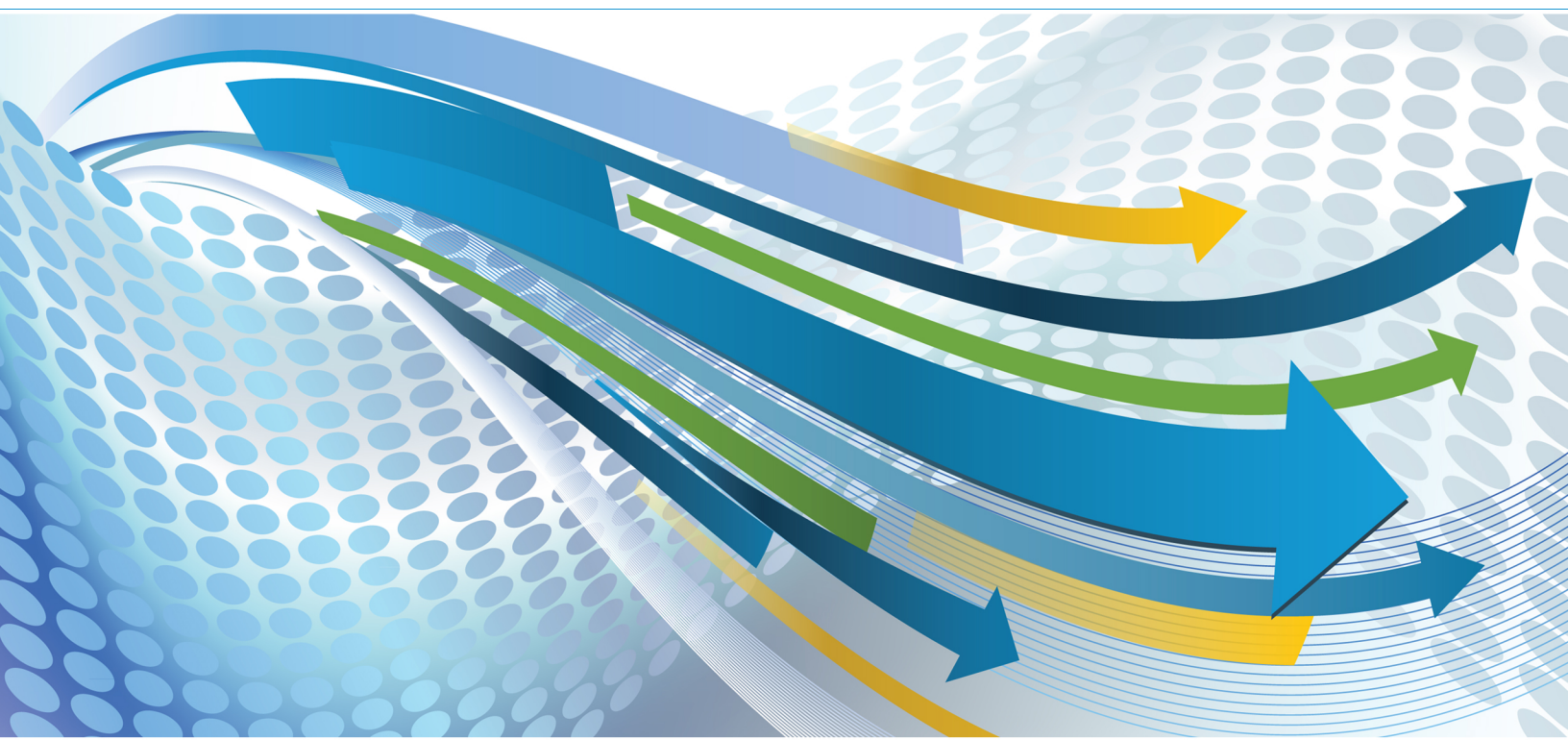


# February 2017

# Monthly Energy Review



*Independent Statistics & Analysis*

U.S. Energy Information  
Administration

[www.eia.gov/mer](http://www.eia.gov/mer)

# 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, 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.

Release of the MER is in keeping with responsibilities given to EIA in Public Law 95–91 (Department of Energy Organization Act), which states, in part, in Section 205(a)(2):

*“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....”*

The MER is intended for use by Members of Congress, federal and state agencies, energy analysts, and the general public. EIA welcomes suggestions from readers regarding the content of the MER and other EIA publications.

**Related Monthly Publications:** Other monthly EIA reports are *Petroleum Supply Monthly*, *Petroleum Marketing Monthly*, *Natural Gas Monthly*, and *Electric Power Monthly*. For more information, contact EIA's Office of Communications via email at [infoctr@eia.gov](mailto:infoctr@eia.gov).

## Important Notes About the Data

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

**Comprehensive Changes:** Each month, most MER tables and figures carry a new month of data, which is usually preliminary (and sometimes estimated or even forecast) and likely to be revised in the succeeding month.

**Annual Data From 1949:** In 2013, EIA expanded the MER to incorporate annual data as far back as 1949 in those data tables that were previously published in both the *Annual Energy Review (AER)* and MER. Analysts may wish to use the data in this report in conjunction with the AER which offers annual data beginning in 1949 for many related supplemental data series that are not found in the MER. The AER is available at <http://www.eia.gov/totalenergy/data/annual>.

## Electronic Access

The MER is available on EIA's website in a variety of formats at <http://www.eia.gov/totalenergy/data/monthly>.

- Full report and sections: PDF files
- Report tables: PDF files
- Table data (unrounded): Excel and CSV files
- Graphs: PDF files

Note: PDF files display selected annual and monthly data; Excel and CSV files display all available annual and monthly data, often at a greater level of precision than the PDF files.

**Timing of Release:** The MER is posted on the EIA website no later than the last work day of the month at <http://www.eia.gov/totalenergy/data/monthly>.

# **Monthly Energy Review**

## **February 2017**

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

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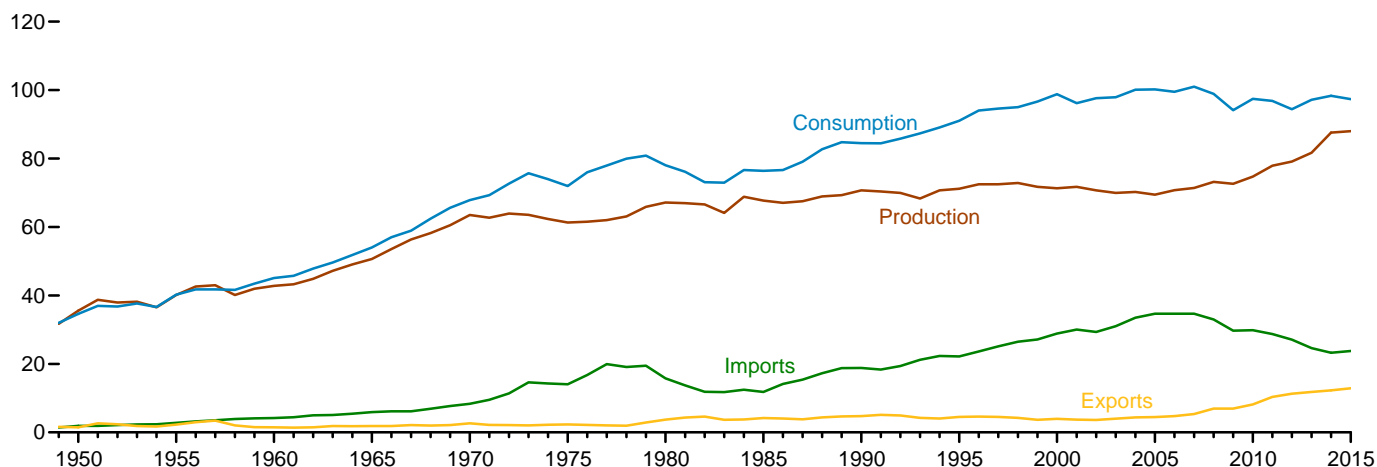
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# 1. Energy Overview

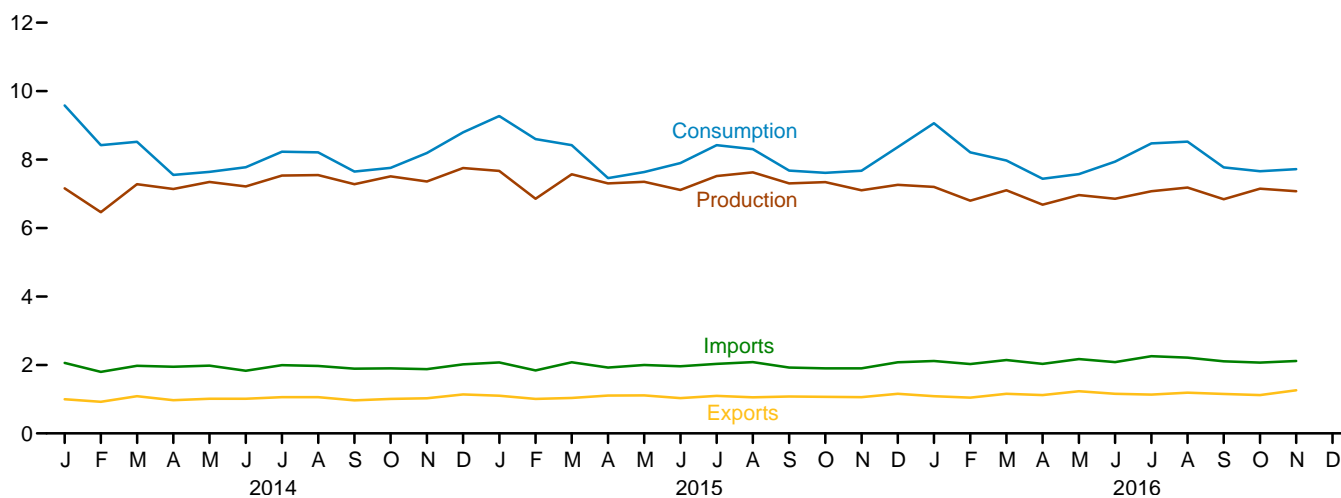
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**Figure 1.1 Primary Energy Overview**  
(Quadrillion Btu)

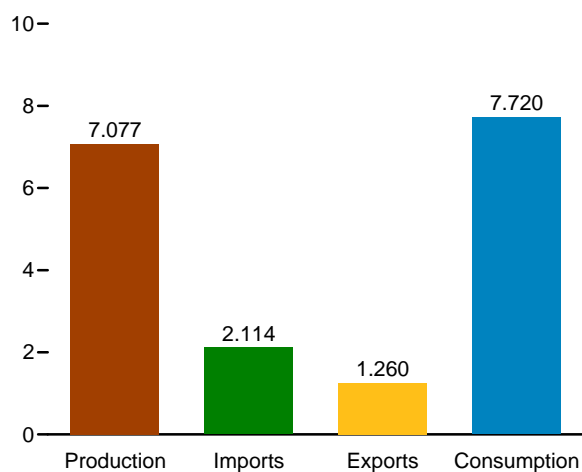
Overview, 1949–2015



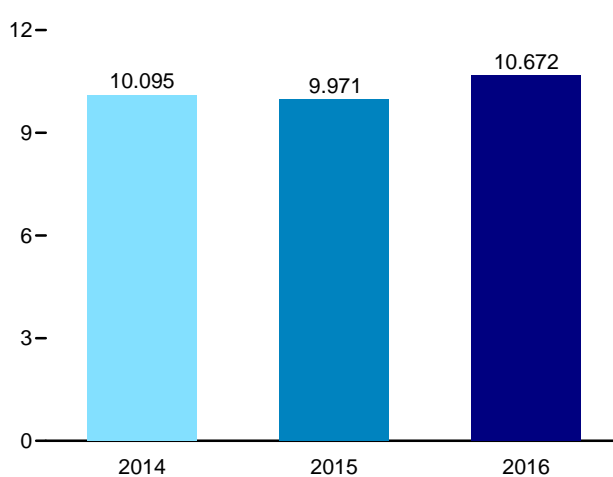
Overview, Monthly



Overview, November 2016



Net Imports, January–November



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 <sup>d</sup>	Consumption			
	Fossil Fuels <sup>a</sup>	Nuclear Electric Power	Renewable Energy <sup>b</sup>	Total	Imports	Exports	Net Imports <sup>c</sup>		Fossil Fuels <sup>e</sup>	Nuclear Electric Power	Renewable Energy <sup>b</sup>	Total <sup>f</sup>
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	97.917
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	99.484
2007 Total	56.435	8.459	6.510	71.404	34.679	5.338	29.341	.270	85.927	8.459	6.523	101.015
2008 Total	57.588	8.426	7.191	73.205	32.970	6.949	26.021	-.336	83.178	8.426	7.174	98.891
2009 Total	56.669	8.355	7.620	72.645	29.690	6.920	22.770	-1.297	78.042	8.355	7.604	94.118
2010 Total	58.216	8.434	8.077	74.727	29.866	8.176	21.690	1.027	80.891	8.434	8.030	97.444
2011 Total	60.550	8.269	9.095	77.913	28.748	10.373	18.375	.553	79.447	8.269	8.999	96.842
2012 Total	62.303	8.062	8.743	79.107	27.068	11.267	15.801	-.492	77.487	8.062	8.706	94.416
2013 Total	64.201	8.244	9.249	81.695	24.623	11.788	12.835	2.627	79.440	8.244	9.275	97.157
2014 January	5.578	.765	.815	7.158	2.058	1.000	1.059	1.366	7.995	.765	.808	9.583
February	5.107	.655	.700	6.462	1.798	.923	.875	1.084	7.058	.655	.697	8.421
March	5.779	.653	.850	7.282	1.977	1.088	.889	.348	7.009	.653	.845	8.519
April	5.693	.590	.858	7.141	1.949	.972	.977	-.568	6.093	.590	.856	7.550
May	5.831	.658	.855	7.344	1.979	1.013	.966	-.669	6.114	.658	.853	7.641
June	5.651	.713	.853	7.217	1.829	1.014	.815	-.257	6.198	.713	.849	7.775
July	5.963	.752	.820	7.535	1.995	1.061	.934	-.242	6.641	.752	.817	8.228
August	6.047	.744	.754	7.545	1.972	1.061	.912	-.247	6.689	.744	.756	8.209
September	5.868	.706	.709	7.283	1.889	.966	.923	-.558	6.216	.706	.708	7.648
October	6.098	.653	.758	7.508	1.899	1.009	.891	-.642	6.330	.653	.759	7.756
November	5.874	.681	.803	7.358	1.879	1.024	.855	-.020	6.697	.681	.799	8.194
December	6.164	.767	.820	7.752	2.016	1.140	.876	.166	7.200	.767	.812	8.794
Total	69.653	8.338	9.595	87.585	23.241	12.270	10.971	-.239	80.240	8.338	9.558	98.317
2015 January	6.084	.777	.806	7.667	2.075	1.103	.972	.632	7.685	.777	.792	9.271
February	5.443	.664	.751	6.857	1.840	1.006	.834	.908	7.175	.664	.747	8.599
March	6.080	.675	.815	7.570	2.079	1.035	1.044	-.192	6.917	.675	.811	8.422
April	5.866	.625	.812	7.303	1.922	1.105	.816	-.661	6.003	.625	.810	7.459
May	5.860	.688	.805	7.353	2.000	1.110	.890	-.606	6.122	.688	.807	7.637
June	5.623	.717	.771	7.111	1.963	1.032	.930	-.145	6.386	.717	.773	7.896
July	5.978	.747	.796	7.521	2.032	1.095	.937	-.034	6.858	.747	.797	8.423
August	6.101	.757	.770	7.628	2.082	1.054	1.028	-.349	6.753	.757	.774	8.307
September	5.890	.695	.721	7.306	1.925	1.076	.849	-.475	6.237	.695	.728	7.680
October	5.956	.633	.753	7.343	1.901	1.070	.832	-.562	6.210	.633	.754	7.612
November	5.667	.630	.806	7.103	1.899	1.060	.839	-.269	6.222	.630	.802	7.672
December	5.673	.728	.860	7.262	2.076	1.156	.920	.183	6.764	.728	.855	8.365
Total	70.221	8.337	9.466	88.024	23.794	12.902	10.892	-1.572	79.330	8.337	9.450	97.344
2016 January	5.586	.759	.856	7.200	2.114	1.087	1.027	R 833	R 7.437	.759	.843	R 9.060
February	5.270	.686	.845	6.801	2.025	1.043	.983	R 428	R 6.664	.686	.844	R 8.212
March	5.498	.692	.916	7.105	2.142	1.156	.986	R -120	R 6.347	.692	.914	R 7.971
April	5.160	.652	.868	6.680	2.033	1.120	.914	R -155	R 5.904	.652	.868	R 7.438
May	5.386	.696	.880	6.962	2.172	1.231	.941	R -328	R 5.977	.696	.883	R 7.575
June	5.317	.703	.836	6.855	2.081	1.157	.924	R 162	R 6.378	.703	.838	R 7.941
July	R 5.488	.736	.852	7.075	2.255	1.132	1.123	R 273	R 6.853	.736	.858	R 8.472
August	5.638	.748	.797	R 7.184	2.214	1.190	1.024	R 315	R 6.947	.748	.804	R 8.523
September	R 5.390	.684	.766	R 6.840	2.105	1.155	.950	R -017	R 6.297	.684	.772	R 7.773
October	R 5.704	.635	.813	R 7.151	2.066	R 1.120	R .946	R -439	R 6.193	.635	.813	R 7.659
November	5.583	.682	.812	7.077	2.114	1.260	.853	-.211	6.201	.682	.817	7.720
11-Month Total	60.020	7.672	9.239	76.931	23.322	12.650	10.672	.741	71.199	7.672	9.253	88.344
2015 11-Month Total	64.548	7.609	8.606	80.762	21.718	11.746	9.971	-1.755	72.565	7.609	8.594	88.978
2014 11-Month Total	63.489	7.570	8.774	79.833	21.225	11.130	10.095	-.405	73.040	7.570	8.746	89.524

<sup>a</sup> Coal, natural gas (dry), crude oil, and natural gas plant liquids.  
<sup>b</sup> 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.  
<sup>c</sup> Net imports equal imports minus exports.  
<sup>d</sup> 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.  
<sup>e</sup> Coal, coal coke net imports, natural gas, and petroleum.  
<sup>f</sup> Also includes electricity net imports.  
R=Revised.

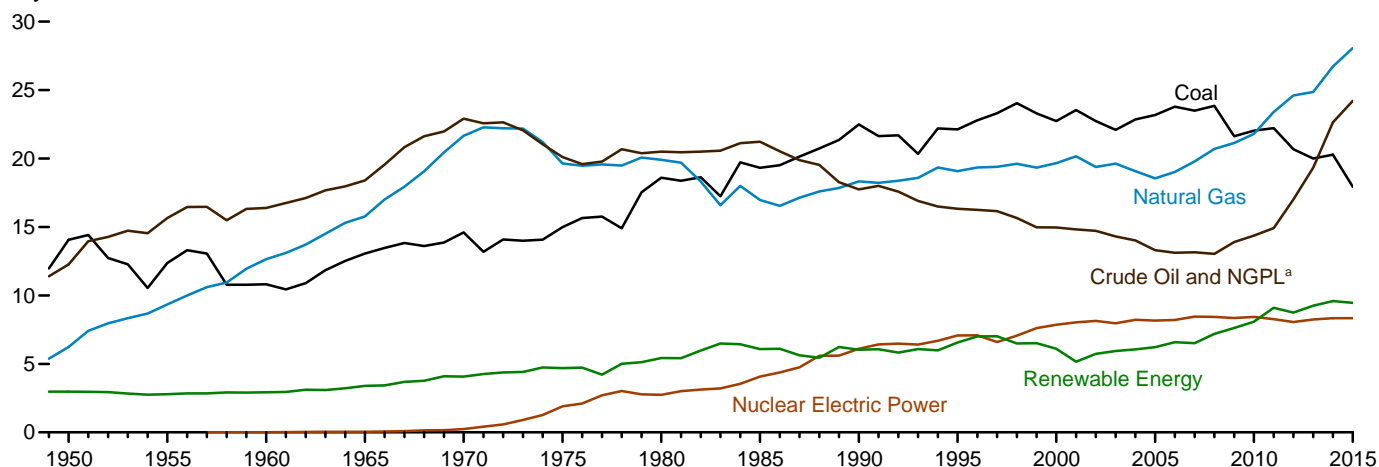
Notes: • See "Primary Energy," "Primary Energy Production," and "Primary Energy Consumption," in Glossary. • Totals may not equal sum of components due to independent rounding. • Geographic coverage is the 50 states and the District of Columbia.

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.

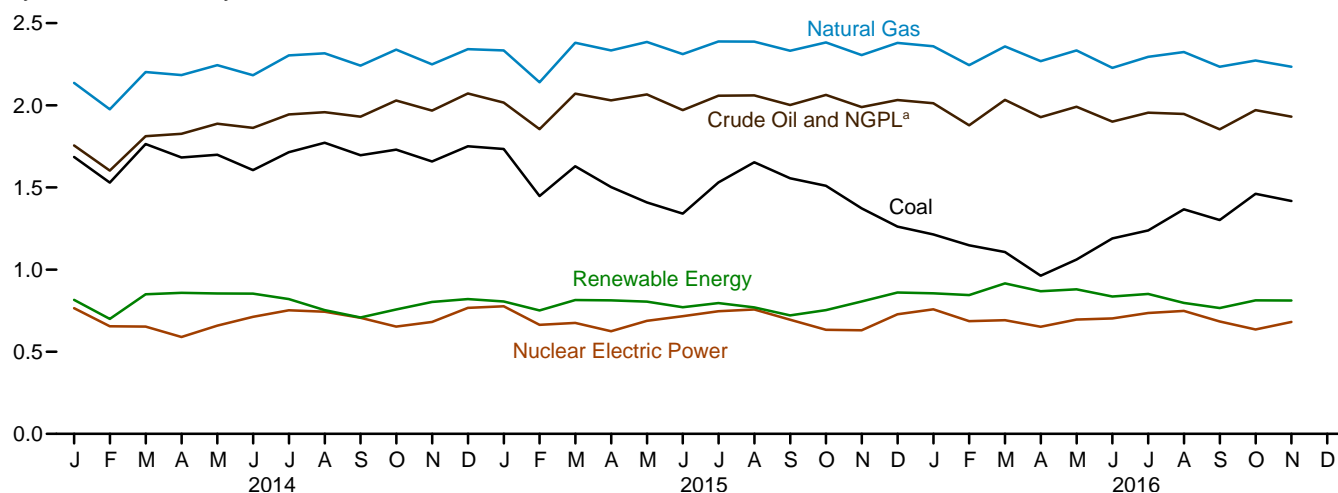
Sources: • **Production:** Table 1.2. • **Trade:** Tables 1.4a and 1.4b. • **Stock Change and Other:** Calculated as consumption minus production and net imports. • **Consumption:** Table 1.3.

