
October	187	191	132	99	523	622	754	48	4	52	744	1,929
November	380	280	129	99	555	654	782	55	4	58	662	2,163
December	794	462	132	104	629	733	865	74	4	77	671	2,869
Total	**4,345**	**3,105**	**1,590**	**1,209**	**6,513**	**7,722**	**9,312**	**697**	**42**	**739**	**9,985**	**27,487**
2017 January	832	481	[E] 131	[R] 107	624	731	861	[E] 74	[E] 4	[E] 77	[R] 647	2,899
February	[R] 581	361	[E] 120	97	548	645	765	[E] 59	[E] 3	[E] 62	[R] 559	[R] 2,328
March	582	373	[E] 133	103	588	691	824	[RE] 64	[E] 4	[RE] 68	[R] 679	[R] 2,526
April	281	213	[E] 129	98	527	625	754	[E] 49	[E] 4	[E] 52	[R] 624	[R] 1,924
May	200	179	[E] 133	99	526	625	758	[E] 48	[E] 4	[E] 52	[R] 706	[R] 1,895
June	124	138	[E] 131	100	511	611	742	[RE] 48	[E] 4	[E] 52	[R] 854	[R] 1,910
July	107	134	[E] 136	107	516	623	759	[E] 54	[E] 4	[E] 58	[R] 1,074	[R] 2,133
August	104	139	[E] 136	103	532	635	771	[RE] 53	[E] 4	[RE] 57	[R] 1,034	[R] 2,105
September	115	146	[E] 134	98	515	613	748	[E] 49	[E] 4	[RE] 52	[R] 862	[R] 1,923
October	204	200	[E] 140	[R] 100	[R] 552	[R] 652	792	[E] 52	[E] 4	[E] 55	[R] 780	[R] 2,031
November	467	324	[E] 139	102	589	691	830	[E] 60	[E] 4	[E] 63	[R] 663	[R] 2,347
December	825	488	[E] 145	113	646	759	905	[E] 78	[E] 4	[E] 82	768	3,067
Total	**4,422**	**3,176**	[E] **1,608**	**1,226**	**6,675**	**7,902**	**9,510**	[E] **687**	[E] **43**	[E] **731**	**9,250**	**27,089**

[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),* February 2018, 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, February 2018, 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	4,356	3,250	7,606	-191	-5.6	160	355	-196
September	4,356	3,568	7,924	-137	-3.7	107	423	-317
October	4,355	3,817	8,171	-196	-4.9	137	385	-248
November	4,354	3,732	8,086	-245	R -6.1	288	203	85
December	4,359	3,039	7,398	-258	-7.8	773	80	693
Total	**4,359**	**3,039**	**7,398**	**-258**	**-7.8**	**3,559**	**3,308**	**251**

[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.

R=Revised. 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, February 2018, 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, February 2018, 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	**1990**	7,794	**2005**	8,268
1976	6,544	**1991**	7,993	**2006**	8,330
1977	6,678	**1992**	7,932	**2007**	8,402
1978	6,890	**1993**	7,989	**2008**	8,499
1979	6,929	**1994**	8,043	**2009**	8,656
1980	7,434	**1995**	7,953	**2010**	8,764
1981	7,805	**1996**	7,980	**2011**	8,849
1982	7,915	**1997**	8,332	**2012**	8,991
1983	7,985	**1998**	8,179	**2013**	9,173
1984	8,043	**1999**	8,229	**2014**	9,233
1985	8,087	**2000**	8,241	**2015**	9,231
1986	8,145	**2001**	8,182	**2016**	9,239
1987	8,124	**2002**	8,207	**2017**	9,264
1988	8,124	**2003**	8,206		
1989	8,120	**2004**	8,255		

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 (1,569 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, Pakistan, 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.

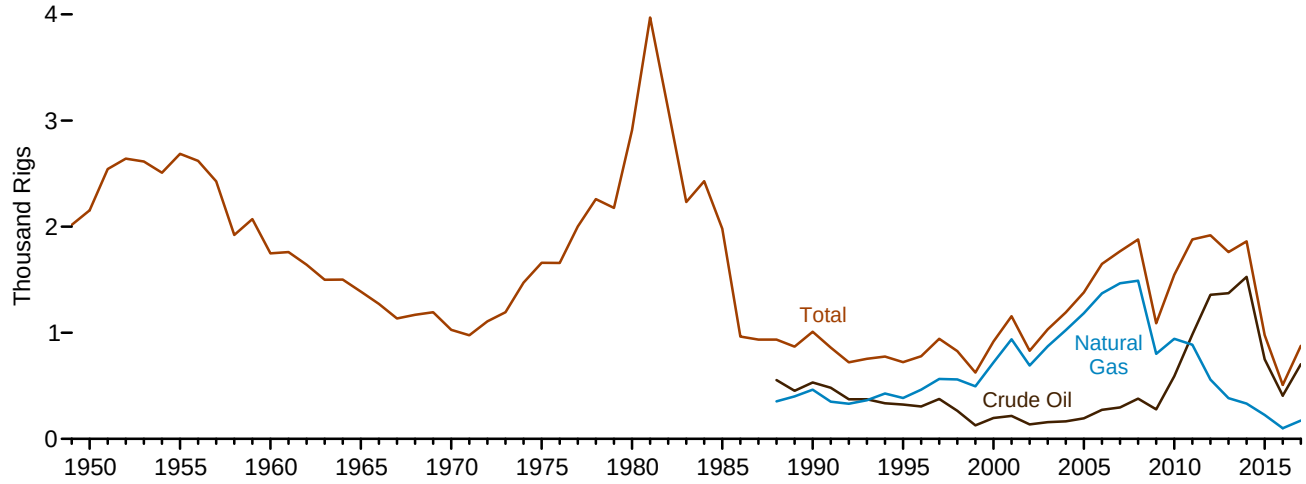
Annual and final monthly data are from the annual EIA Form FPC-14, "Annual Report for Importers and Exporters of Natural Gas," which requires data to be reported by month for the calendar year.

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.*

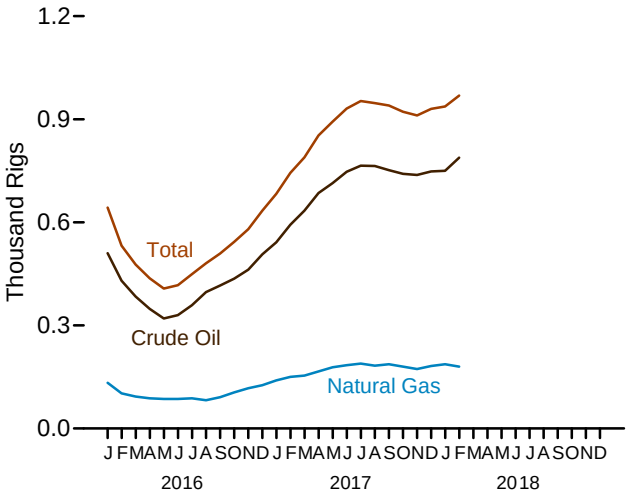
5. Crude Oil and Natural Gas Resource Development

Figure 5.1 Crude Oil and Natural Gas Resource Development Indicators

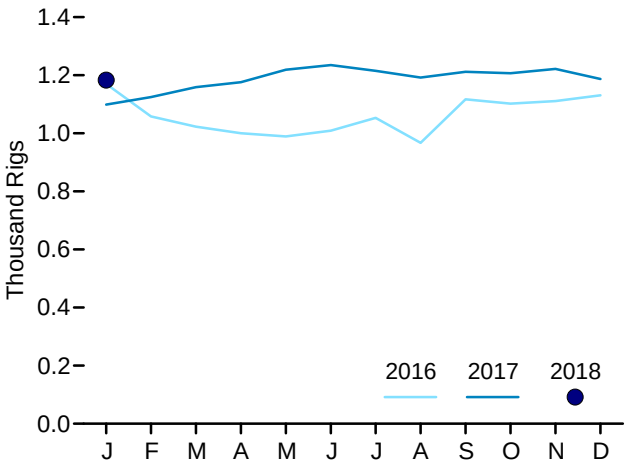
Rotary Rigs in Operation by Type, 1949–2017



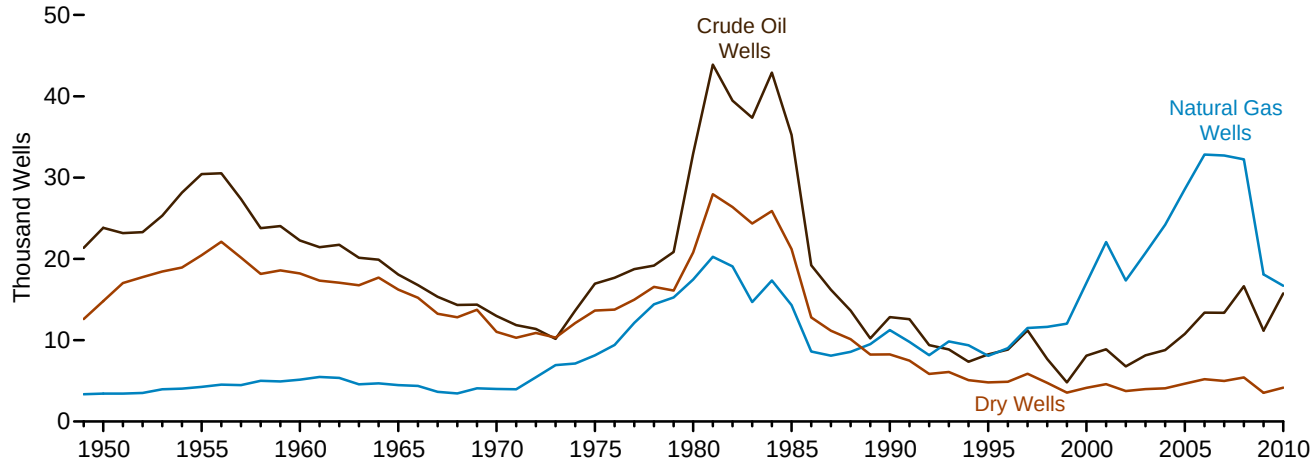
Rotary Rigs in Operation by Type, Monthly



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 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	1,212
October	901	21	741	180	922	1,207
November	891	20	738	173	911	1,222
December	911	19	748	182	930	1,187
Average	**856**	**20**	**703**	**172**	**876**	**1,187**
2018 January	919	18	750	187	937	R 1,183
February	952	17	788	180	969	NA
2-Month Average	**935**	**17**	**769**	**183**	**953**	**NA**
2017 2-Month Average	**692**	**22**	**568**	**145**	**713**	**1,112**
2016 2-Month Average	**561**	**27**	**470**	**118**	**587**	**1,114**

[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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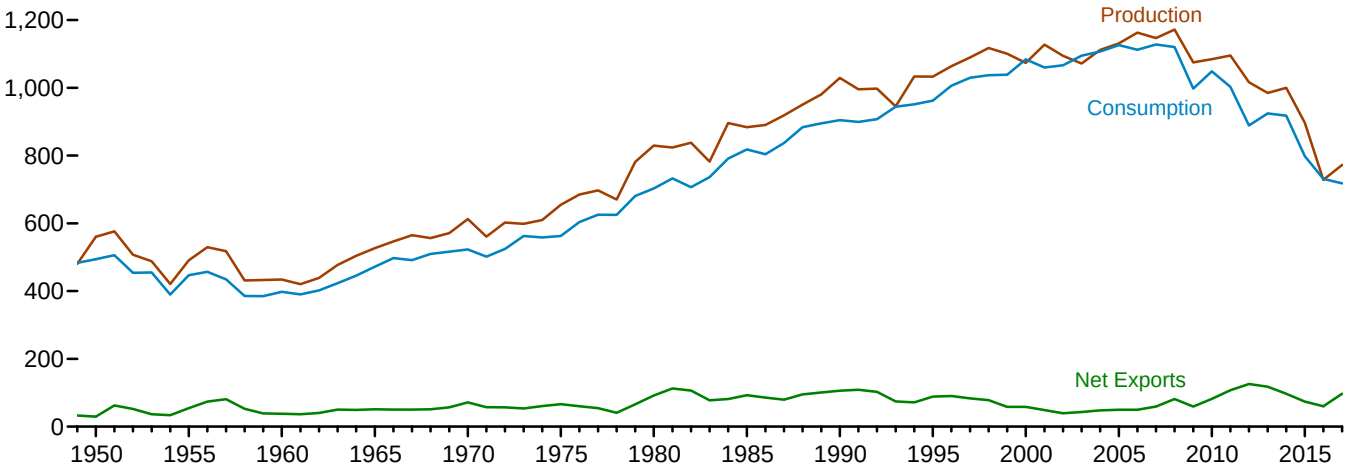
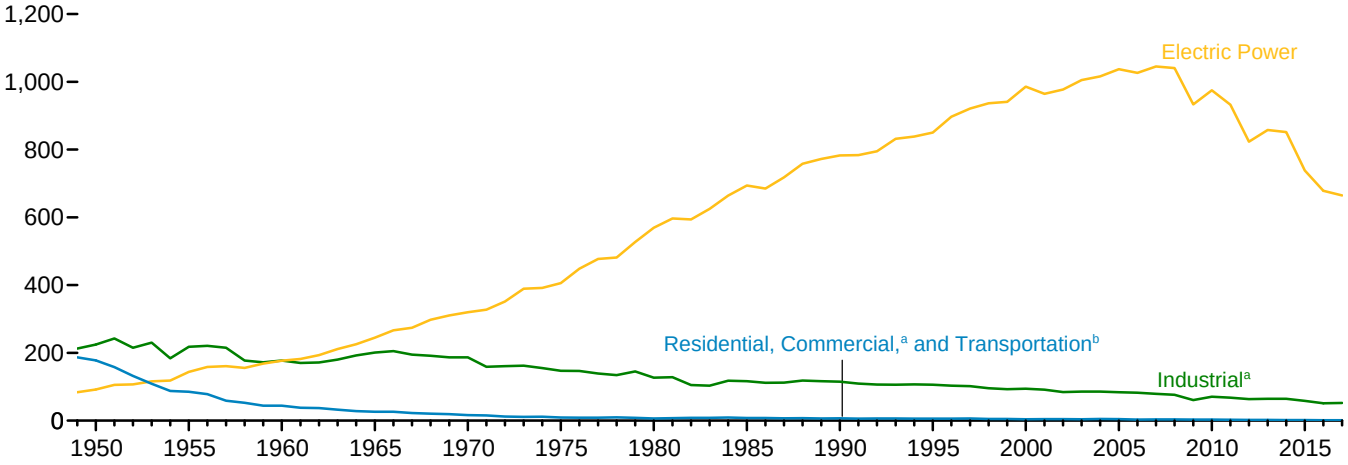
6. Coal

Figure 6.1 Coal
(Million Short Tons)

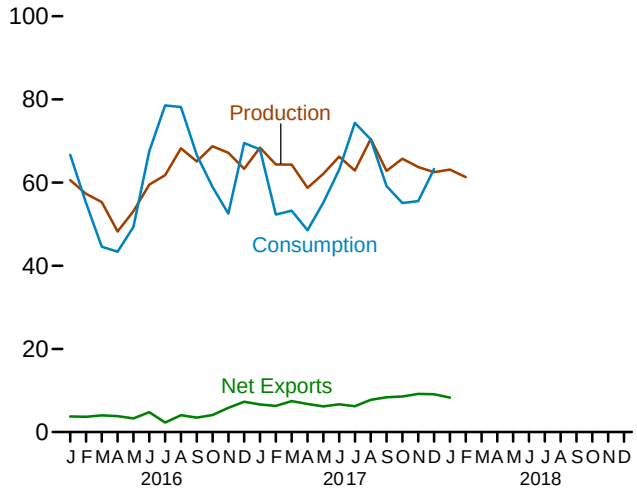
Overview, 1949–2017



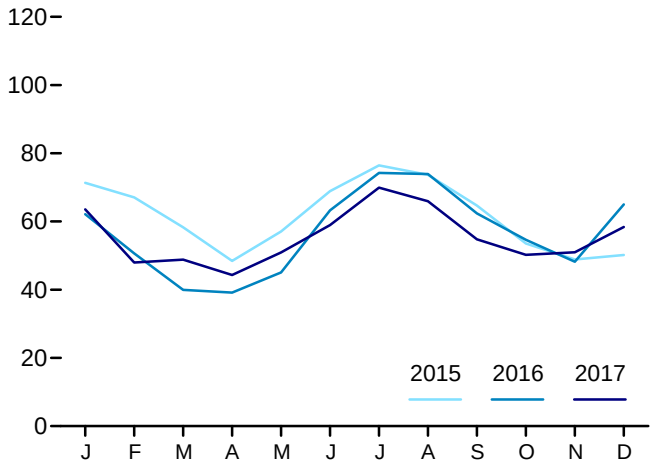
Consumption by Sector, 1949–2017



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 Total	**896,941**	**9,969**	**11,318**	**73,958**	**-62,640**	**40,704**	**5,452**	**798,115**
2016 January	60,569	1,077	693	4,433	-3,740	-9,250	494	66,662
February	57,329	934	819	4,511	-3,693	-387	-253	55,211
March	55,328	818	1,186	5,208	-4,023	4,168	3,380	44,575
April	48,216	642	740	4,583	-3,843	1,360	271	43,384
May	53,123	706	910	4,209	-3,298	-1,802	2,990	49,343
June	59,513	826	641	5,432	-4,790	-11,528	-475	67,551
July	61,784	1,050	990	3,276	-2,286	-15,581	-2,439	78,569
August	68,247	1,064	943	5,003	-4,060	-11,552	-1,372	78,175
September	65,070	766	800	4,273	-3,473	-4,260	7	66,615
October	68,725	541	768	4,863	-4,095	3,482	2,737	58,953
November	67,150	705	706	6,554	-5,847	8,538	937	52,533
December	63,311	1,009	652	7,926	-7,274	-8,630	-3,825	69,501
Total	**728,364**	**10,138**	**9,850**	**60,271**	**-50,421**	**-45,441**	**2,452**	**731,071**
2017 January	68,378	902	743	7,385	-6,642	-6,408	R 1,091	R 67,954
February	64,354	798	612	6,908	-6,296	4,230	2,333	52,293
March	64,301	809	560	8,013	-7,453	R 1,024	R 3,416	R 53,216
April	58,749	505	493	7,236	-6,744	R 2,108	R 1,874	R 48,528
May	62,110	610	1,053	7,243	-6,190	R -2,136	R 3,490	R 55,177
June	66,223	726	651	7,317	-6,666	R -5,414	R 2,557	R 63,139
July	62,877	803	956	7,177	-6,221	R -10,707	R -6,183	R 74,350
August	70,482	820	839	8,573	-7,734	R -5,294	R -1,536	R 70,398
September	62,802	719	513	8,894	-8,381	R -3,600	R -409	R 59,149
October	65,754	F 835	582	9,159	-8,577	R 1,040	R 1,906	R 55,065
November	63,750	F 835	368	9,552	-9,185	R 1,616	R -1,745	R 55,530
December	62,522	RF 835	408	9,495	-9,087	R -6,362	R -2,637	R 63,268
Total	**772,302**	R **9,195**	**7,777**	**96,953**	**-89,176**	R **-29,904**	**4,158**	**718,067**
2018 January	63,113	NA	R 500	R 8,772	R -8,273	NA	NA	NA
February	61,308	NA	NA	NA	NA	NA	NA	NA
2-Month Total	**124,421**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**
2017 2-Month Total	**132,732**	**1,699**	**1,355**	**14,294**	**-12,938**	**-2,178**	**3,424**	**120,247**
2016 2-Month Total	**117,897**	**2,011**	**1,512**	**8,945**	**-7,433**	**-9,638**	**241**	**121,873**

[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 Total	**(i)**	**798**	**706**	**1,503**	**19,708**	**16,984**	**21,475**	**38,459**	**58,167**	**(h)**	**738,444**	**798,115**
2016 January	(i)	75	75	150	1,328	1,397	1,652	3,049	4,377	(h)	62,135	66,662
February	(i)	75	75	150	1,361	1,282	1,755	3,037	4,399	(h)	50,661	55,211
March	(i)	74	74	148	1,434	1,275	1,770	3,045	4,479	(h)	39,948	44,575
April	(i)	46	29	74	1,324	1,076	1,751	2,827	4,151	(h)	39,159	43,384
May	(i)	37	23	60	1,367	1,178	1,657	2,835	4,201	(h)	45,082	49,343
June	(i)	46	29	75	1,405	1,243	1,578	2,821	4,226	(h)	63,250	67,551
July	(i)	46	17	64	1,433	1,321	1,515	2,836	4,268	(h)	74,237	78,569
August	(i)	49	19	68	1,395	1,292	1,530	2,822	4,217	(h)	73,890	78,175
September	(i)	50	19	68	1,336	1,157	1,668	2,826	4,161	(h)	62,385	66,615
October	(i)	50	38	88	1,335	1,126	1,782	2,909	4,243	(h)	54,621	58,953
November	(i)	60	45	105	1,326	1,093	1,830	2,923	4,249	(h)	48,179	52,533
December	(i)	75	57	133	1,442	1,280	1,640	2,920	4,362	(h)	65,006	69,501
Total	**(i)**	**683**	**500**	**1,183**	**16,485**	**14,720**	**20,129**	**34,849**	**51,333**	**(h)**	**678,554**	**731,071**
2017 January	(i)	66	72	138	1,431	R 1,290	R 1,547	2,837	4,268	(h)	R 63,548	R 67,954
February	(i)	54	59	112	1,368	1,087	R 1,760	2,848	4,216	(h)	47,965	52,293
March	(i)	58	64	122	1,438	1,172	1,658	2,830	4,268	(h)	R 48,826	R 53,216
April	(i)	40	23	64	1,441	1,068	1,632	2,700	4,141	(h)	R 44,324	R 48,528
May	(i)	40	23	63	1,482	1,098	1,607	2,705	4,188	(h)	R 50,926	R 55,177
June	(i)	46	26	72	1,402	1,094	1,620	2,714	4,115	(h)	R 58,952	R 63,139
July	(i)	53	17	70	1,494	1,047	1,838	2,885	4,380	(h)	R 69,900	R 74,350
August	(i)	49	15	64	1,528	1,065	1,807	2,872	4,400	(h)	R 65,934	R 70,398
September	(i)	47	15	62	1,469	1,030	1,809	2,839	4,308	(h)	R 54,780	R 59,149
October	(i)	43	F (s)	F 43	F 2,027	1,149	F 1,632	F 2,781	F 4,808	(h)	R 50,214	R 55,065
November	(i)	50	F 26	F 76	F 1,609	1,142	F 1,711	F 2,853	F 4,462	(h)	R 50,992	R 55,530
December	(i)	62	F 28	F 89	F 2,072	1,181	F 1,538	F 2,719	F 4,791	(h)	58,388	63,268
Total	**(i)**	**607**	**E 368**	**E 975**	**E 18,760**	**13,424**	**E 20,159**	**E 33,583**	**E 52,343**	**(h)**	**664,749**	**718,067**

[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).

R=Revised. E=Estimate. F=Forecast. (s)=Greater than -0.5 or less than 0.5 thousand short tons.

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 Year	**35,871**	**394**	**2,236**	**4,382**	**6,618**	**7,012**	**195,548**	**238,431**
2016 January	35,236	373	2,129	4,240	6,368	6,742	187,203	229,181
February	35,258	353	2,022	4,098	6,119	6,472	187,064	228,793
March	35,207	332	1,914	3,956	5,870	6,202	191,553	232,962
April	35,011	334	1,877	3,915	5,792	6,126	193,185	234,322
May	34,053	336	1,839	3,875	5,714	6,050	192,417	232,520
June	32,932	337	1,802	3,834	5,636	5,973	182,086	220,992
July	31,393	348	1,755	3,796	5,551	5,899	168,119	205,411
August	29,126	359	1,707	3,758	5,465	5,825	158,908	193,859
September	27,282	370	1,660	3,720	5,380	5,751	156,567	189,600
October	26,425	367	1,665	3,692	5,357	5,724	160,932	193,082
November	25,645	364	1,670	3,665	5,334	5,698	170,277	201,620
December	**25,309**	**360**	**1,675**	**3,637**	**5,312**	**5,672**	**162,009**	**192,990**
2017 January	F 24,974	351	1,579	3,503	5,082	5,433	156,175	186,582
February	F 25,170	342	1,483	3,369	4,852	5,195	R 160,448	190,812
March	F 25,190	334	1,388	3,235	4,623	4,956	R 161,690	R 191,836
April	F 25,169	332	1,467	3,254	4,721	5,052	R 163,723	R 193,944
May	F 24,350	330	1,547	3,272	4,819	5,149	R 162,309	R 191,808
June	F 23,430	328	1,626	3,291	4,917	5,245	R 157,719	R 186,394
July	F 24,983	331	1,641	3,356	4,997	5,328	R 145,376	R 175,687
August	F 23,262	334	1,655	3,422	5,077	5,411	R 141,720	R 170,393
September	F 21,984	337	1,670	3,487	5,157	5,494	R 139,315	R 166,793
October	F 21,532	F 237	F 1,737	F 3,123	4,860	5,096	R 141,204	R 167,832
November	F 21,296	F 211	F 1,741	F 2,991	4,731	4,942	R 143,210	R 169,448
December	**F 21,108**	**F 190**	**F 1,783**	**F 2,851**	**4,634**	**4,823**	**137,155**	**163,086**

[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.

R=Revised. 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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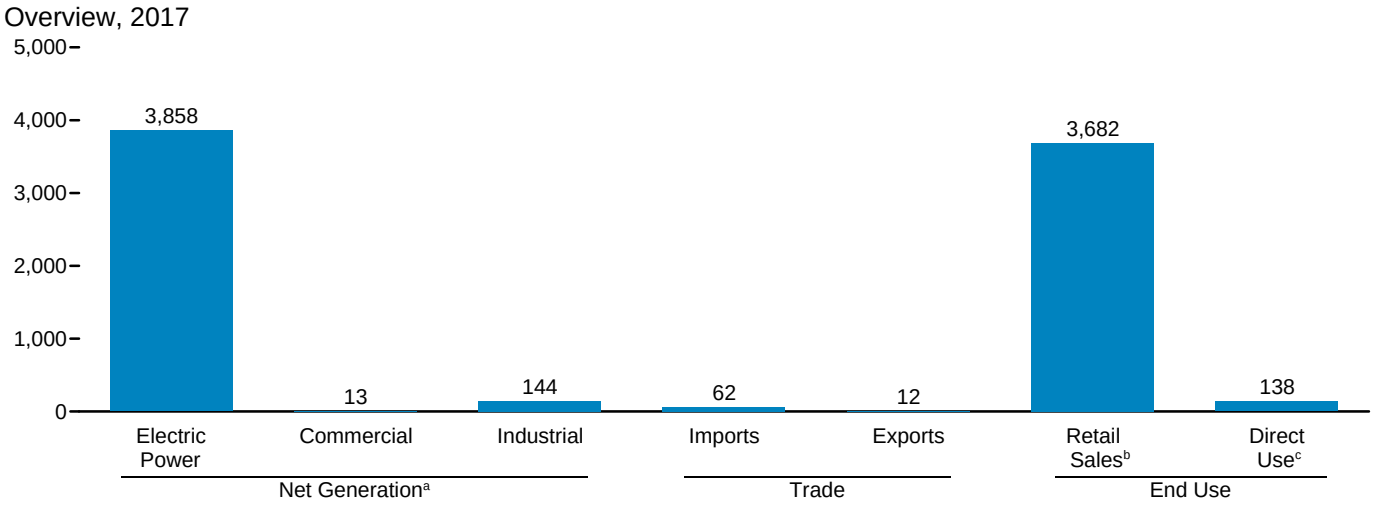
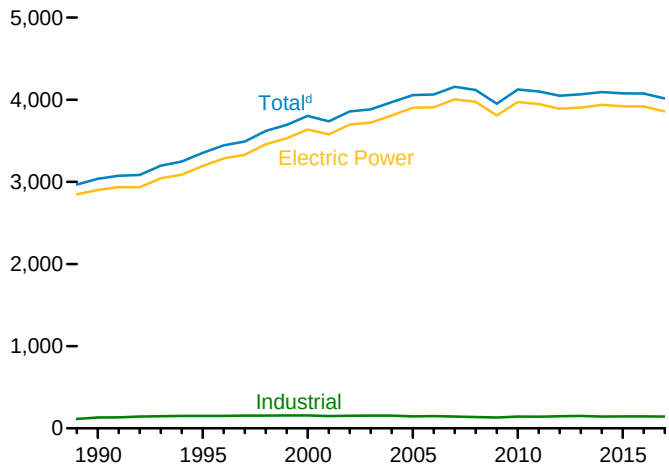
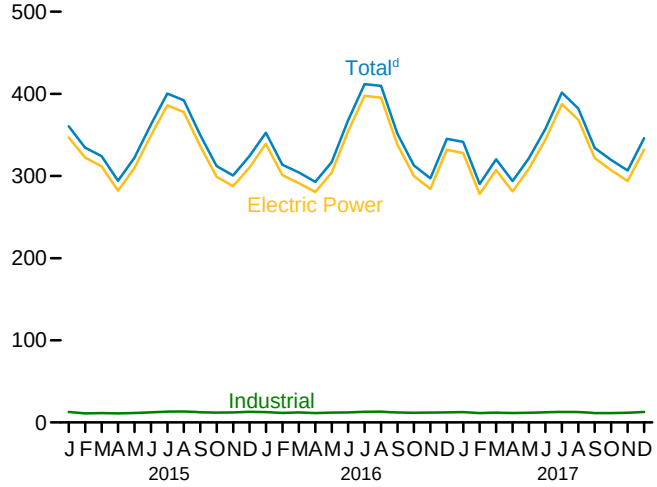
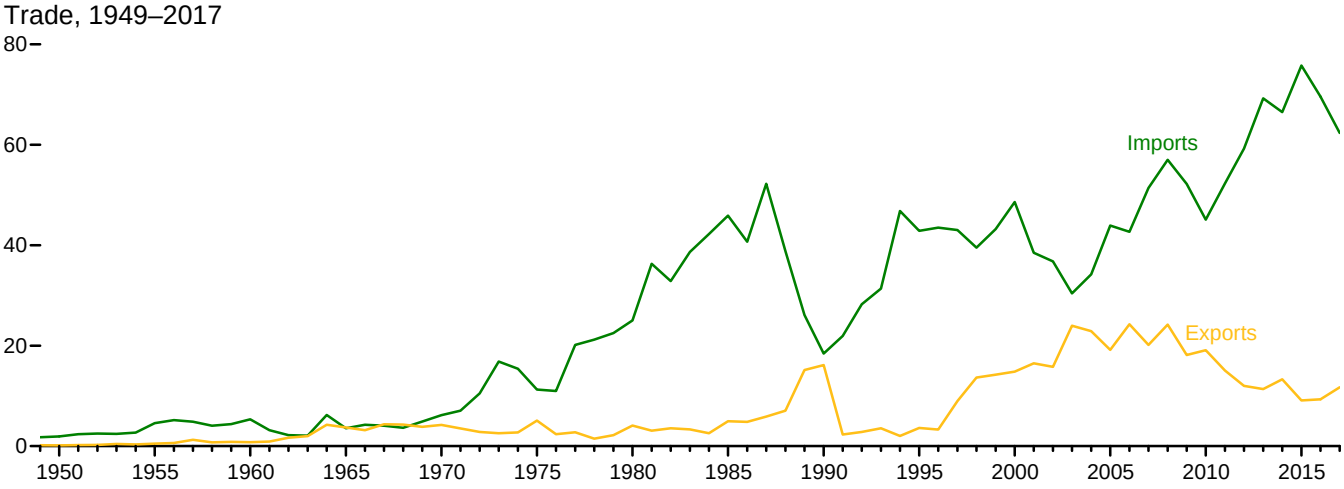
7. Electricity

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	12	353	6	1	6	26	321	[E] 12	333
February	301	1	12	314	5	1	5	10	297	[E] 11	308
March	291	1	12	304	6	1	5	12	286	[E] 12	297
April	281	1	11	293	4	1	4	16	270	[E] 11	280
May	304	1	12	317	5	1	5	25	285	[E] 11	296
June	354	1	12	368	7	1	6	32	330	[E] 12	342
July	398	1	13	412	7	1	6	34	372	[E] 13	385
August	395	1	13	410	7	1	6	22	381	[E] 13	394
September	338	1	12	351	5	1	4	7	337	[E] 12	348
October	300	1	12	313	5	1	5	10	297	[E] 11	308
November	284	1	12	297	6	1	5	14	277	[E] 11	289
December	332	1	12	345	5	1	4	27	311	[E] 12	322
Total	**3,918**	**13**	**146**	**4,077**	**70**	**9**	**60**	**235**	**3,762**	**140**	**3,902**
2017 January	328	1	12	[R] 342	6	1	5	[R] 19	[R] 315	[E] 12	[R] 327
February	278	1	11	290	4	1	3	[R] 9	[R] 274	[E] 11	284
March	307	1	12	320	5	1	4	24	[R] 289	[E] 12	300
April	281	1	12	294	5	1	4	18	269	[E] 11	280
May	[R] 309	1	12	[R] 322	5	1	4	25	[R] 290	[E] 11	[R] 301
June	344	1	12	357	6	1	5	[R] 26	[R] 324	[E] 12	[R] 336
July	[R] 387	1	13	402	6	1	5	[R] 31	362	[E] 12	[R] 375
August	[R] 368	1	13	382	6	1	5	[R] 18	[R] 357	[E] 12	[R] 369
September	322	1	11	334	5	1	4	[R] 8	[R] 319	[E] 11	[R] 330
October	307	1	11	319	[F] 5	[F] 1	[F] 4	[R] 16	296	[E] 11	307
November	294	1	12	307	[F] 5	[F] 1	[F] 4	[R] 20	[R] 280	[E] 11	[R] 291
December	332	1	13	346	[F] 5	[F] 1	[F] 4	30	308	[E] 12	320
Total	**3,858**	**13**	**144**	**4,015**	[E] 62	[E] 12	[E] 51	**245**	**3,682**	[E] **138**	**3,820**

[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.