**Figure 1.2 Primary Energy Production**  
(Quadrillion Btu)

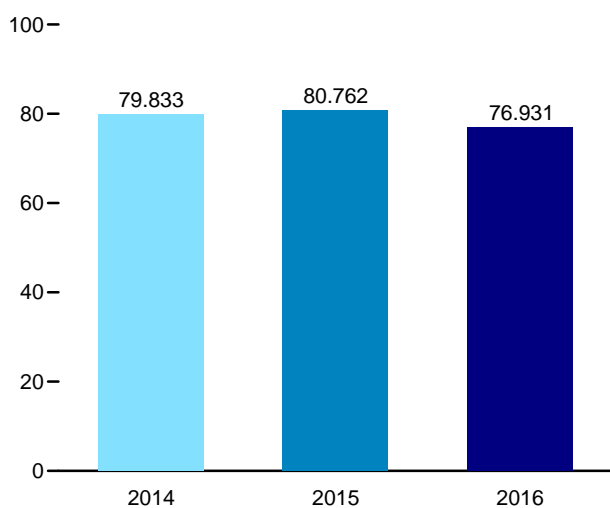
By Source, 1949–2015



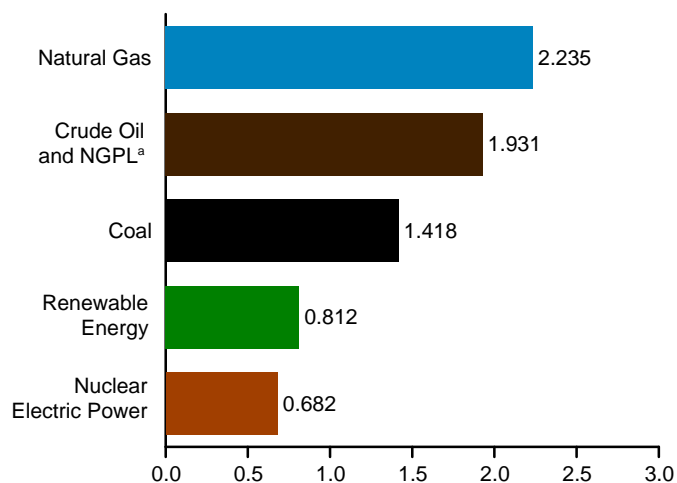
By Source, Monthly



Total, January–November



By Source, November 2016



<sup>a</sup> 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 <sup>a</sup>							Total
	Coal <sup>b</sup>	Natural Gas (Dry)	Crude Oil <sup>c</sup>	NGPL <sup>d</sup>	Total		Hydro- electric Power <sup>e</sup>	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	10.747	2.409	56.435	8.459	2.446	.186	.065	.341	3.472	6.510	71.404	
2008 Total .....	23.851	20.703	10.614	2.419	57.588	8.426	2.511	.192	.074	.546	3.868	7.191	73.205	
2009 Total .....	21.624	21.139	11.332	2.574	56.669	8.355	2.669	.200	.078	.721	3.953	7.620	72.645	
2010 Total .....	22.038	21.806	11.591	2.781	58.216	8.434	2.539	.208	.090	.923	4.316	8.077	74.727	
2011 Total .....	22.221	23.406	11.952	2.970	60.550	8.269	3.103	.212	.111	1.168	4.501	9.095	77.913	
2012 Total .....	20.677	24.610	13.770	3.246	62.303	8.062	2.629	.212	.157	1.340	4.406	8.743	79.107	
2013 Total .....	20.001	24.859	15.809	3.532	64.201	8.244	2.562	.214	.225	1.601	4.647	9.249	81.695	
2014 January .....	1.686	2.136	1.444	.311	5.578	.765	.206	.018	.017	.170	.404	.815	7.158	
February .....	1.529	1.975	1.320	.283	5.107	.655	.165	.016	.018	.133	.367	.700	6.462	
March .....	1.764	2.203	1.485	.327	5.779	.653	.231	.018	.026	.169	.406	.850	7.282	
April .....	1.682	2.184	1.497	.330	5.693	.590	.242	.018	.029	.177	.392	.858	7.141	
May .....	1.699	2.245	1.547	.341	5.831	.658	.252	.018	.033	.148	.403	.855	7.344	
June .....	1.605	2.183	1.517	.346	5.651	.713	.245	.018	.035	.150	.406	.853	7.217	
July .....	1.714	2.304	1.585	.359	5.963	.752	.232	.018	.034	.116	.420	.820	7.535	
August .....	1.772	2.317	1.596	.363	6.047	.744	.188	.018	.035	.097	.416	.754	7.545	
September .....	1.696	2.241	1.574	.357	5.868	.706	.153	.018	.033	.110	.396	.709	7.283	
October .....	1.730	2.339	1.660	.369	6.098	.653	.163	.018	.031	.138	.407	.758	7.508	
November .....	1.658	2.249	1.619	.348	5.874	.681	.177	.018	.025	.179	.403	.803	7.358	
December .....	1.751	2.342	1.707	.364	6.164	.767	.212	.018	.021	.140	.428	.820	7.752	
Total .....	20.286	26.718	18.552	4.096	69.653	8.338	2.467	.214	.337	1.728	4.849	9.595	87.585	
2015 January .....	1.734	2.334	1.662	.355	6.084	.777	.225	.018	.021	.141	.401	.806	7.667	
February .....	1.448	2.140	1.523	.331	5.443	.664	.208	.017	.025	.139	.363	.751	6.857	
March .....	1.628	2.380	1.695	.376	6.080	.675	.226	.018	.035	.143	.393	.815	7.570	
April .....	1.502	2.334	1.651	.379	5.866	.625	.209	.017	.040	.167	.380	.812	7.303	
May .....	1.409	2.385	1.679	.387	5.860	.688	.188	.018	.043	.160	.396	.805	7.353	
June .....	1.341	2.311	1.598	.373	5.623	.717	.190	.017	.043	.125	.395	.771	7.111	
July .....	1.531	2.389	1.669	.389	5.978	.747	.196	.018	.045	.127	.410	.796	7.521	
August .....	1.654	2.387	1.663	.397	6.101	.757	.178	.018	.045	.122	.406	.770	7.628	
September .....	1.555	2.332	1.616	.386	5.890	.695	.150	.017	.039	.130	.385	.721	7.306	
October .....	1.510	2.383	1.658	.405	5.956	.633	.155	.018	.034	.153	.393	.753	7.343	
November .....	1.373	2.305	1.596	.393	5.667	.630	.180	.018	.030	.183	.394	.806	7.103	
December .....	1.262	2.380	1.635	.397	5.673	.728	.216	.018	.027	.187	.412	.860	7.262	
Total .....	17.946	28.061	19.647	4.567	70.221	8.337	2.321	.213	.427	1.777	4.727	9.466	88.024	
2016 January .....	1.214	E 2.359	E 1.629	.383	5.586	.759	.236	.019	.027	.173	.401	.856	7.200	
February .....	1.148	E 2.244	E 1.516	.361	5.270	.686	.225	.018	.037	.188	.376	.845	6.801	
March .....	1.107	E 2.358	E 1.626	.407	5.498	.692	.252	.019	.045	.203	.397	.916	7.105	
April .....	.963	E 2.269	E 1.535	.394	5.160	.652	.237	.018	.049	.192	.372	.868	6.680	
May .....	1.061	E 2.333	E 1.574	.417	5.386	.696	.236	.020	.057	.175	.391	.880	6.962	
June .....	1.189	E 2.227	E 1.494	.406	5.317	.703	.213	.018	.058	.152	.394	.836	6.855	
July .....	1.238	E 2.295	E 1.540	.415	R 5.488	.736	.198	.019	.063	.164	.407	.852	7.075	
August .....	R 1.367	E 2.325	E 1.552	.395	E 5.638	.748	.180	.019	.061	.126	.410	.797	R 7.184	
September .....	R 1.302	RE 2.235	RE 1.469	.384	R 5.390	.684	.152	.019	.056	.153	.385	.766	R 6.840	
October .....	1.461	E 2.272	E 1.559	.411	R 5.704	.635	.161	.020	.050	.190	.393	.813	R 7.151	
November .....	1.418	E 2.235	E 1.527	.404	5.583	.682	.175	.020	.041	.180	.396	.812	7.077	
11-Month Total .....	13.467	E 25.152	E 17.023	4.377	60.020	7.672	2.267	.209	.546	1.896	4.321	9.239	76.931	
2015 11-Month Total .....	16.684	25.681	18.012	4.171	64.548	7.609	2.105	.195	.400	1.590	4.315	8.606	80.762	
2014 11-Month Total .....	18.535	24.376	16.845	3.732	63.489	7.570	2.254	.196	.316	1.588	4.421	8.774	79.833	

<sup>a</sup> 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.

<sup>b</sup> Beginning in 1989, includes waste coal supplied. Beginning in 2001, also includes a small amount of refuse recovery. See Table 6.1.

<sup>c</sup> Includes lease condensate.

<sup>d</sup> Natural gas plant liquids.

<sup>e</sup> Conventional hydroelectric power.

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

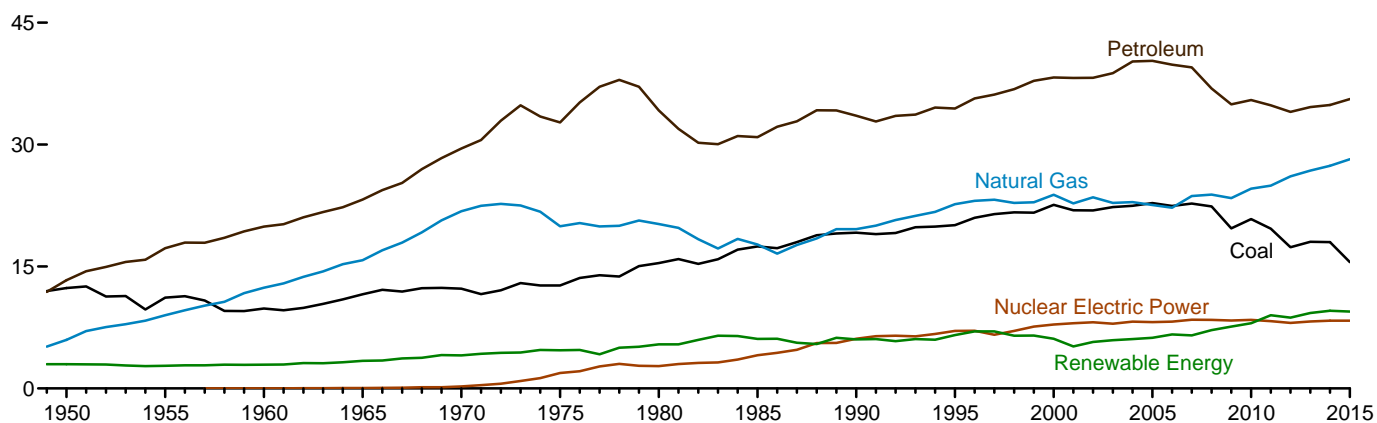
Notes: • See "Primary Energy Production" in Glossary. • Totals may not equal sum of components due to independent rounding. • Geographic coverage is the 50 states and the District of Columbia.

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.

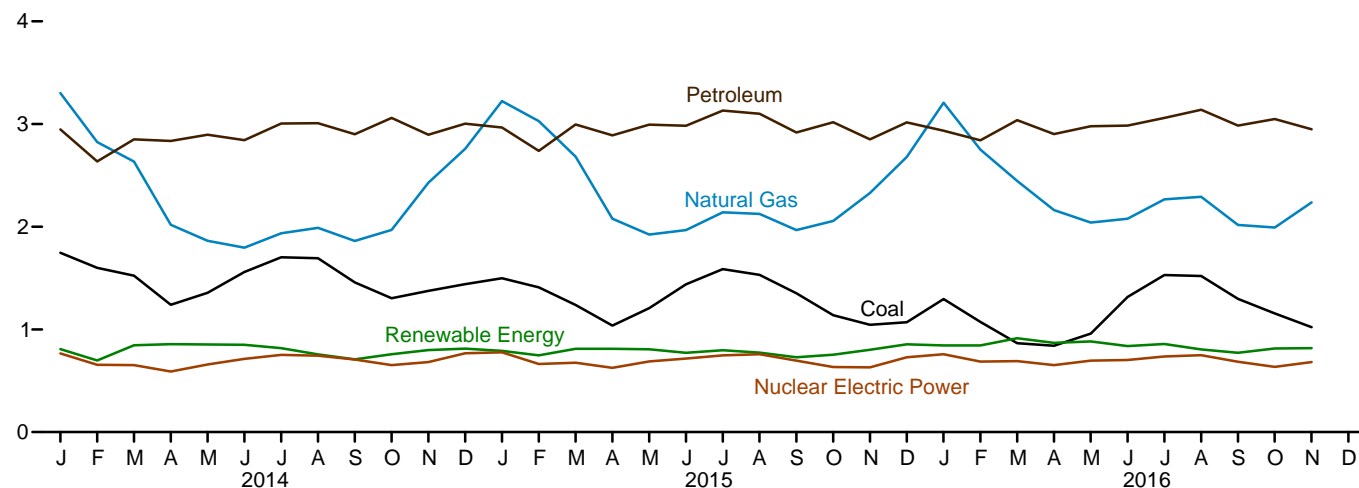
Sources: See end of section.

**Figure 1.3 Primary Energy Consumption**  
(Quadrillion Btu)

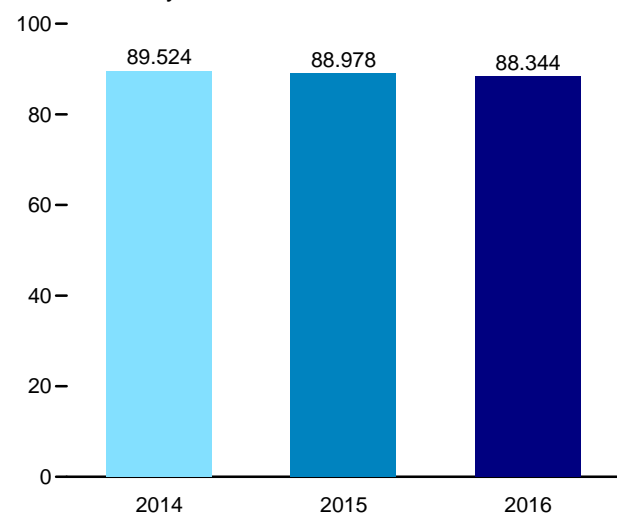
By Source,<sup>a</sup> 1949–2015



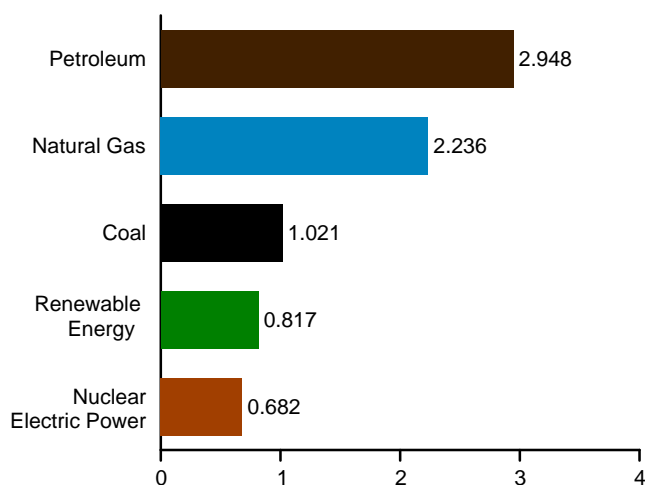
By Source,<sup>a</sup> Monthly



Total, January–November



By Source,<sup>a</sup> November 2016



<sup>a</sup> 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				Nuclear Electric Power	Renewable Energy <sup>a</sup>						Total <sup>f</sup>
	Coal	Natural Gas <sup>b</sup>	Petroleum <sup>c</sup>	Total <sup>d</sup>		Hydro-electric Power <sup>e</sup>	Geo-thermal	Solar	Wind	Bio-mass	Total	
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	97.917
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	99.484
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	35.489	80.891	8.434	2.539	.208	.090	.923	4.270	8.030	97.444
2011 Total .....	19.658	24.955	34.824	79.447	8.269	3.103	.212	.111	1.168	4.405	8.999	96.842
2012 Total .....	17.378	26.089	34.616	77.487	8.062	2.629	.212	.157	1.340	4.369	8.706	94.416
2013 Total .....	18.039	26.805	34.613	79.440	8.244	2.562	.214	.225	1.601	4.673	9.275	97.157
2014 January .....	1.747	3.302	2.948	7.995	.765	.206	.018	.017	.170	.397	.808	9.583
February .....	1.600	2.824	2.636	7.058	.655	.165	.016	.018	.133	.364	.697	8.421
March .....	1.523	2.635	2.851	7.009	.653	.231	.018	.026	.169	.401	.845	8.519
April .....	1.240	2.019	2.835	6.093	.590	.242	.018	.029	.177	.390	.856	7.550
May .....	1.357	1.863	2.896	6.114	.658	.252	.018	.033	.148	.401	.853	7.641
June .....	1.559	1.796	2.843	6.198	.713	.245	.018	.035	.150	.402	.849	7.775
July .....	1.702	1.936	3.004	6.641	.752	.232	.018	.034	.116	.417	.817	8.228
August .....	1.694	1.990	3.009	6.689	.744	.188	.018	.035	.097	.418	.756	8.209
September .....	1.457	1.862	2.900	6.216	.706	.153	.018	.033	.110	.394	.708	7.648
October .....	1.304	1.969	3.059	6.330	.653	.163	.018	.031	.138	.408	.759	7.756
November .....	1.376	2.428	2.896	6.697	.681	.177	.018	.025	.179	.399	.799	8.194
December .....	1.440	2.760	3.003	7.200	.767	.212	.018	.021	.140	.420	.812	8.794
Total .....	17.998	27.383	34.881	80.240	8.338	2.467	.214	.337	1.728	4.812	9.558	98.317
2015 January .....	1.498	3.223	2.966	7.685	.777	.225	.018	.021	.141	.386	.792	9.271
February .....	1.409	3.028	2.739	7.175	.664	.208	.017	.025	.139	.358	.747	8.599
March .....	1.238	2.682	2.996	6.917	.675	.226	.018	.035	.143	.389	.811	8.422
April .....	1.037	2.078	2.890	6.003	.625	.209	.017	.040	.167	.378	.810	7.459
May .....	1.206	1.923	2.995	6.122	.688	.188	.018	.043	.160	.398	.807	7.637
June .....	1.439	1.967	2.983	6.386	.717	.190	.017	.043	.125	.397	.773	7.896
July .....	1.587	2.140	3.132	6.858	.747	.196	.018	.045	.127	.411	.797	8.423
August .....	1.531	2.124	3.099	6.753	.757	.178	.018	.045	.122	.411	.774	8.307
September .....	1.351	1.968	2.917	6.237	.695	.150	.017	.039	.130	.392	.728	7.680
October .....	1.138	2.056	3.017	6.210	.633	.155	.018	.034	.153	.394	.754	7.612
November .....	1.045	2.328	2.851	6.222	.630	.180	.018	.030	.183	.391	.802	7.672
December .....	1.070	2.679	3.016	6.764	.728	.216	.018	.027	.187	.406	.855	8.365
Total .....	15.549	28.196	35.603	79.330	8.337	2.321	.213	.427	1.777	4.711	9.450	97.344
2016 January .....	1.295	R 3.208	2.935	R 7.437	.759	.236	.019	.027	.173	.388	.843	R 9.060
February .....	1.072	R 2.752	2.841	R 6.664	.686	.225	.018	.037	.188	.375	.844	R 8.212
March .....	.865	R 2.445	3.038	R 6.347	.692	.252	.019	.045	.203	.395	.914	R 7.971
April .....	.841	R 2.162	2.902	R 5.904	.652	.237	.018	.049	.192	.372	.868	R 7.438
May .....	.958	R 2.041	2.979	R 5.977	.696	.236	.020	.057	.175	.394	.883	R 7.575
June .....	1.316	R 2.077	2.985	R 6.378	.703	.213	.018	.058	.152	.396	.838	R 7.941
July .....	R 1.529	R 2.266	3.059	R 6.853	.736	.198	.019	.063	.164	.413	.858	R 8.472
August .....	R 1.520	R 2.291	3.139	R 6.947	.748	.180	.019	.061	.126	.417	.804	R 8.523
September .....	R 1.297	R 2.018	2.984	R 6.297	.684	.152	.019	.056	.153	.391	.772	R 7.773
October .....	1.156	R 1.992	3.048	R 6.193	.635	.161	.020	.050	.190	.393	.813	R 7.659
November .....	1.021	2.236	2.948	6.201	.682	.175	.020	.041	.180	.400	.817	7.720
11-Month Total ...	12.869	25.488	32.858	71.199	7.672	2.267	.209	.546	1.896	4.335	9.253	88.344
2015 11-Month Total ...	14.479	25.517	32.586	72.565	7.609	2.105	.195	.400	1.590	4.304	8.594	88.978
2014 11-Month Total ...	16.558	24.623	31.878	73.040	7.570	2.254	.196	.316	1.588	4.392	8.746	89.524

<sup>a</sup> 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.

<sup>b</sup> Natural gas only; excludes supplemental gaseous fuels. See Note 3, "Supplemental Gaseous Fuels," at end of Section 4.