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

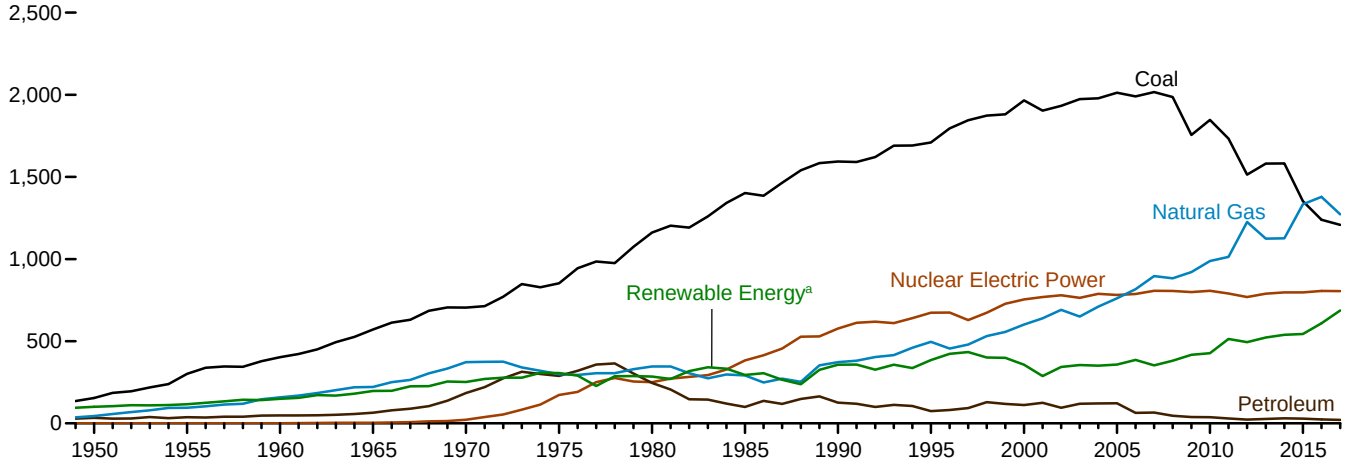
Notes: • See Note 1, "Coverage of Electricity Statistics," and Note 2, "Classification of Power Plants Into Energy-Use Sectors," at end of section. • Data values preceded by "F" are derived from the U.S. Energy Information Administration's Short-Term Integrated Forecasting System. See Note 3, "Electricity 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.

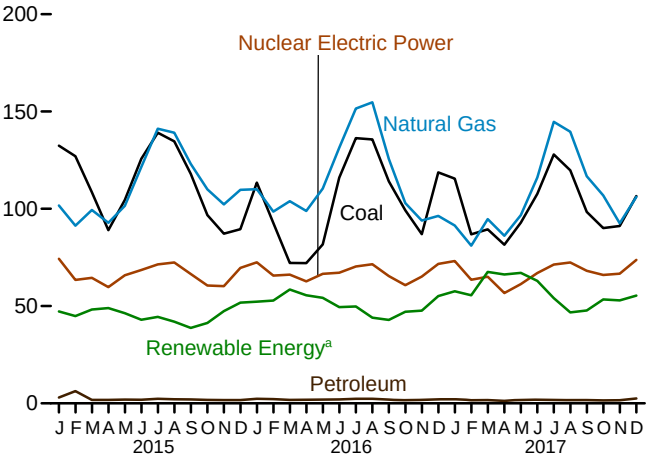
Sources: See end of section.

Figure 7.2 Electricity Net Generation
(Billion Kilowatthours)

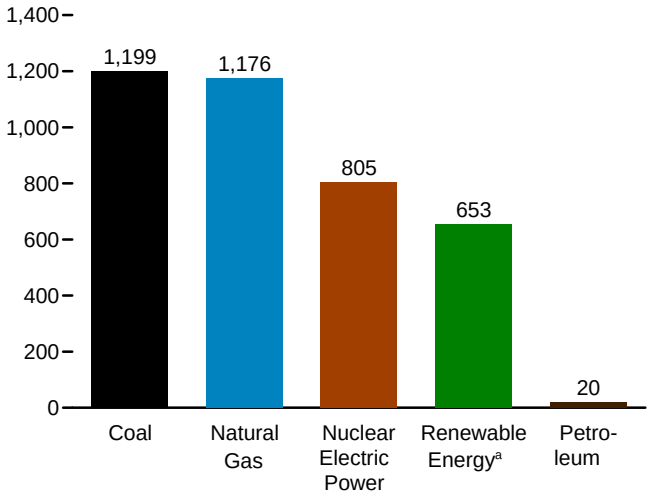
Total (All Sectors), Major Sources, 1949–2017



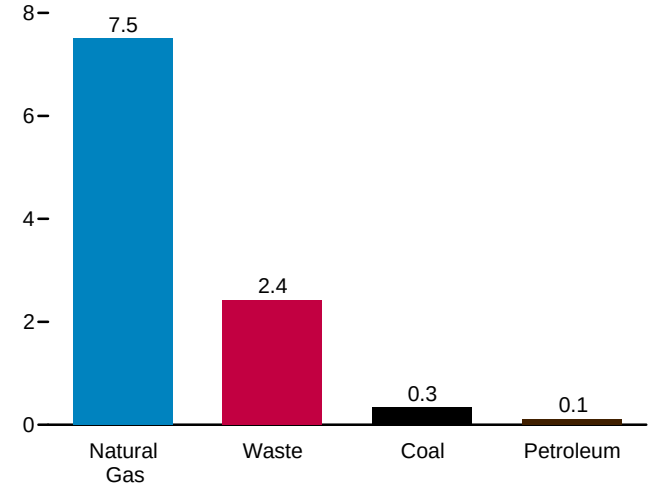
Total (All Sectors), Major Sources, Monthly



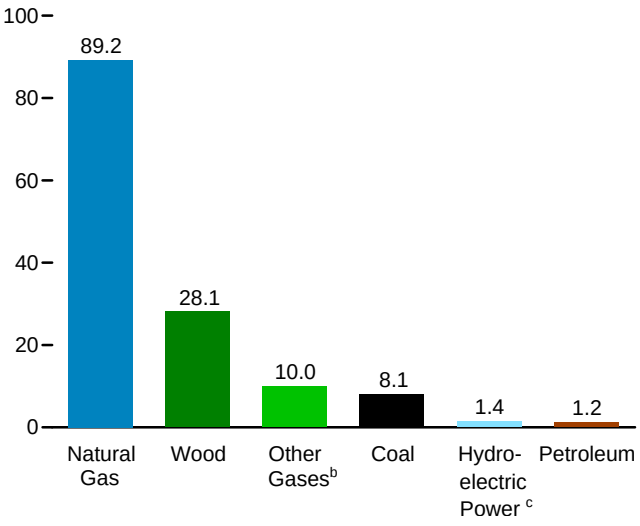
Electric Power Sector, Major Sources, 2017



Commercial Sector, Major Sources, 2017



Industrial Sector, Major Sources, 2017



[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	113,459	2,361	110,044	1,195	72,525	-312	25,615	3,600	1,795	1,332	1,486	18,466	352,719
February	92,705	2,209	98,552	1,062	65,638	-399	24,139	3,406	1,708	1,243	2,242	20,138	[R]313,685
March	72,173	1,801	103,890	1,197	66,149	-384	27,390	3,403	1,809	1,315	2,617	21,939	[R]304,390
April	72,113	1,839	98,876	1,132	62,732	-452	25,878	2,967	1,811	1,209	2,880	20,799	[R]292,894
May	81,695	1,958	110,430	1,053	66,576	-321	25,486	3,187	1,909	1,342	3,425	18,848	[R]316,784
June	116,034	1,977	131,395	1,043	67,175	-497	23,237	3,414	1,794	1,251	3,473	16,303	[R]367,781
July	136,316	2,322	151,554	1,077	70,349	-784	21,455	3,658	1,840	1,311	3,945	17,618	[R]411,887
August	135,635	2,335	154,760	1,064	71,526	-902	19,570	3,722	1,860	1,324	3,969	13,589	[R]409,701
September	114,138	1,926	125,603	1,020	65,448	-715	16,368	3,407	1,757	1,327	3,635	16,404	[R]351,484
October	99,194	1,571	102,898	913	60,733	-561	17,339	3,176	1,693	1,353	3,191	20,335	[R]312,945
November	86,940	1,869	93,942	1,013	65,179	-607	18,808	3,391	1,891	1,364	2,767	19,406	[R]297,062
December	118,747	2,035	96,364	1,037	71,662	-753	22,528	3,615	1,944	1,454	2,424	23,146	[R]345,343
Total	**1,239,149**	**24,205**	**1,378,307**	**12,807**	**805,694**	**-6,686**	**267,812**	**40,947**	**21,813**	**15,826**	**36,054**	**226,993**	[R]**4,076,675**
2017 January	115,501	[R]2,074	[R]91,447	[R]1,120	73,121	-435	[R]27,853	3,589	1,863	1,399	[R]2,152	[R]20,749	[R]341,518
February	86,873	[R]1,592	[R]81,040	[R]1,191	[R]63,560	-508	[R]24,542	3,405	[R]1,647	1,241	[R]2,497	[R]22,228	[R]290,297
March	[R]89,427	[R]1,686	[R]94,708	[R]1,257	65,093	-521	30,221	3,662	[R]1,760	1,380	[R]4,433	[R]26,133	[R]320,291
April	[R]81,533	1,288	[R]86,178	[R]1,157	56,743	-439	[R]29,320	3,373	[R]1,671	1,357	[R]4,774	[R]25,753	[R]293,752
May	[R]92,881	[R]1,774	[R]96,777	1,182	[R]61,313	-423	[R]32,177	[R]3,438	[R]1,743	1,295	[R]5,766	[R]22,642	[R]321,645
June	[R]107,728	1,880	[R]116,061	[R]1,211	67,011	-568	[R]30,424	3,625	[R]1,695	1,265	[R]6,252	[R]19,711	[R]357,390
July	[R]127,959	1,747	[R]144,720	[R]1,261	71,314	-759	[R]25,745	3,922	[R]1,760	1,368	[R]5,505	[R]15,765	[R]401,510
August	[R]119,780	[R]1,724	[R]139,610	[R]1,321	72,384	-638	[R]21,241	3,880	[R]1,775	1,357	[R]5,401	[R]13,089	[R]382,140
September	[R]98,404	1,665	[R]116,728	1,120	[R]68,098	-606	[R]18,965	[R]3,404	[R]1,649	1,325	[R]5,168	[R]17,268	[R]334,219
October	[R]90,087	[R]1,533	[R]106,867	[R]1,014	65,995	-463	[R]17,211	[R]3,569	[R]1,693	1,261	[R]4,830	[R]24,821	[R]319,443
November	[R]91,151	[R]1,616	[R]92,585	[R]1,198	66,618	-478	[R]19,840	3,560	[R]1,721	1,334	[R]3,120	23,320	[R]306,660
December	106,578	2,513	106,144	1,127	73,700	-656	22,507	3,859	1,795	1,393	3,059	22,776	345,939
Total	**1,207,901**	**21,091**	**1,272,864**	**14,159**	**804,950**	**-6,495**	**300,045**	**43,284**	**20,773**	**15,976**	**52,958**	**254,254**	**4,014,804**

[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.

R=Revised. 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	112,624	2,217	101,786	344	72,525	-312	25,464	1,202	1,490	1,332	1,458	18,447	339,200
February	91,909	2,079	90,849	299	65,638	-399	24,006	1,183	1,424	1,243	2,201	20,118	R 301,122
March	71,346	1,695	95,849	360	66,149	-384	27,226	1,135	1,491	1,315	2,571	21,920	R 291,262
April	71,419	1,745	91,257	317	62,732	-452	25,735	883	1,501	1,209	2,831	20,781	R 280,548
May	80,935	1,814	102,482	313	66,576	-321	25,355	947	1,585	1,342	3,375	18,832	R 303,879
June	115,197	1,847	123,043	351	67,175	-497	23,125	1,094	1,516	1,251	3,418	16,290	R 354,445
July	135,420	2,186	142,558	346	70,349	-784	21,337	1,242	1,534	1,311	3,886	17,605	R 397,635
August	134,762	2,210	145,610	332	71,526	-902	19,458	1,313	1,557	1,324	3,908	13,579	R 395,328
September	113,347	1,822	117,197	346	65,448	-715	16,279	1,168	1,474	1,327	3,584	16,391	R 338,260
October	98,474	1,450	94,754	234	60,733	-561	17,229	952	1,406	1,353	3,147	20,318	R 300,073
November	86,275	1,737	85,907	351	65,179	-607	18,721	1,066	1,577	1,364	2,729	19,388	R 284,282
December	117,955	1,908	88,088	318	71,662	-753	22,390	1,234	1,628	1,454	2,389	23,122	R 332,044
Total	**1,229,663**	**22,710**	**1,279,380**	**3,912**	**805,694**	**-6,686**	**266,326**	**13,420**	**18,183**	**15,826**	**35,497**	**226,790**	**R 3,918,078**
2017 January	114,703	R 1,961	R 82,914	351	73,121	-435	R 27,707	1,209	1,569	1,399	R 2,128	R 20,732	R 327,977
February	86,179	R 1,493	R 73,522	336	R 63,560	-508	R 24,409	1,143	1,380	1,241	R 2,469	R 22,211	R 277,981
March	R 88,726	R 1,561	R 86,697	R 373	65,093	-521	30,069	1,311	1,464	1,380	R 4,381	R 26,109	R 307,195
April	80,921	1,199	R 78,475	R 300	56,743	-439	R 29,170	1,107	1,392	1,357	R 4,721	R 25,731	R 281,222
May	R 92,224	R 1,655	R 88,942	347	R 61,313	-423	R 32,015	R 1,198	1,455	1,295	R 5,698	R 22,622	R 308,920
June	R 106,998	1,763	R 107,928	R 344	67,011	-568	R 30,275	1,288	1,430	1,265	R 6,174	R 19,694	R 344,188
July	R 127,232	1,618	R 136,039	R 377	71,314	-759	R 25,604	1,391	1,478	1,368	R 5,435	R 15,752	R 387,462
August	R 119,052	1,608	R 131,278	370	72,384	-638	R 21,115	1,358	1,490	1,357	R 5,334	R 13,078	R 368,413
September	R 97,726	1,568	R 109,084	333	R 68,098	-606	R 18,852	R 1,187	1,386	1,325	R 5,103	R 17,253	R 321,859
October	R 89,384	1,444	R 99,152	R 316	65,995	-463	R 17,096	R 1,306	1,412	1,261	R 4,771	R 24,799	R 307,032
November	R 90,490	R 1,495	R 84,628	364	66,618	-478	19,706	1,272	R 1,435	1,334	R 3,085	23,300	R 293,828
December	105,857	2,398	97,506	368	73,700	-656	22,370	1,335	1,495	1,393	3,027	22,757	332,180
Total	**1,199,492**	**19,764**	**1,176,165**	**4,177**	**804,950**	**-6,495**	**298,388**	**15,106**	**17,386**	**15,976**	**52,326**	**254,039**	**3,858,258**

[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.

R=Revised. 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	9	605	212	1,022	793	135	7,653	851	130	2,392	93	12,497
February	45	9	570	192	967	750	121	7,133	763	115	2,217	92	11,597
March	46	4	579	210	1,011	781	102	7,462	837	142	2,266	108	12,117
April	24	6	551	205	961	670	87	7,067	815	128	2,079	106	11,386
May	20	6	607	218	1,019	740	138	7,341	740	119	2,238	106	11,886
June	23	5	692	202	1,089	814	125	7,661	692	99	2,310	76	12,248
July	24	9	831	216	1,263	873	127	8,165	731	104	2,408	90	12,989
August	26	7	859	215	1,298	847	118	8,291	732	92	2,398	89	13,075
September	29	4	700	206	1,114	762	101	7,706	674	65	2,231	76	12,111
October	27	5	617	202	1,021	693	117	7,527	679	88	2,220	86	11,851
November	35	8	521	210	927	630	124	7,514	662	69	2,323	104	11,852
December	42	9	598	208	1,015	750	118	7,678	720	117	2,375	108	12,283
Total	**383**	**82**	**7,730**	**2,496**	**12,706**	**9,103**	**1,412**	**91,197**	**8,895**	**1,269**	**27,458**	**1,134**	**145,890**
2017 January	41	15	648	R 204	1,057	757	98	R 7,885	R 769	123	2,372	R 90	R 12,484
February	32	8	566	185	R 934	662	90	R 6,952	R 855	112	2,254	R 82	R 11,381
March	32	11	638	R 205	R 1,066	669	114	R 7,372	R 885	127	2,349	R 91	R 12,030
April	19	6	R 532	R 194	R 934	593	82	7,171	R 857	124	2,261	R 85	R 11,596
May	19	8	583	R 212	R 1,036	637	111	R 7,252	835	135	2,233	R 76	R 11,689
June	23	7	645	R 198	R 1,075	706	110	R 7,489	R 867	124	2,330	R 68	R 12,127
July	29	8	R 703	R 210	R 1,150	R 699	120	R 7,977	R 884	121	2,524	R 72	R 12,897
August	R 27	10	698	R 211	R 1,137	R 700	106	R 7,634	951	109	2,514	R 75	R 12,590
September	27	9	R 651	R 195	R 1,058	R 652	88	R 6,993	787	98	R 2,214	R 68	R 11,301
October	24	8	R 627	R 200	R 1,039	R 680	82	R 7,087	R 698	102	R 2,258	R 81	R 11,373
November	27	R 8	595	R 202	R 986	634	112	7,362	R 834	120	2,282	R 84	R 11,846
December	36	16	626	210	1,046	685	99	8,013	759	119	2,517	89	12,714
Total	**335**	**114**	**7,512**	**2,427**	**12,518**	**8,074**	**1,213**	**89,188**	**9,982**	**1,413**	**28,108**	**960**	**144,028**

[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.

R=Revised. NA=Not available.

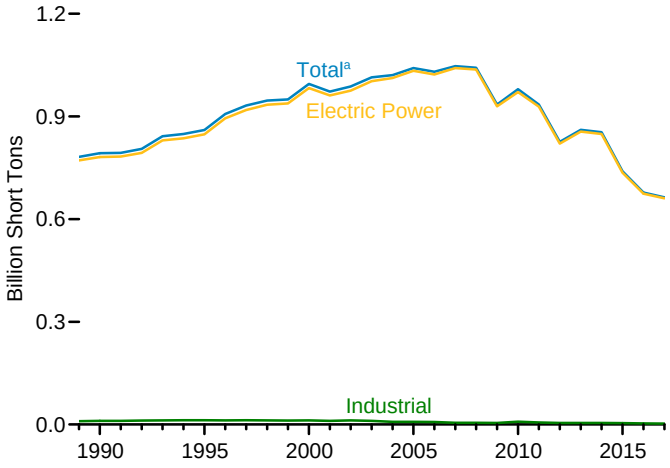
Notes: • Data are for utility-scale facilities. See Note 1, "Coverage of Electricity Statistics," at end of section. • See Note 2, "Classification of Power Plants Into Energy-Use Sectors," at end of section. • Totals may not equal sum of components due to independent rounding. • Geographic coverage is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

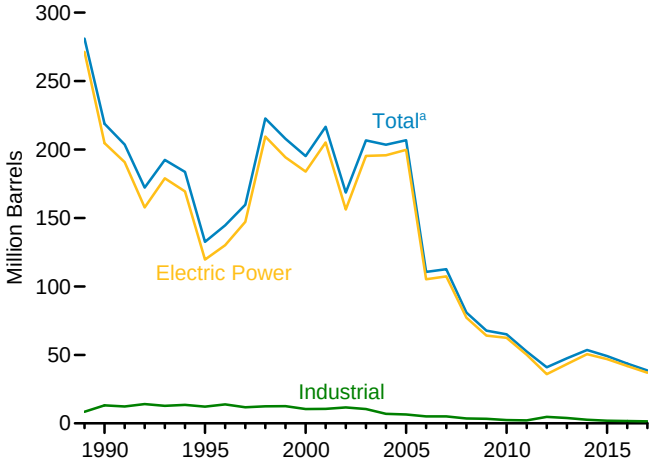
Sources: See end of section.

Figure 7.3 Consumption of Selected Combustible Fuels for Electricity Generation

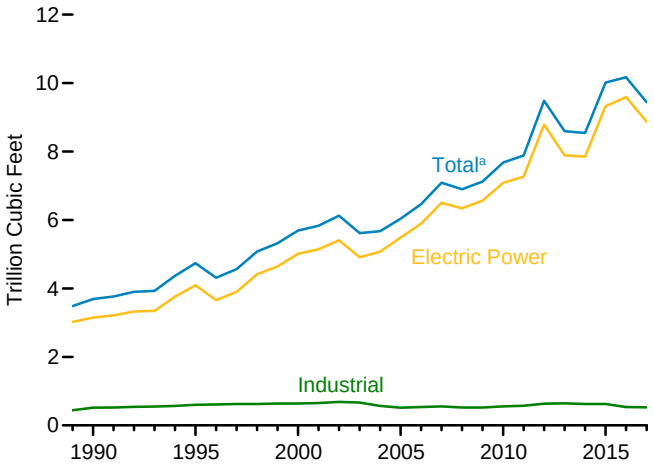
Coal by Sector, 1989–2017



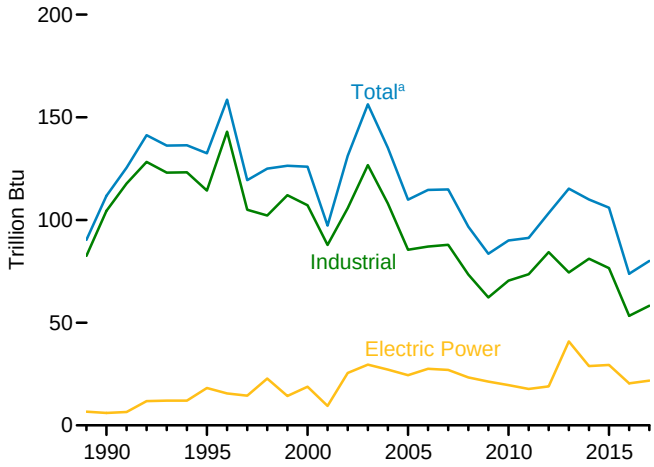
Petroleum by Sector, 1989–2017



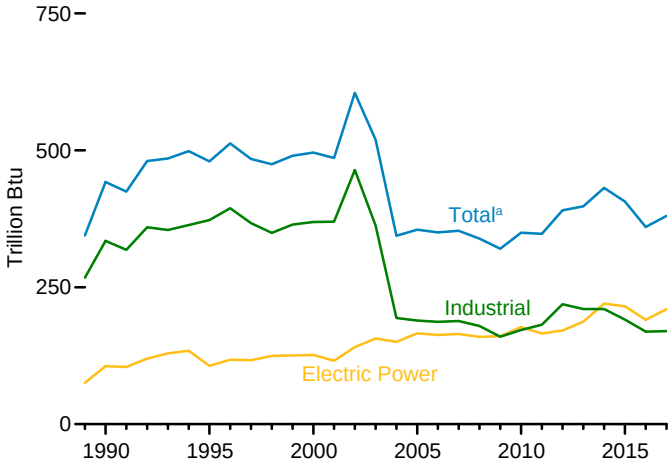
Natural Gas by Sector, 1989–2017



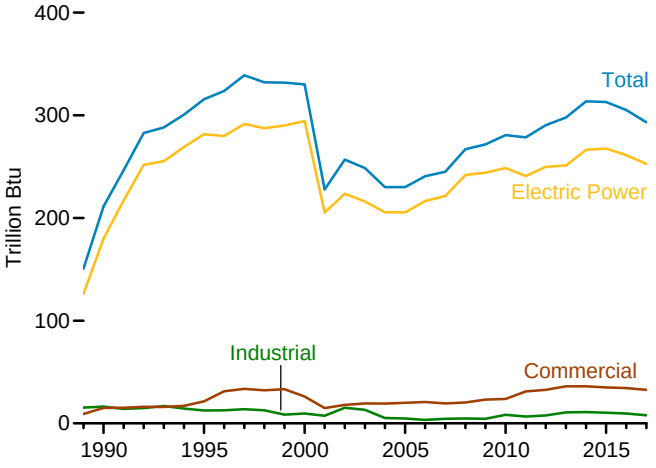
Other Gases[b] by Sector, 1989–2017



Wood by Sector, 1989–2017



Waste by Sector, 1989–2017



[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	61,983	1,258	1,049	165	342	4,179	786	7	32	25	17
February	50,516	920	1,131	178	330	3,877	702	6	31	24	15
March	39,864	698	678	119	362	3,306	758	6	30	25	16
April	39,065	644	687	90	382	3,330	735	6	25	26	16
May	45,032	808	752	102	370	3,514	819	6	27	26	17
June	63,186	707	864	123	380	3,594	986	6	30	25	17
July	74,132	810	1,348	129	400	4,289	1,158	6	32	26	18
August	73,798	769	1,274	187	419	4,325	1,168	6	34	26	18
September	62,335	640	856	124	376	3,500	932	6	31	25	17
October	54,537	636	929	64	250	2,879	761	5	28	24	16
November	48,076	830	734	107	307	3,204	679	6	29	26	16
December	64,847	943	893	159	336	3,672	686	6	32	27	17
Total	**677,371**	**9,662**	**11,195**	**1,548**	**4,253**	**43,671**	**10,170**	**74**	**360**	**305**	**199**
2017 January	R 63,394	959	853	R 165	355	R 3,752	664	6	32	26	15
February	R 47,878	734	735	100	263	R 2,883	R 573	7	30	23	14
March	R 48,700	817	750	107	R 273	R 3,037	R 693	7	33	25	15
April	R 44,216	R 678	735	106	153	2,283	R 640	7	29	23	15
May	R 50,843	R 802	846	105	320	R 3,352	R 723	7	30	24	15
June	R 58,884	676	914	149	341	R 3,444	R 871	7	32	25	16
July	R 69,775	691	814	348	R 332	R 3,515	R 1,092	7	34	25	17
August	R 65,801	666	931	127	R 282	R 3,136	R 1,049	7	34	25	17
September	R 54,702	R 758	827	137	R 262	R 3,033	R 876	6	R 29	24	R 14
October	R 50,129	R 766	853	111	R 221	R 2,833	R 794	6	32	24	14
November	R 50,864	742	R 736	140	267	R 2,951	R 679	7	31	24	15
December	58,292	1,439	1,422	197	280	4,460	785	6	33	25	16
Total	**663,479**	**9,727**	**10,415**	**1,792**	**3,349**	**38,679**	**9,441**	**80**	**380**	**293**	**182**

[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.

R=Revised. 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	61,714	1,232	1,032	148	318	4,001	738	2	17	22	11
February	50,255	895	1,115	162	310	3,722	657	1	17	21	10
March	39,599	682	665	103	345	3,176	711	2	16	21	10
April	38,852	627	674	74	368	3,216	690	2	13	22	10
May	44,777	790	743	65	348	3,336	772	2	13	22	11
June	62,912	691	855	93	360	3,437	937	2	16	22	11
July	73,840	792	1,337	96	380	4,124	1,104	2	17	22	11
August	73,508	749	1,265	168	398	4,172	1,114	2	19	23	11
September	62,072	622	848	99	360	3,368	883	2	17	21	10
October	54,293	617	917	44	232	2,738	714	1	14	20	10
November	47,848	807	723	90	285	3,047	632	2	15	22	10
December	64,570	917	881	142	315	3,517	638	2	17	23	11
Total	**674,239**	**9,421**	**11,056**	**1,284**	**4,018**	**41,853**	**9,590**	**20**	**191**	**261**	**126**
2017 January	R 63,117	928	840	145	341	R 3,618	613	2	17	22	10
February	R 47,633	714	726	79	R 249	R 2,766	R 529	2	16	20	9
March	R 48,456	792	738	90	254	R 2,892	R 646	2	18	22	10
April	R 44,008	658	723	92	139	2,170	R 595	2	15	20	9
May	R 50,619	R 777	836	87	302	R 3,208	R 677	2	17	21	10
June	R 58,650	652	904	131	322	R 3,295	R 823	2	18	21	10
July	R 69,533	663	807	331	310	R 3,350	R 1,041	2	19	22	10
August	R 65,560	R 634	923	110	R 264	R 2,985	R 1,001	2	19	22	11
September	R 54,469	R 727	821	121	R 246	R 2,899	R 832	2	16	20	9
October	R 49,889	742	843	92	R 205	R 2,704	R 749	2	18	21	10
November	R 50,628	719	R 721	123	247	R 2,800	R 632	2	17	20	10
December	58,036	1,409	1,401	179	266	4,319	734	2	18	21	10
Total	**660,600**	**9,416**	**10,280**	**1,579**	**3,146**	**37,005**	**8,871**	**22**	**210**	**253**	**119**

[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.