<sup>c</sup> Petroleum products supplied, including natural gas plant liquids and crude oil burned as fuel. Does not include biofuels that have been blended with petroleum—biofuels are included in "Biomass."

<sup>d</sup> Includes coal coke net imports. See Tables 1.4a and 1.4b.

<sup>e</sup> Conventional hydroelectric power.

<sup>f</sup> 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.

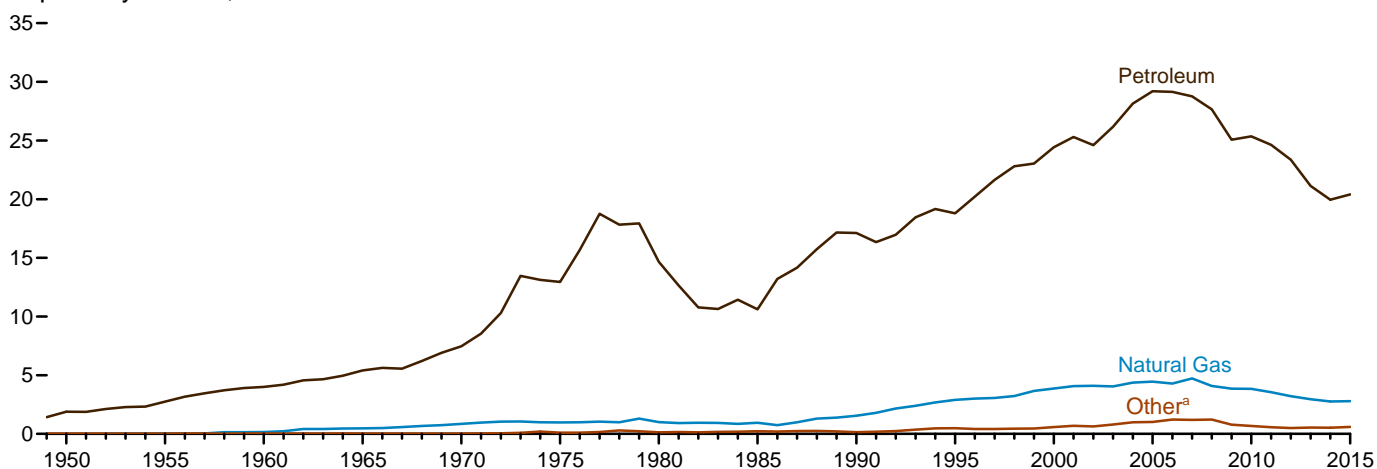
• Geographic coverage is the 50 states and the District of Columbia.

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.

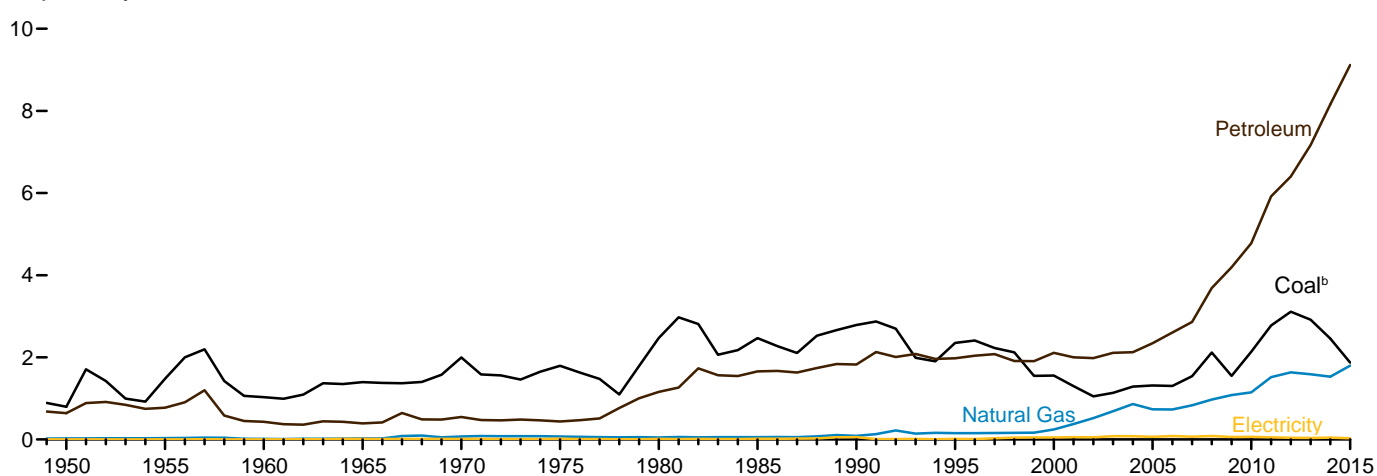
Sources: See end of section.

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

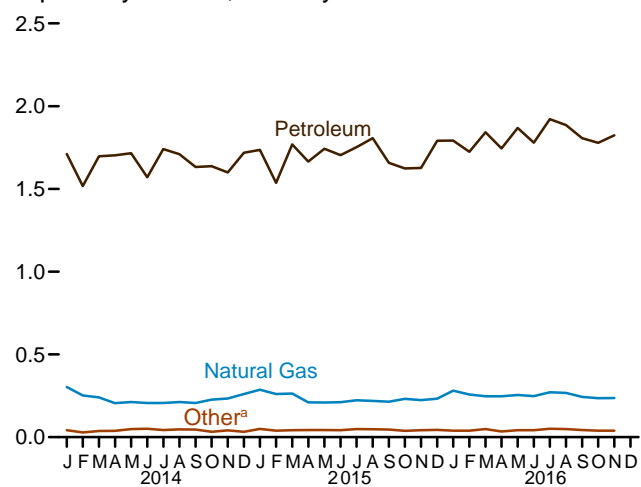
Imports by Source, 1949–2015



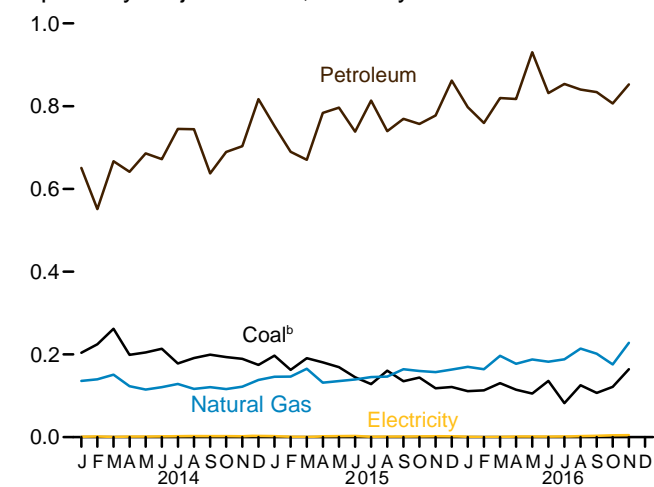
Exports by Source, 1949–2015



Imports by Source, Monthly



Exports by Major Source, Monthly



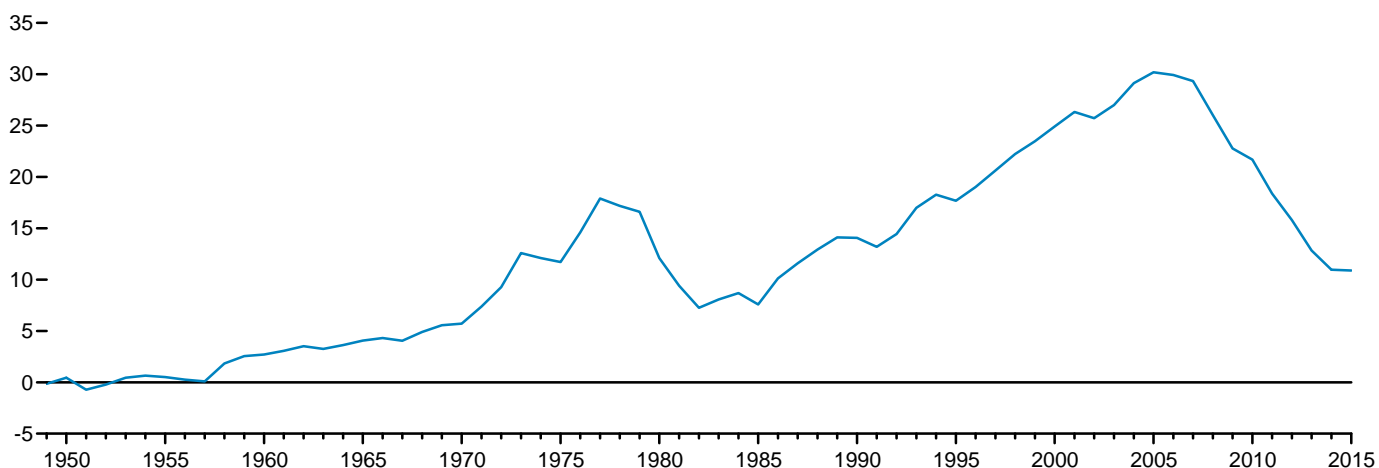
<sup>a</sup> Coal, coal coke, biofuels, and electricity.

<sup>b</sup> Includes coal coke.

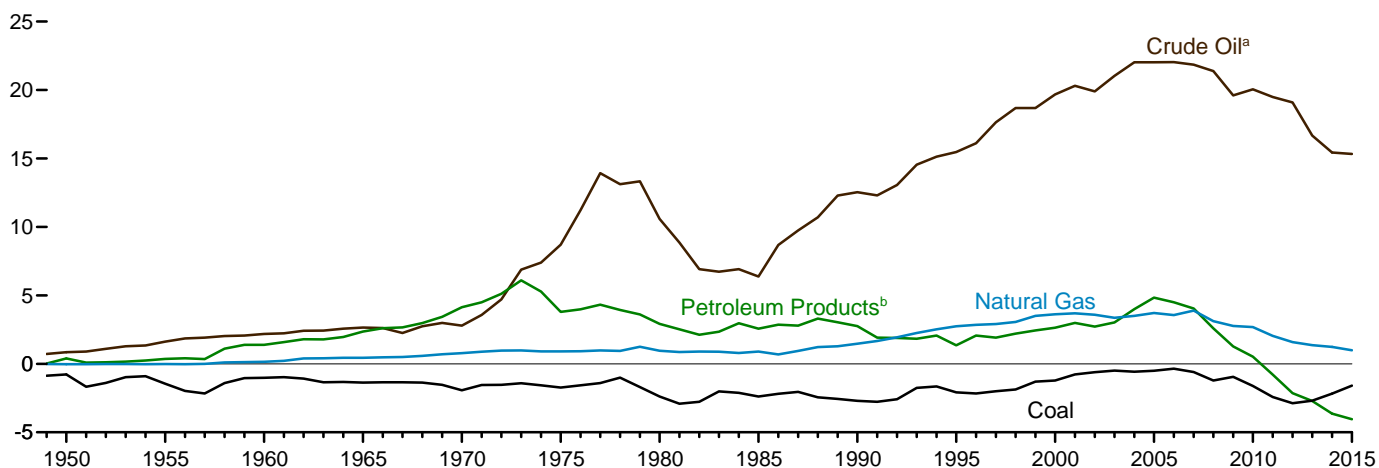
Web Page: <http://www.eia.gov/totalenergy/data/monthly/#summary>.  
Sources: Tables 1.4a and 1.4b.

**Figure 1.4b Primary Energy Net Imports**  
(Quadrillion Btu)

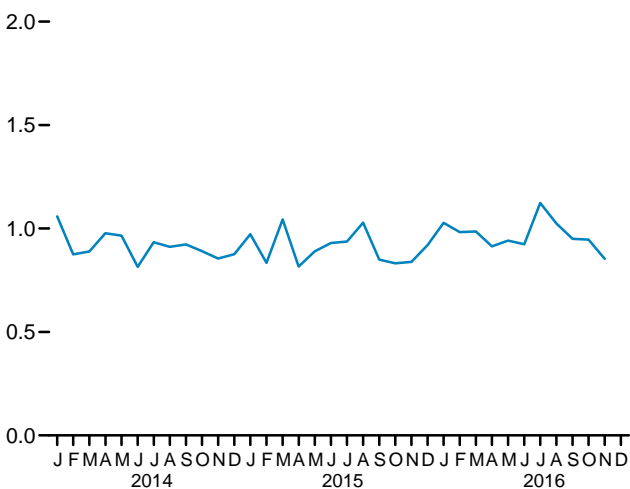
Total, 1949–2015



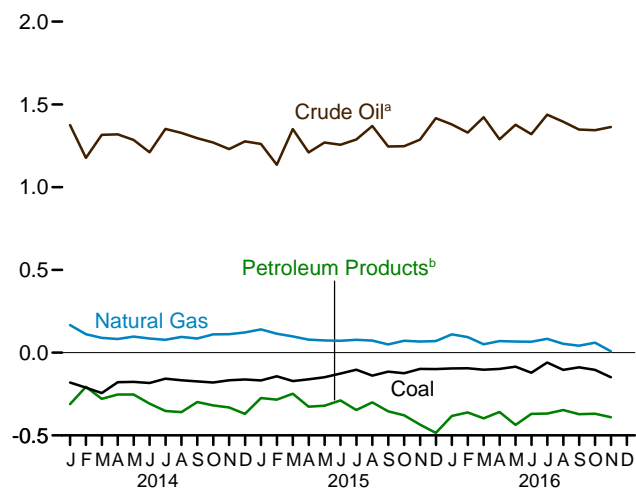
By Major Source, 1949–2015



Total, Monthly



By Major Source, Monthly



<sup>a</sup> Crude oil and lease condensate. Includes imports into the Strategic Petroleum Reserve, which began in 1977.

<sup>b</sup> Petroleum products, unfinished oils, pentanes plus, 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								
	Coal	Coal Coke	Natural Gas	Petroleum			Biofuels <sup>c</sup>	Electricity	Total
				Crude Oil <sup>a</sup>	Petroleum Products <sup>b</sup>	Total			
<b>1950 Total</b> .....	<b>0.009</b>	<b>0.011</b>	<b>0.000</b>	<b>1.056</b>	<b>0.830</b>	<b>1.886</b>	<b>NA</b>	<b>0.007</b>	<b>1.913</b>
<b>1955 Total</b> .....	<b>.008</b>	<b>.003</b>	<b>.011</b>	<b>1.691</b>	<b>1.061</b>	<b>2.752</b>	<b>NA</b>	<b>.016</b>	<b>2.790</b>
<b>1960 Total</b> .....	<b>.007</b>	<b>.003</b>	<b>.161</b>	<b>2.196</b>	<b>1.802</b>	<b>3.999</b>	<b>NA</b>	<b>.018</b>	<b>4.188</b>
<b>1965 Total</b> .....	<b>.005</b>	<b>.002</b>	<b>.471</b>	<b>2.654</b>	<b>2.748</b>	<b>5.402</b>	<b>NA</b>	<b>.012</b>	<b>5.892</b>
<b>1970 Total</b> .....	<b>.001</b>	<b>.004</b>	<b>.846</b>	<b>2.814</b>	<b>4.656</b>	<b>7.470</b>	<b>NA</b>	<b>.021</b>	<b>8.342</b>
<b>1975 Total</b> .....	<b>.024</b>	<b>.045</b>	<b>.978</b>	<b>8.721</b>	<b>4.227</b>	<b>12.948</b>	<b>NA</b>	<b>.038</b>	<b>14.032</b>
<b>1980 Total</b> .....	<b>.030</b>	<b>.016</b>	<b>1.006</b>	<b>11.195</b>	<b>3.463</b>	<b>14.658</b>	<b>NA</b>	<b>.085</b>	<b>15.796</b>
<b>1985 Total</b> .....	<b>.049</b>	<b>.014</b>	<b>.952</b>	<b>6.814</b>	<b>3.796</b>	<b>10.609</b>	<b>NA</b>	<b>.157</b>	<b>11.781</b>
<b>1990 Total</b> .....	<b>.067</b>	<b>.019</b>	<b>1.551</b>	<b>12.766</b>	<b>4.351</b>	<b>17.117</b>	<b>NA</b>	<b>.063</b>	<b>18.817</b>
<b>1995 Total</b> .....	<b>.237</b>	<b>.095</b>	<b>2.901</b>	<b>15.669</b>	<b>3.131</b>	<b>18.800</b>	<b>.001</b>	<b>.146</b>	<b>22.180</b>
<b>2000 Total</b> .....	<b>.313</b>	<b>.094</b>	<b>3.869</b>	<b>19.783</b>	<b>4.641</b>	<b>24.424</b>	<b>(s)</b>	<b>.166</b>	<b>28.865</b>
<b>2001 Total</b> .....	<b>.495</b>	<b>.063</b>	<b>4.068</b>	<b>20.348</b>	<b>4.946</b>	<b>25.294</b>	<b>.002</b>	<b>.131</b>	<b>30.052</b>
<b>2002 Total</b> .....	<b>.422</b>	<b>.080</b>	<b>4.104</b>	<b>19.920</b>	<b>4.677</b>	<b>24.597</b>	<b>.002</b>	<b>.125</b>	<b>29.331</b>
<b>2003 Total</b> .....	<b>.626</b>	<b>.068</b>	<b>4.042</b>	<b>21.060</b>	<b>5.105</b>	<b>26.165</b>	<b>.002</b>	<b>.104</b>	<b>31.007</b>
<b>2004 Total</b> .....	<b>.682</b>	<b>.170</b>	<b>4.365</b>	<b>22.082</b>	<b>6.063</b>	<b>28.145</b>	<b>.013</b>	<b>.117</b>	<b>33.492</b>
<b>2005 Total</b> .....	<b>.762</b>	<b>.088</b>	<b>4.450</b>	<b>22.091</b>	<b>7.108</b>	<b>29.198</b>	<b>.012</b>	<b>.150</b>	<b>34.659</b>
<b>2006 Total</b> .....	<b>.906</b>	<b>.101</b>	<b>4.291</b>	<b>22.085</b>	<b>7.054</b>	<b>29.139</b>	<b>.066</b>	<b>.146</b>	<b>34.649</b>
<b>2007 Total</b> .....	<b>.909</b>	<b>.061</b>	<b>4.723</b>	<b>21.914</b>	<b>6.842</b>	<b>28.756</b>	<b>.055</b>	<b>.175</b>	<b>34.679</b>
<b>2008 Total</b> .....	<b>.855</b>	<b>.089</b>	<b>4.084</b>	<b>21.448</b>	<b>6.214</b>	<b>27.662</b>	<b>.085</b>	<b>.195</b>	<b>32.970</b>
<b>2009 Total</b> .....	<b>.566</b>	<b>.009</b>	<b>3.845</b>	<b>19.699</b>	<b>5.367</b>	<b>25.066</b>	<b>.027</b>	<b>.178</b>	<b>29.690</b>
<b>2010 Total</b> .....	<b>.484</b>	<b>.030</b>	<b>3.834</b>	<b>20.140</b>	<b>5.219</b>	<b>25.359</b>	<b>.004</b>	<b>.154</b>	<b>29.866</b>
<b>2011 Total</b> .....	<b>.327</b>	<b>.035</b>	<b>3.555</b>	<b>19.595</b>	<b>5.038</b>	<b>24.633</b>	<b>.019</b>	<b>.178</b>	<b>28.748</b>
<b>2012 Total</b> .....	<b>.212</b>	<b>.028</b>	<b>3.216</b>	<b>19.239</b>	<b>4.122</b>	<b>23.361</b>	<b>.049</b>	<b>.202</b>	<b>27.068</b>
<b>2013 Total</b> .....	<b>.199</b>	<b>.003</b>	<b>2.955</b>	<b>16.957</b>	<b>4.169</b>	<b>21.126</b>	<b>.102</b>	<b>.236</b>	<b>24.623</b>
<b>2014 January</b> .....	<b>.024</b>	<b>(s)</b>	<b>.303</b>	<b>1.420</b>	<b>.291</b>	<b>1.710</b>	<b>.003</b>	<b>.019</b>	<b>2.058</b>
February .....	.013	(s)	.252	1.216	.300	1.517	.002	.015	1.798
March .....	.018	(s)	.240	1.361	.336	1.697	.003	.019	1.977
April .....	.021	(s)	.206	1.368	.335	1.703	.004	.016	1.949
May .....	.028	(s)	.212	1.341	.375	1.716	.005	.018	1.979
June .....	.030	.001	.207	1.280	.291	1.571	.002	.019	1.829
July .....	.021	(s)	.206	1.427	.313	1.740	.006	.021	1.995
August .....	.024	(s)	.212	1.398	.312	1.710	.004	.023	1.972
September .....	.025	(s)	.207	1.357	.276	1.633	.003	.021	1.889
October .....	.013	.001	.226	1.337	.300	1.637	.004	.018	1.899
November .....	.022	(s)	.233	1.321	.278	1.599	.005	.019	1.879
December .....	.013	(s)	.260	1.352	.367	1.719	.005	.018	2.016
<b>Total</b> .....	<b>.252</b>	<b>.002</b>	<b>2.763</b>	<b>16.178</b>	<b>3.773</b>	<b>19.951</b>	<b>.046</b>	<b>.227</b>	<b>23.241</b>
<b>2015 January</b> .....	<b>.029</b>	<b>(s)</b>	<b>.286</b>	<b>1.348</b>	<b>.388</b>	<b>1.736</b>	<b>.003</b>	<b>.021</b>	<b>2.075</b>
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
<b>Total</b> .....	<b>.256</b>	<b>.003</b>	<b>2.786</b>	<b>16.299</b>	<b>4.111</b>	<b>20.410</b>	<b>.079</b>	<b>.259</b>	<b>23.794</b>
<b>2016 January</b> .....	<b>.016</b>	<b>(s)</b>	<b>.280</b>	<b>1.443</b>	<b>.349</b>	<b>1.792</b>	<b>.003</b>	<b>.024</b>	<b>2.114</b>
February .....	.019	(s)	.258	1.391	.333	1.725	.003	.021	2.025
March .....	.027	(s)	.247	1.512	.330	1.842	.005	.022	2.142
April .....	.017	(s)	.247	1.389	.355	1.744	.007	.018	2.033
May .....	.021	.001	.255	1.494	.374	1.868	.008	.021	2.172
June .....	.015	.002	.248	1.385	.395	1.779	.013	.025	2.081
July .....	.022	(s)	.272	1.521	.400	1.921	.012	.028	2.255
August .....	.021	(s)	.267	1.511	.374	1.885	.014	.027	2.214
September .....	.018	.002	.243	1.466	.341	1.807	.012	.023	2.105
October .....	.017	.001	.236	1.430	.348	1.778	.013	.021	2.066
November .....	.016	(s)	.236	1.465	.358	1.824	.015	.023	2.114
<b>11-Month Total</b> .....	<b>.208</b>	<b>.006</b>	<b>2.789</b>	<b>16.008</b>	<b>3.957</b>	<b>19.965</b>	<b>.103</b>	<b>.251</b>	<b>23.322</b>
<b>2015 11-Month Total</b> .....	<b>.234</b>	<b>.002</b>	<b>2.553</b>	<b>14.813</b>	<b>3.806</b>	<b>18.620</b>	<b>.070</b>	<b>.238</b>	<b>21.718</b>
<b>2014 11-Month Total</b> .....	<b>.239</b>	<b>.002</b>	<b>2.503</b>	<b>14.826</b>	<b>3.406</b>	<b>18.232</b>	<b>.041</b>	<b>.209</b>	<b>21.225</b>

<sup>a</sup> Crude oil and lease condensate. Includes imports into the Strategic Petroleum Reserve, which began in 1977.

<sup>b</sup> Petroleum products, unfinished oils, pentanes plus, and gasoline blending components. Does not include biofuels.

<sup>c</sup> Fuel ethanol (minus denaturant) and biodiesel.

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

Notes: • See "Primary Energy" in Glossary. • Totals may not equal sum of

components due to independent rounding. • Geographic coverage is the 50 states and the District of Columbia.

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

Sources: See end of section.

**Table 1.4b Primary Energy Exports by Source and Total Net Imports**  
(Quadrillion Btu)

	Exports									Net Imports <sup>a</sup>
	Coal	Coal Coke	Natural Gas	Petroleum			Biofuels <sup>d</sup>	Electricity	Total	
				Crude Oil <sup>b</sup>	Petroleum Products <sup>c</sup>	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 January .....	.204	.001	.136	.045	.602	.646	.008	.004	1.000	1.059
February .....	.225	.002	.140	.040	.507	.547	.006	.004	.923	.875
March .....	.262	.001	.151	.045	.615	.660	.008	.007	1.088	.889
April .....	.199	.001	.123	.049	.588	.637	.007	.005	.972	.977
May .....	.205	.002	.115	.055	.628	.683	.006	.003	1.013	.966
June .....	.214	.002	.121	.069	.600	.668	.006	.004	1.014	.815
July .....	.178	.002	.128	.076	.666	.741	.007	.004	1.061	.934
August .....	.191	.003	.116	.070	.671	.741	.006	.003	1.061	.912
September .....	.199	.003	.121	.061	.574	.635	.005	.003	.966	.923
October .....	.194	.002	.116	.068	.618	.686	.007	.003	1.009	.891
November .....	.189	.002	.122	.091	.610	.700	.008	.003	1.024	.855
December .....	.175	.003	.138	.076	.737	.813	.007	.004	1.140	.876
Total .....	2.435	.023	1.528	.744	7.414	8.158	.081	.045	12.270	10.971
2015 January .....	.197	.002	.146	.087	.662	.749	.006	.003	1.103	.972
February .....	.163	.001	.146	.070	.615	.685	.006	.005	1.006	.834
March .....	.191	.001	.165	.077	.590	.667	.008	.003	1.035	1.044
April .....	.181	.002	.132	.102	.680	.782	.007	.002	1.105	.816
May .....	.169	.003	.135	.093	.701	.794	.007	.002	1.110	.890
June .....	.145	.003	.139	.076	.660	.736	.007	.002	1.032	.930
July .....	.128	.001	.145	.096	.715	.811	.007	.002	1.095	.937
August .....	.161	.001	.146	.081	.656	.737	.006	.002	1.054	1.028
September .....	.135	.002	.164	.070	.697	.767	.006	.002	1.076	.849
October .....	.144	.002	.160	.088	.667	.755	.007	.002	1.070	.832
November .....	.118	.002	.157	.055	.721	.775	.005	.002	1.060	.839
December .....	.121	.002	.163	.069	.790	.859	.008	.003	1.156	.920
Total .....	1.852	.021	1.800	.964	8.153	9.118	.080	.031	12.902	10.892
2016 January .....	.111	.001	.170	.064	.731	.795	.007	.002	1.087	1.027
February .....	.113	(s)	.164	.062	.694	.756	.006	.003	1.043	.983
March .....	.130	.001	.197	.089	.726	.816	.009	.004	1.156	.986
April .....	.115	.001	.177	.101	.713	.814	.009	.003	1.120	.914
May .....	.105	.001	.188	.117	.811	.928	.006	.003	1.231	.941
June .....	.136	.002	.182	.065	.764	.829	.005	.002	1.157	.924
July .....	.082	.001	.188	.083	.768	.851	.007	.002	1.132	1.123
August .....	.125	.003	.214	.116	.722	.837	.008	.003	1.190	1.024
September .....	.107	.003	.202	.118	.713	.831	.009	.003	1.155	.950
October .....	.122	.004	R .176	.086	.717	.804	.011	.003	R 1.120	R .946
November .....	.164	.005	.228	.102	.748	.850	.011	.002	1.260	.853
11-Month Total .....	1.311	.023	2.085	1.003	8.109	9.112	.089	.031	12.650	10.672
2015 11-Month Total .....	1.731	.019	1.636	.895	7.363	8.259	.072	.028	11.746	9.971
2014 11-Month Total .....	2.260	.020	1.390	.668	6.677	7.345	.074	.042	11.130	10.095

<sup>a</sup> Net imports equal imports minus exports.

<sup>b</sup> Crude oil and lease condensate.

<sup>c</sup> Petroleum products, unfinished oils, pentanes plus, and gasoline blending components. Does not include biofuels.

<sup>d</sup> Through 2010, data are for biodiesel only. Beginning in 2011, data are for fuel ethanol (minus denaturant) and biodiesel.

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

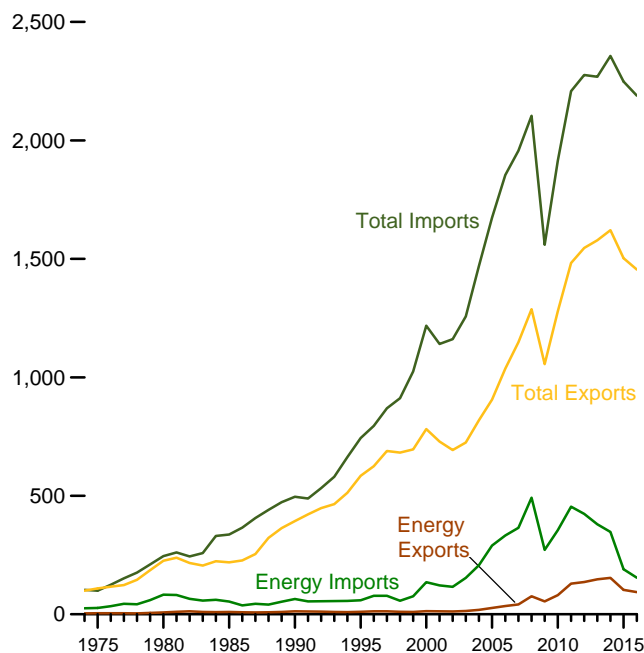
Notes: • See "Primary Energy" in Glossary. • Totals may not equal sum of components due to independent rounding. • Geographic coverage is the 50 states and the District of Columbia.

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.

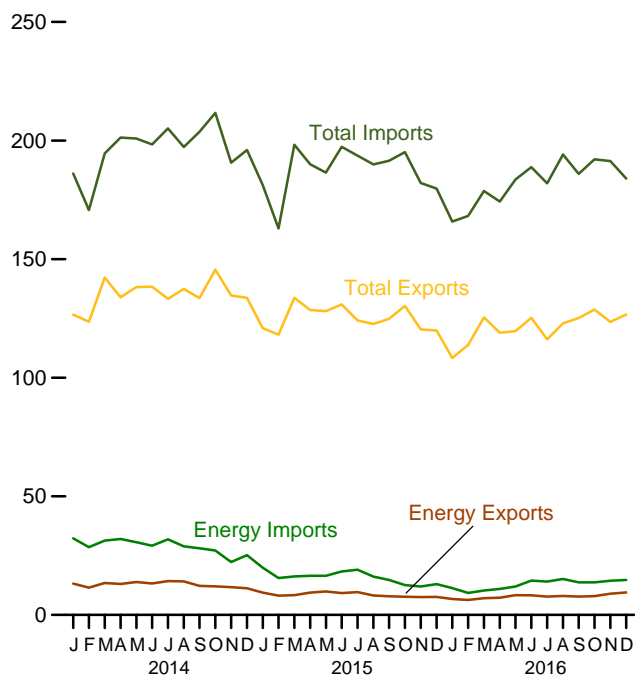
Sources: See end of section.

**Figure 1.5 Merchandise Trade Value**  
(Billion Dollars<sup>a</sup>)

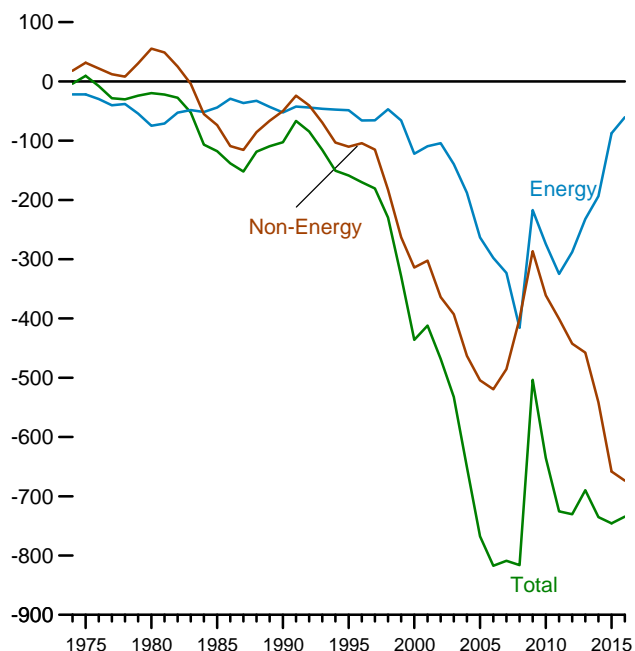
Imports and Exports, 1974–2016



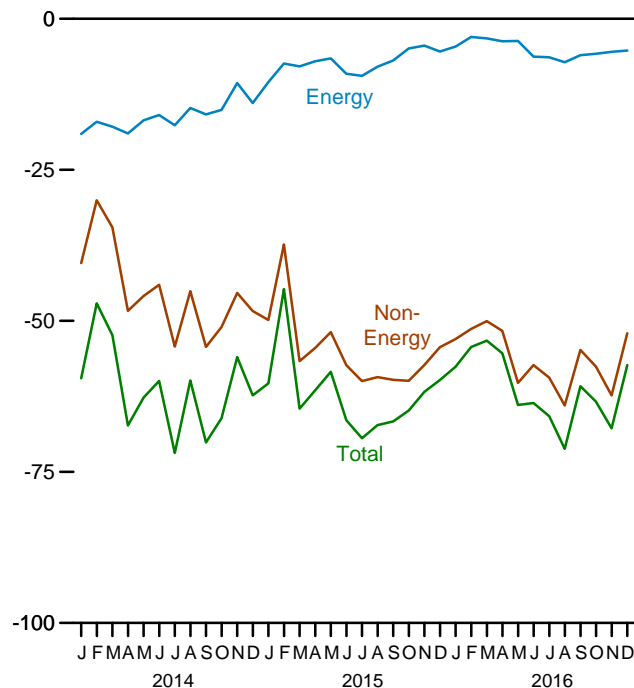
Imports and Exports, Monthly



Trade Balance, 1974–2016



Trade Balance, Monthly



<sup>a</sup> 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<sup>a</sup>)

	Petroleum <sup>b</sup>			Energy <sup>c</sup>			Non-Energy Balance	Total Merchandise		
	Exports	Imports	Balance	Exports	Imports	Balance		Exports	Imports	Balance
<b>1974 Total</b> .....	792	24,668	-23,876	3,444	25,454	-22,010	18,126	99,437	103,321	-3,884
<b>1975 Total</b> .....	907	25,197	-24,289	4,470	26,476	-22,006	31,557	108,856	99,305	9,551
<b>1980 Total</b> .....	2,833	78,637	-75,803	7,982	82,924	-74,942	55,246	225,566	245,262	-19,696
<b>1985 Total</b> .....	4,707	50,475	-45,768	9,971	53,917	-43,946	-73,765	218,815	336,526	-117,712
<b>1990 Total</b> .....	6,901	61,583	-54,682	12,233	64,661	-52,428	-50,068	393,592	496,088	-102,496
<b>1995 Total</b> .....	6,321	54,368	-48,047	10,358	59,109	-48,751	-110,050	584,742	743,543	-158,801
<b>2000 Total</b> .....	10,192	119,251	-109,059	13,179	135,367	-122,188	-313,916	781,918	1,218,022	-436,104
<b>2001 Total</b> .....	8,868	102,747	-93,879	12,494	121,923	-109,429	-302,470	729,100	1,140,999	-411,899
<b>2002 Total</b> .....	8,569	102,663	-94,094	11,541	115,748	-104,207	-364,056	693,103	1,161,366	-468,263
<b>2003 Total</b> .....	10,209	132,433	-122,224	13,768	153,298	-139,530	-392,820	724,771	1,257,121	-532,350
<b>2004 Total</b> .....	13,130	179,266	-166,136	18,642	206,660	-188,018	-462,912	818,775	1,469,704	-650,930
<b>2005 Total</b> .....	19,155	250,068	-230,913	26,488	289,723	-263,235	-504,242	905,978	1,673,455	-767,477
<b>2006 Total</b> .....	28,171	299,714	-271,543	34,711	332,500	-297,789	-519,515	1,036,635	1,853,938	-817,304
<b>2007 Total</b> .....	33,293	327,620	-294,327	41,725	364,987	-323,262	-485,501	1,148,199	1,956,962	-808,763
<b>2008 Total</b> .....	61,695	449,847	-388,152	76,075	491,885	-415,810	-400,389	1,287,442	2,103,641	-816,199
<b>2009 Total</b> .....	44,509	251,833	-207,324	54,536	271,739	-217,203	-286,379	1,056,043	1,559,625	-503,582
<b>2010 Total</b> .....	64,753	333,472	-268,719	80,625	354,982	-274,357	-361,005	1,278,495	1,913,857	-635,362
<b>2011 Total</b> .....	<sup>b</sup> 102,180	<sup>b</sup> 431,866	<sup>b</sup> -329,686	128,989	453,839	-324,850	-400,597	1,482,508	2,207,954	-725,447
<b>2012 Total</b> .....	111,951	408,509	-296,558	136,054	423,862	-287,808	-442,638	1,545,821	2,276,267	-730,446
<b>2013 Total</b> .....	123,218	363,141	-239,923	147,539	379,758	-232,219	-457,712	1,578,439	2,268,370	-689,931
<b>2014 January</b> .....	10,972	29,460	-18,488	13,209	32,260	-19,051	-40,437	126,584	186,072	-59,488
February .....	9,155	25,711	-16,556	11,508	28,562	-17,054	-30,045	123,611	170,711	-47,099
March .....	10,670	28,912	-18,242	13,454	31,311	-17,857	-34,521	142,233	194,611	-52,378
April .....	10,412	30,519	-20,107	13,041	32,017	-18,976	-48,342	133,924	201,242	-67,318
May .....	11,368	29,201	-17,833	13,861	30,655	-16,794	-45,894	138,174	200,862	-62,688
June .....	11,136	27,668	-16,532	13,246	29,166	-15,920	-44,020	138,408	198,348	-59,940
July .....	12,078	30,446	-18,368	14,265	31,890	-17,625	-54,248	133,264	205,137	-71,873
August .....	12,069	27,583	-15,514	14,124	28,899	-14,775	-45,078	137,459	197,312	-59,853
September .....	10,081	26,777	-16,696	12,255	28,078	-15,823	-54,299	133,600	203,721	-70,122
October .....	9,885	25,876	-15,991	12,034	27,122	-15,088	-51,021	145,527	211,636	-66,109
November .....	9,950	20,858	-10,908	11,675	22,308	-10,633	-45,372	134,691	190,696	-56,005
December .....	9,482	23,699	-14,217	11,264	25,205	-13,941	-48,380	133,695	196,016	-62,321
<b>Total</b> .....	<b>127,258</b>	<b>326,710</b>	<b>-199,452</b>	<b>153,936</b>	<b>347,473</b>	<b>-193,537</b>	<b>-541,657</b>	<b>1,621,172</b>	<b>2,356,366</b>	<b>-735,194</b>
<b>2015 January</b> .....	7,759	18,216	-10,457	9,423	19,909	-10,486	-49,857	120,920	181,263	-60,343
February .....	6,641	13,815	-7,174	8,145	15,545	-7,400	-37,343	118,181	162,925	-44,743
March .....	6,605	14,826	-8,221	8,349	16,228	-7,879	-56,659	133,660	198,198	-64,538
April .....	7,755	15,567	-7,812	9,441	16,469	-7,028	-54,481	128,508	190,017	-61,509
May .....	8,286	15,578	-7,292	9,905	16,472	-6,567	-51,859	128,075	186,501	-58,426
June .....	7,794	17,434	-9,640	9,215	18,309	-9,094	-57,334	130,904	197,331	-66,428
July .....	8,265	18,075	-9,810	9,606	19,040	-9,434	-59,984	124,188	193,606	-69,418
August .....	6,774	15,203	-8,429	8,206	16,148	-7,942	-59,309	122,684	189,936	-67,251
September .....	6,510	13,811	-7,301	7,857	14,754	-6,897	-59,756	124,827	191,480	-66,653
October .....	6,322	11,657	-5,335	7,680	12,588	-4,908	-59,924	130,300	195,132	-64,832
November .....	6,251	11,148	-4,897	7,538	11,966	-4,428	-57,306	120,385	182,119	-61,734
December .....	6,279	12,115	-5,836	7,590	13,008	-5,418	-54,368	119,939	179,725	-59,786
<b>Total</b> .....	<b>R 85,242</b>	<b>R 177,446</b>	<b>-92,204</b>	<b>R 102,956</b>	<b>R 190,435</b>	<b>R -87,479</b>	<b>R -658,181</b>	<b>1,502,572</b>	<b>2,248,232</b>	<b>-745,660</b>
<b>2016 January</b> .....	5,513	10,281	-4,768	6,719	11,312	-4,593	-53,006	108,273	165,873	-57,599
February .....	5,137	8,379	-3,242	6,293	9,290	-2,997	-51,344	113,841	168,182	-54,341
March .....	5,760	9,334	-3,574	7,023	10,262	-3,239	-50,039	125,445	178,723	-53,278
April .....	5,995	10,103	-4,108	7,228	10,944	-3,716	-51,643	118,943	174,302	-55,359
May .....	6,867	11,346	-4,479	8,334	12,000	-3,666	-60,255	119,663	183,583	-63,921
June .....	6,730	13,735	-7,005	8,237	14,497	-6,260	-57,334	125,208	188,801	-63,594
July .....	6,353	13,155	-6,802	7,703	14,081	-6,378	-59,389	116,218	181,985	-65,767
August .....	6,548	14,129	-7,581	7,961	15,153	-7,192	-63,986	122,933	194,112	-71,178
September .....	6,415	12,791	-6,376	7,700	13,712	-6,012	-54,802	125,142	185,955	-60,814
October .....	6,233	12,810	-6,577	7,899	13,697	-5,798	-57,569	128,722	192,089	-63,367
November .....	6,901	13,496	-6,595	8,906	14,370	-5,464	R -62,325	R 123,557	R 191,345	R -67,789
December .....	7,006	13,297	-6,291	9,469	14,723	-5,254	-52,056	126,680	183,991	-57,310
<b>Total</b> .....	<b>75,458</b>	<b>142,854</b>	<b>-67,396</b>	<b>93,473</b>	<b>154,040</b>	<b>-60,567</b>	<b>-673,749</b>	<b>1,454,624</b>	<b>2,188,940</b>	<b>-734,316</b>

<sup>a</sup> Prices are not adjusted for inflation. See "Nominal Dollars" in Glossary.

<sup>b</sup> 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.

<sup>c</sup> Petroleum, coal, natural gas, and electricity.

R=Revised.

Notes: • Monthly data are not adjusted for seasonal variations. • See Note, "Merchandise Trade Value," at end of section. • Totals may not equal sum of

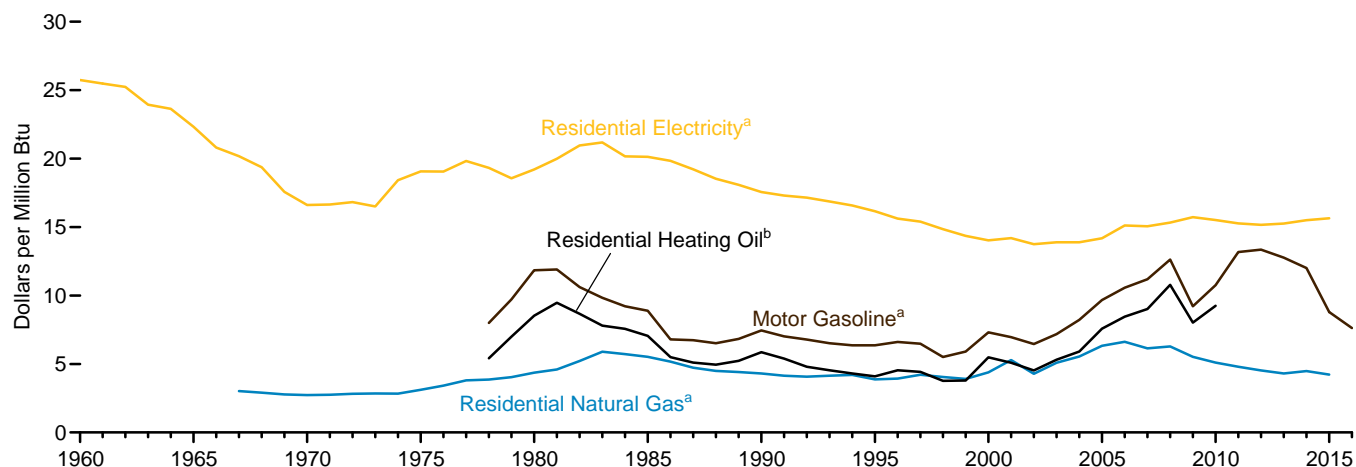
components due to independent rounding. • The U.S. import statistics reflect both government and nongovernment imports of merchandise from foreign countries into the U.S. customs territory, which comprises the 50 states, the District of Columbia, Puerto Rico, and the Virgin Islands.