R=Revised. 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	12	14	3	3	258	164	44	5	14	1	4
February	13	13	3	3	248	142	42	5	14	1	4
March	13	6	3	3	252	124	44	5	14	1	4
April	7	8	3	3	206	106	42	5	13	1	4
May	6	8	4	3	249	170	43	5	14	1	5
June	7	7	4	3	266	151	45	4	14	1	5
July	7	11	5	3	285	154	48	4	15	1	5
August	8	10	5	3	282	143	49	4	15	1	5
September	8	7	4	3	254	125	45	4	14	1	5
October	8	7	4	3	237	135	43	4	14	1	4
November	10	11	3	3	218	146	44	4	14	1	4
December	12	13	4	3	266	142	45	4	15	1	4
Total	**111**	**116**	**46**	**34**	**3,021**	**1,701**	**534**	**53**	**169**	**10**	**53**
2017 January	12	22	4	3	265	111	47	5	14	1	3
February	10	14	3	3	235	104	41	5	14	1	3
March	9	17	4	3	235	128	43	5	14	1	4
April	5	11	3	3	202	102	43	5	14	1	4
May	6	[R] 16	3	3	219	128	43	5	14	1	4
June	7	15	4	3	226	134	44	5	14	1	4
July	8	18	4	3	[R] 234	148	47	5	15	1	4
August	8	22	4	3	[R] 233	129	45	5	15	1	4
September	8	17	4	3	[R] 225	118	41	4	13	1	[R] 3
October	7	16	4	3	[R] 233	[R] 113	41	4	14	1	3
November	7	16	4	3	229	135	43	5	14	1	4
December	10	24	4	3	246	117	47	5	15	1	4
Total	**96**	**206**	**45**	**33**	**2,783**	**1,467**	**525**	**58**	**170**	**8**	**44**

[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).

R=Revised.

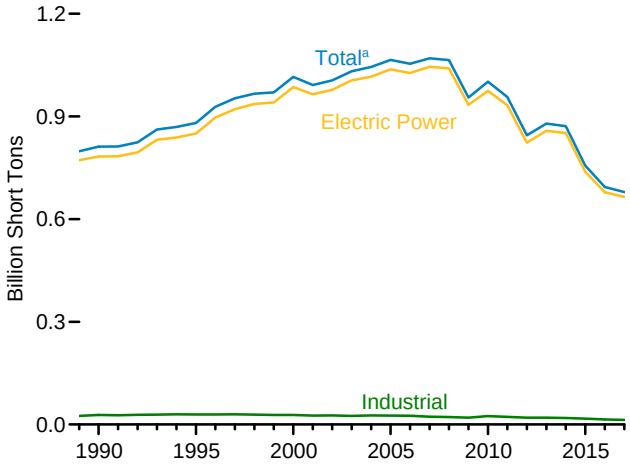
Notes: • Data are for utility-scale facilities. See Note 1, "Coverage of Electricity Statistics," at end of section. • See Note 2, "Classification of Power Plants Into Energy-Use Sectors," at end of section. • Data are for fuels consumed to produce electricity. Through 1988, data are not available. • 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.

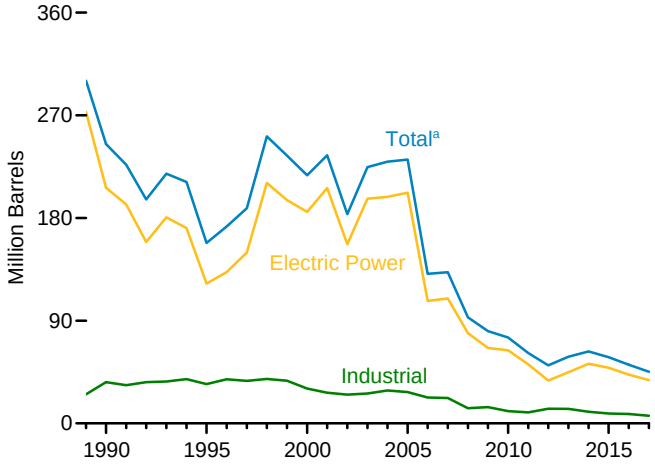
Sources: • **1989–1997:** U.S. Energy Information Administration (EIA), Form EIA-867, "Annual Nonutility Power Producer Report." • **1998–2000:** EIA, Form EIA-860B, "Annual Electric Generator Report—Nonutility." • **2001–2003:** EIA, Form EIA-906, "Power Plant Report." • **2004–2007:** EIA, Form EIA-906, "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

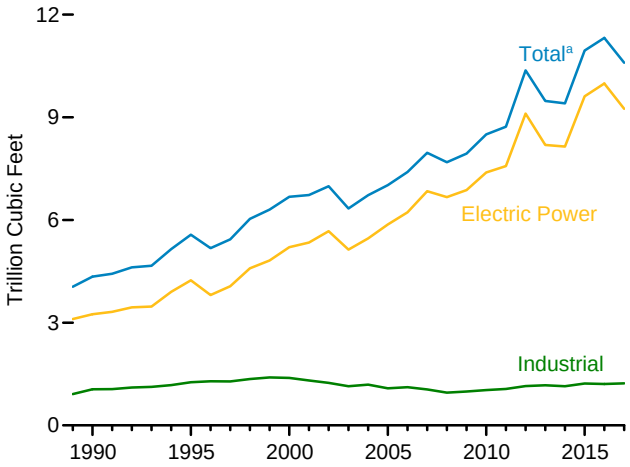
Coal by Sector, 1989–2017



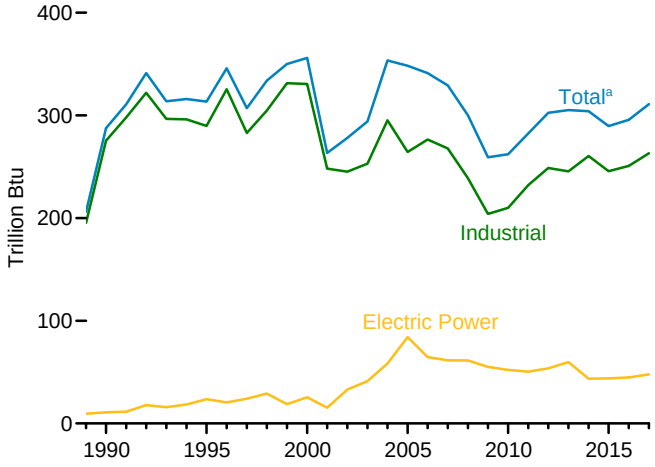
Petroleum by Sector, 1989–2017



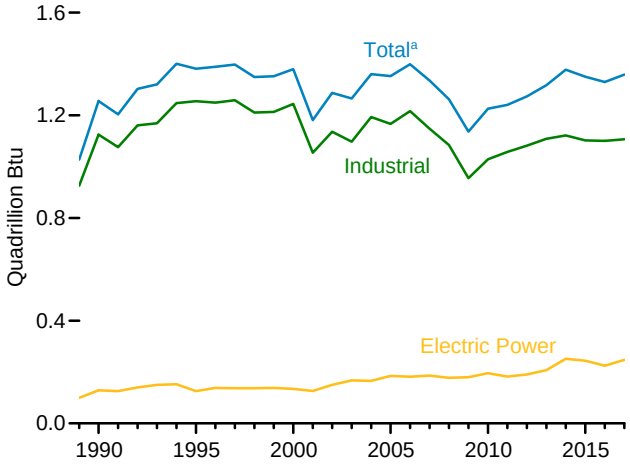
Natural Gas by Sector, 1989–2017



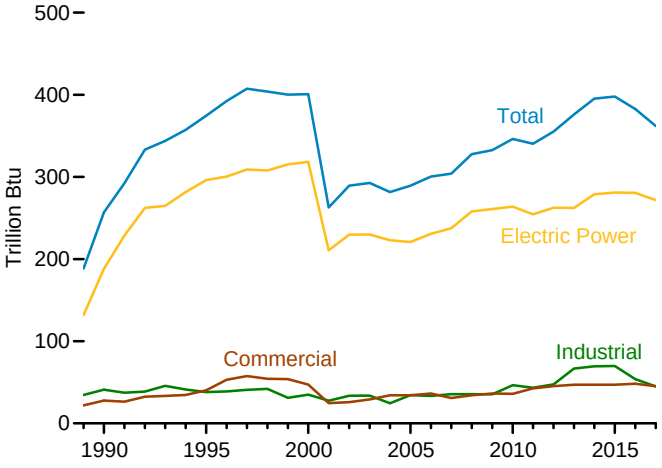
Other Gases[b] by Sector, 1989–2017



Wood by Sector, 1989–2017



Waste by Sector, 1989–2017



[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	63,607	1,303	1,185	215	427	4,840	888	25	116	32	20
February	52,019	1,045	1,263	238	425	4,669	794	23	110	31	18
March	41,297	736	762	175	447	3,910	854	26	110	33	19
April	40,280	681	783	131	455	3,871	823	25	100	33	20
May	46,297	876	818	166	466	4,190	912	25	105	33	20
June	64,539	768	928	179	480	4,274	1,082	25	109	30	20
July	75,604	860	1,426	186	502	4,981	1,260	25	113	31	21
August	75,232	803	1,350	230	520	4,983	1,273	25	115	32	22
September	63,592	674	915	174	451	4,016	1,027	24	106	29	20
October	55,798	674	1,017	112	342	3,514	853	23	104	31	19
November	49,331	877	808	153	406	3,867	769	24	110	33	19
December	66,362	982	977	214	431	4,327	785	26	132	34	20
Total	**693,958**	**10,278**	**12,231**	**2,173**	**5,352**	**51,441**	**11,322**	**296**	**1,330**	**383**	**238**
2017 January	R 64,904	1,009	949	R 225	R 428	R 4,326	R 765	26	117	34	19
February	49,106	762	799	144	R 325	R 3,332	R 665	25	109	30	17
March	R 50,057	849	819	143	R 358	R 3,600	R 792	27	114	32	18
April	R 45,432	705	805	146	R 222	R 2,768	R 731	24	107	R 30	17
May	R 52,064	R 837	R 919	R 153	R 396	R 3,891	R 814	26	109	29	18
June	R 60,092	R 703	994	189	433	R 4,049	R 964	26	113	29	18
July	R 71,001	R 718	871	389	412	R 4,035	R 1,192	27	118	30	19
August	R 67,048	R 696	998	167	R 367	R 3,695	R 1,147	27	120	30	20
September	R 55,857	R 787	885	170	R 337	R 3,526	R 970	25	107	27	17
October	R 51,406	798	923	155	R 302	R 3,387	R 889	25	R 111	30	17
November	R 52,184	790	R 829	175	338	R 3,485	R 774	26	112	31	17
December	59,631	1,572	1,569	253	348	5,135	892	26	121	32	19
Total	**678,780**	**10,227**	**11,362**	**2,310**	**4,266**	**45,228**	**10,597**	**311**	**1,359**	**362**	**216**

[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.

R=Revised. 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	62,135	1,240	1,058	149	329	4,093	774	4	21	23	12
February	50,661	910	1,143	176	321	3,832	690	3	20	22	11
March	39,948	691	680	111	357	3,265	745	4	19	24	11
April	39,159	631	688	75	376	3,272	719	3	15	24	11
May	45,082	796	757	65	354	3,391	804	3	16	24	12
June	63,250	697	866	94	368	3,499	970	4	18	23	12
July	74,237	797	1,345	97	389	4,186	1,140	4	20	24	12
August	73,890	754	1,277	169	408	4,241	1,151	4	21	24	12
September	62,385	627	859	100	370	3,436	915	4	19	22	11
October	54,621	623	932	45	244	2,818	744	3	16	22	11
November	48,179	813	735	92	295	3,116	662	4	18	24	11
December	65,006	930	901	151	326	3,614	671	4	21	25	12
Total	**678,554**	**9,510**	**11,242**	**1,322**	**4,138**	**42,763**	**9,985**	**45**	**224**	**281**	**139**
2017 January	R 63,548	939	864	160	351	R 3,718	R 647	4	21	24	11
February	47,965	719	741	84	R 259	R 2,842	R 559	4	19	22	10
March	R 48,826	798	745	91	265	R 2,961	R 679	4	22	24	11
April	R 44,324	662	731	93	R 149	2,234	R 624	4	18	21	10
May	R 50,926	R 783	846	88	313	3,280	R 706	4	20	22	11
June	R 58,952	658	914	134	332	R 3,366	R 854	4	21	23	11
July	R 69,900	668	818	332	R 320	R 3,421	R 1,074	4	22	23	12
August	R 65,934	R 639	932	111	R 275	R 3,057	R 1,034	4	22	23	12
September	R 54,780	R 734	831	122	256	R 2,968	R 862	4	19	21	10
October	R 50,214	749	857	93	R 216	R 2,778	R 780	4	21	22	10
November	R 50,992	727	R 738	124	258	R 2,877	R 663	4	20	22	10
December	58,388	1,440	1,428	189	277	4,444	768	4	21	23	11
Total	**664,749**	**9,519**	**10,446**	**1,621**	**3,272**	**37,947**	**9,250**	**48**	**247**	**272**	**130**

[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.

R=Revised. 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	75	68	11	4	1,397	679	103	22	95	5	6
February	75	49	10	4	1,282	788	95	20	89	5	5
March	74	21	10	4	1,275	624	99	22	90	6	5
April	46	26	9	4	1,076	573	95	22	85	5	6
May	37	22	10	4	1,178	776	98	22	89	5	6
June	46	21	11	4	1,243	754	101	21	91	3	6
July	46	45	13	4	1,321	749	107	21	92	3	6
August	49	28	14	4	1,292	714	108	21	93	4	7
September	50	16	11	4	1,157	564	101	20	86	3	6
October	50	16	10	4	1,126	680	99	20	88	5	6
November	60	47	9	4	1,093	704	99	20	91	5	6
December	75	46	10	4	1,280	667	104	22	111	5	5
Total	**683**	**404**	**127**	**48**	**14,720**	**8,273**	**1,209**	**251**	**1,100**	**54**	**70**
2017 January	66	71	R 12	4	R 1,290	537	R 107	22	96	5	5
February	54	48	10	4	1,087	R 442	97	21	89	5	4
March	58	56	10	4	1,172	R 583	103	23	92	5	5
April	40	29	9	4	1,068	R 504	98	R 21	88	4	5
May	40	40	9	4	1,098	R 571	99	22	89	3	5
June	46	32	10	4	1,094	R 650	100	22	91	2	5
July	53	36	11	4	1,047	R 579	107	23	96	2	6
August	49	51	11	4	1,065	R 587	103	23	98	3	6
September	47	41	10	R 4	1,030	R 517	98	R 22	87	2	5
October	43	39	10	4	1,149	R 570	R 100	21	90	4	4
November	50	43	10	4	1,142	R 565	102	21	92	5	5
December	62	84	11	4	1,181	608	113	22	99	5	5
Total	**607**	**569**	**121**	**45**	**13,424**	**6,712**	**1,226**	**263**	**1,107**	**45**	**58**

[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).

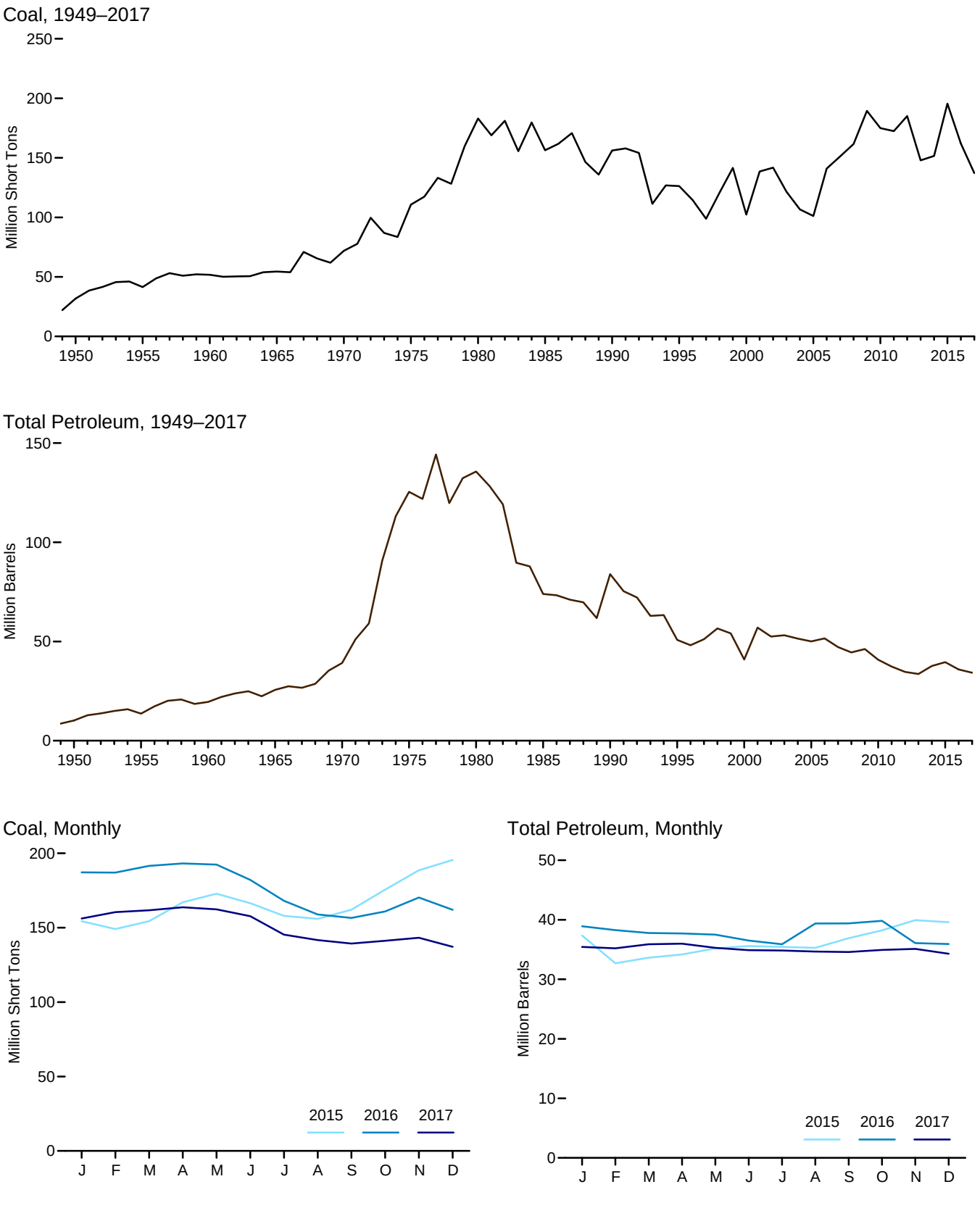
R=Revised.

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



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	187,203	17,930	12,020	2,357	1,320	38,907
February	187,064	17,662	11,645	2,337	1,323	38,262
March	191,553	17,501	11,733	2,335	1,240	37,768
April	193,185	17,637	11,982	2,169	1,181	37,693
May	192,417	17,856	12,094	2,189	1,071	37,495
June	182,086	17,859	11,936	2,197	905	36,519
July	168,119	17,726	11,696	2,183	858	35,897
August	158,908	21,736	11,595	2,150	780	39,381
September	156,567	21,770	11,640	2,145	768	39,394
October	160,932	21,940	11,630	2,184	813	39,817
November	170,277	17,819	11,939	2,162	833	36,085
December	**162,009**	**17,750**	**11,786**	**2,165**	**845**	**35,926**
2017 January	156,175	17,496	11,847	2,125	794	35,440
February	R 160,448	17,287	11,710	2,097	R 822	R 35,204
March	R 161,690	17,006	12,542	2,075	855	35,897
April	R 163,723	16,948	12,306	2,071	933	35,991
May	R 162,309	R 16,817	12,036	2,027	881	R 35,287
June	R 157,719	R 16,644	R 11,890	R 2,016	R 868	R 34,887
July	R 145,376	R 16,804	R 11,691	R 1,975	875	R 34,845
August	R 141,720	R 16,644	R 11,500	1,928	R 919	R 34,667
September	R 139,315	R 16,354	R 11,379	1,914	R 988	R 34,588
October	R 141,204	R 16,378	R 11,325	R 1,943	R 1,058	R 34,934
November	R 143,210	R 16,388	R 11,377	R 1,906	R 1,089	R 35,117
December	**137,155**	**15,833**	**10,992**	**1,898**	**1,113**	**34,288**

[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.

R=Revised. NA=Not available.

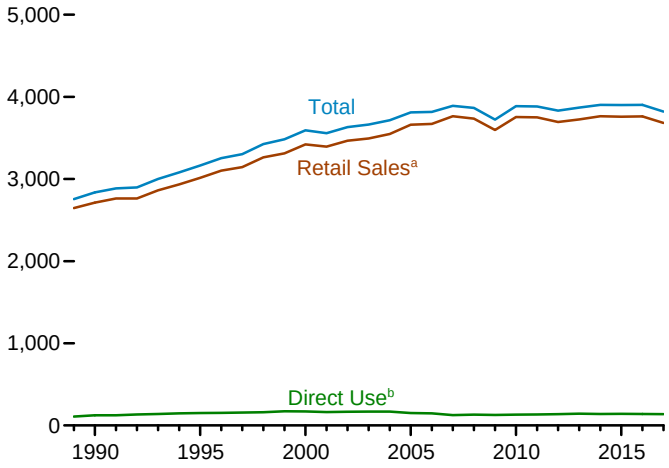
Notes: • Data are for utility-scale facilities. See Note 1, "Coverage of Electricity Statistics," at end of section. • The electric power sector comprises electricity-only and combined-heat-and-power (CHP) plants within the NAICS 22 category whose primary business is to sell electricity, or electricity 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.

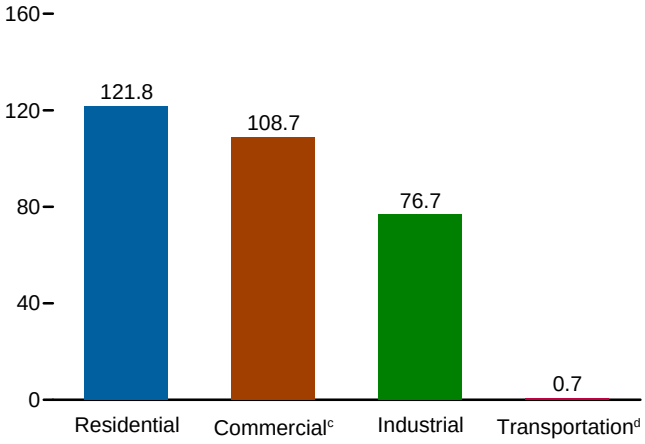
Sources: • **1949–September 1977:** Federal Power Commission, Form FPC-4, "Monthly Power Plant Report." • **October 1977–1981:** Federal Energy Regulatory Commission, Form FPC-4, "Monthly Power Plant Report." • **1982–1988:** U.S. Energy Information Administration (EIA), Form EIA-759, "Monthly Power 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)

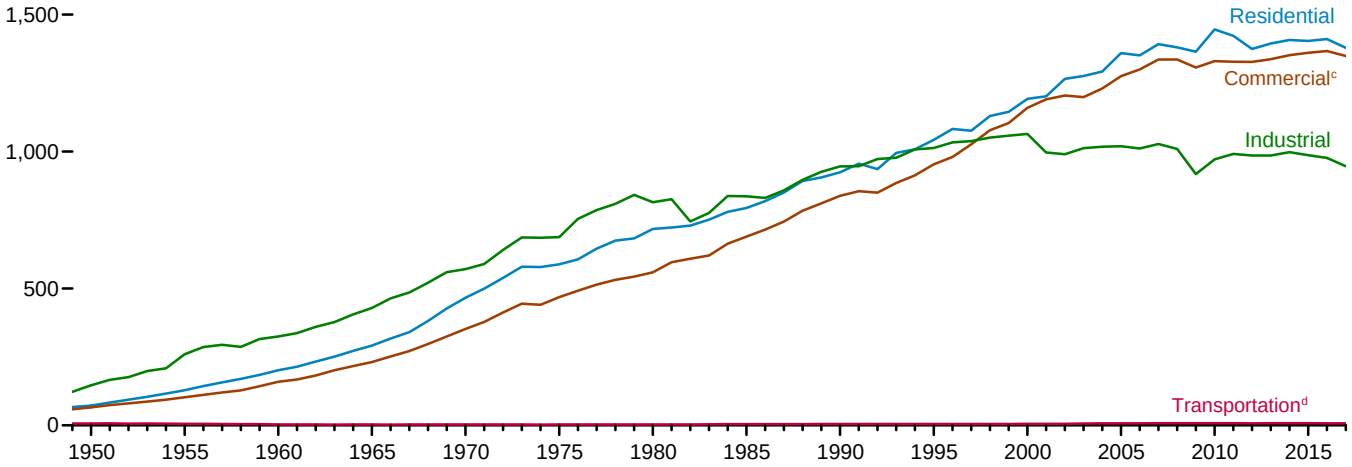
Electricity End Use Overview, 1989–2017



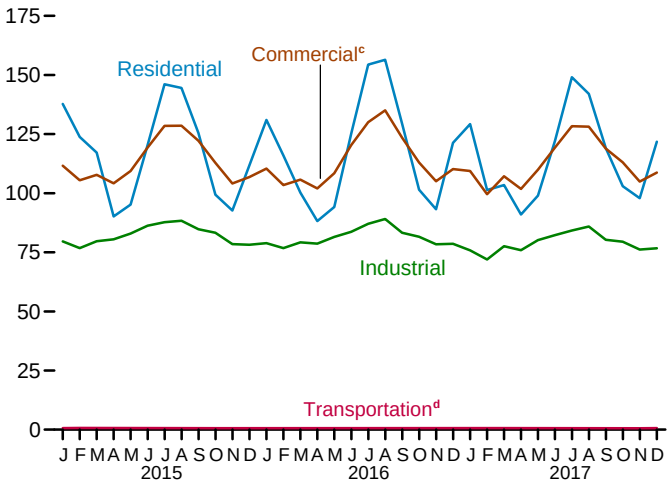
Retail Sales[a] by Sector, December 2017



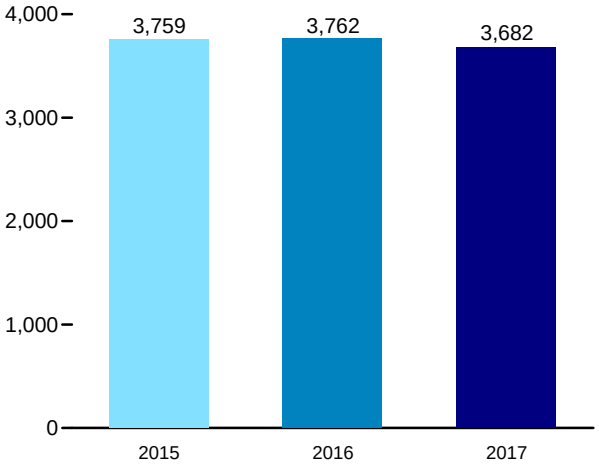
Retail Sales[a] by Sector, 1949–2017



Retail Sales[a] by Sector, Monthly



Retail Sales[a] Total, January–December



[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	130,972	110,410	78,848	660	320,890	RE 11,921	R 332,811
February	115,959	103,452	76,748	646	296,806	RE 11,078	R 307,884
March	100,227	105,739	79,237	609	285,812	RE 11,576	R 297,388
April	88,244	102,045	78,647	595	269,531	RE 10,886	R 280,418
May	94,198	108,437	81,491	581	284,708	RE 11,379	R 296,087
June	125,211	120,363	83,672	631	329,878	RE 11,759	R 341,637
July	154,409	130,038	87,076	648	372,172	RE 12,567	R 384,739
August	156,442	135,019	89,101	631	381,192	RE 12,673	R 393,865
September	129,363	123,493	83,259	637	336,752	RE 11,661	R 348,413
October	101,508	112,963	81,597	613	296,681	RE 11,350	R 308,031
November	93,244	105,060	78,421	592	277,317	RE 11,268	R 288,585
December	121,281	110,172	78,616	653	310,722	RE 11,726	R 322,448
Total	**1,411,058**	**1,367,191**	**976,715**	**7,497**	**3,762,462**	**R 139,844**	**R 3,902,306**
2017 January	R 129,253	R 109,414	R 75,814	666	R 315,148	RE 11,940	R 327,088
February	R 101,349	R 99,607	R 71,958	636	R 273,550	RE 10,859	R 284,410
March	R 103,434	R 107,171	R 77,587	644	R 288,836	RE 11,547	R 300,383
April	R 90,966	R 101,796	R 75,917	590	R 269,269	RE 11,049	R 280,318
May	R 98,977	R 109,912	R 80,147	583	R 289,619	RE 11,221	R 300,839
June	R 122,034	R 119,289	R 82,224	629	R 324,176	RE 11,641	R 335,817
July	R 149,075	R 128,324	R 84,240	630	R 362,268	RE 12,387	R 374,655
August	R 142,026	R 128,144	R 85,905	641	R 356,716	RE 12,104	R 368,820
September	R 119,077	R 118,836	R 80,260	619	R 318,793	RE 10,898	R 329,691
October	R 102,983	R 113,036	R 79,471	626	R 296,116	RE 10,944	R 307,060
November	R 97,870	R 104,959	R 76,195	598	R 279,622	RE 11,315	R 290,937
December	121,775	108,720	76,724	663	307,882	E 12,133	320,014
Total	**1,378,819**	**1,349,208**	**946,443**	**7,524**	**3,681,995**	**E 138,037**	**R 3,820,032**

[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."

R=Revised. 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 February 27, 2018.

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 February 27, 2018.

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 February 27, 2018.

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 February 27, 2018.

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 February 27, 2018.

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*), February 2018, 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, February 2018, 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, February 2018, 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."

2001–2016: EIA, *Electric Power Annual 2016*, December 2017, Table 2.2.

2017: Sum of monthly estimates.