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

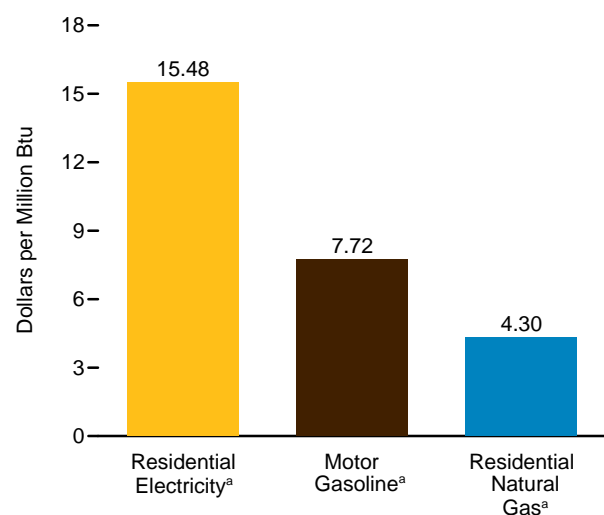
Sources: See end of section.

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

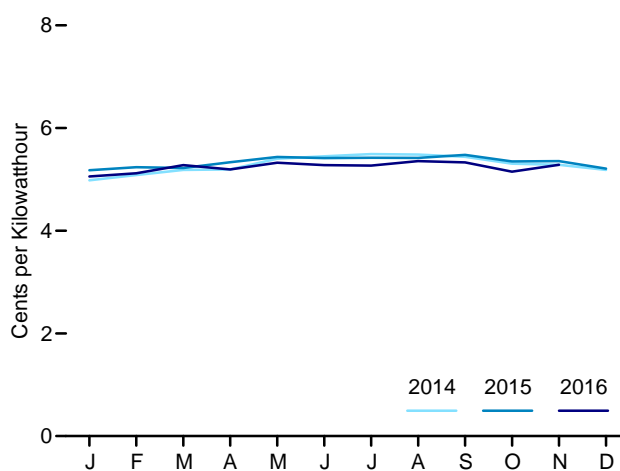
Costs, 1960–2016



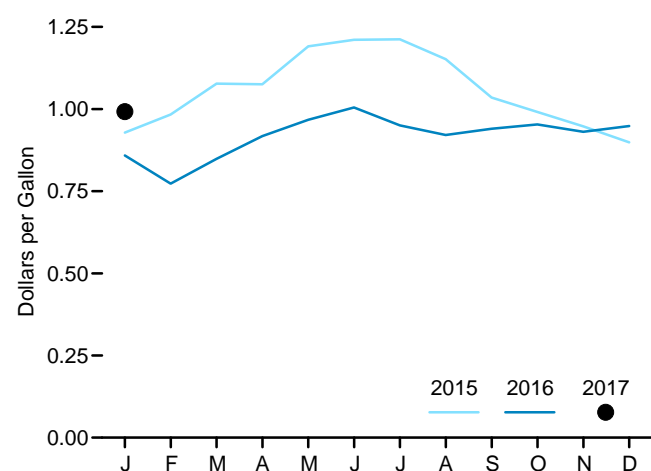
Costs, November 2016



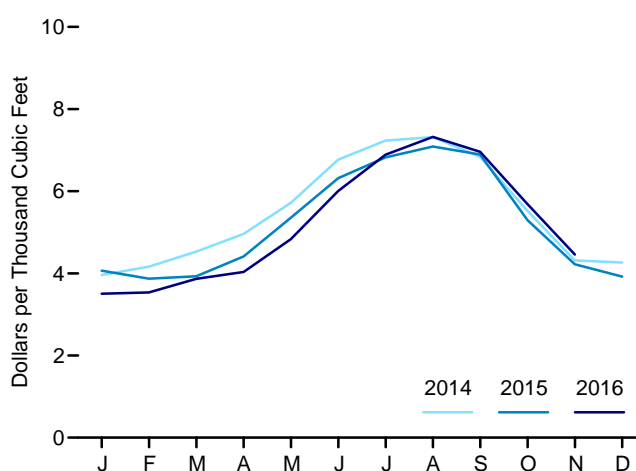
Residential Electricity,<sup>a</sup> Monthly



Motor Gasoline,<sup>a</sup> Monthly



Residential Natural Gas,<sup>a</sup> Monthly



<sup>a</sup> Includes taxes.

<sup>b</sup> 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 <sup>a</sup>	Motor Gasoline <sup>b</sup>		Residential Heating Oil <sup>c</sup>		Residential Natural Gas <sup>b</sup>		Residential Electricity <sup>b</sup>	
	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 Kilowatt-hour	Dollars per Million Btu
<b>1960 Average</b> .....	29.6	NA	NA	NA	NA	NA	NA	8.8	25.74
<b>1965 Average</b> .....	31.5	NA	NA	NA	NA	NA	NA	7.6	22.33
<b>1970 Average</b> .....	38.8	NA	NA	NA	NA	2.81	2.72	5.7	16.62
<b>1975 Average</b> .....	53.8	NA	NA	NA	NA	3.18	3.12	6.5	19.07
<b>1980 Average</b> .....	82.4	1.482	11.85	1.182	8.52	4.47	4.36	6.6	19.21
<b>1985 Average</b> .....	107.6	1.112	8.89	0.979	7.06	5.69	5.52	6.87	20.13
<b>1990 Average</b> .....	130.7	0.931	7.44	0.813	5.86	4.44	4.31	5.99	17.56
<b>1995 Average</b> .....	152.4	0.791	6.36	0.569	4.10	3.98	3.87	5.51	16.15
<b>2000 Average</b> .....	172.2	0.908	7.31	0.761	5.49	4.51	4.39	4.79	14.02
<b>2001 Average</b> .....	177.1	0.864	6.96	0.706	5.09	5.44	5.28	4.84	14.20
<b>2002 Average</b> .....	179.9	0.801	6.46	0.628	4.52	4.39	4.28	4.69	13.75
<b>2003 Average</b> .....	184.0	0.890	7.19	0.736	5.31	5.23	5.09	4.74	13.89
<b>2004 Average</b> .....	188.9	1.018	8.22	0.819	5.91	5.69	5.55	4.74	13.89
<b>2005 Average</b> .....	195.3	1.197	9.67	1.051	7.58	6.50	6.33	4.84	14.18
<b>2006 Average</b> .....	201.6	1.307	10.58	1.173	8.46	6.81	6.63	5.16	15.12
<b>2007 Average</b> .....	207.342	1.374	11.20	1.250	9.01	6.31	6.14	5.14	15.05
<b>2008 Average</b> .....	215.303	1.541	12.62	1.495	10.78	6.45	6.28	5.23	15.33
<b>2009 Average</b> .....	214.537	1.119	9.21	1.112	8.02	5.66	5.52	5.37	15.72
<b>2010 Average</b> .....	218.056	1.301	10.76	1.283	9.25	5.22	5.11	5.29	15.51
<b>2011 Average</b> .....	224.939	1.590	13.18	NA	NA	4.90	4.80	5.21	15.27
<b>2012 Average</b> .....	229.594	1.609	13.35	NA	NA	4.64	4.53	5.17	15.17
<b>2013 Average</b> .....	232.957	1.538	12.76	NA	NA	4.43	4.31	5.21	15.26
<b>2014 January</b> .....	233.916	1.444	11.99	NA	NA	3.96	3.83	4.98	14.60
February .....	234.781	1.458	12.10	NA	NA	4.16	4.03	5.09	14.91
March .....	236.293	1.519	12.61	NA	NA	4.53	4.38	5.18	15.19
April .....	237.072	1.568	13.01	NA	NA	4.96	4.80	5.19	15.22
May .....	237.900	1.574	13.07	NA	NA	5.72	5.53	5.40	15.83
June .....	238.343	1.573	13.06	NA	NA	6.77	6.55	5.45	15.97
July .....	238.250	1.549	12.86	NA	NA	7.23	7.00	5.49	16.10
August .....	237.852	1.488	12.35	NA	NA	7.32	7.09	5.48	16.07
September .....	238.031	1.455	12.08	NA	NA	6.84	6.62	5.44	15.95
October .....	237.433	1.365	11.33	NA	NA	5.52	5.35	5.31	15.55
November .....	236.151	1.247	10.35	NA	NA	4.32	4.18	5.28	15.49
December .....	234.812	1.115	9.25	NA	NA	4.26	4.13	5.18	15.19
<b>Average</b> .....	<b>236.736</b>	<b>1.447</b>	<b>12.01</b>	<b>NA</b>	<b>NA</b>	<b>4.63</b>	<b>4.49</b>	<b>5.29</b>	<b>15.50</b>
<b>2015 January</b> .....	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	4.26	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	6.09	5.41	15.87
July .....	238.654	1.212	10.06	NA	NA	6.82	6.58	5.42	15.89
August .....	238.316	1.152	9.56	NA	NA	7.09	6.83	5.42	15.88
September .....	237.945	1.035	8.59	NA	NA	6.89	6.65	5.48	16.05
October .....	237.838	0.991	8.23	NA	NA	5.30	5.11	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
<b>Average</b> .....	<b>237.017</b>	<b>1.059</b>	<b>8.79</b>	<b>NA</b>	<b>NA</b>	<b>4.38</b>	<b>4.22</b>	<b>5.34</b>	<b>15.64</b>
<b>2016 January</b> .....	236.916	0.859	7.13	NA	NA	3.50	3.38	5.06	14.82
February .....	237.111	0.773	6.42	NA	NA	3.53	3.41	5.12	15.01
March .....	238.132	0.849	7.04	NA	NA	3.87	3.73	5.28	15.47
April .....	239.261	0.918	7.62	NA	NA	4.03	3.89	5.20	15.23
May .....	240.229	0.967	8.03	NA	NA	4.83	4.66	5.32	15.60
June .....	241.018	1.005	8.34	NA	NA	6.00	5.79	5.28	15.47
July .....	240.628	0.950	7.89	NA	NA	6.89	6.64	5.27	15.44
August .....	240.849	0.921	7.64	NA	NA	7.32	7.06	5.36	15.70
September .....	241.428	0.940	7.80	NA	NA	6.96	6.71	5.33	15.62
October .....	241.729	0.953	7.91	NA	NA	5.68	5.48	5.15	15.09
November .....	241.353	0.931	7.72	NA	NA	<sup>R</sup> 4.46	<sup>R</sup> 4.30	<sup>R</sup> 5.28	<sup>R</sup> 15.48
December .....	241.432	0.948	7.87	NA	NA	NA	NA	NA	NA
<b>Average</b> .....	<b>240.007</b>	<b>0.918</b>	<b>7.62</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>
<b>2017 January</b> .....	242.839	0.992	8.23	NA	NA	NA	NA	NA	NA

<sup>a</sup> Data are U.S. city averages for all items, and are not seasonally adjusted.

<sup>b</sup> Includes taxes.

<sup>c</sup> Excludes taxes.

R=Revised. NA=Not available.

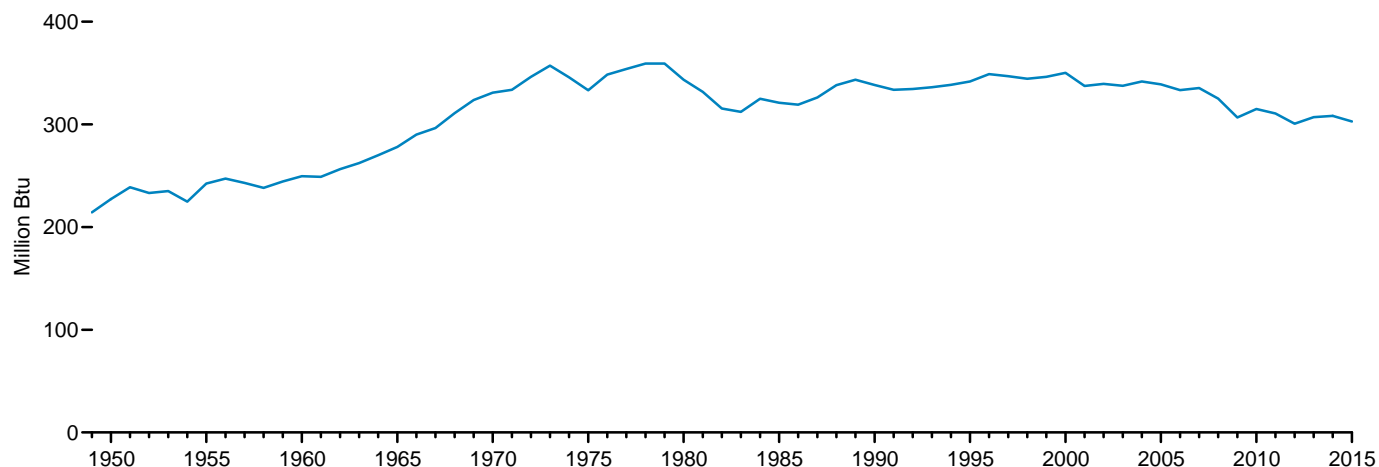
Notes: • See "Real Dollars" in Glossary. • Fuel costs are calculated by using the Urban Consumer Price Index (CPI) developed by the Bureau of Labor Statistics. • Annual averages may not equal average of months due to independent rounding. • Geographic coverage is the 50 states and the District of Columbia.

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.

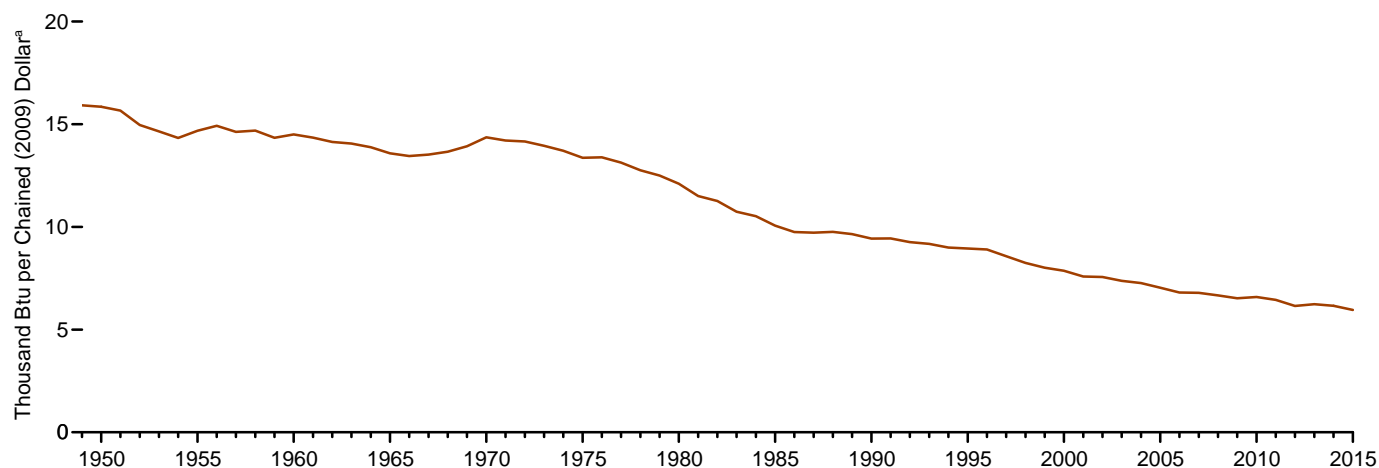
Sources: • **Fuel Prices:** Tables 9.4 (All Grades), 9.8, and 9.10, adjusted by the CPI; and *Monthly Energy Review*, September 2012, Table 9.8c. • **Consumer Price Index, All Urban Consumers:** U.S. Department of Labor, Bureau of Labor Statistics, series ID CUUR0000SA0. • **Conversion Factors:** Tables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

**Figure 1.7 Primary Energy Consumption and Energy Expenditures Indicators**

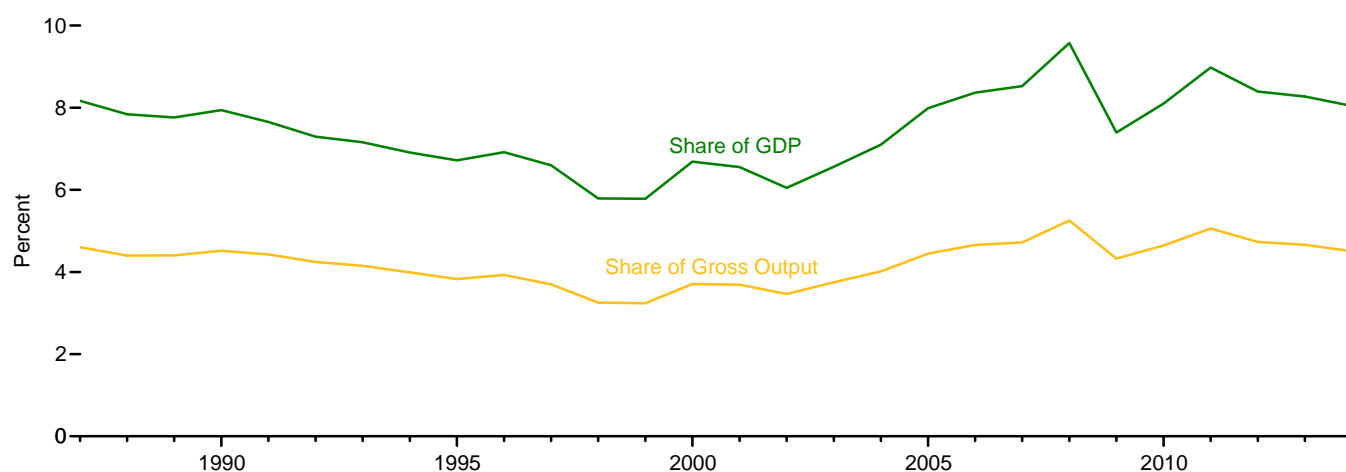
Energy Consumption per Capita, 1949–2015



Primary Energy Consumption per Real Dollar<sup>a</sup> of Gross Domestic Product, 1949–2015



Energy Expenditures as Share of Gross Domestic Product and Gross Output,<sup>b</sup> 1987–2014



<sup>a</sup> See "Chained Dollars" and "Real Dollars" in Glossary.

<sup>b</sup> 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 <sup>a</sup>			Energy Expenditures <sup>b</sup>				Carbon Dioxide Emissions <sup>c</sup>		
	Consumption	Consumption per Capita	Consumption per Real Dollar <sup>d</sup> of GDP <sup>e</sup>	Expenditures	Expenditures per Capita	Expenditures as Share of GDP <sup>e</sup>	Expenditures as Share of Gross Output <sup>f</sup>	Emissions	Emissions per Capita	Emissions per Real Dollar <sup>d</sup> of GDP <sup>e</sup>
	Quadrillion Btu	Million Btu	Thousand Btu per Chained (2009) Dollar <sup>d</sup>	Million Nominal Dollars <sup>g</sup>	Nominal Dollars <sup>g</sup>	Percent	Percent	Million Metric Tons Carbon Dioxide	Metric Tons Carbon Dioxide	Metric Tons Carbon Dioxide per Million Chained (2009) Dollars <sup>d</sup>
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	4,439	20.6	824
1980 .....	78.067	344	12.10	374,347	1,647	13.1	NA	4,771	21.0	740
1981 .....	76.106	332	11.50	427,898	1,865	13.3	NA	4,646	20.2	702
1982 .....	73.099	316	11.26	426,479	1,841	12.7	NA	4,405	19.0	679
1983 .....	72.971	312	10.74	417,617	1,786	11.5	NA	4,377	18.7	644
1984 .....	76.632	325	10.52	435,371	1,846	10.8	NA	4,614	19.6	633
1985 .....	76.392	321	10.06	438,531	1,843	10.1	NA	4,600	19.3	606
1986 .....	76.647	319	9.75	384,284	1,600	8.4	NA	4,608	19.2	586
1987 .....	79.054	326	9.72	397,819	1,642	8.2	4.6	4,766	19.7	586
1988 .....	82.709	338	9.76	411,739	1,684	7.8	4.4	4,984	20.4	588
1989 .....	84.785	344	9.65	439,235	1,780	7.8	4.4	5,070	20.5	577
1990 .....	84.484	338	9.43	474,831	1,902	7.9	4.5	5,039	20.2	563
1991 .....	84.437	334	9.44	472,543	1,868	7.7	4.4	4,993	19.7	558
1992 .....	85.782	334	9.26	477,024	1,860	7.3	4.2	5,087	19.8	549
1993 .....	87.365	336	9.18	492,383	1,894	7.2	4.2	5,185	19.9	545
1994 .....	89.087	339	8.99	504,988	1,919	6.9	4.0	5,261	20.0	531
1995 .....	91.031	342	8.95	514,755	1,933	6.7	3.8	5,323	20.0	523
1996 .....	94.021	349	8.90	560,409	2,080	6.9	3.9	5,510	20.5	522
1997 .....	94.600	347	8.57	568,075	2,084	6.6	3.7	5,584	20.5	506
1998 .....	95.018	344	8.24	526,394	1,908	5.8	3.3	5,635	20.4	489
1999 .....	96.648	346	8.01	558,739	2,002	5.8	3.2	5,688	20.4	471
2000 .....	98.817	350	7.87	687,824	2,438	6.7	3.7	5,868	20.8	467
2001 .....	96.170	337	7.58	696,347	2,444	6.6	3.7	5,761	20.2	454
2002 .....	97.643	339	7.56	664,072	2,309	6.0	3.5	5,804	20.2	450
2003 .....	97.917	338	7.38	R 755,213	2,603	6.6	3.8	5,853	20.2	441
2004 .....	100.090	342	7.27	R 871,344	2,976	7.1	4.0	5,970	20.4	433
2005 .....	100.188	339	7.04	R 1,045,917	3,539	8.0	4.4	5,993	20.3	421
2006 .....	99.484	333	6.81	R 1,159,027	3,884	8.4	4.7	5,910	19.8	404
2007 .....	101.015	335	6.79	R 1,234,044	4,097	8.5	4.7	6,000	19.9	403
2008 .....	98.891	325	6.67	R 1,408,990	R 4,633	9.6	5.3	5,809	19.1	392
2009 .....	94.118	307	6.53	R 1,066,523	R 3,477	7.4	4.3	5,386	17.6	374
2010 .....	97.444	315	6.59	R 1,212,094	R 3,918	8.1	4.6	5,582	18.0	378
2011 .....	96.842	311	6.45	R 1,393,001	R 4,469	R 9.0	R 5.1	5,445	17.5	362
2012 .....	94.416	301	6.15	R 1,356,104	R 4,317	8.4	4.7	5,232	16.7	341
2013 .....	97.157	307	6.23	R 1,378,360	R 4,356	8.3	4.7	5,360	16.9	344
2014 .....	98.317	308	6.16	R 1,394,974	R 4,374	R 8.0	R 4.5	5,406	17.0	339
2015 .....	97.344	303	5.95	NA	NA	NA	NA	5,259	16.4	322

<sup>a</sup> See "Primary Energy Consumption" in Glossary.