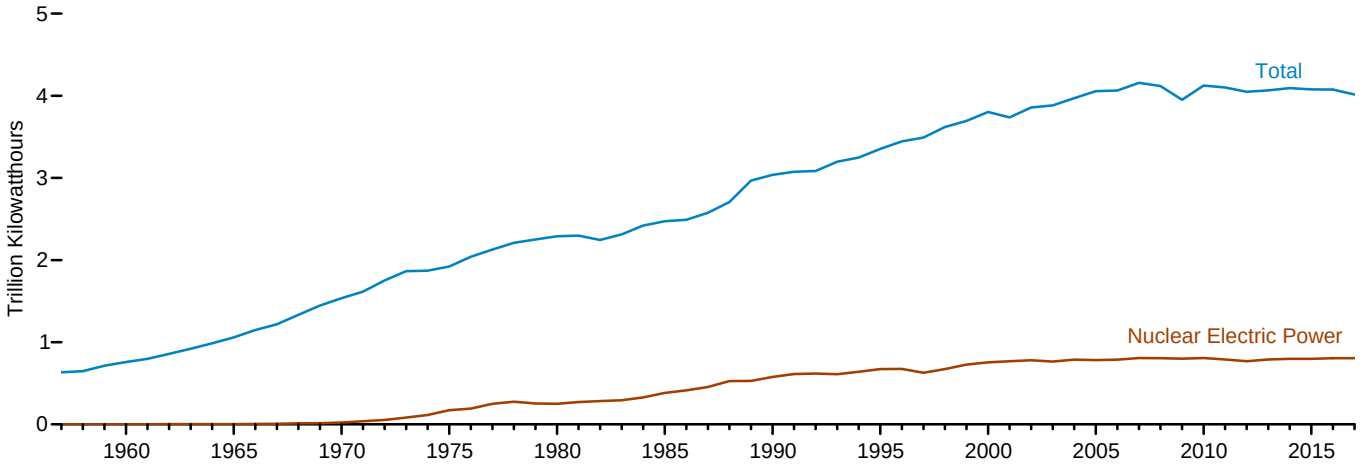
Direct Use, Monthly

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 2017, the 2016 annual share is used.

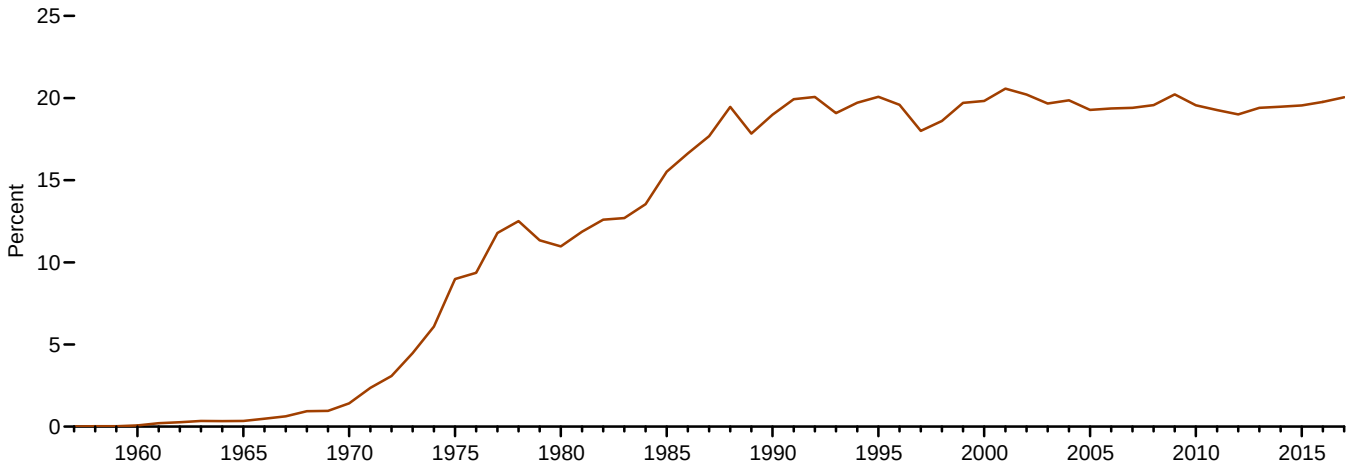
8. Nuclear Energy

Figure 8.1 Nuclear Energy Overview

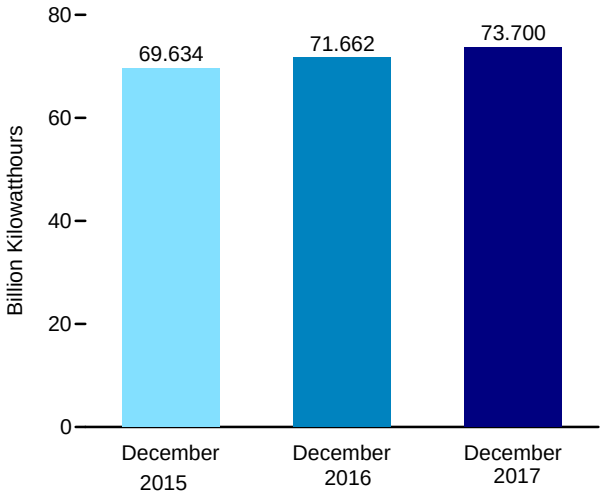
Electricity Net Generation, 1957–2017



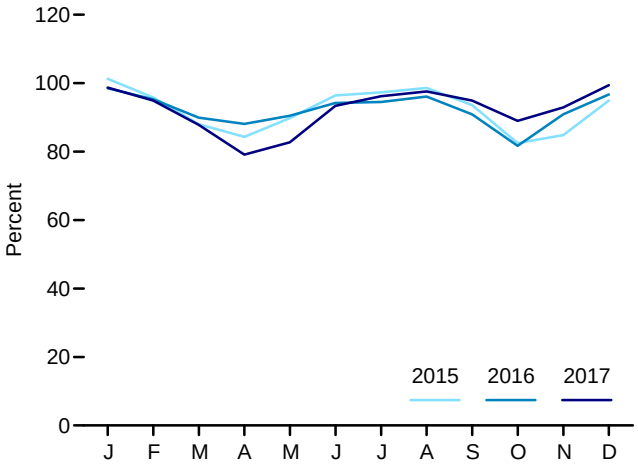
Nuclear Share of Electricity Net Generation, 1957–2017



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	98.921	72,525	20.6	98.5
February	99	98.921	65,638	20.9	95.3
March	99	98.921	66,149	21.7	89.9
April	99	98.921	62,732	21.4	88.1
May	99	98.921	66,576	21.0	90.5
June	99	100.043	67,175	18.3	94.2
July	100	100.043	70,349	17.1	94.5
August	100	100.043	71,526	17.5	96.1
September	100	100.043	65,448	18.6	90.9
October	99	99.565	60,733	19.4	81.7
November	99	99.565	65,179	21.9	90.9
December	99	99.565	71,662	20.8	96.7
Total	**99**	**99.565**	**805,694**	**19.8**	**92.3**
2017 January	99	[RE] 99.616	73,121	21.4	[E] 98.7
February	99	[RE] 99.616	[R] 63,560	[R] 21.9	[RE] 94.9
March	99	[RE] 99.616	65,093	20.3	[RE] 87.8
April	99	[RE] 99.616	56,743	19.3	[RE] 79.1
May	99	[RE] 99.616	[R] 61,313	19.1	[RE] 82.7
June	99	[RE] 99.616	67,011	18.8	[RE] 93.4
July	99	[RE] 99.635	71,314	17.8	[RE] 96.2
August	99	[RE] 99.635	72,384	18.9	[RE] 97.6
September	99	[RE] 99.635	[R] 68,098	20.4	[E] 94.9
October	99	[RE] 99.635	65,995	20.7	[RE] 89.0
November	99	[RE] 99.635	66,618	21.7	[E] 92.9
December	**99**	[E] 99.635	73,700	21.3	[E] 99.4
Total	**99**	[E] **99.635**	**804,950**	**20.0**	[E] **92.2**

[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.

R=Revised. 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)
2017		

[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.

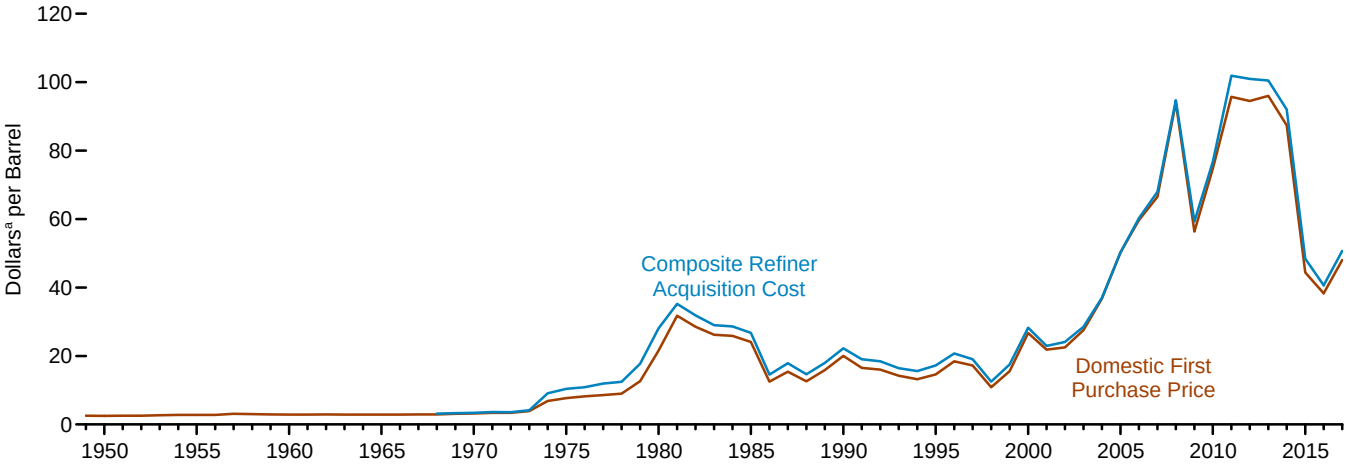
Nuclear Electricity Net Generation and **Nuclear Share of Electricity Net Generation**
1957 forward: Table 7.2a.

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."

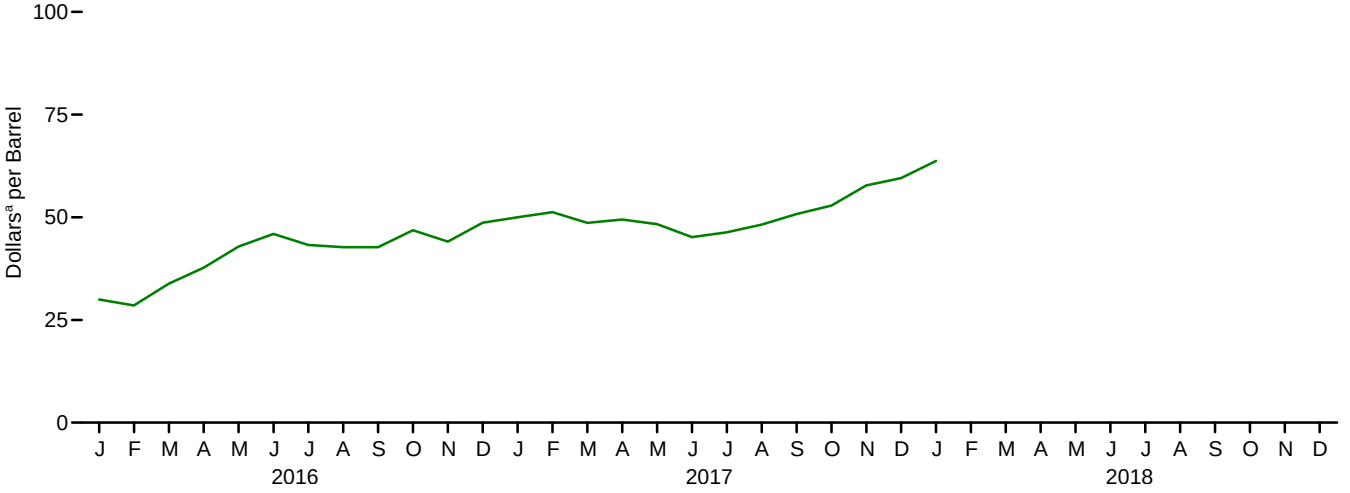
9. Energy Prices

Figure 9.1 Petroleum Prices

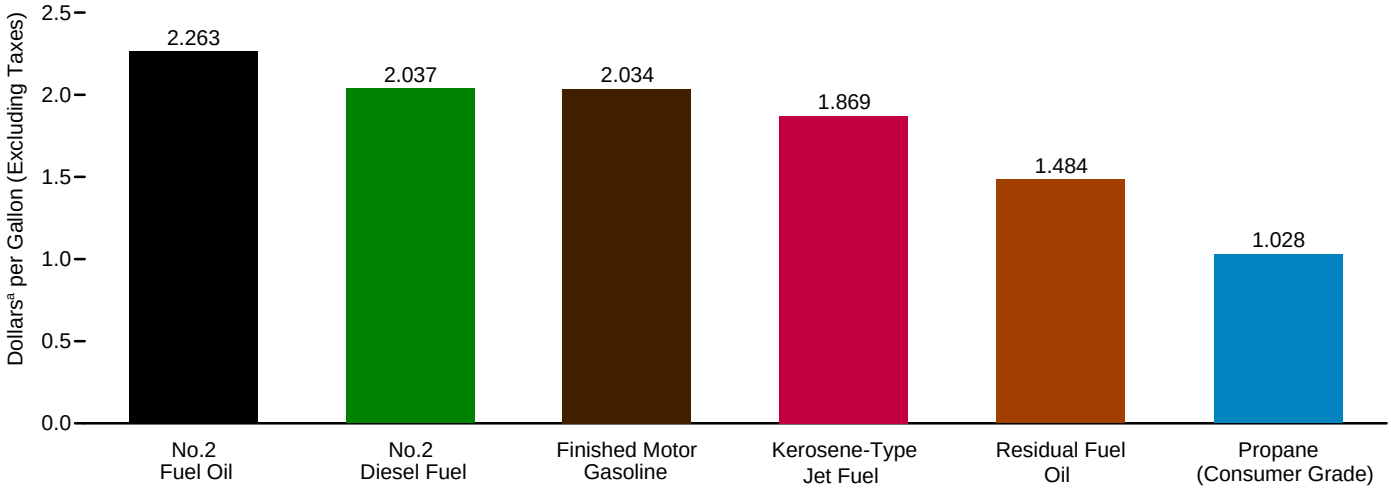
Crude Oil Prices, 1949–2017



Composite Refiner Acquisition Cost, Monthly



Refiner Prices to End Users: Selected Products, December 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	41.35	43.82	46.17	43.93	45.17
July	43.42	42.09	44.70	47.44	45.02	46.32
August	44.96	44.18	46.92	48.71	47.61	48.19
September	47.17	46.47	49.74	51.14	50.37	50.79
October	49.13	47.22	R 50.93	53.69	51.80	52.86
November	R 55.19	R 51.94	R 55.67	R 58.85	R 56.36	R 57.75
December	R 56.98	R 53.60	R 56.13	R 60.97	R 57.56	R 59.53
Average	**48.05**	**45.40**	**48.19**	**52.01**	**49.14**	**50.68**
2018 January	NA	NA	NA	E 65.71	E 61.40	E 63.72

[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									
	Angola	Colombia	Mexico	Nigeria	Saudi Arabia	United Kingdom	Venezuela	Persian Gulf Nations[b]	Total OPEC[c]	Total Non-OPEC[c]
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	45.41	–	39.16	44.41	43.52	40.28
July	W	44.44	44.33	50.26	46.94	–	41.72	45.95	45.40	40.39
August	W	47.16	46.33	52.18	49.33	–	45.41	48.06	48.32	41.38
September	–	W	48.06	W	53.41	–	49.22	51.74	52.36	43.18
October	–	52.69	49.01	58.58	55.44	–	52.51	50.92	53.93	44.21
November	–	W	R 54.66	W	R 59.64	W	R 55.88	R 58.72	R 58.77	R 48.53
December	–	W	55.27	W	61.64	–	58.27	59.83	60.57	50.59
Average	**W**	**48.34**	**46.53**	**54.14**	**50.90**	**W**	**45.42**	**49.86**	**49.17**	**43.25**

[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	50.74	41.75	44.89	42.36	50.36	47.88	W	40.88	46.76	45.71	42.67
July	50.20	41.59	46.72	45.17	50.89	47.79	–	42.25	46.99	46.65	43.38
August	52.23	43.17	48.56	46.86	53.18	51.19	W	46.16	49.55	49.48	45.44
September	56.59	45.14	52.43	49.63	57.99	55.03	W	50.98	52.93	53.53	47.28
October	W	45.68	53.95	50.28	59.35	R 58.18	W	R 53.05	R 54.40	R 55.36	R 48.24
November	61.03	R 51.22	R 59.52	R 55.47	R 64.15	R 60.56	R 62.24	R 56.99	R 58.50	R 59.19	R 53.56
December	W	51.43	60.23	56.01	66.33	62.20	–	59.34	60.25	61.09	53.89
Average	**54.17**	**44.89**	**50.21**	**47.56**	**55.81**	**51.94**	**56.11**	**46.80**	**50.78**	**50.72**	**46.54**

[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,* March 2018, 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
November	– –	2.548	3.056	2.608	2.474	2.751	2.564	2.909
December	– –	2.459	2.985	2.521	2.388	2.663	2.477	2.909
Average	**– –**	**2.408**	**2.911**	**2.469**	**2.333**	**2.586**	**2.415**	**2.650**
2018 January	– –	2.539	3.042	2.596	2.467	2.738	2.555	3.018
February	– –	2.575	3.091	2.632	2.488	2.795	2.587	3.046

[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
September	1.150	W	1.137	1.295	1.138	1.314
October	1.153	W	1.178	1.249	1.176	1.304
November	1.302	W	1.277	1.384	1.279	1.413
December	1.254	W	1.249	1.447	1.249	1.484

[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,* March 2018, 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	1.621	2.608	1.436	1.468	1.392	1.533	.634
August	1.711	2.710	1.587	1.630	1.522	1.681	.742
September	1.826	2.893	1.771	1.809	1.668	1.847	.864
October	1.730	2.716	1.704	1.805	1.695	1.852	.942
November	1.806	2.841	[R] 1.795	[R] 1.961	1.781	1.936	.997
December	1.720	2.691	1.847	2.034	1.842	1.917	.991

[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,* March 2018, 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	1.952	W	1.613	2.579	1.904	1.792	.768
September	2.154	W	1.795	2.703	2.044	1.959	.895
October	2.042	W	1.743	W	2.048	1.982	.972
November	2.122	W	[R] 1.831	W	2.134	2.047	1.011
December	2.034	W	1.869	W	2.263	2.037	1.028

[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. 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.

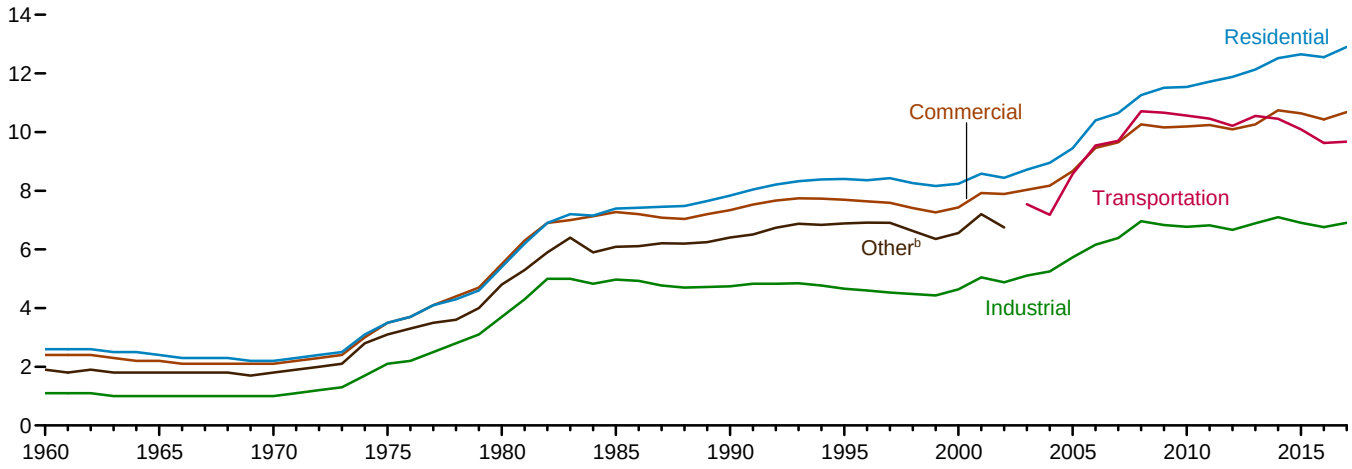
Web Page: See http://www.eia.gov/totalenergy/data/monthly/#prices (Excel and CSV files) for all available annual data beginning in 1978 and monthly data beginning in 1982.

Sources: • **1978–2007:** EIA, *Petroleum Marketing Annual 2007,* Table 2. • **2008 forward:** EIA, *Petroleum Marketing Monthly,* March 2018, Table 2.

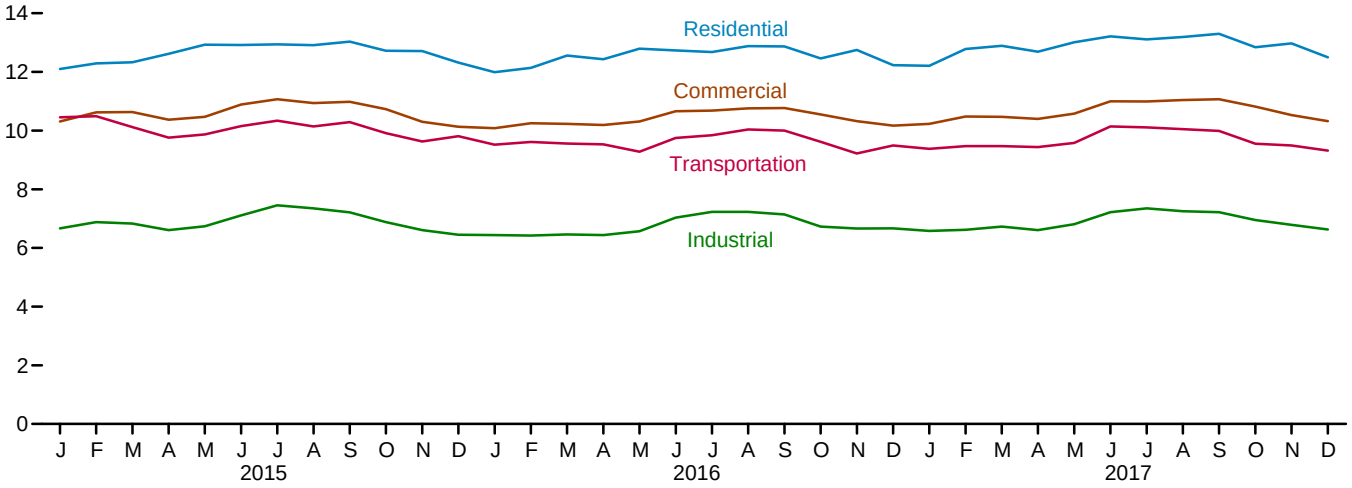
Figure 9.2 Average Retail Prices of Electricity

(Cents[a] per Kilowatthour)

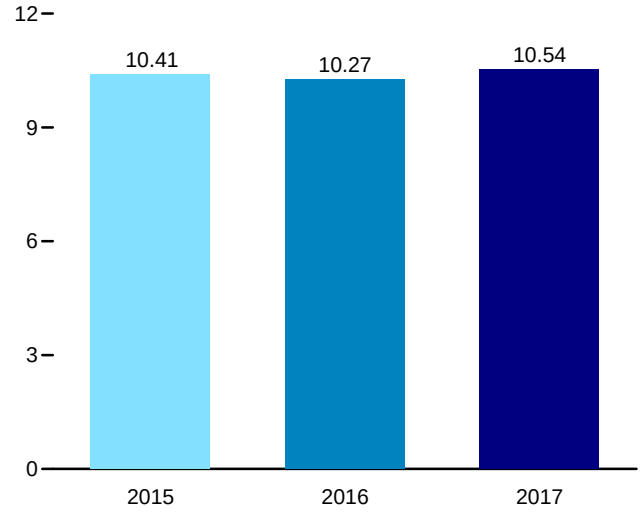
By Sector, 1960–2017



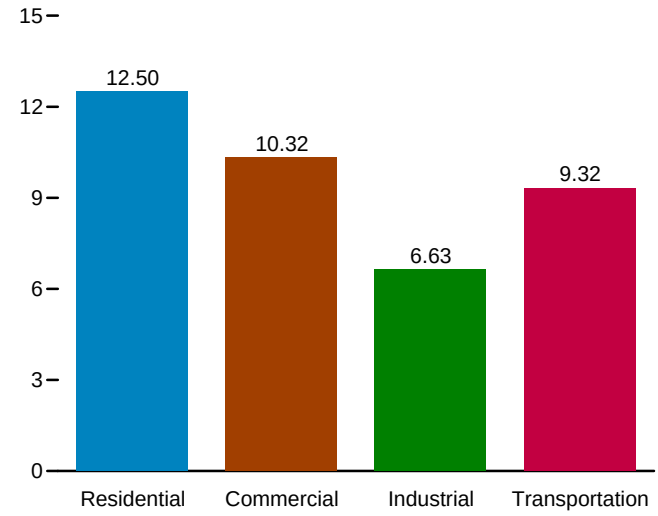
By Sector, Monthly



Total, January–December



By Sector, December 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	11.99	10.08	6.44	9.52	– –	9.97
February	12.14	10.25	6.42	9.61	– –	10.00
March	12.56	10.23	6.46	9.56	– –	10.00
April	12.43	10.19	6.44	9.53	– –	9.83
May	12.79	10.31	6.57	9.28	– –	10.06
June	12.73	10.66	7.03	9.75	– –	10.52
July	12.68	10.68	7.23	9.84	– –	10.70
August	12.88	10.76	7.23	10.04	– –	10.81
September	12.87	10.77	7.14	10.00	– –	10.68
October	12.46	10.55	6.73	9.62	– –	10.15
November	12.75	10.32	6.66	9.22	– –	10.10
December	12.23	10.17	6.67	9.49	– –	10.09
Average	**12.55**	**10.43**	**6.76**	**9.63**	**– –**	**10.27**
2017 January	R 12.21	10.23	6.58	9.38	– –	10.16
February	12.78	10.48	6.62	9.47	– –	10.31
March	R 12.89	10.47	6.73	9.47	– –	10.33
April	12.69	10.40	6.61	9.44	– –	10.10
May	R 13.01	R 10.58	6.81	9.58	– –	10.37
June	R 13.21	R 11.00	R 7.22	10.14	– –	10.87
July	R 13.11	R 10.99	R 7.35	R 10.11	– –	11.02
August	13.19	11.04	R 7.25	R 10.05	– –	10.98
September	13.30	R 11.07	R 7.22	R 9.99	– –	10.93
October	12.84	10.82	6.95	R 9.55	– –	10.48
November	R 12.97	R 10.53	6.79	9.49	– –	R 10.36
December	12.50	10.32	6.63	9.32	– –	10.26
Average	**12.90**	**10.68**	**6.91**	**9.67**	**– –**	**10.54**

[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.

R=Revised. 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.

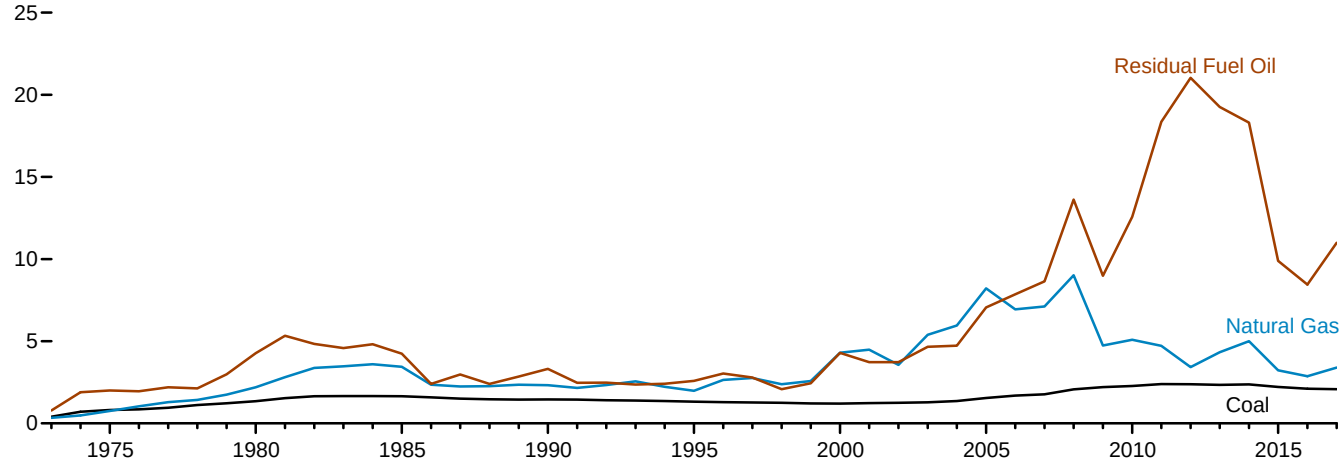
Web Page: See http://www.eia.gov/totalenergy/data/monthly/#prices (Excel and CSV files) for all available annual data beginning in 1960 and monthly data beginning in 1976.

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,* February 2018, Table 5.3.