<sup>b</sup> Expenditures include taxes where data are available.

<sup>c</sup> Carbon dioxide emissions from energy consumption. See Table 12.1.

<sup>d</sup> See "Chained Dollars" and "Real Dollars" in Glossary.

<sup>e</sup> See "Gross Domestic Product (GDP)" in Glossary.

<sup>f</sup> Gross output is the value of GDP plus the value of intermediate inputs used to produce GDP.

<sup>g</sup> See "Nominal Dollars" in Glossary.

R=Revised. NA=Not available.

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

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

Sources: • **Consumption:** Table 1.3. • **Consumption per Capita:** Calculated as energy consumption divided by U.S. population (see Table C1).

• **Consumption per Real Dollar of GDP:** Calculated as energy consumption divided by U.S. gross domestic product in chained (2009) dollars (see Table C1).

• **Expenditures:** U.S. Energy Information Administration, "State Energy Price and Expenditure Estimates, 1970 Through 2014" (June 2016), U.S. Table ET1.

• **Expenditures per Capita:** Calculated as energy expenditures divided by U.S. population (see Table C1). • **Expenditures as Share of GDP:** Calculated as energy expenditures divided by U.S. gross domestic product in nominal dollars (see Table C1).

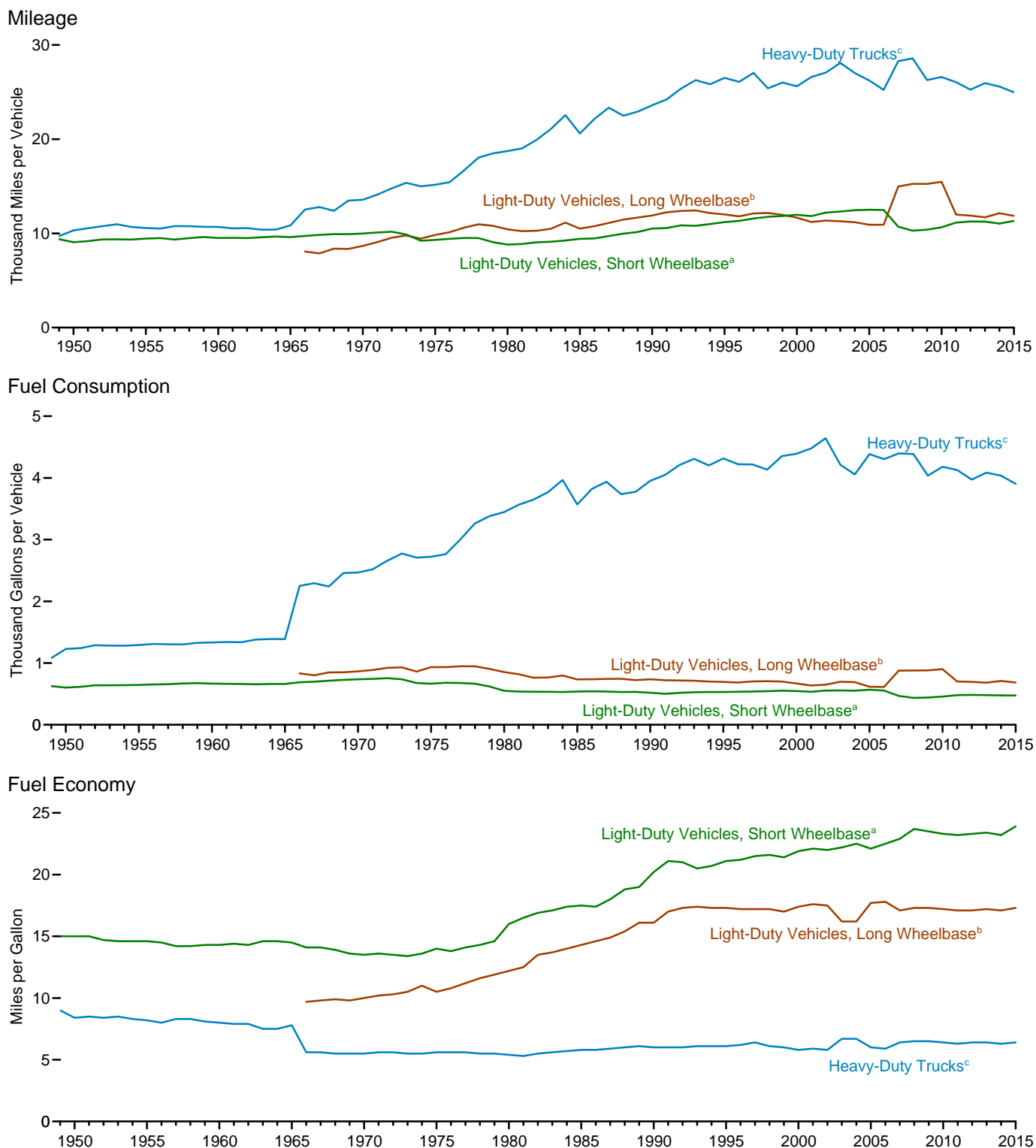
• **Expenditures as Share of Gross Output:** Calculated as energy expenditures divided by U.S. gross output (see Table C1).

• **Emissions:** 1949–1972—U.S. Energy Information Administration, *Annual Energy Review 2011*, Table 11.1. 1973 forward—Table 12.1.

• **Emissions per Capita:** Calculated as carbon dioxide emissions divided by U.S. population (see Table C1).

• **Emissions per Real Dollar of GDP:** Calculated as carbon dioxide emissions divided by U.S. gross domestic product in chained (2009) dollars (see Table C1).

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



<sup>a</sup> 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.

<sup>b</sup> 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.

<sup>c</sup> 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 <sup>a</sup>			Light-Duty Vehicles, Long Wheelbase <sup>b</sup>			Heavy-Duty Trucks <sup>c</sup>			All Motor Vehicles <sup>d</sup>		
	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	( <sup>e</sup> )	( <sup>e</sup> )	( <sup>e</sup> )	10,316	1,229	8.4	9,321	725	12.8
1955 .....	9,447	645	14.6	( <sup>e</sup> )	( <sup>e</sup> )	( <sup>e</sup> )	10,576	1,293	8.2	9,661	761	12.7
1960 .....	9,518	668	14.3	( <sup>e</sup> )	( <sup>e</sup> )	( <sup>e</sup> )	10,693	1,333	8.0	9,732	784	12.4
1965 .....	9,603	661	14.5	( <sup>e</sup> )	( <sup>e</sup> )	( <sup>e</sup> )	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 .....	<sup>a</sup> 10,710	<sup>a</sup> 468	<sup>a</sup> 22.9	<sup>b</sup> 14,970	<sup>b</sup> 877	<sup>b</sup> 17.1	<sup>c</sup> 28,290	<sup>c</sup> 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 <sup>P</sup> .....	11,327	475	23.9	11,855	684	17.3	24,797	3,904	6.4	11,742	656	17.9

<sup>a</sup> 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.

<sup>b</sup> 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.

<sup>c</sup> 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.

<sup>d</sup> Includes buses and motorcycles, which are not separately displayed.

<sup>e</sup> 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 <sup>a</sup>	Middle Atlantic <sup>b</sup>	East North Central <sup>c</sup>	West North Central <sup>d</sup>	South Atlantic <sup>e</sup>	East South Central <sup>f</sup>	West South Central <sup>g</sup>	Mountain <sup>h</sup>	Pacific <sup>i</sup>	United States
<b>1950 Total</b> .....	6,794	6,324	7,027	7,455	3,521	3,547	2,277	6,341	3,906	5,367
<b>1955 Total</b> .....	6,872	6,231	6,486	6,912	3,508	3,513	2,294	6,704	4,320	5,246
<b>1960 Total</b> .....	6,828	6,391	6,908	7,184	3,780	4,134	2,767	6,281	3,799	5,404
<b>1965 Total</b> .....	7,029	6,393	6,587	6,932	3,372	3,501	2,237	6,086	3,819	5,146
<b>1970 Total</b> .....	7,022	6,388	6,721	7,090	3,452	3,823	2,558	6,119	3,726	5,218
<b>1975 Total</b> .....	6,547	5,892	6,406	6,880	2,970	3,437	2,312	6,260	4,117	4,905
<b>1980 Total</b> .....	7,071	6,477	6,975	6,836	3,378	3,964	2,494	5,554	3,539	5,080
<b>1985 Total</b> .....	6,749	5,971	6,668	7,262	2,899	3,660	2,535	6,059	3,935	4,889
<b>1990 Total</b> .....	5,987	5,252	5,780	6,137	2,307	2,942	1,968	5,391	3,603	4,180
<b>1995 Total</b> .....	6,684	6,093	6,740	6,911	2,988	3,648	2,147	5,101	3,269	4,640
<b>2000 Total</b> .....	6,625	5,999	6,315	6,500	2,905	3,551	2,153	4,971	3,460	4,494
<b>2001 Total</b> .....	6,202	5,541	5,844	6,221	2,604	3,327	2,162	5,004	3,545	4,257
<b>2002 Total</b> .....	6,234	5,550	6,128	6,485	2,664	3,443	2,292	5,197	3,510	4,356
<b>2003 Total</b> .....	6,975	6,258	6,536	6,593	2,884	3,559	2,205	4,817	3,355	4,544
<b>2004 Total</b> .....	6,709	5,892	6,178	6,329	2,715	3,291	2,041	5,010	3,346	4,344
<b>2005 Total</b> .....	6,644	5,950	6,222	6,213	2,775	3,380	1,985	4,896	3,377	4,348
<b>2006 Total</b> .....	5,885	5,211	5,703	5,821	2,475	3,211	1,802	4,915	3,557	4,040
<b>2007 Total</b> .....	6,537	5,756	6,074	6,384	2,525	3,187	2,105	4,939	3,506	4,268
<b>2008 Total</b> .....	6,434	5,782	6,677	7,118	2,712	3,600	2,125	5,233	3,566	4,494
<b>2009 Total</b> .....	6,644	5,922	6,512	6,841	2,812	3,536	2,152	5,139	3,538	4,481
<b>2010 Total</b> .....	5,934	5,553	6,185	6,565	3,167	3,948	2,449	5,082	3,624	4,463
<b>2011 Total</b> .....	6,114	5,483	6,172	6,565	2,565	3,343	2,114	5,322	3,818	4,312
<b>2012 Total</b> .....	5,561	4,970	5,356	5,515	2,306	2,876	1,650	4,574	3,411	3,769
<b>2013 Total</b> .....	6,426	5,838	6,621	7,135	2,736	3,648	2,326	5,273	3,362	4,465
<b>2014 January</b> .....	1,304	1,305	1,518	1,483	758	1,014	650	834	437	969
February .....	1,141	1,104	1,322	1,347	492	690	478	705	449	798
March .....	1,116	1,026	1,094	1,031	459	564	351	583	375	683
April .....	582	505	496	512	157	182	81	405	276	325
May .....	254	179	205	200	36	49	11	218	131	127
June .....	46	20	27	41	1	1	0	86	61	28
July .....	4	7	29	30	1	1	0	11	9	10
August .....	32	19	19	21	1	0	0	37	11	13
September .....	110	74	120	126	11	17	4	100	37	57
October .....	358	311	418	389	118	162	37	273	122	220
November .....	785	757	937	1,021	440	626	390	654	353	614
December .....	941	896	1,009	1,102	477	627	421	837	511	705
<b>Total</b> .....	<b>6,674</b>	<b>6,203</b>	<b>7,194</b>	<b>7,304</b>	<b>2,951</b>	<b>3,932</b>	<b>2,422</b>	<b>4,743</b>	<b>2,773</b>	<b>4,549</b>
<b>2015 January</b> .....	<sup>R</sup> 1,336	<sup>R</sup> 1,260	<sup>R</sup> 1,334	<sup>R</sup> 1,266	643	<sup>R</sup> 835	623	<sup>R</sup> 817	<sup>R</sup> 470	890
February .....	<sup>R</sup> 1,412	<sup>R</sup> 1,318	<sup>R</sup> 1,404	<sup>R</sup> 1,305	666	<sup>R</sup> 864	498	<sup>R</sup> 600	<sup>R</sup> 334	867
March .....	1,101	1,002	951	802	<sup>R</sup> 357	<sup>R</sup> 445	278	<sup>R</sup> 483	285	584
April .....	588	481	<sup>R</sup> 454	<sup>R</sup> 398	131	<sup>R</sup> 147	<sup>R</sup> 55	396	294	300
May .....	147	100	159	215	22	37	14	268	208	119
June .....	84	<sup>R</sup> 30	45	<sup>R</sup> 40	1	1	0	42	26	24
July .....	7	4	12	12	0	0	0	24	8	6
August .....	8	<sup>R</sup> 8	<sup>R</sup> 24	33	0	1	0	21	13	11
September .....	<sup>R</sup> 43	27	39	50	8	13	1	78	57	32
October .....	<sup>R</sup> 458	391	365	<sup>R</sup> 355	143	164	42	247	<sup>R</sup> 112	227
November .....	<sup>R</sup> 610	<sup>R</sup> 529	<sup>R</sup> 603	<sup>R</sup> 650	237	313	<sup>R</sup> 218	<sup>R</sup> 687	<sup>R</sup> 470	445
December .....	<sup>R</sup> 726	<sup>R</sup> 625	<sup>R</sup> 775	960	279	401	<sup>R</sup> 358	937	<sup>R</sup> 619	581
<b>Total</b> .....	<sup>R</sup> <b>6,519</b>	<sup>R</sup> <b>5,776</b>	<sup>R</sup> <b>6,164</b>	<sup>R</sup> <b>6,087</b>	<b>2,487</b>	<sup>R</sup> <b>3,221</b>	<b>2,087</b>	<sup>R</sup> <b>4,600</b>	<sup>R</sup> <b>2,897</b>	<sup>R</sup> <b>4,085</b>
<b>2016 January</b> .....	<sup>R</sup> 1,128	1,118	1,241	<sup>R</sup> 1,303	<sup>R</sup> 660	857	564	<sup>R</sup> 916	567	870
February .....	<sup>R</sup> 957	901	957	<sup>R</sup> 936	482	<sup>R</sup> 574	<sup>R</sup> 308	619	<sup>R</sup> 344	<sup>R</sup> 628
March .....	<sup>R</sup> 756	643	669	<sup>R</sup> 653	<sup>R</sup> 240	324	<sup>R</sup> 179	<sup>R</sup> 542	<sup>R</sup> 393	449
April .....	<sup>R</sup> 605	<sup>R</sup> 514	506	424	151	161	61	381	242	309
May .....	<sup>R</sup> 252	<sup>R</sup> 214	<sup>R</sup> 221	<sup>R</sup> 208	58	71	17	254	179	150
June .....	45	22	26	28	1	0	0	42	<sup>R</sup> 44	21
July .....	4	1	3	11	0	0	0	15	19	6
August .....	5	1	5	17	0	0	0	31	12	7
September .....	<sup>R</sup> 69	37	40	75	2	5	1	115	<sup>R</sup> 65	<sup>R</sup> 39
October .....	<sup>R</sup> 390	<sup>R</sup> 317	284	305	90	<sup>R</sup> 89	22	265	<sup>R</sup> 197	197
November .....	672	607	581	570	288	339	153	511	330	417
<b>11-Month Total</b> .....	<b>4,882</b>	<b>4,375</b>	<b>4,533</b>	<b>4,531</b>	<b>1,972</b>	<b>2,420</b>	<b>1,306</b>	<b>3,689</b>	<b>2,392</b>	<b>3,092</b>
<b>2015 11-Month Total</b> .....	<b>5,793</b>	<b>5,151</b>	<b>5,389</b>	<b>5,127</b>	<b>2,208</b>	<b>2,820</b>	<b>1,729</b>	<b>3,663</b>	<b>2,278</b>	<b>3,504</b>
<b>2014 11-Month Total</b> .....	<b>5,733</b>	<b>5,307</b>	<b>6,185</b>	<b>6,201</b>	<b>2,474</b>	<b>3,304</b>	<b>2,001</b>	<b>3,906</b>	<b>2,262</b>	<b>3,844</b>

<sup>a</sup> Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, and Vermont.

<sup>b</sup> New Jersey, New York, and Pennsylvania.

<sup>c</sup> Illinois, Indiana, Michigan, Ohio, and Wisconsin.

<sup>d</sup> Iowa, Kansas, Minnesota, Missouri, Nebraska, North Dakota, and South Dakota.

<sup>e</sup> Delaware, Florida, Georgia, Maryland (and the District of Columbia), North Carolina, South Carolina, Virginia, and West Virginia.

<sup>f</sup> Alabama, Kentucky, Mississippi, and Tennessee.

<sup>g</sup> Arkansas, Louisiana, Oklahoma, and Texas.

<sup>h</sup> Arizona, Colorado, Idaho, Montana, Nevada, New Mexico, Utah, and Wyoming.

<sup>i</sup> 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](http://www.eia.gov/forecasts/steo/special/pdf/2012_sp_04.pdf).