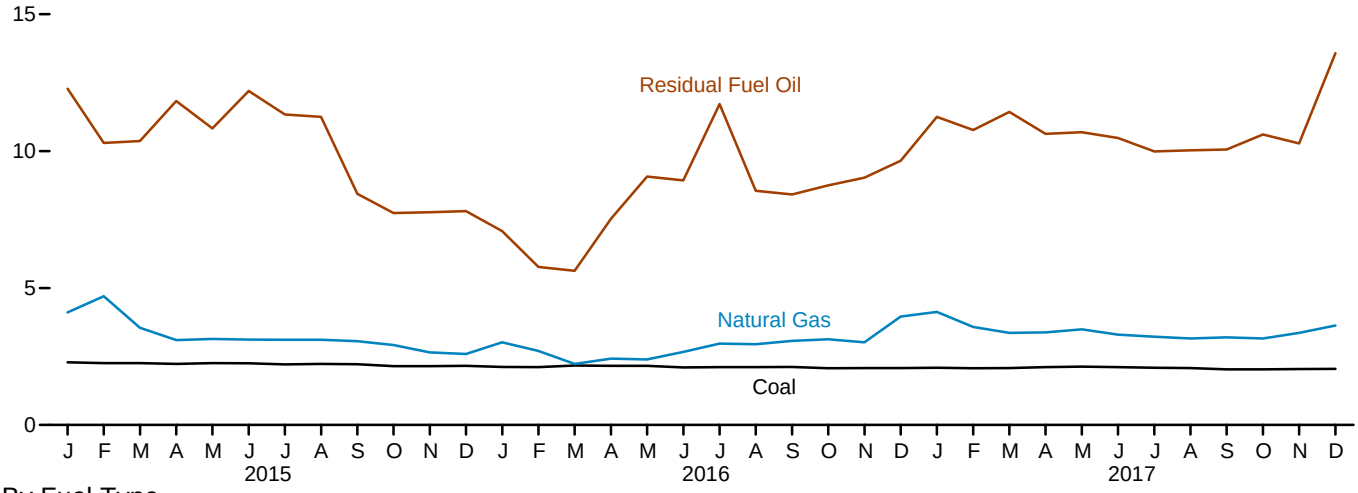
Figure 9.3 Cost of Fossil-Fuel Receipts at Electric Generating Plants

(Dollars[a] per Million Btu, Including Taxes)

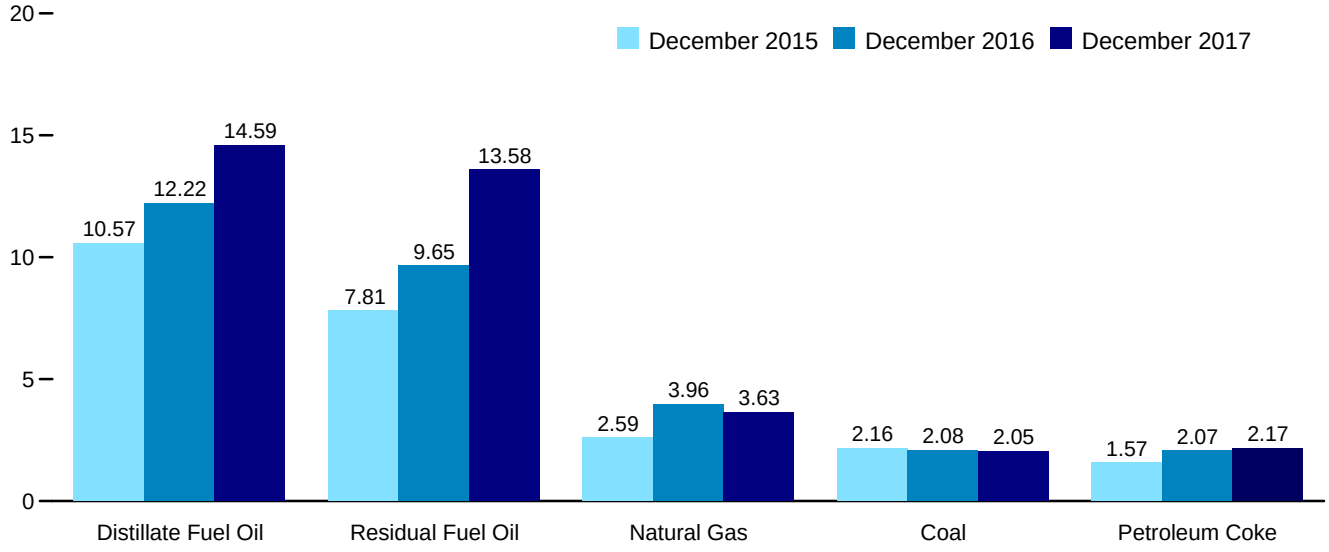
Costs, 1973–2017



Costs, Monthly



By Fuel Type



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

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	7.08	8.90	1.38	4.56	3.02	2.52
February	2.11	5.77	8.78	1.30	3.66	2.70	2.36
March	2.17	5.63	9.46	1.41	3.62	2.23	2.21
April	2.16	7.53	9.97	1.35	4.53	2.42	2.31
May	2.16	9.07	10.76	1.32	5.70	2.39	2.31
June	2.10	8.93	12.22	1.41	6.13	2.67	2.39
July	2.11	11.72	12.08	1.47	6.38	2.97	2.55
August	2.11	8.55	11.41	1.75	5.24	2.95	2.52
September	2.12	8.42	11.29	2.07	5.23	3.07	2.55
October	2.07	8.75	12.04	1.98	5.85	3.13	2.51
November	2.08	9.03	[R] 12.01	2.26	[R] 6.24	3.02	2.47
December	2.08	9.65	12.22	2.07	5.93	3.96	2.82
Average	**2.11**	**8.45**	**10.90**	**1.65**	**5.24**	**2.87**	**2.47**
2017 January	2.09	11.25	12.95	2.14	7.68	4.13	2.82
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	3.38	2.62
May	2.13	[R] 10.69	12.21	2.05	6.63	3.49	W
June	2.11	[R] 10.48	11.48	W	6.08	3.30	W
July	2.09	9.99	11.79	W	5.88	3.22	W
August	2.08	10.03	12.95	W	6.24	3.16	W
September	2.03	10.06	14.51	W	6.36	3.20	W
October	2.03	10.61	14.12	W	6.78	3.16	W
November	2.04	10.28	[R] 14.86	W	[R] 7.92	[R] 3.36	W
December	2.05	13.58	14.59	2.17	8.76	3.63	2.75
Average	**2.08**	**10.99**	**13.21**	**W**	**7.01**	**3.39**	**W**

[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.

R=Revised. 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.

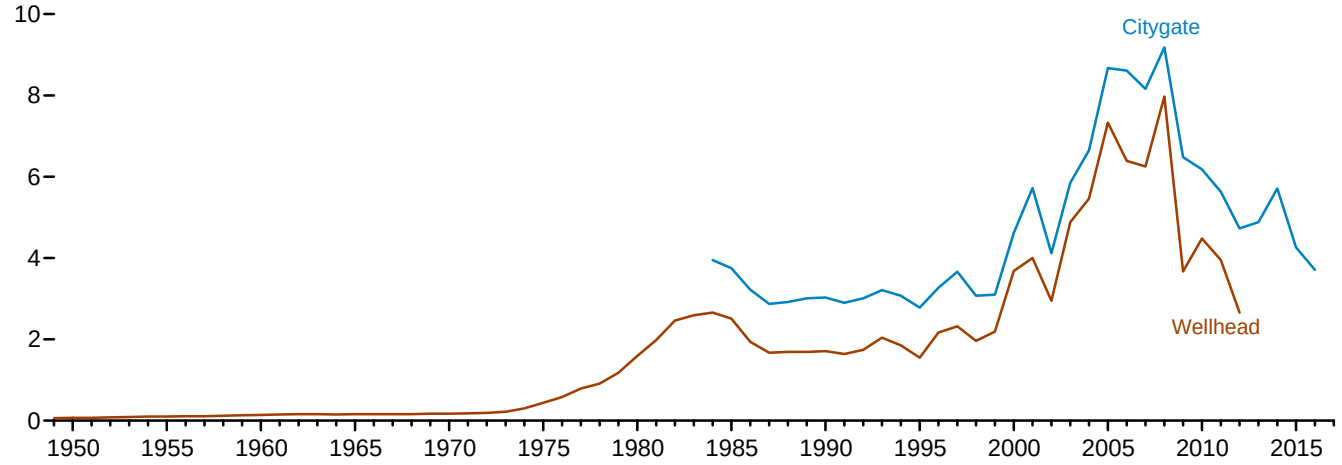
Web Page: See http://www.eia.gov/totalenergy/data/monthly/#prices (Excel and CSV files) for all available annual and monthly data beginning in 1973.

Sources: See end of section.

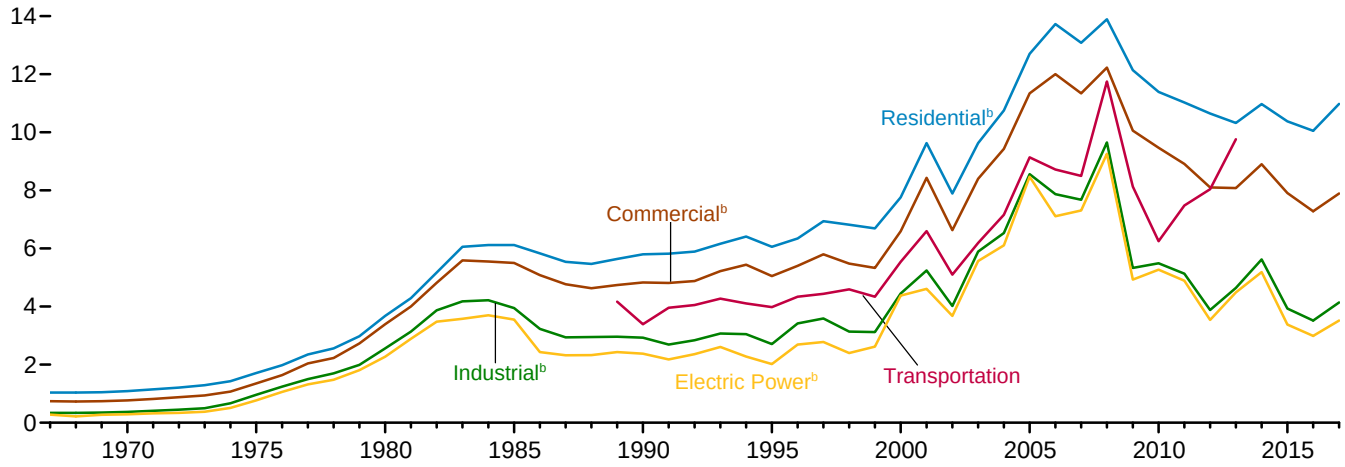
Figure 9.4 Natural Gas Prices

(Dollars[a] per Thousand Cubic Feet)

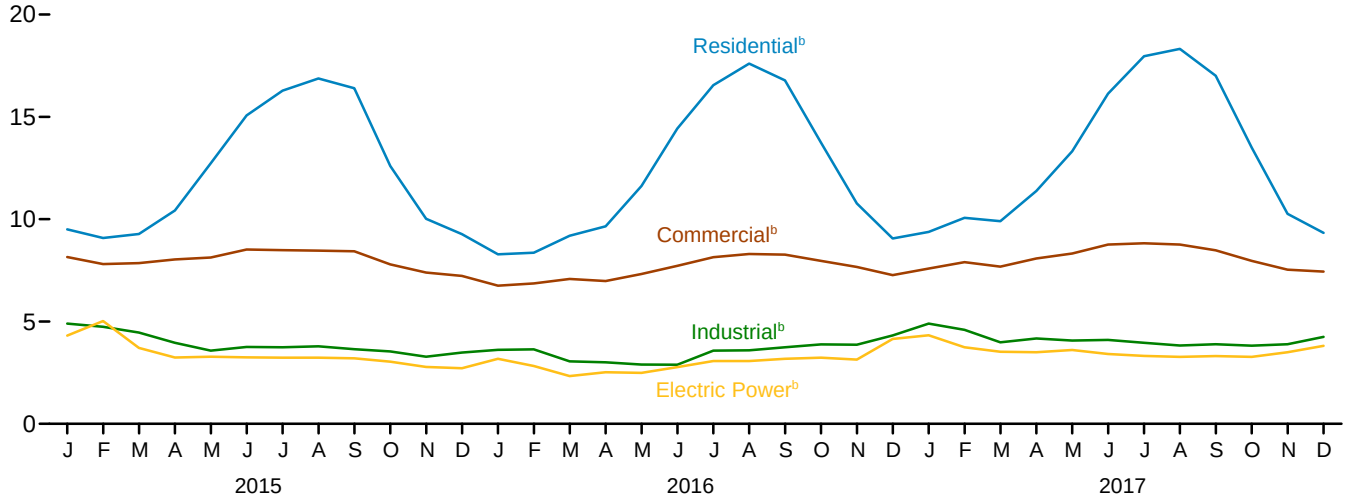
Wellhead and Citygate, 1949–2017



Consuming Sectors, 1967–2017



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)

			Consuming Sectors[b]								
			Residential		Commercial[c]		Industrial[d]		Transportation	Electric Power[e]	
	Wellhead Price[f]	City-gate Price[g]	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	3.18	95.1
February	NA	3.48	8.36	95.8	6.86	69.4	3.64	15.3	NA	2.83	95.2
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	95.9
May	NA	3.44	11.62	95.4	7.32	60.2	2.90	14.6	NA	2.49	96.0
June	NA	3.84	14.43	95.7	7.72	58.0	2.89	14.6	NA	2.77	95.7
July	NA	4.42	16.55	95.9	8.14	56.9	3.58	14.2	NA	3.07	95.4
August	NA	4.33	17.60	95.8	8.30	54.7	3.59	14.6	NA	3.07	95.6
September	NA	4.60	16.78	96.0	8.27	56.2	3.74	14.6	NA	3.18	95.7
October	NA	4.19	13.74	95.9	7.96	59.9	3.88	14.4	NA	3.23	95.4
November	NA	3.90	10.77	96.0	7.67	63.5	3.87	14.5	NA	3.14	95.5
December	NA	3.96	9.06	96.0	7.27	68.2	4.32	14.7	NA	4.15	95.4
Average	**NA**	**3.71**	**10.05**	**95.8**	**7.28**	**64.8**	**3.52**	**14.7**	**NA**	**2.99**	**95.6**
2017 January	NA	4.21	9.38	96.0	7.59	70.5	4.90	15.0	NA	4.33	[R] 81.8
February	NA	4.13	10.07	95.9	7.90	69.1	4.59	15.0	NA	3.74	[R] 82.8
March	NA	3.84	9.90	95.7	7.68	67.8	3.98	15.0	NA	3.52	[R] 80.0
April	NA	4.19	11.38	95.3	8.08	65.0	4.17	14.5	NA	3.50	[R] 81.1
May	NA	4.41	13.32	95.6	[R] 8.32	61.0	[R] 4.07	13.8	NA	3.61	[R] 81.4
June	NA	4.81	16.13	94.5	8.76	58.0	4.10	14.4	NA	3.41	[R] 80.2
July	NA	4.69	17.96	95.8	[R] 8.82	57.1	3.96	14.5	NA	3.32	[R] 78.3
August	NA	[R] 4.59	18.32	95.7	[R] 8.76	55.6	3.83	14.2	NA	3.27	[R] 79.0
September	NA	4.56	17.01	96.1	8.48	56.2	3.89	13.6	NA	3.31	[R] 79.0
October	NA	4.06	13.50	96.5	7.96	61.6	3.82	[R] 14.2	NA	3.27	[R] 79.4
November	NA	3.98	10.26	96.0	[R] 7.53	65.9	[R] 3.89	14.6	NA	[R] 3.50	[R] 79.6
December	NA	3.99	9.33	96.5	7.44	69.2	4.25	14.9	NA	3.81	80.4
Average	**NA**	**4.16**	**10.98**	**95.9**	**7.89**	**65.4**	**4.14**	**14.5**	**NA**	**3.52**	**80.1**

[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*, March 2018, 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*, March 2018, 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*, March 2018, 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*, March 2018, 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*, February 2018, 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*), February 2018, 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, February 2018, Table 3.

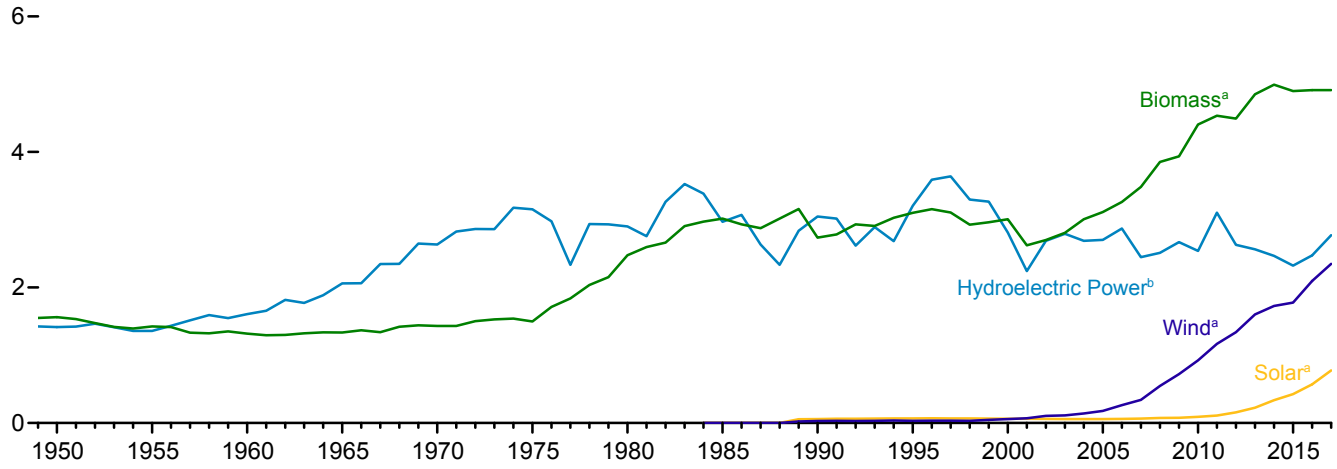
Percentage of Industrial Sector
1982–2014: EIA, NGA, annual reports. Calculated as the total amount of natural gas delivered to industrial consumers minus the amount delivered for the account of others, and then divided by the total amount delivered to industrial consumers.
2015 forward: EIA, NGM, February 2018, 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).

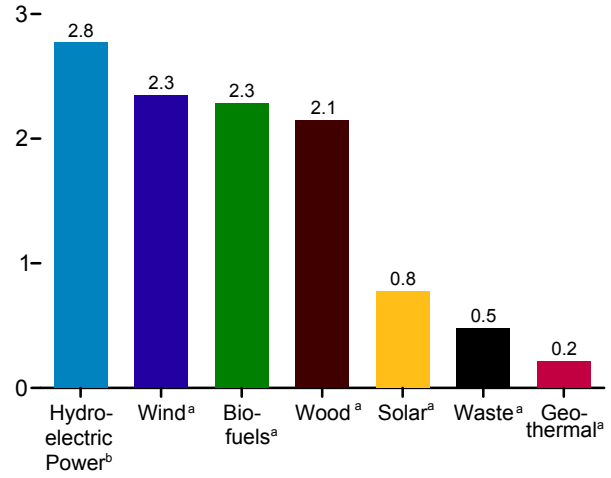
10. Renewable Energy

Figure 10.1 Renewable Energy Consumption
(Quadrillion Btu)

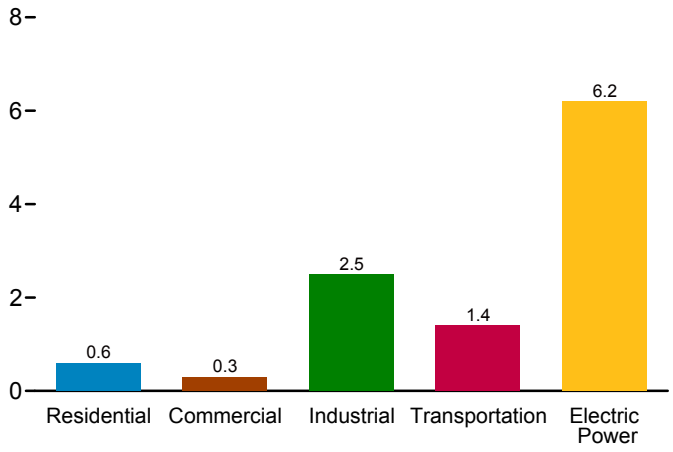
Major Sources, 1949–2017



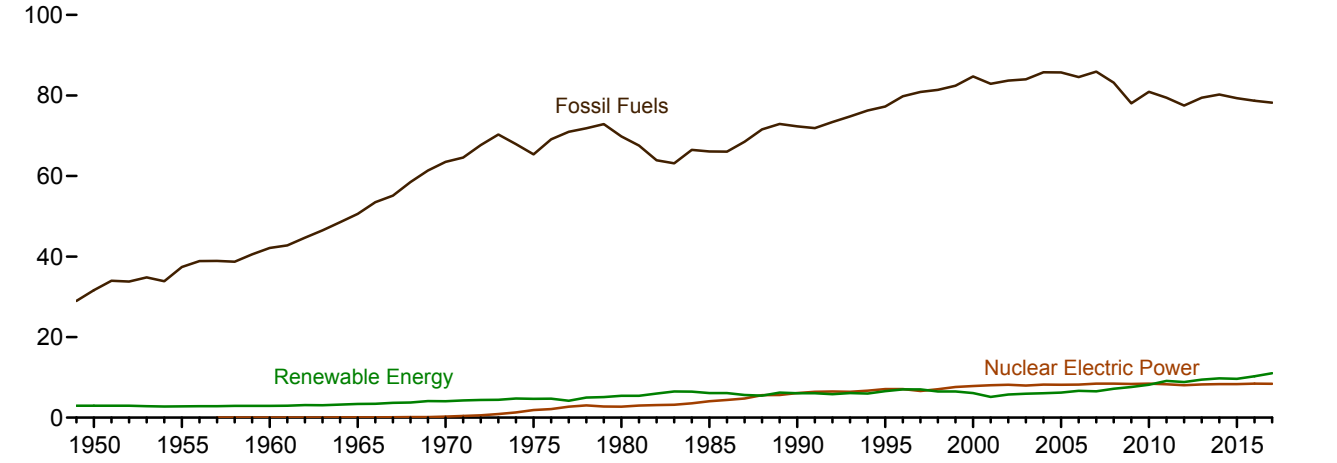
By Source, 2017



By Sector, 2017



Compared With Other Resources, 1949–2017



[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**	**4,452**	**8,212**	**2,539**	**208**	**90**	**923**	**2,116**	**468**	**1,821**	**4,405**	**8,166**
2011 Total	**2,029**	**4,630**	**9,224**	**3,103**	**212**	**111**	**1,168**	**2,139**	**462**	**1,933**	**4,534**	**9,128**
2012 Total	**1,929**	**4,529**	**8,866**	**2,629**	**212**	**157**	**1,340**	**2,133**	**467**	**1,892**	**4,492**	**8,829**
2013 Total	**1,981**	**4,824**	**9,427**	**2,562**	**214**	**225**	**1,601**	**2,347**	**496**	**2,007**	**4,850**	**9,453**
2014 Total	**2,103**	**R 5,029**	**R 9,774**	**2,467**	**214**	**337**	**1,728**	**R 2,410**	**516**	**2,067**	**R 4,992**	**R 9,738**
2015 January	178	417	R 822	225	18	21	141	196	43	163	R 402	R 807
February	162	377	R 765	208	17	25	139	177	38	158	373	R 761
March	180	409	831	226	18	35	143	R 186	43	176	R 404	827
April	172	395	R 827	209	17	40	167	R 181	42	170	R 393	826
May	183	R 412	821	188	18	43	160	187	42	185	R 414	R 822
June	184	R 410	R 786	190	17	43	125	R 184	42	186	R 412	R 788
July	187	R 425	812	196	18	45	127	193	46	189	427	R 813
August	185	R 422	R 785	178	18	45	122	R 193	44	189	R 426	790
September	175	401	R 736	150	16	39	130	R 183	42	182	408	R 743
October	183	R 409	769	155	18	34	153	R 181	45	184	410	R 769
November	182	410	821	180	18	30	183	183	45	179	407	818
December	190	428	R 876	216	18	27	187	191	47	185	R 422	871
Total	**2,161**	**R 4,914**	**R 9,651**	**2,321**	**212**	**426**	**1,777**	**R 2,235**	**518**	**2,145**	**R 4,898**	**R 9,635**
2016 January	185	R 417	R 867	236	18	26	170	R 184	42	171	R 398	R 848
February	176	R 396	R 857	223	17	35	186	R 173	40	173	R 387	R 848
March	190	R 417	R 933	253	18	43	203	R 177	44	187	R 408	R 924
April	175	R 388	R 884	239	16	48	192	R 166	43	173	R 382	R 877
May	189	R 411	R 894	235	18	55	174	R 173	43	192	R 408	R 891
June	189	R 412	R 851	215	17	56	151	R 175	40	192	R 407	R 845
July	196	R 422	R 862	198	17	62	163	R 181	41	201	R 423	R 863
August	198	R 429	R 814	181	18	61	125	R 183	42	204	R 429	R 813
September	187	R 405	R 780	151	17	55	151	R 172	39	194	R 404	R 780
October	194	R 412	R 827	160	18	49	188	R 172	41	195	R 407	R 822
November	192	R 415	R 827	174	18	41	179	R 175	43	195	R 413	R 825
December	203	R 456	R 933	208	19	37	214	R 200	45	202	R 447	R 924
Total	**2,275**	**R 4,982**	**R 10,329**	**2,472**	**210**	**570**	**2,096**	**R 2,131**	**503**	**2,279**	**R 4,913**	**R 10,261**
2017 January	195	R 430	R 932	257	18	35	R 192	R 184	44	177	R 405	R 907
February	176	R 389	R 877	227	16	40	R 205	R 169	39	166	R 374	R 862
March	196	R 427	R 1,029	279	18	64	R 241	R 181	43	190	R 414	R 1,017
April	182	R 399	R 995	271	18	70	R 238	R 171	39	183	R 393	R 990
May	196	R 417	R 1,022	297	17	82	209	R 176	39	200	R 415	R 1,020
June	191	R 413	R 980	281	17	87	R 182	R 177	38	198	R 414	R 981
July	195	R 426	R 908	238	18	81	146	R 185	40	198	R 423	R 905
August	202	R 436	R 850	196	18	79	121	R 187	40	202	R 430	R 844
September	191	R 407	R 834	175	17	74	R 159	R 171	37	191	R 399	R 825
October	200	R 424	R 898	159	17	R 69	229	R 178	40	196	R 414	R 888
November	202	R 426	R 890	183	18	R 48	215	R 177	41	193	R 411	R 875
December	204	440	923	208	18	46	210	188	42	191	421	903
Total	**2,332**	**5,034**	**11,138**	**2,770**	**211**	**775**	**2,347**	**2,145**	**482**	**2,286**	**4,913**	**11,017**

[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.

R=Revised. 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	R 587	R 735	(s)	20	52	1	R 76	47	4	R 127	R 200
2015 January	3	6	37	47	(s)	2	3	(s)	7	4	j 2	13	18
February	3	7	R 33	44	(s)	2	4	(s)	6	3	2	R 11	17
March	3	10	37	R 50	(s)	2	5	(s)	7	4	2	13	19
April	3	11	36	R 50	(s)	2	5	(s)	7	4	2	R 12	R 19
May	3	12	37	53	(s)	2	6	(s)	7	4	2	13	R 20
June	3	13	36	52	(s)	2	6	(s)	R 6	4	2	13	20
July	3	13	37	54	(s)	2	6	(s)	7	4	2	13	21
August	3	13	37	54	(s)	2	6	(s)	7	4	2	13	21
September	3	12	36	R 51	(s)	2	5	(s)	7	4	2	13	20
October	3	11	37	R 51	(s)	2	5	(s)	7	4	2	13	19
November	3	9	36	R 48	(s)	2	4	(s)	R 6	4	2	13	18
December	3	8	37	49	(s)	2	3	(s)	7	4	2	13	18
Total	40	128	R 436	R 603	(s)	20	57	1	R 79	47	26	R 152	R 230
2016 January	3	8	R 30	R 41	(s)	2	3	(s)	7	4	2	13	R 19
February	3	10	R 28	R 40	(s)	2	4	(s)	7	4	2	12	18
March	3	13	R 30	R 46	(s)	2	5	(s)	7	4	2	13	20
April	3	15	R 29	R 46	(s)	2	6	(s)	7	4	2	13	20
May	3	16	R 30	R 49	(s)	2	6	(s)	7	4	2	13	21
June	3	17	R 29	R 48	(s)	2	6	(s)	7	4	2	13	21
July	3	17	R 30	R 50	(s)	2	6	(s)	7	4	2	R 14	22
August	3	17	R 30	R 50	(s)	2	6	(s)	7	4	2	R 14	22
September	3	15	R 29	R 47	(s)	2	6	(s)	7	4	2	13	20
October	3	13	R 30	R 46	(s)	2	5	(s)	7	4	2	13	20
November	3	11	R 29	R 43	(s)	2	4	(s)	7	4	2	13	19
December	3	10	R 30	R 43	(s)	2	4	(s)	7	4	2	13	19
Total	40	161	R 349	R 550	2	20	62	1	R 84	48	26	R 158	R 242
2017 January	3	10	R 28	R 42	(s)	2	4	(s)	7	4	2	13	19
February	3	11	R 26	R 40	(s)	2	4	(s)	R 7	4	2	12	18
March	3	16	R 28	R 47	(s)	2	6	(s)	7	4	2	13	21
April	3	R 17	R 27	R 48	(s)	2	7	(s)	7	4	2	R 13	21
May	3	19	R 28	R 51	(s)	2	8	(s)	7	4	2	13	23
June	3	20	R 27	R 51	(s)	2	8	(s)	7	4	2	13	23
July	3	20	R 28	R 52	(s)	2	8	(s)	7	4	2	13	23
August	3	20	R 28	R 52	(s)	2	8	(s)	7	4	2	13	23
September	3	18	R 27	R 49	(s)	2	7	(s)	7	R 4	2	12	21
October	3	16	R 28	R 48	(s)	2	6	(s)	7	4	2	13	21
November	3	13	R 27	R 44	(s)	2	5	(s)	7	4	2	13	20
December	3	12	28	44	(s)	2	5	(s)	7	4	2	13	20
Total	40	192	334	566	2	20	76	1	84	45	26	155	255

[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.

R=Revised. 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**	**–**	**1,409**	**168**	**17**	**727**	**2,320**	**2,343**	**1,041**	**33**	**1,075**
2011 Total	**17**	**4**	**4**	**(s)**	**1,438**	**165**	**17**	**756**	**2,375**	**2,401**	**1,045**	**113**	**1,158**
2012 Total	**22**	**4**	**7**	**(s)**	**1,462**	**159**	**17**	**711**	**2,349**	**2,382**	**1,045**	**115**	**1,162**
2013 Total	**33**	**4**	**9**	**(s)**	**1,489**	**187**	**18**	**709**	**2,403**	**2,449**	**1,072**	**182**	**1,278**
2014 Total	**12**	**4**	**11**	**1**	**1,495**	**190**	**14**	**757**	**2,456**	**2,484**	**1,093**	**181**	**1,292**
2015 January	1	(s)	1	(s)	130	17	[i] 1	65	213	215	[i] 88	6	94
February	1	(s)	1	(s)	116	15	1	59	191	193	83	11	95
March	1	(s)	1	(s)	122	17	1	65	205	207	92	13	107
April	1	(s)	1	(s)	121	16	1	61	200	203	88	15	105
May	1	(s)	1	(s)	125	15	2	65	207	210	97	18	116
June	1	(s)	1	(s)	121	15	1	65	203	206	94	21	117
July	1	(s)	1	(s)	126	16	2	67	210	213	97	18	118
August	1	(s)	1	(s)	127	15	2	66	209	212	98	20	120
September	1	(s)	1	(s)	121	15	1	63	200	203	94	20	116
October	1	(s)	1	(s)	120	17	1	66	204	207	94	17	114
November	1	(s)	1	(s)	121	16	1	65	205	207	92	14	110
December	1	(s)	1	(s)	126	17	1	68	213	215	93	17	113
Total	**13**	**4**	**14**	**(s)**	**1,476**	**190**	**18**	**776**	**2,460**	**2,491**	**1,110**	**191**	**1,326**
2016 January	1	(s)	1	(s)	127	15	1	66	209	212	88	13	102
February	1	(s)	1	(s)	119	15	1	63	197	200	90	15	107
March	1	(s)	2	(s)	121	16	2	67	206	210	96	17	116
April	1	(s)	2	(s)	115	15	1	61	193	196	89	18	108
May	1	(s)	2	(s)	121	15	2	66	204	207	97	23	122
June	1	(s)	2	(s)	121	13	2	66	202	205	97	21	122
July	1	(s)	2	(s)	124	14	2	69	208	211	99	27	128
August	1	(s)	2	(s)	124	14	2	70	209	213	101	28	131
September	1	(s)	2	(s)	117	13	1	66	197	200	94	26	124
October	1	(s)	2	(s)	120	15	2	68	204	207	96	25	123
November	1	(s)	1	(s)	122	15	1	67	206	208	95	26	124
December	1	(s)	1	(s)	143	16	2	71	231	234	100	26	127
Total	**12**	**4**	**19**	**1**	**1,474**	**174**	**18**	**801**	**2,467**	**2,503**	**1,143**	**266**	**1,434**
2017 January	1	(s)	1	(s)	128	15	1	70	215	218	89	13	104
February	1	(s)	1	(s)	118	14	1	63	196	199	85	13	100
March	1	(s)	2	(s)	124	15	1	70	210	213	95	19	117
April	1	(s)	2	(s)	119	14	1	64	198	202	93	21	116
May	1	(s)	2	(s)	121	13	2	69	204	208	99	25	127
June	1	(s)	2	(s)	122	12	2	66	202	206	100	25	128
July	1	(s)	3	(s)	127	13	2	68	209	213	98	26	126
August	1	(s)	2	(s)	129	13	2	70	214	218	101	25	128
September	1	(s)	2	(s)	118	12	2	66	198	[R] 201	95	22	121
October	1	(s)	2	(s)	122	14	2	69	207	210	100	21	123
November	1	(s)	2	(s)	122	15	2	70	209	212	97	21	119
December	1	(s)	1	(s)	131	15	2	71	218	221	96	19	117
Total	**13**	**4**	**24**	**1**	**1,480**	**165**	**18**	**817**	**2,480**	**2,522**	**1,148**	**249**	**1,425**

[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.

R=Revised. 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	235	12	13	170	21	23	44	475
February	222	11	20	186	20	22	43	482
March	251	12	24	202	19	24	43	533
April	238	11	26	192	15	24	39	506
May	234	12	31	174	16	24	40	491
June	213	12	32	150	18	23	41	448
July	197	12	36	163	20	24	44	451
August	180	12	36	125	21	24	45	399
September	150	12	33	151	19	22	41	388
October	159	12	29	188	16	22	37	426
November	173	13	25	179	18	24	42	432
December	207	13	22	213	21	25	46	501
Total	**2,459**	**146**	**328**	**2,094**	**224**	**281**	**505**	**5,531**
2017 January	256	13	20	R 191	21	24	45	R 525
February	225	11	23	R 205	19	22	41	R 505
March	278	13	40	R 241	22	24	46	R 618
April	269	13	R 44	R 238	18	21	40	R 603
May	296	12	R 53	209	20	22	42	R 611
June	279	12	57	R 182	21	23	R 44	573
July	236	13	50	R 145	22	23	46	R 490
August	195	13	49	121	22	23	46	423
September	174	12	47	R 159	19	21	41	433
October	158	12	44	229	21	22	43	R 486
November	182	12	28	215	20	22	43	480
December	207	13	28	210	21	23	45	502
Total	**2,755**	**147**	**483**	**2,345**	**247**	**272**	**519**	**6,249**

[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.

R=Revised. 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	[R] 98	*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*
September	172	66	531	30,581	1,284	109	-1,809	21,485	288	28,484	1,196	101	*99*
October	181	69	550	32,076	1,347	114	-2,162	21,574	89	29,825	1,253	106	*104*
November	183	70	520	32,469	1,364	[R] 115	-2,152	22,863	1,289	29,028	1,219	103	*101*
December	185	71	525	32,809	1,378	117	-4,130	23,048	185	28,494	1,197	101	*99*
Total	**2,126**	**814**	**6,614**	**377,260**	**15,845**	**1,342**	**-31,007**	**23,048**	[i] **3,517**	**342,736**	**14,395**	**1,219**	***1,192***

[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."

R=Revised. 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]
						Trade								
	Feedstock[a]	Losses and Co-products[b]	Production			Imports	Exports	Net Imports[c]	Stocks[d]	Stock Change[e]	Consumption			
	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
September	19	(s)	3,507	147	19	205	100	105	4,655	-517	4,129	173	22	3
October	19	(s)	3,484	146	19	386	217	169	4,397	-258	3,911	164	21	2
November	19	(s)	3,523	148	19	222	38	184	4,257	-140	3,847	162	21	1
December	19	(s)	3,515	148	19	504	35	469	4,750	493	3,491	147	19	2
Total	**206**	**3**	**37,913**	**1,592**	**203**	**9,374**	**2,218**	**7,156**	**4,750**	**[i] -1,468**	**46,537**	**1,955**	**249**	**28**

[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	3	1	9	12	(s)	(s)	13	14	26
February	4	6	4	1	11	14	(s)	(s)	20	21	35
March	5	8	5	2	14	19	(s)	(s)	24	24	43
April	6	9	5	2	16	21	(s)	(s)	26	27	48
May	6	10	6	2	17	24	(s)	(s)	31	32	55
June	6	10	6	2	18	24	(s)	(s)	32	32	56
July	7	11	6	2	18	25	1	(s)	36	36	62
August	7	10	6	2	18	24	1	(s)	36	37	61
September	6	9	5	2	16	22	(s)	(s)	33	34	55
October	5	8	5	2	14	20	(s)	(s)	29	29	49
November	4	7	4	1	12	16	(s)	(s)	25	26	41
December	4	6	4	1	11	15	(s)	(s)	22	22	37
Total	**63**	**98**	**57**	**19**	**174**	**237**	**5**	**(s)**	**328**	**333**	**570**
2017 January	3	6	4	1	11	15	(s)	(s)	20	20	35
February	4	7	4	1	13	R 16	(s)	(s)	23	23	40
March	5	11	6	2	18	23	(s)	(s)	40	41	64
April	6	12	6	2	20	26	(s)	(s)	R 44	44	70
May	6	13	7	2	23	29	1	(s)	R 53	53	82
June	6	14	7	2	23	29	1	(s)	57	58	87
July	7	14	8	2	24	30	1	(s)	50	51	81
August	7	13	7	2	23	30	1	(s)	49	50	79
September	6	12	7	2	21	27	1	(s)	47	R 48	74
October	5	11	6	2	R 18	24	(s)	(s)	44	R 45	R 69
November	4	8	5	2	15	19	(s)	(s)	28	R 29	R 48
December	4	8	4	1	14	18	(s)	(s)	28	28	46
Total	**64**	**129**	**71**	**23**	**223**	**286**	**5**	**(s)**	**483**	**489**	**775**

[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."

R=Revised. 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	520	346	113	980	26	1	1,458	1,486	2,465
February	622	398	124	1,145	39	2	2,201	2,242	3,386
March	835	520	171	1,525	44	2	2,571	2,617	4,143
April	951	566	186	1,703	46	2	2,831	2,880	4,583
May	1,058	616	206	1,879	48	3	3,375	3,425	5,304
June	1,099	623	206	1,928	53	3	3,418	3,473	5,401
July	1,146	640	214	2,000	55	3	3,886	3,945	5,945
August	1,113	620	209	1,942	58	3	3,908	3,969	5,911
September	989	556	190	1,735	48	2	3,584	3,635	5,370
October	884	493	174	1,552	42	2	3,147	3,191	4,743
November	726	393	139	1,257	36	2	2,729	2,767	4,024
December	653	387	128	1,167	33	1	2,389	2,424	3,591
Total	**10,595**	**6,158**	**2,060**	**18,812**	**529**	**27**	**35,497**	**36,054**	**54,866**
2017 January	R 697	R 414	R 133	R 1,244	22	NM	R 2,128	R 2,152	R 3,396
February	R 783	R 454	R 147	R 1,383	26	NM	R 2,469	R 2,497	R 3,880
March	R 1,147	630	209	R 1,987	R 48	NM	R 4,381	R 4,433	R 6,419
April	R 1,284	R 700	R 227	2,211	50	NM	R 4,721	R 4,774	R 6,985
May	R 1,415	774	R 252	R 2,440	65	4	R 5,698	R 5,766	R 8,207
June	1,468	781	254	2,503	71	8	R 6,174	R 6,252	R 8,755
July	1,495	R 818	264	2,578	63	7	R 5,435	R 5,505	R 8,083
August	1,446	R 798	258	2,501	60	7	R 5,334	R 5,401	R 7,903
September	R 1,292	713	235	R 2,240	R 58	6	R 5,103	R 5,168	R 7,408
October	1,156	R 633	214	R 2,002	53	6	R 4,771	R 4,830	R 6,832
November	R 903	R 501	R 170	R 1,574	31	4	R 3,085	R 3,120	R 4,694
December	837	485	155	1,476	29	NM	3,027	3,059	4,536
Total	**13,922**	**7,700**	**2,518**	**24,139**	**578**	**54**	**52,326**	**52,958**	**77,097**

[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.

R=Revised. 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 multiplied 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 2015 forward, the annual estimates are assumed by EIA to be equal to that of 2014). 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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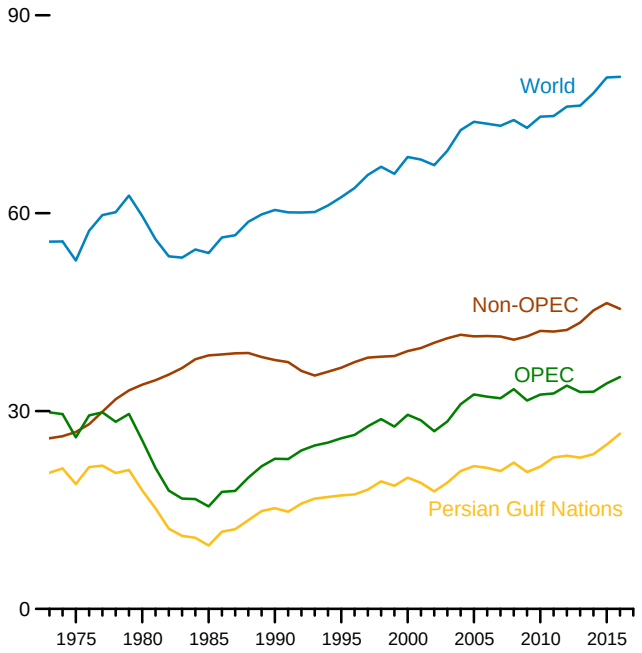
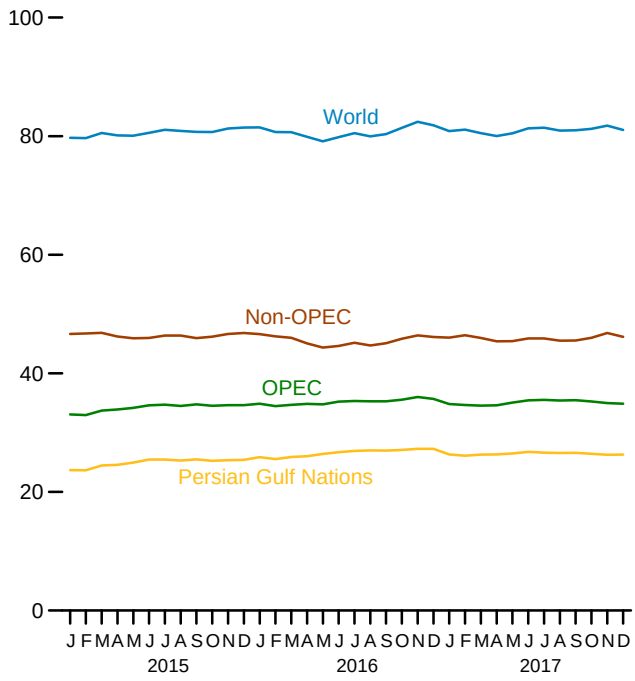
11. International Petroleum

Figure 11.1a World Crude Oil Production Overview
(Million Barrels per Day)

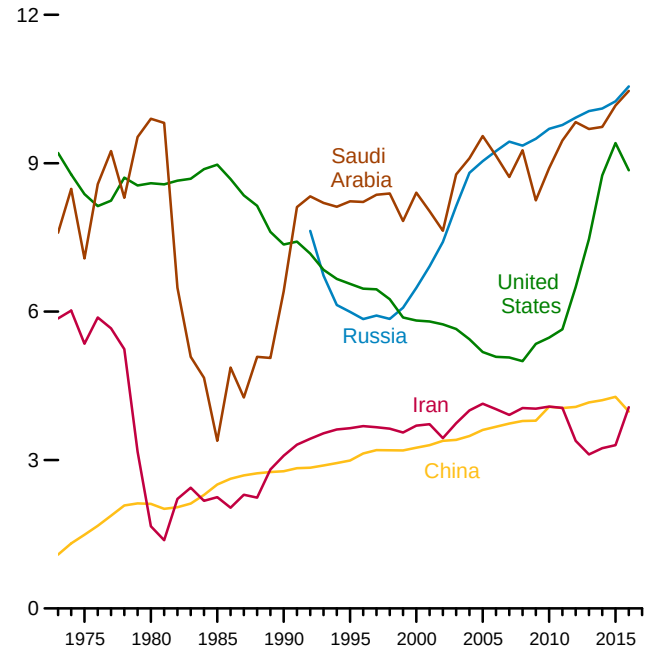
World Production, 1973–2017



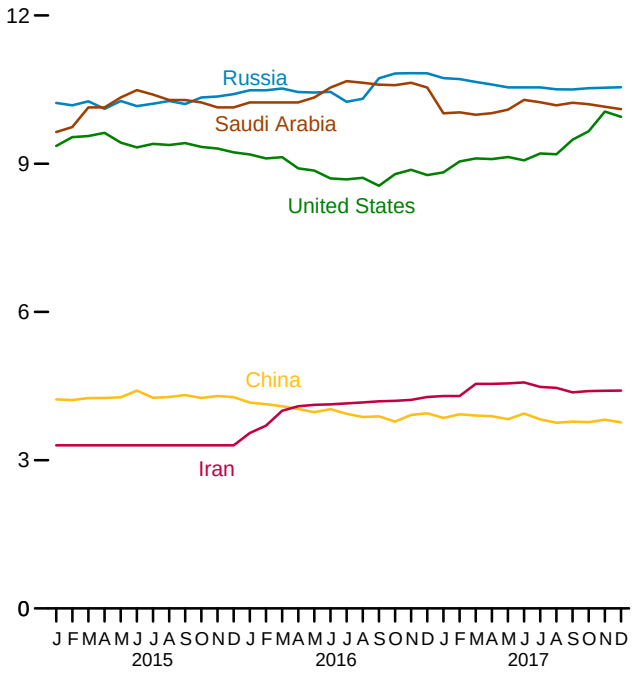
World Production, Monthly



Selected Producers, 1973–2017



Selected Producers, Monthly

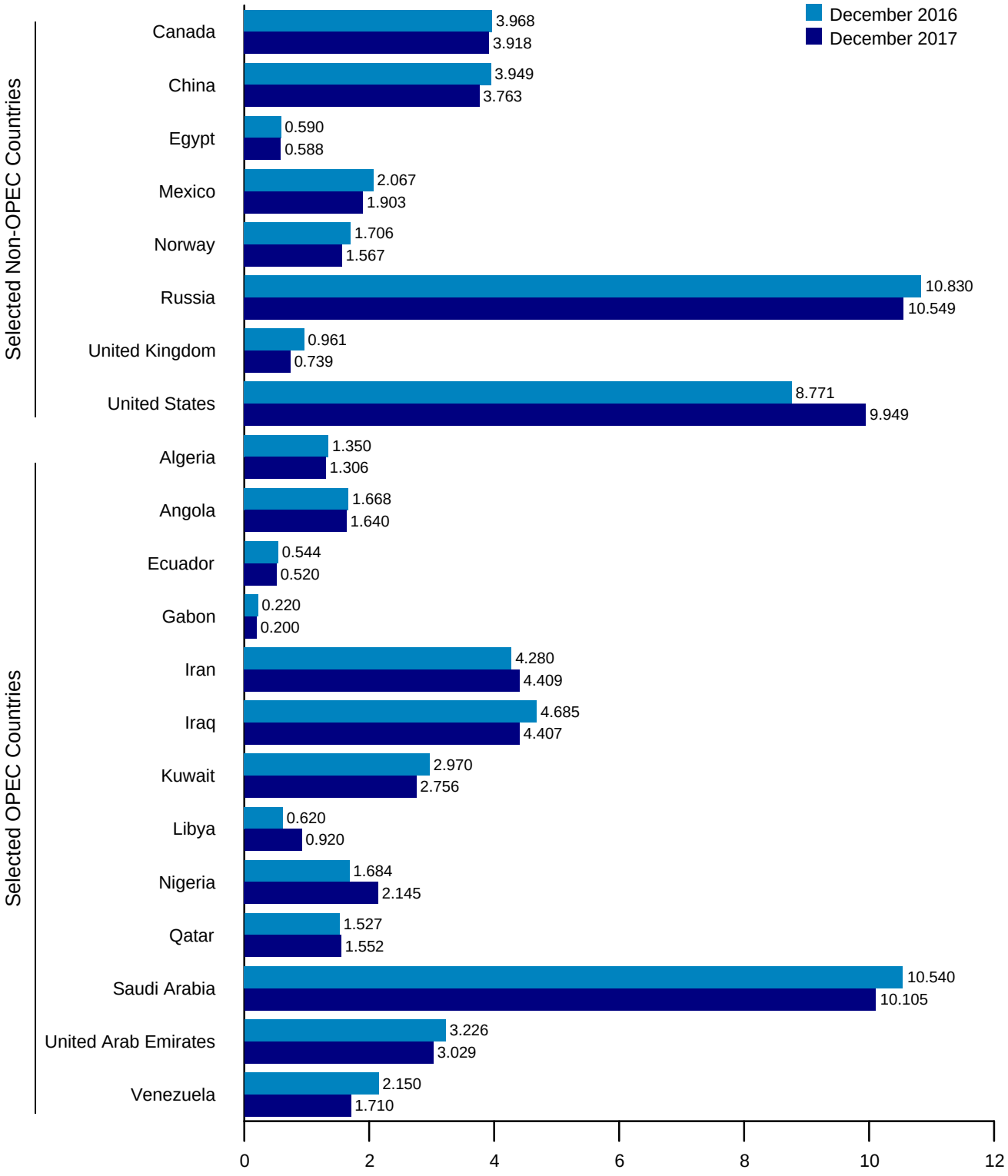


Notes: • OPEC is the Organization of the Petroleum Exporting Countries. • The Persian Gulf Nations are Bahrain, Iran, Iraq, Kuwait, Qatar, Saudi Arabia, and the United Arab Emirates. Production from the Neutral Zone between Kuwait and Saudi Arabia is included in "Persian Gulf Nations."

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	10,293	3,048	2,030	35,449
July	1,306	1,670	541	210	4,482	4,501	2,764	1,005	2,022	1,527	10,243	3,048	2,030	35,535
August	1,306	1,690	536	200	4,462	4,527	2,765	890	2,070	1,532	10,183	3,049	2,025	35,416
September	1,306	1,670	529	200	4,374	4,567	2,785	925	2,095	1,537	10,233	3,049	2,010	35,461
October	1,256	1,695	526	200	4,399	4,417	2,795	960	2,080	1,532	10,204	3,039	1,960	35,249
November	1,276	1,600	521	190	4,404	4,347	2,765	980	2,120	1,537	10,154	3,009	1,890	34,974
December	1,306	1,640	520	200	4,409	4,407	2,756	920	2,145	1,552	10,105	3,029	1,710	34,880
Average	**1,306**	**1,666**	**531**	**199**	**4,446**	**4,467**	**2,774**	**818**	**1,968**	**1,519**	**10,132**	**3,037**	**2,007**	**35,060**

[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.

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**	**41,325**	**73,851**
2006 Average	**21,377**	**2,525**	**3,673**	**616**	**3,345**	**2,491**	**– –**	**9,247**	**1,490**	**5,086**	**41,380**	**73,566**
2007 Average	**20,904**	**2,628**	**3,736**	**608**	**3,143**	**2,270**	**– –**	**9,437**	**1,498**	**5,074**	**41,302**	**73,246**
2008 Average	**22,186**	**2,579**	**3,790**	**633**	**2,839**	**2,182**	**– –**	**9,357**	**1,391**	**4,998**	**40,809**	**74,117**
2009 Average	**20,754**	**2,579**	**3,796**	**649**	**2,646**	**2,067**	**– –**	**9,495**	**1,328**	**5,349**	**41,321**	**72,930**
2010 Average	**21,589**	**2,741**	**4,078**	**636**	**2,621**	**1,871**	**– –**	**9,694**	**1,233**	**5,475**	**42,142**	**74,642**
2011 Average	**22,953**	**2,901**	**4,052**	**637**	**2,600**	**1,760**	**– –**	**9,774**	**1,026**	**5,643**	**42,058**	**74,730**
2012 Average	**23,233**	**3,138**	**4,074**	**642**	**2,593**	**1,612**	**– –**	**9,922**	**888**	**6,497**	**42,299**	**76,157**
2013 Average	**22,932**	**3,325**	**4,164**	**645**	**2,562**	**1,533**	**– –**	**10,054**	**801**	**7,466**	**43,415**	**76,305**
2014 Average	**23,469**	**3,613**	**4,208**	**645**	**2,469**	**1,562**	**– –**	**10,107**	**787**	**8,753**	**45,264**	**78,199**
2015 January	23,689	3,885	4,232	642	2,290	1,579	– –	10,231	872	9,358	R 46,640	R 79,714
February	23,655	3,906	4,218	650	2,370	1,589	– –	10,181	812	9,537	R 46,713	R 79,664
March	24,470	3,775	4,256	663	2,356	1,586	– –	10,264	867	9,561	R 46,818	R 80,532
April	24,576	3,463	4,258	656	2,235	1,614	– –	10,111	925	9,626	R 46,219	R 80,137
May	24,947	3,212	4,271	646	2,263	1,555	– –	10,270	1,016	9,428	R 45,905	R 80,068
June	25,462	3,457	4,408	657	2,283	1,596	– –	10,166	870	9,329	R 45,967	R 80,569
July	25,452	3,821	4,263	661	2,308	1,611	– –	10,213	839	9,402	R 46,362	R 81,068
August	25,292	3,922	4,278	659	2,291	1,599	– –	10,268	788	9,379	R 46,383	R 80,874
September	25,492	3,422	4,317	652	2,306	1,581	– –	10,209	862	9,417	R 45,932	R 80,707
October	25,252	3,582	4,259	652	2,314	1,685	– –	10,341	912	9,339	R 46,183	R 80,700
November	25,342	3,819	4,297	644	2,310	1,644	– –	10,361	972	9,307	R 46,641	R 81,285
December	25,412	3,866	4,275	642	2,308	1,682	– –	10,407	979	9,229	R 46,808	R 81,446
Average	**24,927**	**3,677**	**4,278**	**652**	**2,302**	**1,610**	**– –**	**10,253**	**893**	**9,408**	**R 46,380**	**R 80,570**
2016 January	25,867	3,877	4,166	632	2,294	1,657	– –	10,485	1,003	9,186	R 46,603	R 81,468
February	25,527	3,797	4,133	623	2,247	1,675	– –	10,485	1,014	9,107	R 46,229	R 80,706
March	25,892	3,767	4,091	623	2,249	1,632	– –	10,522	987	9,134	R 45,986	R 80,678
April	26,012	3,429	4,036	626	2,210	1,666	– –	10,450	989	8,906	R 45,050	R 79,887
May	26,412	2,811	3,973	625	2,207	1,608	– –	10,440	991	8,859	R 44,341	R 79,122
June	26,707	3,112	4,034	621	2,213	1,480	– –	10,453	897	8,703	R 44,615	R 79,833
July	26,928	3,657	3,938	620	2,192	1,762	– –	10,254	980	8,682	R 45,166	R 80,499
August	27,003	3,855	3,874	614	2,179	1,603	– –	10,316	841	8,716	R 44,702	R 79,978
September	26,973	3,849	3,887	609	2,146	1,430	– –	10,729	826	8,553	R 45,072	R 80,346
October	27,068	3,893	3,780	608	2,135	1,766	– –	10,826	760	8,791	R 45,823	R 81,382
November	27,278	4,135	3,915	598	2,105	1,785	– –	10,832	948	8,876	R 46,401	R 82,412
December	27,278	3,968	3,949	590	2,067	1,706	– –	10,830	961	8,771	R 46,137	R 81,828
Average	**26,583**	**3,679**	**3,981**	**616**	**2,187**	**1,648**	**– –**	**10,551**	**933**	**8,857**	**R 45,509**	**R 80,679**
2017 January	26,312	4,097	3,855	589	2,054	R 1,653	– –	10,733	R 945	E 8,825	R 46,016	R 80,850
February	26,111	4,137	3,929	583	2,051	R 1,693	– –	10,713	R 1,005	E 9,045	R 46,423	R 81,091
March	26,306	3,927	3,903	573	2,053	R 1,745	– –	10,654	945	E 9,107	R 45,968	R 80,512
April	26,316	3,577	3,891	582	2,046	R 1,738	– –	10,603	915	E 9,093	R 45,411	R 80,011
May	26,472	3,690	3,829	588	2,053	R 1,636	– –	10,543	R 929	E 9,134	R 45,414	R 80,490
June	26,743	4,069	3,944	590	2,042	R 1,576	– –	10,543	936	E 9,068	R 45,875	R 81,324
July	26,606	3,970	3,827	587	2,020	R 1,653	– –	10,546	912	E 9,209	R 45,876	R 81,411
August	26,559	4,154	3,758	594	1,962	R 1,584	– –	10,507	831	E 9,192	R 45,508	R 80,924
September	26,586	3,940	3,779	602	1,761	R 1,473	– –	10,503	885	E 9,485	R 45,535	R 80,996
October	26,427	R 3,890	R 3,770	597	1,933	R 1,576	– –	10,527	R 945	RE 9,658	R 45,988	R 81,237
November	26,257	R 4,249	3,820	588	1,896	R 1,520	– –	10,538	R 977	RE 10,057	R 46,812	R 81,786
December	26,299	3,918	3,763	588	1,903	1,567	– –	10,549	739	E 9,949	46,154	81,034
Average	**26,418**	**3,967**	**3,838**	**588**	**1,981**	**1,618**	**– –**	**10,579**	**913**	**E 9,320**	**45,911**	**80,971**

[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.

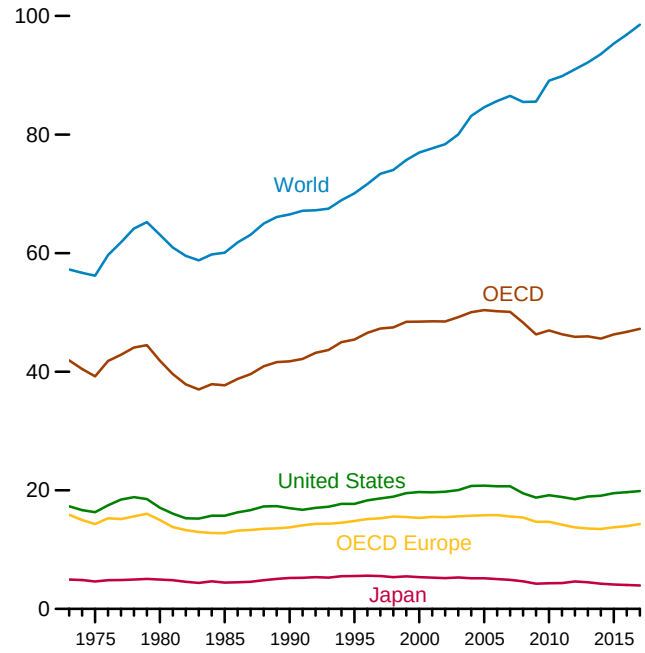
Web Page: See http://www.eia.gov/totalenergy/data/monthly/#international (Excel and CSV files) for all available annual and monthly data beginning in 1973.

Sources: See end of section.