**Table 1.10 Cooling Degree Days by Census Division**

	New England <sup>a</sup>	Middle Atlantic <sup>b</sup>	East North Central <sup>c</sup>	West North Central <sup>d</sup>	South Atlantic <sup>e</sup>	East South Central <sup>f</sup>	West South Central <sup>g</sup>	Mountain <sup>h</sup>	Pacific <sup>i</sup>	United States
<b>1950 Total</b> .....	295	401	505	647	1,414	1,420	2,282	682	629	871
<b>1955 Total</b> .....	532	761	922	1,139	1,636	1,674	2,508	780	558	1,144
<b>1960 Total</b> .....	318	487	626	871	1,583	1,532	2,367	974	796	1,000
<b>1965 Total</b> .....	310	498	618	832	1,613	1,552	2,461	780	577	979
<b>1970 Total</b> .....	423	615	747	980	1,744	1,571	2,282	971	734	1,079
<b>1975 Total</b> .....	422	584	721	937	1,791	1,440	2,162	903	597	1,049
<b>1980 Total</b> .....	438	680	769	1,158	1,911	1,754	2,651	1,071	653	1,214
<b>1985 Total</b> .....	324	509	602	780	1,878	1,522	2,519	1,095	761	1,121
<b>1990 Total</b> .....	429	562	602	913	2,054	1,563	2,526	1,212	838	1,200
<b>1995 Total</b> .....	471	704	877	928	2,028	1,613	2,398	1,213	794	1,261
<b>2000 Total</b> .....	279	458	632	983	1,925	1,674	2,775	1,480	772	1,232
<b>2001 Total</b> .....	464	623	722	994	1,897	1,478	2,543	1,508	861	1,255
<b>2002 Total</b> .....	508	772	899	1,045	2,182	1,757	2,515	1,467	783	1,363
<b>2003 Total</b> .....	475	615	619	907	1,980	1,452	2,496	1,553	978	1,268
<b>2004 Total</b> .....	368	591	585	722	2,038	1,517	2,482	1,290	828	1,217
<b>2005 Total</b> .....	598	892	944	1,063	2,098	1,676	2,647	1,372	777	1,388
<b>2006 Total</b> .....	485	693	734	1,034	2,053	1,648	2,786	1,466	922	1,360
<b>2007 Total</b> .....	447	694	881	1,102	2,219	1,892	2,475	1,564	828	1,392
<b>2008 Total</b> .....	462	667	683	818	1,993	1,537	2,501	1,385	918	1,282
<b>2009 Total</b> .....	350	524	534	698	2,029	1,479	2,590	1,393	894	1,241
<b>2010 Total</b> .....	635	908	964	1,096	2,269	1,977	2,757	1,358	674	1,456
<b>2011 Total</b> .....	554	836	859	1,074	2,259	1,727	3,112	1,450	736	1,470
<b>2012 Total</b> .....	565	815	974	1,221	2,162	1,762	2,915	1,573	917	1,495
<b>2013 Total</b> .....	540	683	690	892	2,000	1,441	2,536	1,462	892	1,306
<b>2014 January</b> .....	0	0	0	0	20	0	5	3	14	7
February .....	0	0	0	0	45	1	8	7	10	12
March .....	0	0	0	0	43	5	21	20	15	15
April .....	0	0	1	4	83	26	96	47	26	37
May .....	8	26	54	65	210	147	226	119	72	113
June .....	69	131	176	194	351	329	457	272	127	243
July .....	201	219	133	200	401	307	502	391	274	301
August .....	109	150	197	261	382	376	557	272	228	292
September .....	32	65	46	78	281	236	381	206	190	183
October .....	0	6	2	12	127	60	195	85	86	74
November .....	0	0	0	0	31	0	10	9	19	11
December .....	0	0	0	0	36	4	15	0	7	10
<b>Total</b> .....	<b>420</b>	<b>596</b>	<b>610</b>	<b>814</b>	<b>2,009</b>	<b>1,493</b>	<b>2,474</b>	<b>1,432</b>	<b>1,068</b>	<b>1,299</b>
<b>2015 January</b> .....	0	0	0	0	34	3	5	2	R 10	9
February .....	0	0	0	0	19	0	6	11	R 13	7
March .....	0	0	0	3	84	21	R 39	32	27	R 29
April .....	0	0	1	8	131	R 52	R 141	40	23	53
May .....	R 31	72	82	55	242	175	260	R 75	28	126
June .....	R 40	114	R 139	R 203	394	353	R 453	R 313	176	255
July .....	193	R 250	R 202	289	456	R 443	586	R 325	R 218	336
August .....	R 206	230	R 170	202	411	340	R 561	R 362	R 262	R 316
September .....	R 87	136	128	168	296	R 235	424	R 231	R 193	R 223
October .....	0	1	7	13	135	59	R 188	84	97	77
November .....	0	0	0	0	103	16	R 52	3	12	30
December .....	0	1	2	0	100	24	25	0	10	26
<b>Total</b> .....	<b>R 557</b>	<b>805</b>	<b>R 731</b>	<b>R 942</b>	<b>2,406</b>	<b>R 1,720</b>	<b>R 2,741</b>	<b>R 1,479</b>	<b>R 1,068</b>	<b>1,489</b>
<b>2016 January</b> .....	0	0	0	0	24	2	9	0	8	7
February .....	0	0	0	0	R 23	3	R 26	10	R 14	11
March .....	0	0	3	10	89	36	86	24	13	35
April .....	0	0	1	8	R 88	38	123	43	27	43
May .....	7	17	42	R 48	R 185	124	R 237	R 91	38	R 97
June .....	R 73	129	R 188	263	380	R 371	R 474	R 332	R 164	R 270
July .....	R 241	R 309	277	307	R 509	474	R 618	R 408	R 236	384
August .....	R 240	311	296	268	485	460	R 547	R 304	R 233	R 362
September .....	R 60	R 115	131	139	353	320	R 429	R 173	R 126	220
October .....	0	R 6	19	28	157	R 114	233	99	R 48	87
November .....	0	0	0	2	56	12	81	15	17	26
<b>11-Month Total</b> ..	<b>621</b>	<b>887</b>	<b>959</b>	<b>1,073</b>	<b>2,349</b>	<b>1,954</b>	<b>2,864</b>	<b>1,500</b>	<b>926</b>	<b>1,542</b>
<b>2015 11-Month Total</b> ..	<b>557</b>	<b>804</b>	<b>729</b>	<b>942</b>	<b>2,305</b>	<b>1,696</b>	<b>2,716</b>	<b>1,479</b>	<b>1,058</b>	<b>1,462</b>
<b>2014 11-Month Total</b> ..	<b>420</b>	<b>596</b>	<b>610</b>	<b>814</b>	<b>1,972</b>	<b>1,490</b>	<b>2,460</b>	<b>1,432</b>	<b>1,061</b>	<b>1,289</b>

<sup>a</sup> Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, and Vermont.

<sup>b</sup> New Jersey, New York, and Pennsylvania.

<sup>c</sup> Illinois, Indiana, Michigan, Ohio, and Wisconsin.

<sup>d</sup> Iowa, Kansas, Minnesota, Missouri, Nebraska, North Dakota, and South Dakota.

<sup>e</sup> Delaware, Florida, Georgia, Maryland (and the District of Columbia), North Carolina, South Carolina, Virginia, and West Virginia.

<sup>f</sup> Alabama, Kentucky, Mississippi, and Tennessee.

<sup>g</sup> Arkansas, Louisiana, Oklahoma, and Texas.

<sup>h</sup> Arizona, Colorado, Idaho, Montana, Nevada, New Mexico, Utah, and Wyoming.

<sup>i</sup> 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](http://www.eia.gov/forecasts/steo/special/pdf/2012_sp_04.pdf).

## Energy Overview

**Note. 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.

### 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, *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 “Biofuels—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 “Biofuels—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.

### **Biofuels—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.

### **Biofuels—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.

### **Biofuels—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 Biofuels**

1993–2000: Total biofuels imports are equal to fuel ethanol (minus denaturant) imports.

2001–2008: Total biofuels imports are equal to fuel ethanol (minus denaturant) imports plus biodiesel imports.

2009 forward: Total biofuels 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 biofuels, 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 “Biofuels—Fuel Ethanol (Minus Denaturant)” sources below). 2011 forward: Biomass-based diesel fuel exports data are from U.S. Energy Information Administration, *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 “Biofuels—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.

### **Biofuels—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.

### **Biofuels—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.

### **Total Biofuels**

2001–2009: Total biofuels exports are equal to biodiesel exports.

2010 forward: Total biofuels exports are equal to fuel ethanol (minus denaturant) exports plus biodiesel exports.

### **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 biofuels, 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 and 2016: “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 and 2016: “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 and 2016: “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 and 2016: “U.S. International Trade in Goods and Services,” FT-900, monthly.

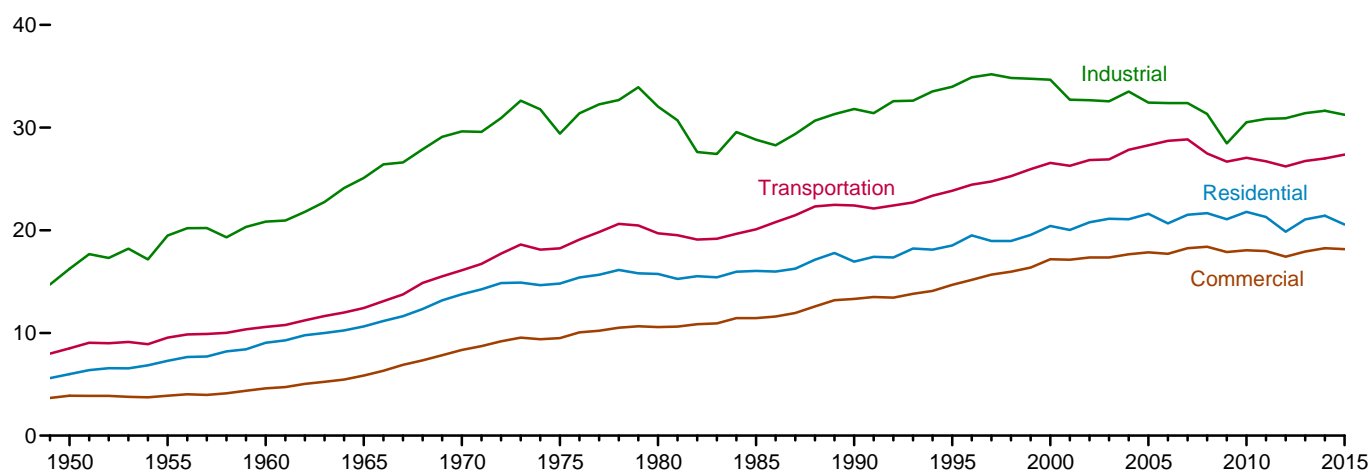
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## 2. Energy Consumption by Sector

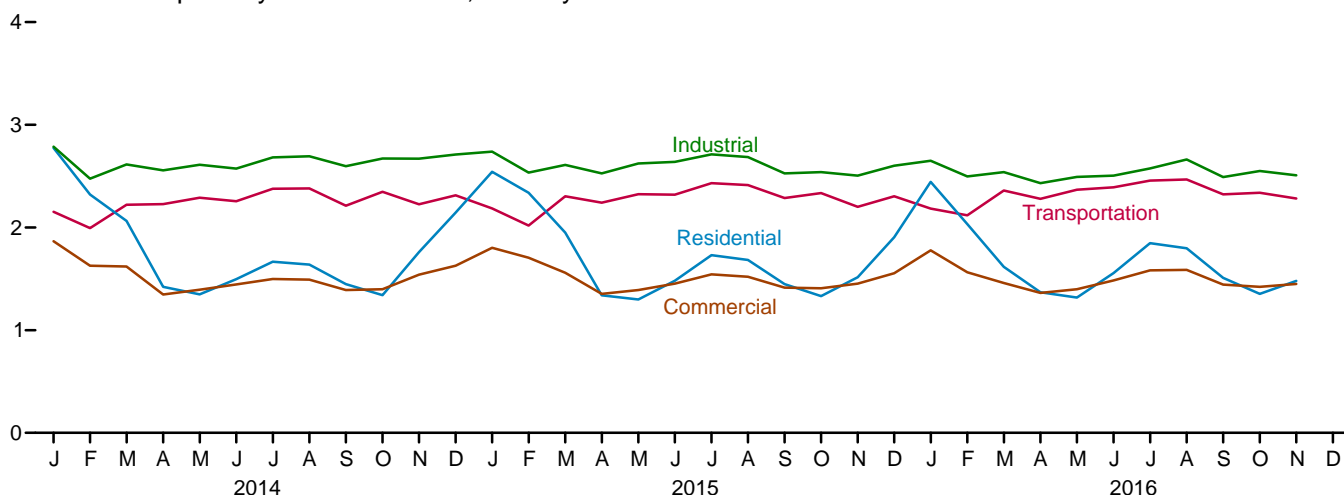
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**Figure 2.1 Energy Consumption by Sector**  
(Quadrillion Btu)

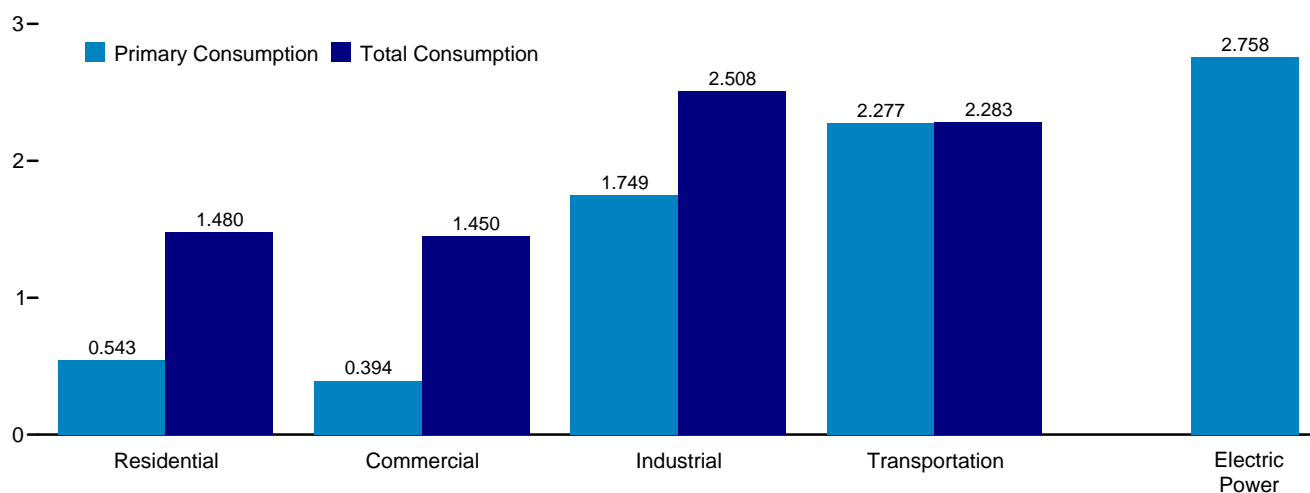
Total Consumption by End-Use Sector, 1949–2015



Total Consumption by End-Use Sector, Monthly



By Sector, November 2016



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 <sup>c,d</sup>	Balancing Item <sup>g</sup>	Primary Total <sup>h</sup>
	Residential		Commercial <sup>a</sup>		Industrial <sup>b</sup>		Transportation				
	Primary <sup>e</sup>	Total <sup>f</sup>	Primary <sup>e</sup>	Total <sup>f</sup>	Primary <sup>e</sup>	Total <sup>f</sup>	Primary <sup>e</sup>	Total <sup>f</sup>	Primary <sup>e</sup>		
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	<sup>d</sup> 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	97,917
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)	99,484
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	20,278	30,526	26,978	27,059	39,619	7	97,444
2011 Total .....	6,392	21,300	4,062	17,979	20,456	30,843	26,632	26,712	39,293	8	96,842
2012 Total .....	5,672	19,858	3,725	17,422	20,742	30,915	26,144	26,219	38,131	2	94,416
2013 Total .....	6,704	21,067	4,163	17,932	21,263	31,409	26,671	26,750	38,357	-1	97,157
2014 January .....	1,238	2,774	671	1,865	1,947	2,787	2,144	2,152	3,578	4	9,583
February .....	1,038	2,321	586	1,628	1,722	2,475	1,987	1,994	3,085	3	8,421
March .....	881	2,064	513	1,620	1,781	2,614	2,214	2,221	3,130	(s)	8,519
April .....	491	1,422	313	1,347	1,743	2,556	2,221	2,228	2,785	-3	7,550
May .....	343	1,348	243	1,394	1,714	2,610	2,283	2,290	3,059	-1	7,641
June .....	257	1,496	203	1,446	1,675	2,574	2,250	2,256	3,387	2	7,775
July .....	244	1,666	197	1,499	1,765	2,682	2,371	2,377	3,647	4	8,228
August .....	240	1,639	198	1,493	1,767	2,693	2,374	2,381	3,626	4	8,209
September .....	266	1,448	216	1,391	1,760	2,597	2,207	2,213	3,198	1	7,648
October .....	366	1,341	275	1,399	1,827	2,672	2,340	2,347	2,951	-3	7,756
November .....	714	1,759	445	1,540	1,819	2,671	2,219	2,226	3,000	-3	8,194
December .....	903	2,145	517	1,628	1,887	2,710	2,307	2,313	3,183	-3	8,794
Total .....	6,980	21,419	4,378	18,253	21,407	31,643	26,917	26,996	38,629	6	98,317
2015 January .....	1,139	2,542	666	1,803	1,928	2,739	2,179	2,186	3,357	2	9,271
February .....	1,085	2,338	639	1,706	1,758	2,534	2,012	2,019	3,103	3	8,599
March .....	798	1,950	499	1,559	1,826	2,610	2,297	2,304	3,002	(s)	8,422
April .....	447	1,339	323	1,353	1,732	2,527	2,235	2,241	2,723	-2	7,459
May .....	307	1,298	251	1,391	1,759	2,623	2,319	2,325	3,002	(s)	7,637
June .....	235	1,482	216	1,452	1,746	2,639	2,313	2,319	3,383	3	7,896
July .....	226	1,731	219	1,544	1,807	2,712	2,425	2,431	3,741	6	8,423
August .....	224	1,683	223	1,520	1,793	2,685	2,406	2,412	3,655	6	8,307
September .....	223	1,448	221	1,414	1,700	2,527	2,281	2,287	3,251	4	7,680
October .....	363	1,331	307	1,407	1,727	2,539	2,329	2,336	2,886	-1	7,612
November .....	577	1,515	400	1,454	1,710	2,504	2,195	2,201	2,792	-1	7,672
December .....	782	1,906	479	1,554	1,815	2,602	2,297	2,304	2,993	-1	8,365
Total .....	6,405	20,558	4,443	18,159	21,301	31,244	27,287	27,364	37,890	19	97,344
2016 January .....	1,098	2,444	647	1,778	<sup>R</sup> 1,869	<sup>R</sup> 2,650	2,177	2,184	3,265	4	<sup>R</sup> 9,060
February .....	891	2,033	550	1,563	<sup>R</sup> 1,769	<sup>R</sup> 2,497	2,111	2,118	2,890	(s)	<sup>R</sup> 8,212
March .....	624	1,616	417	1,459	<sup>R</sup> 1,787	<sup>R</sup> 2,539	<sup>R</sup> 2,354	2,361	2,792	-4	<sup>R</sup> 7,971
April .....	479	1,368	339	1,363	<sup>R</sup> 1,666	<sup>R</sup> 2,431	2,273	2,279	2,684	-3	<sup>R</sup> 7,438
May .....	339	1,318	274	1,398	<sup>R</sup> 1,677	<sup>R</sup> 2,492	2,361	2,367	2,924	-1	<sup>R</sup> 7,575
June .....	247	1,556	230	1,484	<sup>R</sup> 1,664	<sup>R</sup> 2,505	2,384	<sup>R</sup> 2,390	3,412	5	<sup>R</sup> 7,941
July .....	238	1,848	231	1,583	<sup>R</sup> 1,704	<sup>R</sup> 2,576	2,450	2,457	3,840	<sup>R</sup> 9	<sup>R</sup> 8,472
August .....	222	1,797	<sup>R</sup> 231	<sup>R</sup> 1,588	<sup>R</sup> 1,799	<sup>R</sup> 2,662	2,461	2,467	3,801	<sup>R</sup> 9	<sup>R</sup> 8,523
September .....	246	1,510	<sup>R</sup> 240	<sup>R</sup> 1,443	<sup>R</sup> 1,711	<sup>R</sup> 2,491	2,317	2,323	3,254	<sup>R</sup> 5	<sup>R</sup> 7,773
October .....	344	1,353	302	1,421	<sup>R</sup> 1,773	<sup>R</sup> 2,550	2,332	<sup>R</sup> 2,338	2,911	-3	<sup>R</sup> 7,659
November .....	543	1,480	394	1,450	1,749	2,508	2,277	2,283	2,758	-1	7,720
11-Month Total .....	5,271	18,323	3,855	16,531	19,169	27,901	25,498	25,568	34,530	21	88,344
2015 11-Month Total .....	5,624	18,657	3,964	16,603	19,485	28,639	24,989	25,060	34,896	20	88,978
2014 11-Month Total .....	6,079	19,278	3,862	16,622	19,520	28,931	24,610	24,683	35,445	8	89,524

<sup>a</sup> Commercial sector, including commercial combined-heat-and-power (CHP) and commercial electricity-only plants.

<sup>b</sup> Industrial sector, including industrial combined-heat-and-power (CHP) and industrial electricity-only plants.

<sup>c</sup> Electricity-only and combined-heat-and-power (CHP) plants within the NAICS 22 category whose primary business is to sell electricity, or electricity and heat, to the public.

<sup>d</sup> Through 1988, data are for electric utilities only. Beginning in 1989, data are for electric utilities and independent power producers.

<sup>e</sup> See "Primary Energy Consumption" in Glossary.

<sup>f</sup> 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.

<sup>g</sup> 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.

<sup>h</sup> Primary energy consumption total. See Table 1.3.

<sup>R</sup>=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>

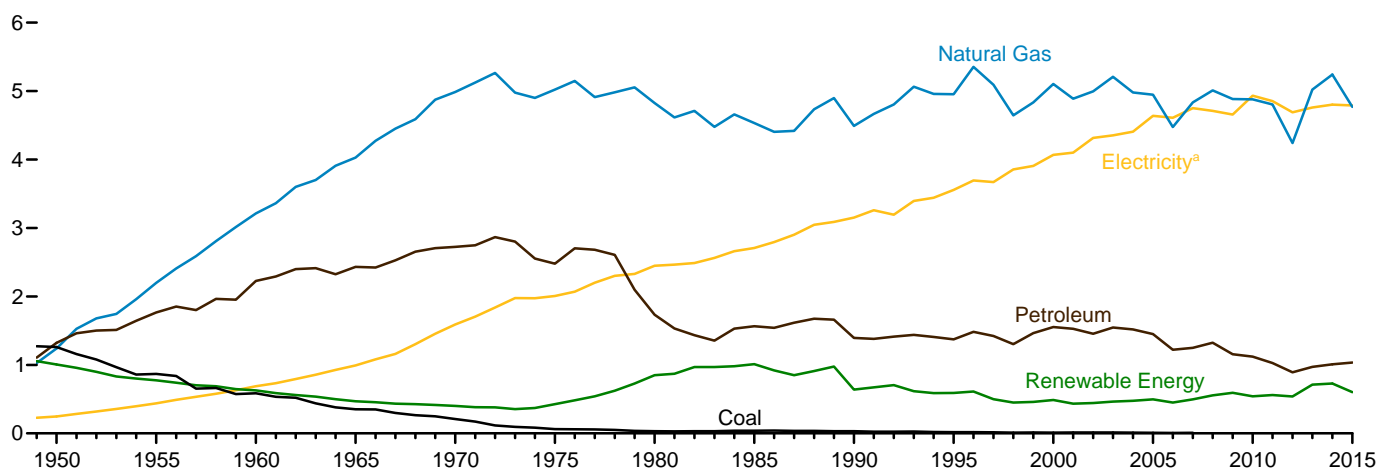
(Excel and CSV files) for all available annual data beginning in 1949 and monthly data beginning in 1973.

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.