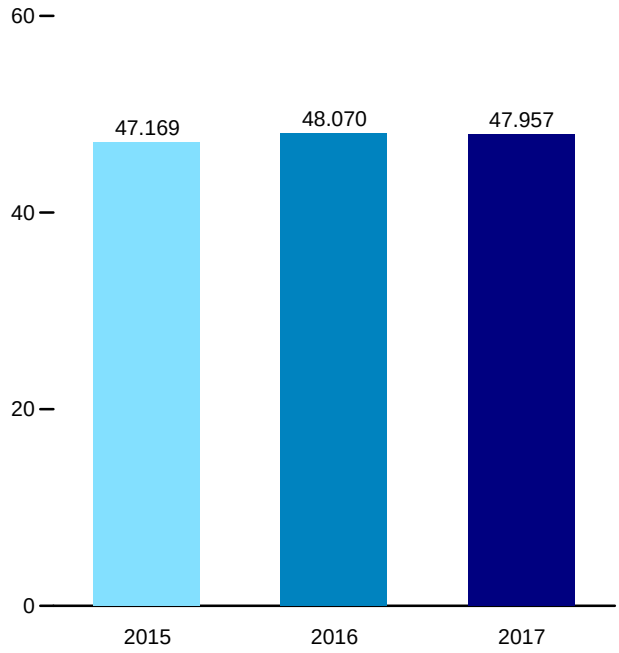
Figure 11.2 Petroleum Consumption in OECD Countries

(Million Barrels per Day)

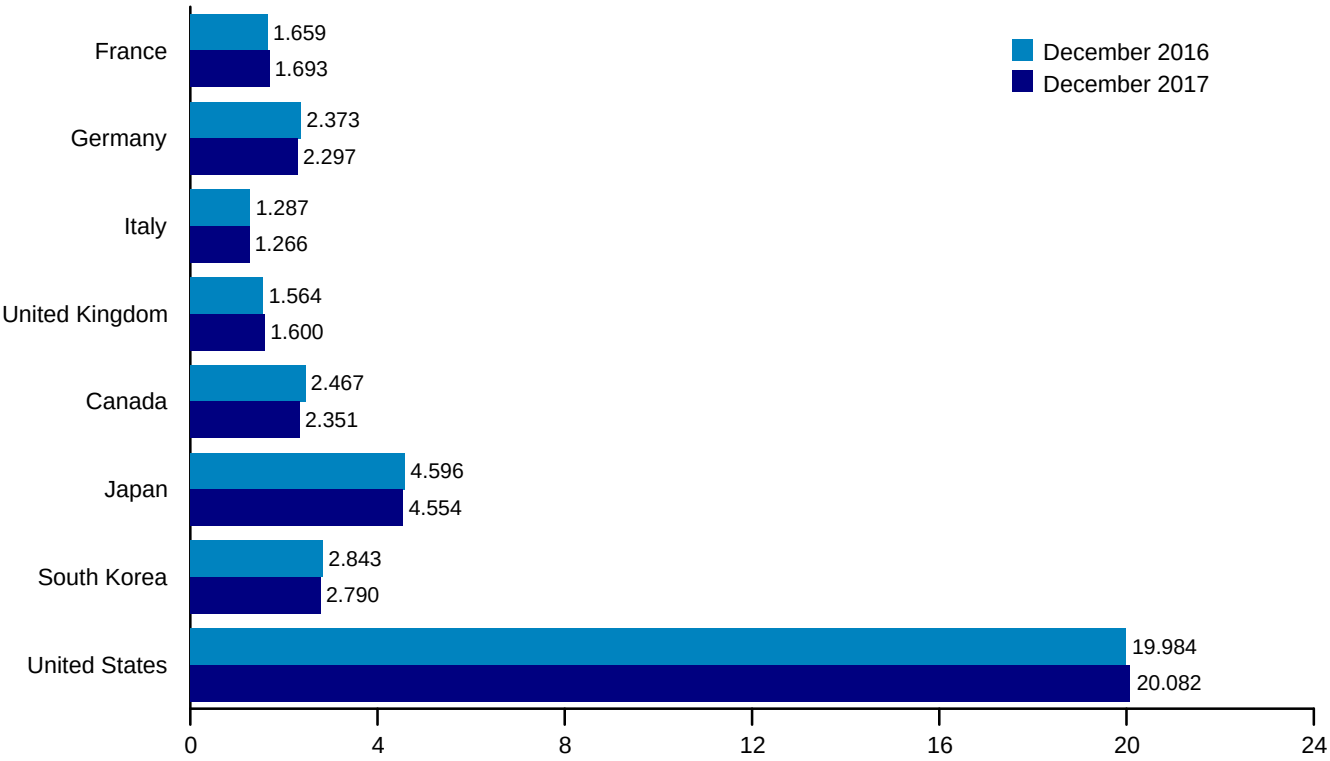
Overview, 1973–2017



OECD Total, December



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**	**84,597**
2006 Average	**1,991**	**2,636**	**1,777**	**1,805**	**15,838**	**2,346**	**5,032**	**2,180**	**20,687**	**4,116**	**50,199**	**85,661**
2007 Average	**1,978**	**2,407**	**1,729**	**1,751**	**15,570**	**2,434**	**4,899**	**2,240**	**20,680**	**4,259**	**50,083**	**86,512**
2008 Average	**1,940**	**2,533**	**1,667**	**1,729**	**15,427**	**2,344**	**4,664**	**2,142**	**19,498**	**4,200**	**48,274**	**85,484**
2009 Average	**1,863**	**2,434**	**1,544**	**1,649**	**14,704**	**2,283**	**4,257**	**2,188**	**18,771**	**4,082**	**46,287**	**85,540**
2010 Average	**1,821**	**2,467**	**1,544**	**1,626**	**14,685**	**2,382**	**4,328**	**2,269**	**19,180**	**4,114**	**46,957**	**89,096**
2011 Average	**1,779**	**2,392**	**1,494**	**1,582**	**14,208**	**2,429**	**4,345**	**2,259**	**18,887**	**4,181**	**46,308**	**89,833**
2012 Average	**1,739**	**2,389**	**1,370**	**1,535**	**13,737**	**2,480**	**4,630**	**2,322**	**18,487**	**4,227**	**45,883**	**91,013**
2013 Average	**1,714**	**2,435**	**1,260**	**1,508**	**13,549**	**2,457**	**4,504**	**2,328**	**18,967**	**4,148**	**45,953**	**92,170**
2014 Average	**1,691**	**2,374**	**1,266**	**1,509**	**13,474**	**2,375**	**4,248**	**2,348**	**19,100**	**4,040**	**45,585**	**93,563**
2015 January	1,643	2,287	1,131	1,434	13,019	2,410	4,522	2,531	19,261	3,838	45,581	NA
February	1,783	2,426	1,236	1,657	13,914	2,492	5,034	2,578	19,664	4,102	47,784	NA
March	1,692	2,383	1,227	1,480	13,515	2,306	4,505	2,468	19,340	3,994	46,129	NA
April	1,721	2,355	1,315	1,572	13,717	2,248	4,163	2,445	19,251	3,941	45,764	NA
May	1,542	2,184	1,232	1,488	13,095	2,289	3,598	2,266	19,316	3,962	44,525	NA
June	1,774	2,312	1,301	1,561	14,010	2,359	3,677	2,371	19,853	4,038	46,308	NA
July	1,811	2,385	1,398	1,497	14,205	2,408	3,800	2,355	20,134	4,164	47,066	NA
August	1,676	2,410	1,248	1,581	13,987	2,424	3,918	2,507	19,939	4,015	46,790	NA
September	1,793	2,525	1,336	1,625	14,445	2,426	3,859	2,422	19,433	4,062	46,647	NA
October	1,665	2,426	1,293	1,531	13,919	2,409	3,836	2,472	19,491	3,987	46,113	NA
November	1,499	2,388	1,258	1,582	13,511	2,371	3,978	2,589	19,127	3,998	45,575	NA
December	1,718	2,341	1,310	1,572	13,885	2,335	4,616	2,683	19,589	4,060	47,169	NA
Average	**1,692**	**2,368**	**1,274**	**1,547**	**13,766**	**2,372**	**4,120**	**2,473**	**19,534**	**4,013**	**46,278**	**95,335**
2016 January	1,569	2,300	1,108	1,492	12,878	2,371	4,345	2,695	19,063	3,989	45,340	NA
February	1,682	2,468	1,243	1,641	13,851	2,328	4,629	2,752	19,847	4,160	47,566	NA
March	1,718	2,475	1,251	1,538	R 13,903	2,304	4,356	2,533	19,728	4,061	R 46,885	NA
April	1,663	2,478	1,281	1,611	13,985	2,258	3,973	2,519	19,340	3,985	46,060	NA
May	1,661	2,285	1,246	1,549	13,599	2,304	3,579	2,574	19,328	3,910	R 45,295	NA
June	1,580	2,313	1,302	1,654	R 14,016	2,389	3,561	2,544	19,846	4,039	R 46,396	NA
July	1,681	2,398	1,305	1,551	R 14,028	2,401	3,779	2,472	19,776	4,004	R 46,459	NA
August	1,702	2,451	1,250	1,608	R 14,555	2,532	3,860	2,684	20,275	4,083	R 47,989	NA
September	1,738	2,426	1,319	1,646	R 14,520	2,455	3,723	2,642	19,757	4,018	R 47,115	NA
October	1,667	2,457	1,236	1,594	R 14,261	2,347	3,777	2,532	19,650	3,911	R 46,477	NA
November	1,565	2,502	1,206	1,596	R 14,059	2,386	4,158	2,780	19,659	4,072	R 47,112	NA
December	1,659	2,373	1,287	1,564	14,041	2,467	4,596	2,843	19,984	4,140	48,070	NA
Average	**1,657**	**2,410**	**1,253**	**1,586**	R **13,973**	**2,379**	**4,026**	**2,630**	**19,687**	**4,030**	R **46,726**	R **96,848**
2017 January	1,738	R 2,446	1,178	1,445	R 13,556	2,350	4,176	2,665	19,244	R 3,754	R 45,746	NA
February	1,706	R 2,518	1,234	1,652	R 13,940	2,325	4,565	2,739	19,159	R 4,034	R 46,761	NA
March	1,709	R 2,668	1,280	1,492	R 14,155	2,376	4,279	2,668	20,047	R 4,089	R 47,615	NA
April	1,625	R 2,531	1,196	1,629	R 13,890	2,159	3,841	2,522	19,556	R 4,035	R 46,004	NA
May	1,670	R 2,523	1,279	1,514	R 14,201	2,413	3,553	2,590	20,039	R 4,128	R 46,924	NA
June	1,747	R 2,509	1,371	1,629	R 14,683	R 2,437	3,524	2,563	20,494	R 4,147	R 47,847	NA
July	1,729	R 2,566	1,348	1,587	R 14,638	2,465	3,636	2,634	20,020	R 3,987	R 47,380	NA
August	1,713	R 2,552	1,278	1,584	R 14,549	2,561	3,747	2,616	20,161	R 4,117	R 47,750	NA
September	1,848	R 2,436	1,330	1,644	R 14,885	2,475	3,679	2,682	19,581	R 4,061	R 47,363	NA
October	1,624	R 2,429	1,340	1,564	R 14,464	2,482	3,649	2,633	19,806	R 3,900	R 46,934	NA
November	1,677	R 2,577	1,287	R 1,626	R 14,541	R 2,563	4,148	2,751	20,278	R 4,068	R 48,349	NA
December	1,693	2,297	1,266	1,600	14,116	2,351	4,554	2,790	20,082	4,064	47,957	NA
Average	**1,706**	**2,504**	**1,283**	**1,579**	**14,302**	**2,414**	**3,942**	**2,654**	**19,877**	**4,031**	**47,221**	**98,518**

[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.

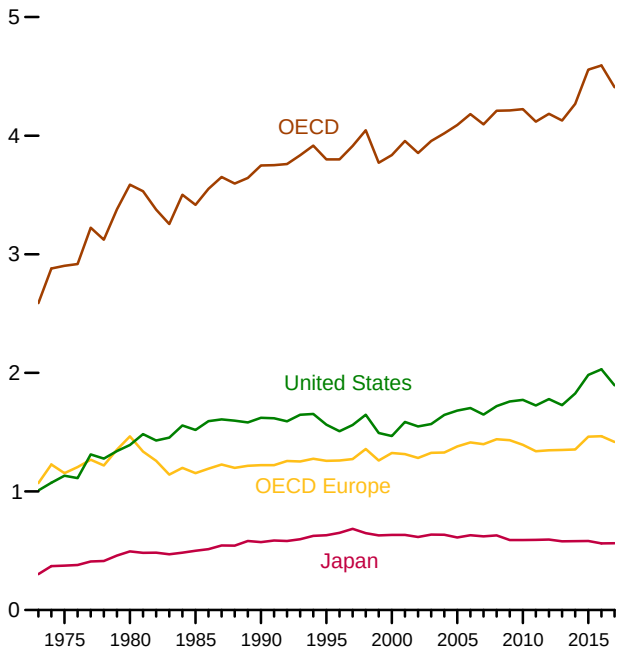
Notes: • Totals may not equal sum of components due to independent rounding. • U.S. geographic coverage is the 50 states and the District of Columbia.

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.

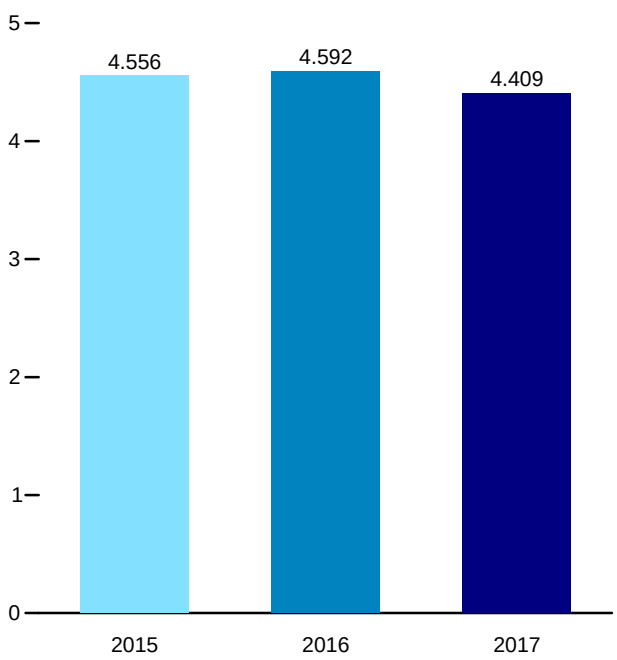
Sources: • **United States:** Table 3.1. • **Chile, East Germany, Former Czechoslovakia, Hungary, Mexico, Poland, South Korea, Non-OECD Countries, U.S. Territories,** and **World: 1973–1979—**U.S. Energy Information Administration (EIA), International Energy Database. • **Countries Other Than United 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)

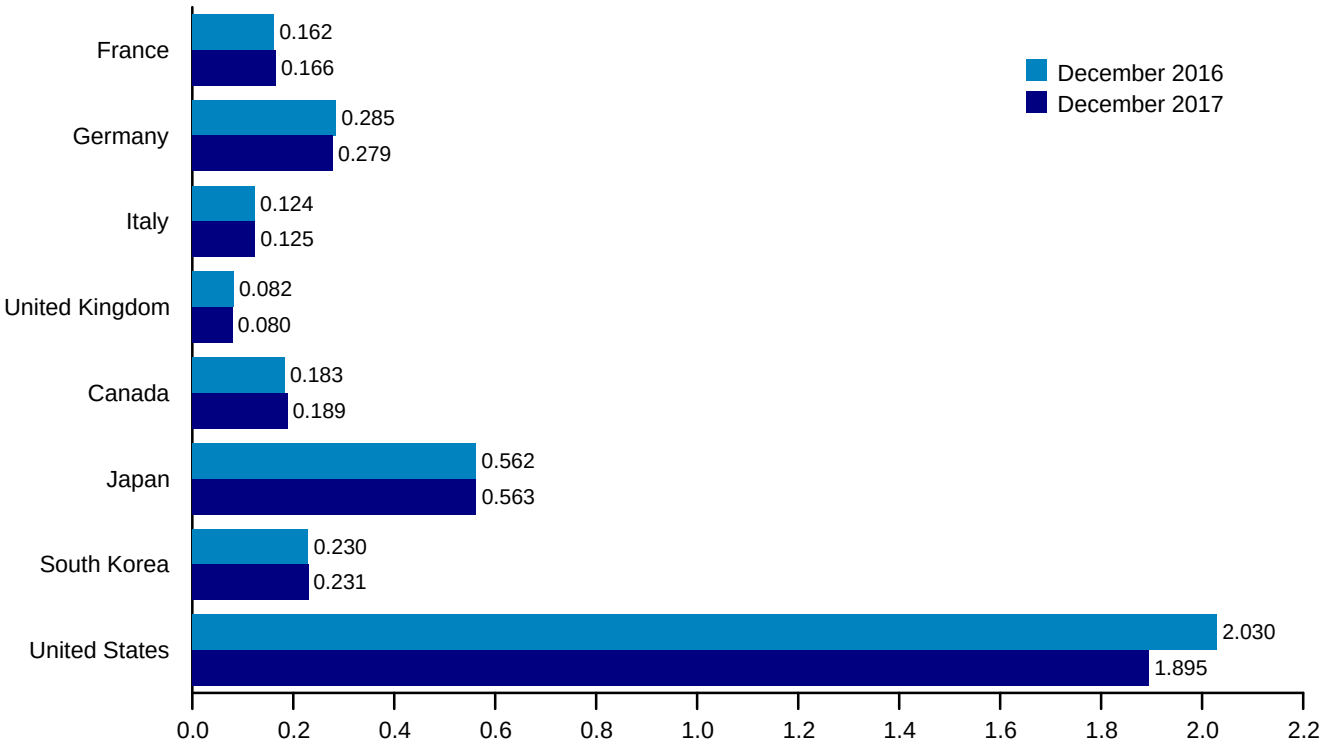
Overview, End of Year, 1973–2017



OECD Stocks, End of Month, December



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 1,502	187	580	219	2,014	117	R 4,618
February	169	289	123	81	R 1,512	183	564	233	2,018	114	R 4,623
March	166	289	120	77	R 1,497	184	560	236	2,024	115	R 4,616
April	171	286	126	77	R 1,496	180	566	230	2,035	117	R 4,624
May	167	289	123	81	R 1,503	169	574	235	2,051	119	R 4,649
June	167	288	121	82	R 1,494	175	573	238	2,049	123	R 4,653
July	169	290	125	75	R 1,516	186	577	238	2,066	125	R 4,707
August	167	287	130	80	R 1,501	186	585	233	2,066	121	R 4,692
September	167	285	127	78	R 1,483	185	587	239	2,051	120	R 4,665
October	163	287	128	77	R 1,467	190	587	238	2,053	119	R 4,653
November	166	283	126	80	R 1,472	190	573	238	2,056	112	R 4,641
December	**162**	**285**	**124**	**82**	R **1,466**	**183**	**562**	**230**	**2,030**	**120**	R **4,592**
2017 January	166	285	129	82	R 1,505	185	562	238	2,049	124	R 4,663
February	166	285	131	82	R 1,508	187	556	236	2,046	123	R 4,656
March	168	R 280	134	81	R 1,501	185	546	238	2,029	126	4,625
April	165	283	131	84	1,507	181	558	240	2,029	127	R 4,644
May	167	280	132	81	1,485	180	572	238	2,034	131	R 4,640
June	165	277	134	81	1,477	183	566	236	2,009	127	R 4,599
July	170	279	131	80	R 1,477	188	577	240	1,998	122	R 4,602
August	170	R 278	131	80	1,465	186	582	240	1,986	120	4,580
September	165	R 274	128	78	R 1,440	186	571	244	1,978	118	R 4,537
October	165	R 273	125	79	R 1,419	184	575	241	1,943	121	4,485
November	164	R 271	125	82	R 1,424	R 185	574	235	1,923	115	R 4,456
December	**166**	**279**	**125**	**80**	**1,417**	**189**	**563**	**231**	**1,895**	**115**	**4,409**

[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, March 15, 2018.

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, March 2018.

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, March 2018.

12. Environment

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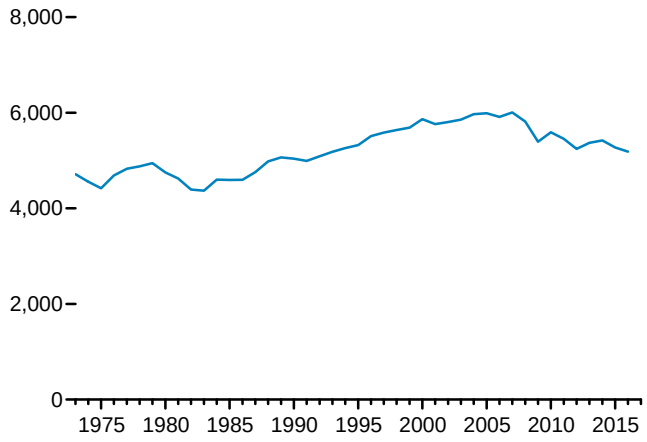
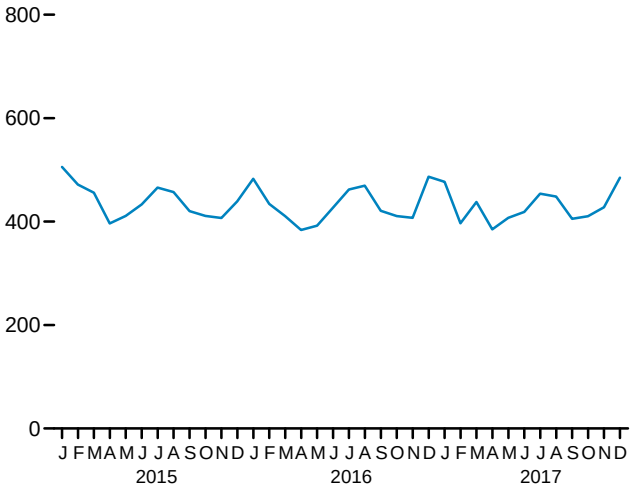
Figure 12.1 Carbon Dioxide Emissions From Energy Consumption by Source

(Million Metric Tons of Carbon Dioxide)

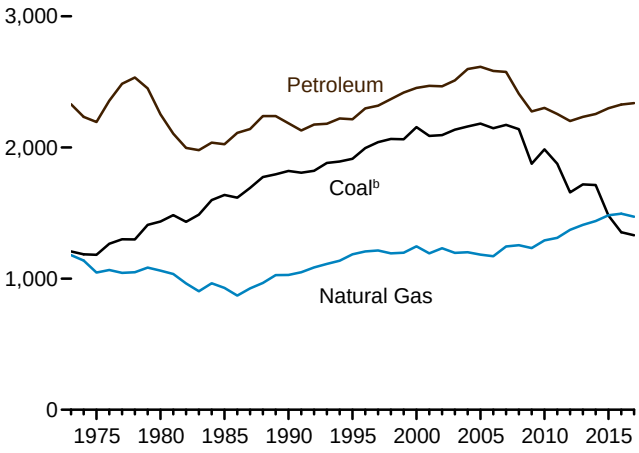
Total,[a] 1973–2017



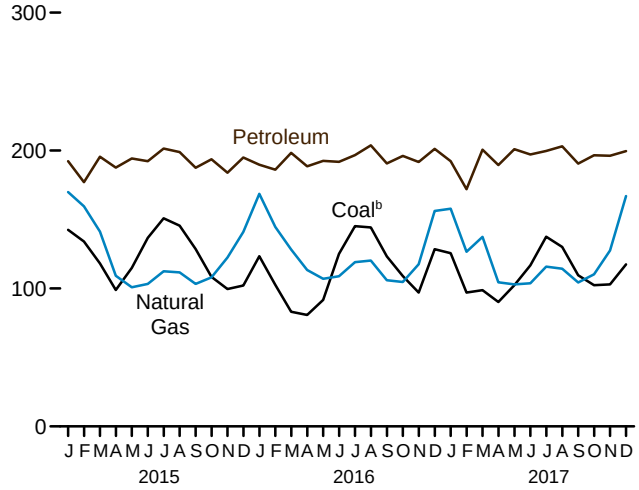
Total,[a] Monthly



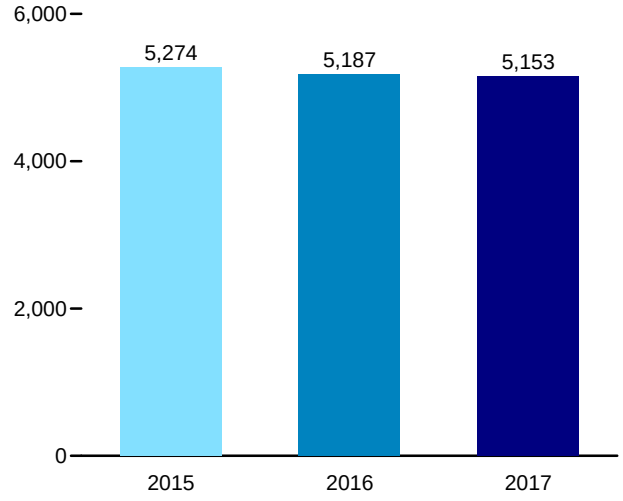
By Major Source, 1973–2017



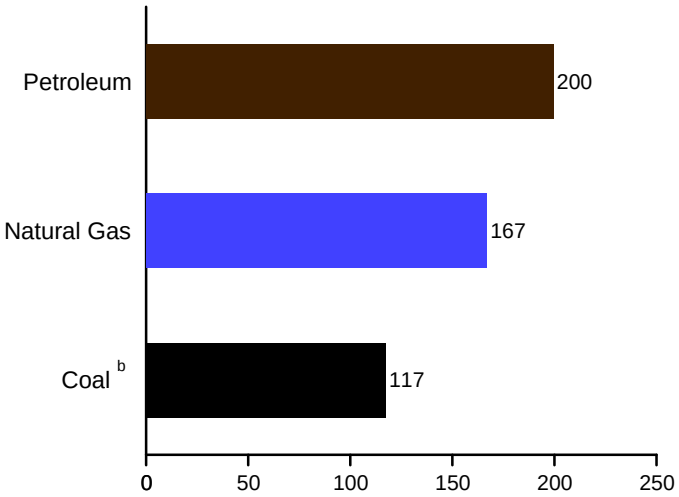
By Major Source, Monthly



Total,[a] January–December



By Major Source, December 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**	**1,179**	**6**	**480**	**76**	**155**	**32**	**13**	**911**	**54**	**506**	**97**	**2,330**	**4,715**
1975 Total	**1,181**	**1,046**	**5**	**442**	**70**	**146**	**24**	**11**	**911**	**51**	**442**	**93**	**2,195**	**4,421**
1980 Total	**1,436**	**1,061**	**4**	**446**	**80**	**156**	**24**	**13**	**900**	**49**	**452**	**129**	**2,253**	**4,750**
1985 Total	**1,638**	**929**	**3**	**445**	**83**	**178**	**17**	**12**	**930**	**55**	**216**	**86**	**2,025**	**4,593**
1990 Total	**1,821**	**1,027**	**3**	**470**	**76**	**223**	**6**	**13**	**988**	**70**	**221**	**114**	**2,184**	**5,039**
1995 Total	**1,913**	**1,186**	**3**	**498**	**91**	**222**	**8**	**13**	**1,045**	**76**	**152**	**107**	**2,215**	**5,324**
1996 Total	**1,995**	**1,207**	**3**	**524**	**97**	**232**	**9**	**12**	**1,063**	**80**	**152**	**125**	**2,298**	**5,511**
1997 Total	**2,040**	**1,214**	**3**	**534**	**95**	**234**	**10**	**13**	**1,075**	**80**	**143**	**131**	**2,319**	**5,584**
1998 Total	**2,064**	**1,193**	**2**	**537**	**91**	**238**	**12**	**14**	**1,107**	**93**	**158**	**116**	**2,369**	**5,637**
1999 Total	**2,062**	**1,198**	**3**	**555**	**100**	**245**	**11**	**14**	**1,128**	**97**	**148**	**119**	**2,419**	**5,690**
2000 Total	**2,156**	**1,246**	**3**	**579**	**104**	**254**	**10**	**14**	**1,136**	**87**	**162**	**106**	**2,454**	**5,867**
2001 Total	**2,088**	**1,193**	**2**	**597**	**94**	**243**	**11**	**13**	**1,152**	**90**	**145**	**125**	**2,470**	**5,762**
2002 Total	**2,095**	**1,231**	**2**	**586**	**96**	**237**	**6**	**12**	**1,183**	**97**	**125**	**121**	**2,466**	**5,805**
2003 Total	**2,136**	**1,196**	**2**	**610**	**93**	**231**	**8**	**11**	**1,187**	**96**	**138**	**134**	**2,511**	**5,855**
2004 Total	**2,160**	**1,201**	**2**	**632**	**95**	**240**	**10**	**12**	**1,210**	**107**	**155**	**136**	**2,598**	**5,971**
2005 Total	**2,182**	**1,183**	**2**	**639**	**90**	**246**	**10**	**12**	**1,209**	**106**	**164**	**135**	**2,615**	**5,992**
2006 Total	**2,147**	**1,170**	**2**	**645**	**85**	**240**	**8**	**11**	**1,217**	**106**	**122**	**147**	**2,583**	**5,912**
2007 Total	**2,172**	**1,246**	**2**	**647**	**89**	**238**	**5**	**12**	**1,211**	**100**	**129**	**143**	**2,576**	**6,005**
2008 Total	**2,140**	**1,255**	**2**	**610**	**85**	**226**	**2**	**11**	**1,143**	**93**	**111**	**126**	**2,409**	**5,815**
2009 Total	**1,876**	**1,233**	**2**	**559**	**83**	**204**	**3**	**10**	**1,129**	**87**	**91**	**107**	**2,275**	**5,396**
2010 Total	**1,986**	**1,292**	**2**	**585**	**86**	**210**	**3**	**11**	**1,112**	**82**	**96**	**115**	**2,302**	**5,591**
2011 Total	**1,876**	**1,311**	**2**	**599**	**80**	**209**	**2**	**10**	**1,078**	**79**	**82**	**114**	**2,255**	**5,454**
2012 Total	**1,657**	**1,372**	**2**	**574**	**84**	**206**	**1**	**9**	**1,071**	**79**	**66**	**110**	**2,202**	**5,243**
2013 Total	**1,718**	**1,409**	**2**	**581**	**92**	**210**	**1**	**10**	**1,087**	**77**	**57**	**116**	**2,233**	**5,372**
2014 Total	**1,714**	**1,440**	**2**	**614**	**87**	**216**	**1**	**10**	**1,095**	**76**	**46**	**108**	**2,255**	**5,419**
2015 January	143	170	(s)	54	9	17	(s)	1	90	7	4	8	192	506
February	134	160	(s)	53	8	16	(s)	1	83	4	3	9	177	472
March	118	141	(s)	53	8	19	(s)	1	94	7	4	9	196	456
April	99	109	(s)	50	7	18	(s)	1	93	7	3	9	188	397
May	115	101	(s)	49	7	19	(s)	1	96	7	4	11	194	411
June	137	103	(s)	49	7	20	(s)	1	95	7	3	11	192	433
July	151	112	(s)	50	7	21	(s)	1	99	7	5	11	201	466
August	145	112	(s)	50	8	20	(s)	1	99	8	5	9	199	457
September	129	103	(s)	51	6	18	(s)	1	94	5	4	9	187	420
October	108	108	(s)	52	8	20	(s)	1	96	6	4	7	194	411
November	100	122	(s)	47	7	18	(s)	1	92	5	4	9	184	407
December	102	141	(s)	49	9	20	(s)	1	95	5	5	10	195	439
Total	**1,480**	**1,483**	**1**	**607**	**91**	**227**	**1**	**11**	**1,126**	**76**	**47**	**112**	**2,299**	**5,274**
2016 January	123	169	(s)	50	9	18	(s)	1	90	7	5	10	190	483
February	103	145	(s)	48	8	18	(s)	1	90	6	3	12	186	434
March	83	128	(s)	51	8	19	(s)	1	98	7	5	9	198	411
April	81	113	(s)	47	6	19	(s)	1	93	5	7	10	189	384
May	92	107	(s)	48	7	20	(s)	1	98	5	5	9	192	392
June	125	109	(s)	48	6	21	(s)	1	97	4	5	10	192	427
July	145	119	(s)	46	7	21	(s)	1	100	6	6	9	197	462
August	144	120	(s)	50	6	21	(s)	1	101	8	5	11	204	469
September	123	106	(s)	49	7	20	(s)	1	96	5	4	10	191	421
October	109	105	(s)	51	7	20	(s)	1	95	6	5	11	196	411
November	97	118	(s)	49	7	20	(s)	1	93	9	4	9	192	407
December	129	156	(s)	52	9	21	(s)	1	96	7	5	10	201	487
Total	**1,354**	**1,495**	**1**	**589**	**88**	**237**	**1**	**11**	**1,145**	**76**	**59**	**120**	**2,327**	**5,187**
2017 January	126	158	(s)	49	10	20	(s)	1	88	8	7	10	192	477
February	97	127	(s)	45	7	17	(s)	1	84	4	4	9	172	397
March	99	R 137	(s)	54	8	21	(s)	1	R 97	3	6	11	201	R 438
April	90	R 104	(s)	47	7	19	(s)	1	93	6	5	11	190	385
May	102	103	(s)	51	7	21	(s)	1	100	6	6	10	201	407
June	117	104	(s)	49	6	21	(s)	1	98	5	6	10	197	419
July	138	116	(s)	48	7	22	(s)	1	100	9	4	10	200	R 454
August	130	R 114	(s)	51	6	22	(s)	1	102	6	5	10	203	R 448
September	110	R 104	(s)	49	7	20	(s)	1	94	6	5	9	191	R 405
October	102	R 110	(s)	51	7	21	(s)	1	97	3	6	10	197	R 410
November	103	128	(s)	52	8	21	(s)	1	92	7	6	9	196	428
December	117	167	(s)	51	9	22	(s)	1	96	7	6	9	200	485
Total	**1,331**	**1,472**	**1**	**597**	**89**	**247**	**1**	**9**	**1,141**	**70**	**64**	**119**	**2,338**	**5,153**

[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.

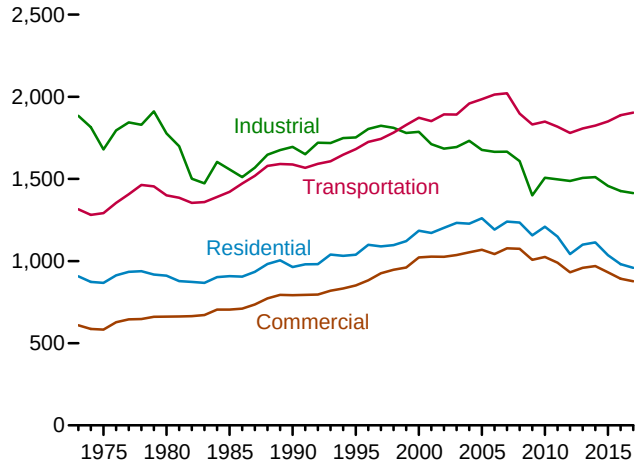
Web Page: See http://www.eia.gov/totalenergy/data/monthly/#environment (Excel and CSV files) for all available annual and monthly data beginning in 1973.

Sources: See end of section.

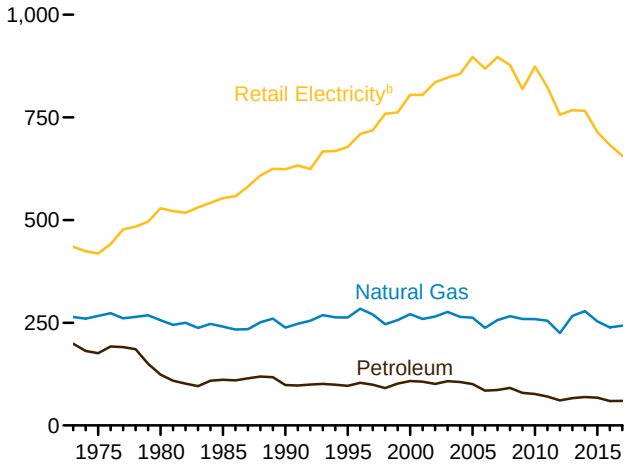
Figure 12.2 Carbon Dioxide Emissions From Energy Consumption by Sector

(Million Metric Tons of Carbon Dioxide)

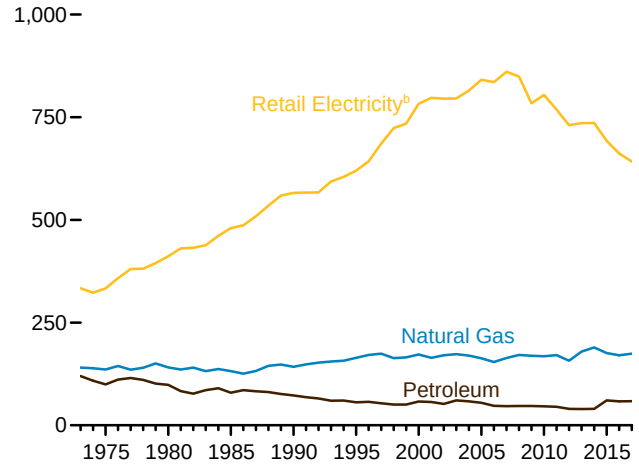
Total[a] by End-Use Sector,[b] 1973–2017



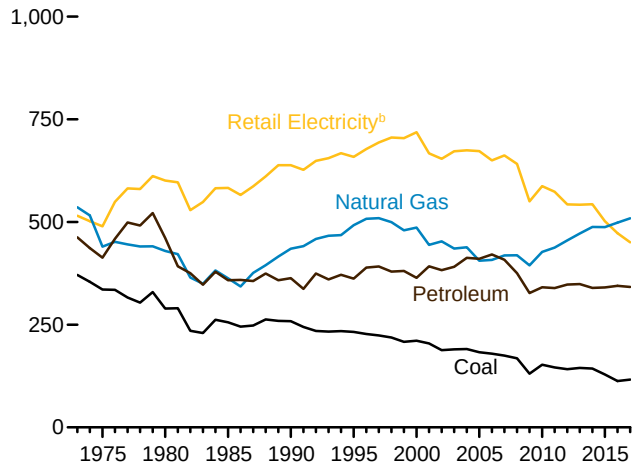
Residential Sector by Major Source, 1973–2017



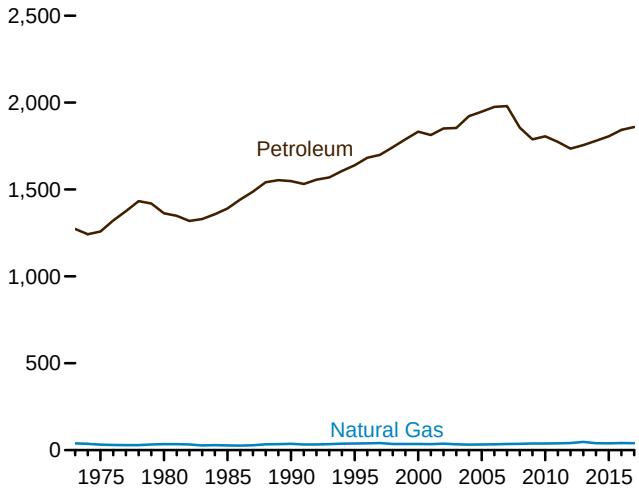
Commercial Sector by Major Source, 1973–2017



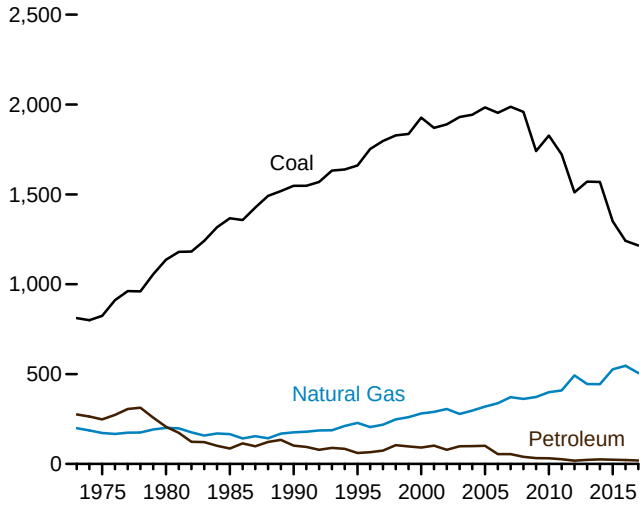
Industrial Sector by Major Source, 1973–2017



Transportation Sector by Major Source, 1973–2017



Electric Power Sector by Major Source, 1973–2017



[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	4	3	(s)	7	65	120
February	NA	38	4	2	(s)	6	52	96
March	NA	25	3	2	(s)	5	41	71
April	NA	18	2	2	(s)	5	37	60
May	NA	11	2	2	(s)	4	43	58
June	NA	7	2	2	(s)	4	65	75
July	NA	6	2	2	(s)	4	84	93
August	NA	6	1	2	(s)	3	83	91
September	NA	6	2	2	(s)	4	64	74
October	NA	10	3	2	(s)	5	49	64
November	NA	21	3	2	(s)	5	43	69
December	NA	44	5	2	(s)	7	62	113
Total	**NA**	**239**	**32**	**27**	**1**	**60**	**683**	**981**
2017 January	NA	46	4	3	(s)	7	63	116
February	NA	32	3	2	(s)	[R]5	45	82
March	NA	32	3	2	(s)	5	[R]46	84
April	NA	15	[R]2	2	(s)	5	40	60
May	NA	11	2	2	(s)	4	46	61
June	NA	7	2	2	(s)	4	59	70
July	NA	6	1	2	(s)	4	78	[R]87
August	NA	6	2	2	(s)	4	72	[R]81
September	NA	6	2	2	(s)	4	56	66
October	NA	11	2	2	(s)	4	48	63
November	NA	26	3	2	(s)	6	46	78
December	NA	45	5	3	(s)	7	60	113
Total	**NA**	**243**	**32**	**27**	**1**	**60**	**656**	**959**

[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])

	Coal	Natural Gas[b]	Petroleum							Retail Electricity[f]	Total[g]
			Distillate Fuel Oil[c]	HGL[d]	Kerosene	Motor Gasoline[e]	Petroleum Coke	Residual Fuel Oil	Total		
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	46	75
March	(s)	16	2	1	(s)	2	(s)	(s)	5	43	65
April	(s)	13	2	1	(s)	2	(s)	(s)	5	43	60
May	(s)	9	2	1	(s)	2	0	(s)	5	49	63
June	(s)	8	1	1	(s)	2	(s)	(s)	4	63	74
July	(s)	7	1	1	(s)	2	(s)	(s)	4	70	82
August	(s)	8	1	1	(s)	2	0	(s)	4	71	83
September	(s)	8	1	1	(s)	2	0	(s)	4	61	73
October	(s)	10	2	1	(s)	2	0	(s)	5	54	70
November	(s)	15	2	1	(s)	2	(s)	(s)	5	48	69
December	(s)	25	4	1	(s)	2	(s)	(s)	7	56	88
Total	**2**	**170**	**24**	**9**	**(s)**	**25**	**(s)**	**(s)**	**58**	**662**	**893**
2017 January	(s)	26	3	1	(s)	2	(s)	(s)	6	54	R 87
February	(s)	20	2	1	(s)	2	(s)	(s)	5	44	69
March	(s)	20	2	1	(s)	2	(s)	(s)	5	R 48	R 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)	4	58	70
July	(s)	7	1	1	(s)	2	(s)	(s)	4	67	R 78
August	(s)	8	1	1	(s)	2	(s)	(s)	4	65	R 76
September	(s)	8	1	1	(s)	2	(s)	(s)	4	56	68
October	(s)	11	2	1	(s)	2	(s)	(s)	5	52	68
November	(s)	18	3	1	(s)	2	(s)	(s)	5	50	73
December	(s)	27	4	1	(s)	2	(s)	(s)	7	54	87
Total	**2**	**174**	**24**	**9**	**(s)**	**25**	**(s)**	**(s)**	**58**	**642**	**877**

[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.
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 12.4 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**	**28**	**11**	**7**	**18**	**53**	**142**	**97**	**463**	**515**	**1,884**
1975 Total	**336**	**2**	**440**	**97**	**27**	**9**	**6**	**16**	**51**	**115**	**93**	**413**	**490**	**1,680**
1980 Total	**289**	**-4**	**430**	**96**	**54**	**13**	**7**	**11**	**49**	**103**	**129**	**461**	**601**	**1,776**
1985 Total	**256**	**-2**	**363**	**81**	**55**	**3**	**6**	**15**	**54**	**57**	**86**	**358**	**583**	**1,558**
1990 Total	**258**	**1**	**435**	**84**	**46**	**1**	**7**	**13**	**67**	**32**	**114**	**363**	**638**	**1,695**
1995 Total	**233**	**7**	**492**	**82**	**58**	**1**	**7**	**14**	**68**	**25**	**107**	**362**	**659**	**1,752**
1996 Total	**227**	**3**	**508**	**86**	**59**	**1**	**6**	**14**	**72**	**25**	**125**	**389**	**678**	**1,804**
1997 Total	**224**	**5**	**509**	**88**	**58**	**1**	**7**	**15**	**70**	**22**	**131**	**392**	**694**	**1,824**
1998 Total	**219**	**8**	**500**	**88**	**56**	**2**	**7**	**14**	**80**	**16**	**116**	**379**	**706**	**1,811**
1999 Total	**208**	**7**	**480**	**86**	**57**	**1**	**7**	**11**	**85**	**14**	**119**	**381**	**704**	**1,780**
2000 Total	**211**	**7**	**486**	**87**	**58**	**1**	**7**	**11**	**77**	**17**	**106**	**364**	**719**	**1,787**
2001 Total	**204**	**3**	**444**	**94**	**51**	**2**	**6**	**21**	**79**	**14**	**125**	**392**	**667**	**1,712**
2002 Total	**188**	**7**	**453**	**88**	**52**	**1**	**6**	**22**	**79**	**13**	**121**	**383**	**654**	**1,684**
2003 Total	**190**	**6**	**435**	**85**	**48**	**2**	**6**	**23**	**78**	**15**	**134**	**391**	**672**	**1,694**
2004 Total	**190**	**16**	**438**	**88**	**52**	**2**	**6**	**26**	**85**	**17**	**136**	**413**	**674**	**1,732**
2005 Total	**183**	**5**	**406**	**92**	**48**	**3**	**6**	**25**	**82**	**20**	**135**	**410**	**672**	**1,677**
2006 Total	**179**	**7**	**408**	**91**	**47**	**2**	**6**	**26**	**85**	**16**	**147**	**421**	**650**	**1,664**
2007 Total	**175**	**3**	**418**	**91**	**50**	**1**	**6**	**21**	**83**	**13**	**143**	**408**	**662**	**1,666**
2008 Total	**168**	**5**	**419**	**98**	**38**	**(s)**	**6**	**17**	**78**	**13**	**126**	**375**	**642**	**1,608**
2009 Total	**131**	**-3**	**395**	**78**	**38**	**(s)**	**5**	**16**	**73**	**9**	**107**	**327**	**550**	**1,400**
2010 Total	**153**	**-1**	**427**	**84**	**42**	**1**	**6**	**17**	**68**	**8**	**115**	**341**	**587**	**1,508**
2011 Total	**146**	**1**	**438**	**90**	**38**	**(s)**	**5**	**17**	**65**	**9**	**114**	**339**	**574**	**1,498**
2012 Total	**141**	**(s)**	**455**	**93**	**48**	**(s)**	**5**	**17**	**70**	**5**	**110**	**348**	**543**	**1,488**
2013 Total	**145**	**-2**	**472**	**92**	**50**	**(s)**	**5**	**17**	**65**	**3**	**116**	**349**	**542**	**1,506**
2014 Total	**143**	**-2**	**488**	**100**	**45**	**(s)**	**5**	**14**	**64**	**3**	**108**	**340**	**543**	**1,511**
2015 January	12	(s)	46	9	6	(s)	1	1	6	(s)	8	32	42	131
February	11	(s)	42	10	5	(s)	(s)	1	2	(s)	9	28	41	122
March	11	(s)	43	9	5	(s)	1	1	6	(s)	9	31	39	123
April	10	(s)	40	8	4	(s)	1	1	6	(s)	9	29	37	116
May	11	(s)	39	6	4	(s)	1	1	6	(s)	11	30	42	122
June	11	(s)	38	7	4	(s)	(s)	1	6	(s)	11	30	47	125
July	11	(s)	39	7	4	(s)	1	2	6	(s)	11	30	48	129
August	11	(s)	39	6	5	(s)	(s)	1	7	(s)	9	29	47	126
September	10	(s)	38	8	4	(s)	(s)	1	4	(s)	9	27	43	118
October	11	(s)	40	6	5	(s)	1	1	5	(s)	7	25	40	115
November	10	(s)	41	4	4	(s)	(s)	1	5	(s)	9	24	38	113
December	10	(s)	43	5	5	(s)	(s)	1	4	(s)	10	27	36	117
Total	**129**	**-2**	**487**	**85**	**53**	**(s)**	**6**	**17**	**65**	**2**	**112**	**341**	**502**	**1,457**
2016 January	10	(s)	46	8	6	(s)	(s)	1	6	(s)	10	32	39	126
February	10	(s)	42	8	5	(s)	(s)	1	5	(s)	12	33	34	119
March	10	(s)	43	9	4	(s)	1	1	6	(s)	9	30	32	115
April	9	(s)	40	6	4	(s)	(s)	1	4	(s)	10	27	33	109
May	9	(s)	40	6	3	(s)	(s)	1	4	(s)	9	25	37	111
June	9	(s)	39	6	3	(s)	1	1	3	(s)	10	25	44	116
July	9	(s)	40	4	4	(s)	(s)	2	5	(s)	9	24	47	121
August	9	(s)	41	7	3	(s)	(s)	2	7	(s)	11	31	47	128
September	9	(s)	39	7	4	(s)	(s)	1	4	(s)	10	27	41	117
October	9	(s)	40	7	4	(s)	(s)	1	5	(s)	11	30	39	118
November	9	-1	42	8	4	(s)	(s)	1	8	(s)	9	30	36	117
December	10	(s)	46	7	5	(s)	(s)	1	6	(s)	10	31	40	127
Total	**113**	**-2**	**498**	**84**	**50**	**(s)**	**6**	**17**	**64**	**4**	**120**	**344**	**473**	**1,426**
2017 January	9	(s)	46	7	6	(s)	(s)	1	7	(s)	10	32	37	124
February	9	(s)	41	7	4	(s)	(s)	1	4	(s)	9	26	32	R 107
March	9	(s)	44	10	4	(s)	(s)	1	R 3	(s)	11	30	35	R 118
April	9	(s)	40	6	4	(s)	(s)	1	5	(s)	11	29	33	111
May	9	(s)	41	8	4	(s)	(s)	2	5	(s)	10	29	37	116
June	9	(s)	40	R 6	3	(s)	(s)	1	4	(s)	10	26	40	R 114
July	10	(s)	41	5	4	(s)	(s)	2	8	(s)	10	29	44	R 123
August	10	(s)	41	7	3	(s)	(s)	2	5	(s)	10	28	R 43	R 121
September	10	(s)	40	7	4	(s)	(s)	1	6	(s)	9	R 28	38	R 115
October	11	(s)	42	R 7	4	(s)	(s)	1	3	(s)	10	27	37	116
November	10	(s)	44	9	4	(s)	(s)	1	6	(s)	9	31	36	121
December	11	(s)	48	6	5	(s)	(s)	1	6	(s)	9	28	38	125
Total	**116**	**-3**	**509**	**86**	**50**	**(s)**	**5**	**17**	**61**	**4**	**119**	**342**	**451**	**1,414**

[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.

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	149	(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	154	(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)	155
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)	156
Total	**(h)**	**40**	**1**	**449**	**3**	**227**	**5**	**1,084**	**37**	**1,806**	**4**	**1,850**
2016 January	(h)	5	(s)	34	(s)	18	(s)	87	4	143	(s)	148
February	(h)	4	(s)	33	(s)	18	(s)	86	2	140	(s)	144
March	(h)	3	(s)	37	(s)	19	(s)	94	5	156	(s)	160
April	(h)	3	(s)	36	(s)	19	(s)	89	6	151	(s)	154
May	(h)	3	(s)	38	(s)	20	(s)	94	4	157	(s)	160
June	(h)	3	(s)	39	(s)	21	(s)	93	4	157	(s)	161
July	(h)	3	(s)	39	(s)	21	(s)	96	5	162	(s)	166
August	(h)	3	(s)	41	(s)	21	(s)	97	4	164	(s)	167
September	(h)	3	(s)	38	(s)	20	(s)	92	3	153	(s)	157
October	(h)	3	(s)	39	(s)	20	(s)	91	4	155	(s)	158
November	(h)	3	(s)	36	(s)	20	(s)	89	4	150	(s)	153
December	(h)	4	(s)	36	(s)	21	(s)	93	4	154	(s)	159
Total	**(h)**	**41**	**1**	**445**	**3**	**237**	**5**	**1,103**	**49**	**1,843**	**4**	**1,888**
2017 January	(h)	4	(s)	33	(s)	20	(s)	85	6	145	(s)	150
February	(h)	3	(s)	32	(s)	17	(s)	81	3	134	(s)	138
March	(h)	4	(s)	38	(s)	21	(s)	94	5	158	(s)	162
April	(h)	3	(s)	R 37	(s)	19	(s)	90	4	150	(s)	R 154
May	(h)	3	(s)	R 40	(s)	21	(s)	96	5	162	(s)	165
June	(h)	3	(s)	39	(s)	21	(s)	95	5	161	(s)	164
July	(h)	3	(s)	40	(s)	22	(s)	96	3	R 162	(s)	165
August	(h)	3	(s)	41	(s)	22	(s)	98	4	166	(s)	R 170
September	(h)	3	(s)	38	(s)	20	(s)	90	4	153	(s)	156
October	(h)	3	(s)	39	(s)	21	(s)	93	5	R 160	(s)	163
November	(h)	3	(s)	37	(s)	21	(s)	88	6	R 153	(s)	156
December	(h)	4	(s)	36	(s)	22	(s)	92	5	155	(s)	160
Total	**(h)**	**40**	**1**	**451**	**3**	**247**	**4**	**1,099**	**55**	**1,860**	**4**	**1,904**

[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.

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.

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	1	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	72	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	62	(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**	**547**	**4**	**12**	**6**	**22**	**(s)**	**11**	**1,821**
2017 January	116	35	(s)	1	(s)	2	(s)	1	155
February	88	R 31	(s)	1	(s)	1	(s)	1	121
March	89	R 37	(s)	1	(s)	1	(s)	1	R 129
April	81	34	(s)	(s)	(s)	1	(s)	1	117
May	93	39	(s)	1	(s)	2	(s)	1	134
June	108	47	(s)	1	(s)	2	(s)	1	157
July	128	59	(s)	1	(s)	2	(s)	1	R 189
August	121	R 57	(s)	1	(s)	2	(s)	1	R 180
September	100	R 47	(s)	1	(s)	1	(s)	1	150
October	92	43	(s)	1	(s)	1	(s)	1	137
November	93	R 36	(s)	1	(s)	1	(s)	1	132
December	107	42	1	1	1	2	(s)	1	152
Total	**1,216**	**506**	**4**	**10**	**5**	**19**	**(s)**	**11**	**1,753**

[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.

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 12.7 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	**199**	**42**	**73**	**2**	**316**	**41**	**10**	**149**	**74**	**42**	**316**
2011 Total	**201**	**42**	**73**	**8**	**324**	**42**	**11**	**151**	**80**	**40**	**324**
2012 Total	**200**	**42**	**73**	**8**	**324**	**39**	**10**	**153**	**80**	**42**	**324**
2013 Total	**220**	**45**	**75**	**13**	**353**	**54**	**11**	**158**	**87**	**43**	**353**
2014 Total	**226**	**47**	**76**	**13**	**362**	**55**	**12**	**158**	**88**	**49**	**362**
2015 January	18	4	6	(s)	29	R 3	1	14	6	4	29
February	17	3	6	1	27	3	1	12	7	4	27
March	R 17	4	7	1	29	R 3	1	13	7	4	29
April	17	4	6	1	28	3	1	13	7	4	28
May	18	4	7	1	30	R 3	1	13	8	4	30
June	17	4	7	2	29	3	1	13	8	4	29
July	18	4	7	1	R 30	R 3	1	13	8	4	R 30
August	18	4	7	1	31	R 3	1	13	8	4	31
September	17	4	7	1	29	3	1	13	8	4	29
October	17	4	7	1	29	R 3	1	13	8	4	29
November	17	4	7	1	29	3	1	13	7	4	29
December	18	4	7	1	30	R 3	1	13	8	4	30
Total	**210**	**47**	**79**	**14**	**350**	**41**	R **13**	**157**	**90**	**48**	**350**
2016 January	17	4	6	1	28	3	1	13	7	4	28
February	16	4	6	1	R 27	3	1	13	7	4	R 27
March	17	4	7	1	29	3	1	13	8	4	29
April	16	4	6	1	27	3	1	12	7	4	27
May	16	4	7	2	29	3	1	13	8	4	29
June	R 16	4	7	2	29	3	1	13	8	4	29
July	17	4	7	2	30	3	1	13	9	4	30
August	17	4	7	2	30	3	1	13	9	4	30
September	16	4	7	2	28	3	1	12	8	4	28
October	16	4	7	2	R 28	3	1	13	8	3	R 28
November	R 16	4	7	2	29	3	1	13	8	4	29
December	19	4	7	2	32	3	1	15	9	4	32
Total	R **200**	**46**	**81**	**20**	R **346**	R **33**	**14**	**155**	**98**	**47**	R **346**
2017 January	R 17	4	6	1	29	3	1	13	7	4	29
February	16	4	6	1	R 26	R 2	1	12	7	4	R 26
March	17	4	7	1	29	3	1	13	8	4	29
April	16	4	7	2	28	3	1	13	8	4	28
May	R 16	4	7	2	29	3	1	13	9	4	29
June	17	3	7	2	29	3	1	13	9	4	29
July	R 17	4	7	2	30	3	1	13	9	4	30
August	18	4	7	2	R 30	3	1	13	9	4	R 30
September	16	3	7	2	28	3	1	12	8	4	28
October	17	4	7	2	29	3	1	13	8	4	29
November	17	4	7	2	29	3	1	13	8	4	29
December	18	4	7	1	30	3	1	14	8	4	30
Total	**201**	**44**	**82**	**18**	**345**	**31**	**14**	**155**	**97**	**48**	**345**

[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.

R=Revised. 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	P 5.722	RP 3.700	RP 6.061	P 5.222	RP 5.492	RP 5.939	RP 5.736	RP 5.221	RP 5.154	RP 5.257
2018	E 5.722	E 3.700	E 6.061	E 5.222	E 5.492	E 5.939	E 5.736	E 5.221	E 5.154	E 5.257

[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.

R=Revised. P=Preliminary. 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] 4.633	[E] 5.038	[E] 4.869	[E] 5.305	5.885	5.181	5.773	3.543	5.059	6.104	3.558	*5.755*
2017	[RE] 4.629	[RE] 5.039	[RE] 4.842	[RE] 5.310	[RP] 5.896	[RP] 5.177	[P] 5.773	[RP] 3.527	[RP] 5.058	[RP] 6.126	[RP] 3.556	*5.735*
2018	[E] 4.629	[E] 5.039	[E] 4.842	[E] 5.310	[E] 5.896	[E] 5.177	[E] 5.773	[E] 3.527	[E] 5.058	[E] 6.126	[E] 3.556	*5.715*

[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.

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

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

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

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

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	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
2018	[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.

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							
	Production[a]	Waste Coal Supplied[b]	Residential and Commercial Sectors[c]	Industrial Sector: Coke Plants	Industrial Sector: 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	19.977	11.496	20.078	28.608	21.055	19.153	19.459	22.327	25.655	24.800
2017	[E] 19.977	[E] 11.496	[E] 20.078	[E] 28.608	[E] 21.055	[E] 19.153	[E] 19.459	[E] 22.327	[E] 25.655	[E] 24.800
2018	[E] 19.977	[E] 11.496	[E] 20.078	[E] 28.608	[E] 21.055	[E] 19.153	[E] 19.459	[E] 22.327	[E] 25.655	[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.

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	10,493	10,811	7,870	9,232	10,459	9,232	3,412
2017	[E] 10,493	[E] 10,811	[E] 7,870	[E] 9,232	[E] 10,459	[E] 9,232	3,412
2018	[E] 10,493	[E] 10,811	[E] 7,870	[E] 9,232	[E] 10,459	[E] 9,232	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 forms. 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	3,350.7	5.8	743.7	3,976.7	.18702	NA
1970	205.1	3,713.3	5.5	1,075.9	4,722.0	.22784	NA
1975	216.0	4,088.8	5.3	1,688.9	5,385.4	.31361	NA
1980	227.2	4,445.4	5.1	2,862.5	6,450.4	.44377	NA
1981	229.5	4,526.8	5.1	3,211.0	6,617.7	.48520	NA
1982	231.7	4,607.2	5.0	3,345.0	6,491.3	.51530	NA
1983	233.8	4,688.6	5.0	3,638.1	6,792.0	.53565	NA
1984	235.8	4,767.7	4.9	4,040.7	7,285.0	.55466	NA
1985	237.9	4,849.9	4.9	4,346.7	7,593.8	.57240	NA
1986	240.1	4,934.2	4.9	4,590.2	7,860.5	.58395	NA
1987	242.3	5,021.1	4.8	4,870.2	8,132.6	.59885	8,639.9
1988	244.5	5,108.7	4.8	5,252.6	8,474.5	.61982	9,359.5
1989	246.8	5,196.0	4.8	5,657.7	8,786.4	.64392	9,969.6
1990	249.6	5,284.3	4.7	5,979.6	8,955.0	.66773	10,511.1
1991	253.0	5,367.5	4.7	6,174.0	8,948.4	.68996	10,676.5
1992	256.5	5,452.2	4.7	6,539.3	9,266.6	.70569	11,242.4
1993	259.9	5,534.4	4.7	6,878.7	9,521.0	.72248	11,857.6
1994	263.1	5,614.5	4.7	7,308.8	9,905.4	.73785	12,647.2
1995	266.3	5,695.8	4.7	7,664.1	10,174.8	.75324	13,451.6
1996	269.4	5,776.3	4.7	8,100.2	10,561.0	.76699	14,259.9
1997	272.6	5,854.8	4.7	8,608.5	11,034.9	.78012	15,355.4
1998	275.9	5,932.0	4.7	9,089.2	11,525.9	.78859	16,171.3
1999	279.0	6,008.6	4.6	9,660.6	12,065.9	.80065	17,244.8
2000	282.2	6,084.7	4.6	10,284.8	12,559.7	.81887	18,564.6
2001	285.0	6,160.9	4.6	10,621.8	12,682.2	.83754	18,863.1
2002	287.6	6,237.2	4.6	10,977.5	12,908.8	.85039	19,175.0
2003	290.1	6,313.9	4.6	11,510.7	13,271.1	.86735	20,135.1
2004	292.8	6,390.6	4.6	12,274.9	13,773.5	.89120	21,697.3
2005	295.5	6,467.4	4.6	13,093.7	14,234.2	.91988	23,514.9
2006	298.4	6,545.2	4.6	13,855.9	14,613.8	.94814	24,888.0
2007	301.2	6,623.5	4.5	14,477.6	14,873.7	.97337	26,151.3
2008	304.1	6,702.2	4.5	14,718.6	14,830.4	.99246	26,825.7
2009	306.8	6,780.8	4.5	14,418.7	14,418.7	1.00000	24,657.2
2010	309.3	6,858.6	4.5	14,964.4	14,783.8	1.01221	26,093.5
2011	311.6	6,936.0	4.5	15,517.9	15,020.6	1.03311	27,536.0
2012	314.0	7,013.9	4.5	16,155.3	15,354.6	1.05214	28,663.2
2013	316.2	7,092.1	4.5	16,691.5	15,612.2	1.06913	29,601.2
2014	318.6	7,170.0	4.4	17,427.6	16,013.3	1.08832	31,034.0
2015	321.0	7,247.9	4.4	18,120.7	16,471.5	1.10012	31,431.4
2016	323.4	7,326.0	4.4	18,624.5	16,716.2	1.11416	32,084.9
2017	325.7	7,405.1	4.4	19,386.8	17,092.7	1.13422	NA

[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.

R=Revised. 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 2017). • **World Population: 1950 forward—**DOC, U.S. Census Bureau, International Database (December 2017). • **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 (January 2018), Tables 1.1.5, 1.1.6, and 1.1.9. • **U.S. Gross Output: 1987 forward—**DOC, BEA, GDP by Industry data (November 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]	
	Coal	Natural Gas	Petroleum	Total		Wood [a]	Total		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	914	1,559	2,472	64	54	92	210	774	1,321	2,096
2017	1,024	1,746	2,770	64	55	93	211	868	1,480	2,347

[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	64	109	123	210	570	2,056	3,291	5,347
2017	64	82	140	181	308	775	2,336	3,768	6,104

[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 Fuel: 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 construction 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.