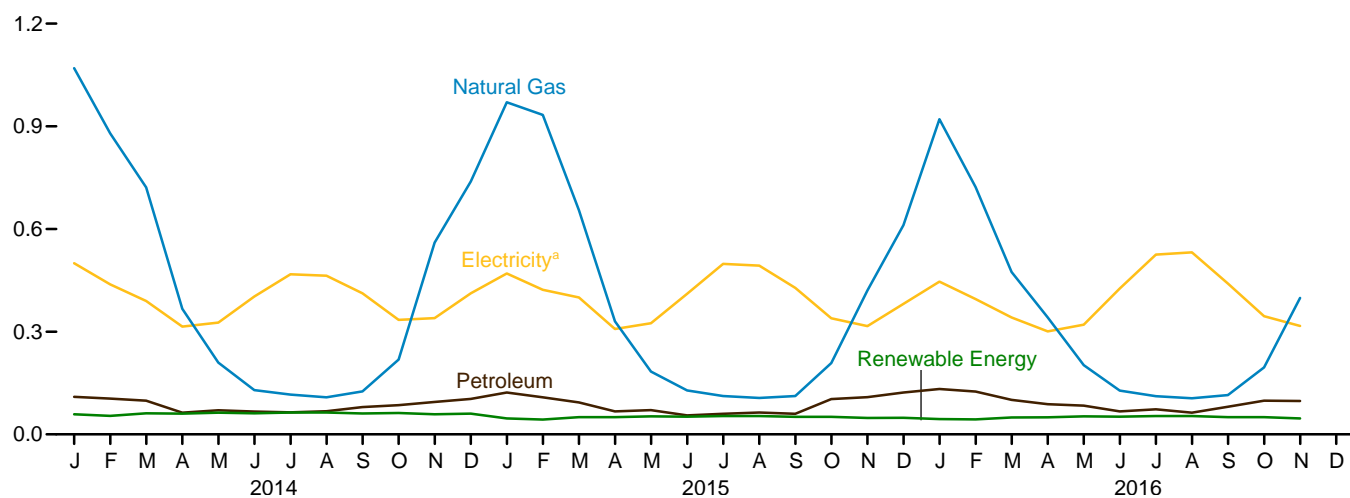
• **Primary Total:** Table 1.3.

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

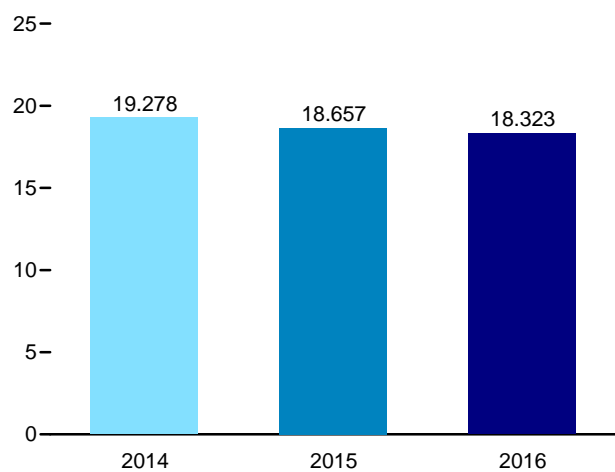
By Major Source, 1949–2015



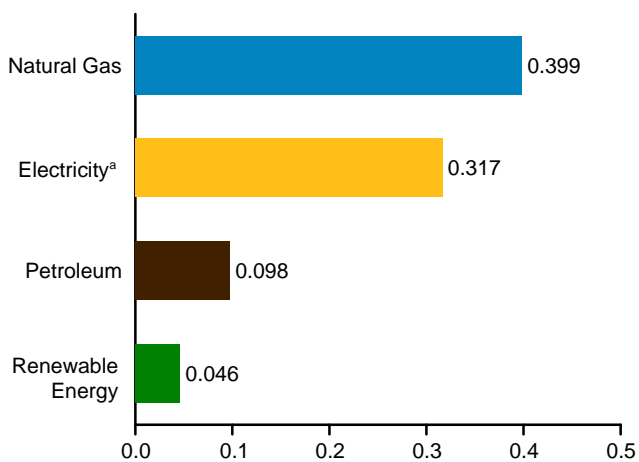
By Major Source, Monthly



Total, January–November



By Major Source, November 2016



<sup>a</sup> 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 <sup>a</sup>									Electricity Retail Sales <sup>e</sup>	Electrical System Energy Losses <sup>f</sup>	Total
	Fossil Fuels				Renewable Energy <sup>b</sup>				Total Primary			
	Coal	Natural Gas <sup>c</sup>	Petro- leum	Total	Geo- thermal	Solar <sup>d</sup>	Bio- mass	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	443	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	52	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	1,027	5,832	40	70	450	560	6,392	4,855	10,054	21,300
2012 Total .....	NA	4,242	892	5,134	40	79	420	538	5,672	4,690	9,496	19,858
2013 Total .....	NA	5,023	970	5,993	40	92	580	711	6,704	4,759	9,604	21,067
2014 January .....	NA	1,070	110	1,179	3	6	49	59	1,238	500	1,036	2,774
February .....	NA	880	105	984	3	6	44	54	1,038	438	844	2,321
March .....	NA	722	98	820	3	9	49	61	881	390	793	2,064
April .....	NA	367	64	430	3	9	48	60	491	315	617	1,422
May .....	NA	210	71	280	3	11	49	63	343	327	678	1,348
June .....	NA	129	67	196	3	11	48	62	257	403	836	1,496
July .....	NA	116	64	180	3	11	49	64	244	468	954	1,666
August .....	NA	108	68	176	3	11	49	64	240	463	936	1,639
September .....	NA	125	80	205	3	10	48	61	266	412	769	1,448
October .....	NA	218	85	304	3	10	49	62	366	335	641	1,341
November .....	NA	560	95	655	3	8	48	59	714	339	706	1,759
December .....	NA	739	104	843	3	8	49	60	903	412	830	2,145
Total .....	NA	5,242	1,009	6,251	40	109	580	729	6,980	4,801	9,638	21,419
2015 January .....	NA	970	122	1,093	3	7	37	47	1,139	470	933	2,542
February .....	NA	933	108	1,042	3	7	33	43	1,085	423	830	2,338
March .....	NA	655	93	748	3	10	37	50	798	400	752	1,950
April .....	NA	330	67	397	3	11	35	50	447	308	584	1,339
May .....	NA	183	71	254	3	13	37	53	307	325	667	1,298
June .....	NA	128	55	183	3	13	35	52	235	410	836	1,482
July .....	NA	112	60	172	3	14	37	54	226	498	1,007	1,731
August .....	NA	106	64	170	3	14	37	54	224	493	966	1,683
September .....	NA	112	60	172	3	12	35	51	223	428	797	1,448
October .....	NA	208	103	311	3	11	37	51	363	339	630	1,331
November .....	NA	420	108	529	3	9	35	48	577	316	622	1,515
December .....	NA	611	122	733	3	9	37	49	782	381	743	1,906
Total .....	NA	4,769	1,035	5,804	41	129	432	601	6,405	4,791	9,362	20,558
2016 January .....	NA	921	132	1,053	4	8	33	45	1,098	446	900	2,444
February .....	NA	723	125	848	3	10	31	44	891	395	746	2,033
March .....	NA	474	101	575	4	13	33	49	624	342	650	1,616
April .....	NA	342	88	430	4	14	32	50	479	301	588	1,368
May .....	NA	202	84	286	4	16	33	52	339	321	658	1,318
June .....	NA	128	67	195	4	17	32	52	247	426	883	1,556
July .....	NA	111	73	184	4	17	33	54	238	525	1,085	1,848
August .....	NA	105	64	169	4	17	33	53	222	532	1,044	1,797
September .....	NA	115	80	195	4	15	32	50	246	441	823	1,510
October .....	NA	196	99	294	4	14	33	50	344	345	663	1,353
November .....	NA	399	98	496	4	11	32	46	543	317	621	1,480
11-Month Total ...	NA	3,715	1,011	4,726	40	152	353	545	5,271	4,390	8,663	18,323
2015 11-Month Total ...	NA	4,159	913	5,072	37	120	395	553	5,624	4,410	8,623	18,657
2014 11-Month Total ...	NA	4,505	905	5,410	36	102	531	669	6,079	4,389	8,811	19,278

<sup>a</sup> See "Primary Energy Consumption" in Glossary.

<sup>b</sup> See Table 10.2a for notes on series components.

<sup>c</sup> Natural gas only; excludes the estimated portion of supplemental gaseous fuels. See Note 3, "Supplemental Gaseous Fuels," at end of Section 4.

<sup>d</sup> 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.

<sup>e</sup> Electricity retail sales to ultimate customers reported by electric utilities and, beginning in 1996, other energy service providers.

<sup>f</sup> 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.

NA=Not available.

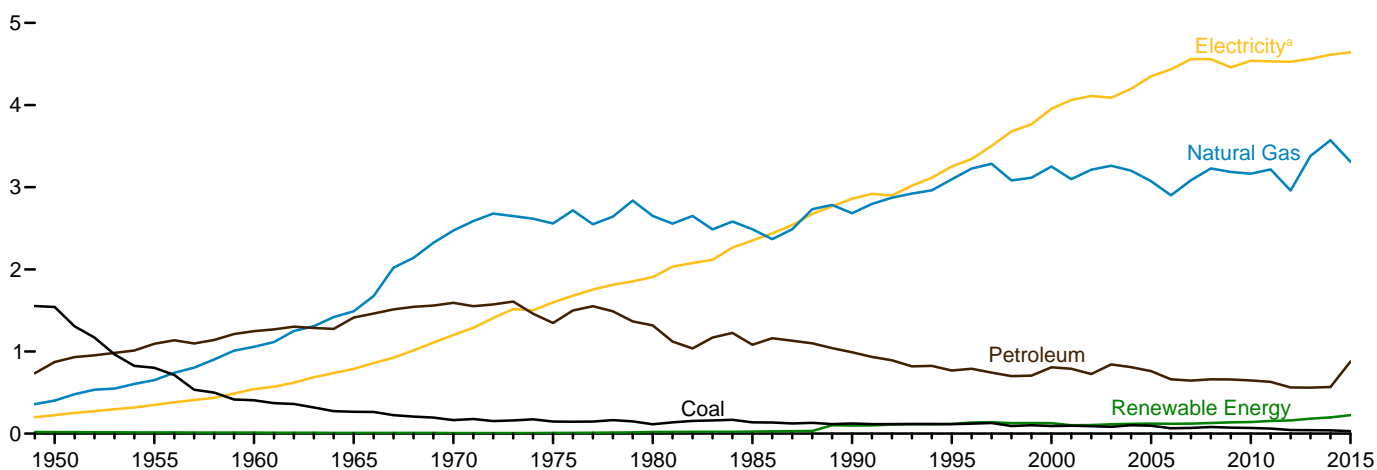
Notes: • Data are estimates, except for electricity retail sales. • See Note 2, "Energy Consumption Data and Surveys," at end of section. • Totals may not equal sum of components due to independent rounding. • Geographic coverage is the 50 states and the District of Columbia.

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.

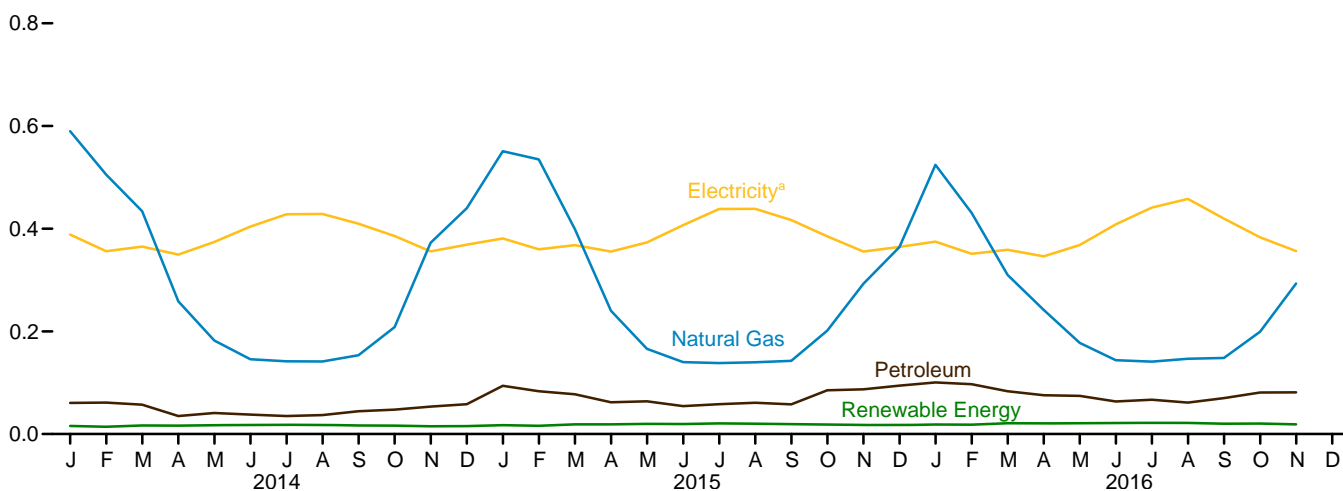
Sources: See end of section.

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

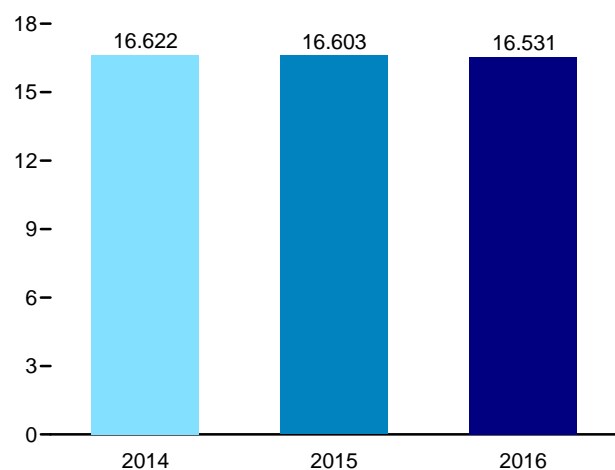
By Major Source, 1949–2015



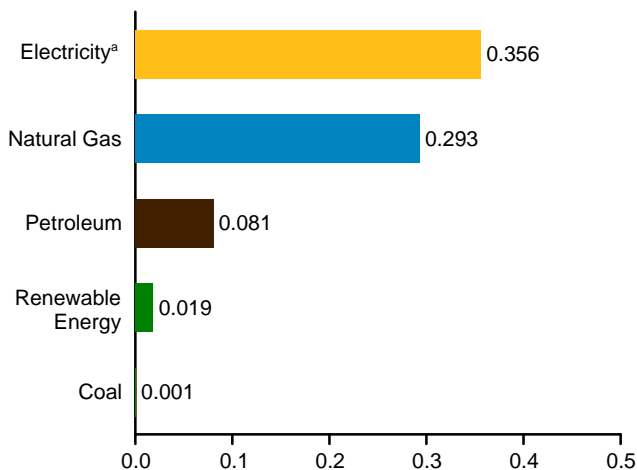
By Major Source, Monthly



Total, January–November



By Major Source, November 2016



<sup>a</sup> 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 <sup>a</sup>											Total Primary	Electricity Retail Sales <sup>g</sup>	Electrical System Energy Losses <sup>h</sup>	Total
	Fossil Fuels				Renewable Energy <sup>b</sup>										
	Coal	Natural Gas <sup>c</sup>	Petro-leum <sup>d</sup>	Total	Hydro-electric Power <sup>e</sup>	Geo-thermal	Solar <sup>f</sup>	Wind	Bio-mass	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	3	—	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	630	3,908	(s)	20	19	(s)	115	154	4,062	4,531	9,385	17,979	
2012 Total .....	44	2,960	562	3,565	(s)	20	32	1	108	160	3,725	4,528	9,168	17,422	
2013 Total .....	41	3,380	560	3,982	(s)	20	41	1	120	182	4,163	4,562	9,206	17,932	
2014 January .....	5	590	61	656	(s)	2	3	(s)	11	16	671	389	806	1,865	
February .....	5	505	61	572	(s)	2	3	(s)	9	14	586	356	686	1,628	
March .....	5	434	57	496	(s)	2	4	(s)	10	17	513	365	742	1,620	
April .....	3	259	35	297	(s)	2	5	(s)	10	16	313	350	685	1,347	
May .....	2	182	41	226	(s)	2	5	(s)	11	18	243	374	777	1,394	
June .....	3	146	38	186	(s)	2	5	(s)	10	17	203	404	838	1,446	
July .....	3	142	35	180	(s)	2	5	(s)	11	18	197	428	873	1,499	
August .....	2	141	37	180	(s)	2	5	(s)	11	18	198	429	866	1,493	
September .....	2	153	44	200	(s)	2	5	(s)	10	17	216	410	765	1,391	
October .....	2	208	48	258	(s)	2	4	(s)	10	16	275	386	739	1,399	
November .....	3	373	53	429	(s)	2	3	(s)	10	15	445	356	740	1,540	
December .....	4	440	58	502	(s)	2	3	(s)	10	15	517	369	742	1,628	
Total .....	40	3,572	569	4,181	(s)	20	52	1	124	198	4,378	4,614	9,261	18,253	
2015 January .....	4	551	94	649	(s)	2	3	(s)	12	17	666	381	756	1,803	
February .....	4	535	84	623	(s)	2	4	(s)	11	16	639	360	707	1,706	
March .....	4	399	78	480	(s)	2	5	(s)	12	19	499	368	692	1,559	
April .....	2	240	62	304	(s)	2	5	(s)	12	19	323	355	674	1,353	
May .....	2	166	64	231	(s)	2	6	(s)	12	20	251	373	767	1,391	
June .....	2	140	54	197	(s)	2	6	(s)	12	20	216	407	829	1,452	
July .....	2	138	58	198	(s)	2	6	(s)	13	21	219	438	886	1,544	
August .....	2	140	61	203	(s)	2	6	(s)	13	20	223	439	859	1,520	
September .....	2	143	58	202	(s)	2	5	(s)	12	19	221	417	776	1,414	
October .....	2	201	85	289	(s)	2	5	(s)	12	18	307	385	715	1,407	
November .....	2	293	87	382	(s)	2	4	(s)	12	17	400	355	698	1,454	
December .....	3	364	94	461	(s)	2	3	(s)	12	18	479	365	711	1,554	
Total .....	31	3,309	878	4,219	(s)	20	57	1	146	224	4,443	4,643	9,073	18,159	
2016 January .....	3	525	101	628	(s)	2	4	(s)	13	18	647	375	756	1,778	
February .....	3	431	97	531	(s)	2	5	(s)	12	18	550	351	663	1,563	
March .....	3	310	83	396	(s)	2	6	(s)	13	21	417	359	683	1,459	
April .....	2	242	76	319	(s)	2	7	(s)	12	21	339	346	677	1,363	
May .....	1	178	74	253	(s)	2	7	(s)	12	21	274	368	756	1,398	
June .....	1	144	63	209	(s)	2	7	(s)	12	21	230	408	846	1,484	
July .....	R 1	141	67	209	(s)	2	8	(s)	13	22	231	441	911	1,583	
August .....	R 1	R 147	61	209	(s)	2	7	(s)	13	22	R 231	458	899	R 1,588	
September .....	1	R 148	70	R 220	(s)	2	6	(s)	12	20	R 240	420	784	R 1,443	
October .....	1	199	81	281	(s)	2	6	(s)	13	20	302	383	736	1,421	
November .....	1	293	81	376	(s)	2	5	(s)	12	19	394	356	699	1,450	
11-Month Total ...	20	2,757	854	3,631	1	18	68	1	136	224	3,855	4,266	8,411	16,531	
2015 11-Month Total ...	28	2,946	784	3,758	(s)	18	53	1	134	206	3,964	4,278	8,360	16,603	
2014 11-Month Total ...	36	3,133	511	3,680	(s)	18	49	1	114	182	3,862	4,245	8,516	16,622	

<sup>a</sup> See "Primary Energy Consumption" in Glossary.

<sup>b</sup> See Table 10.2a for notes on series components and estimation.

<sup>c</sup> Natural gas only; excludes the estimated portion of supplemental gaseous fuels. See Note 3, "Supplemental Gaseous Fuels," at end of Section 4.

<sup>d</sup> Does not include biofuels that have been blended with petroleum—biofuels are included in "Biomass."

<sup>e</sup> Conventional hydroelectric power.

<sup>f</sup> Solar photovoltaic (PV) electricity net generation in the commercial sector, both utility-scale and distributed (small-scale). See Tables 10.2a and 10.5.

<sup>g</sup> Electricity retail sales to ultimate customers reported by electric utilities and, beginning in 1996, other energy service providers.

<sup>h</sup> 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.

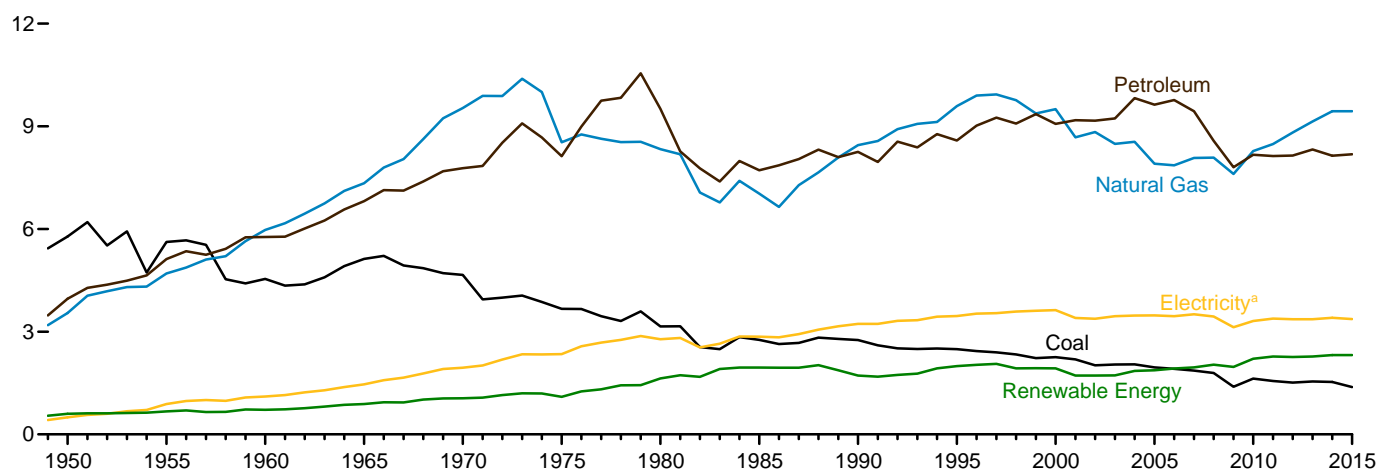
Notes: • Data are estimates, except for coal totals beginning in 2008; hydroelectric power; solar; wind; and electricity retail sales beginning in 1979. • The commercial sector includes commercial combined-heat-and-power (CHP) and commercial electricity-only plants. See Note 2, "Classification of Power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

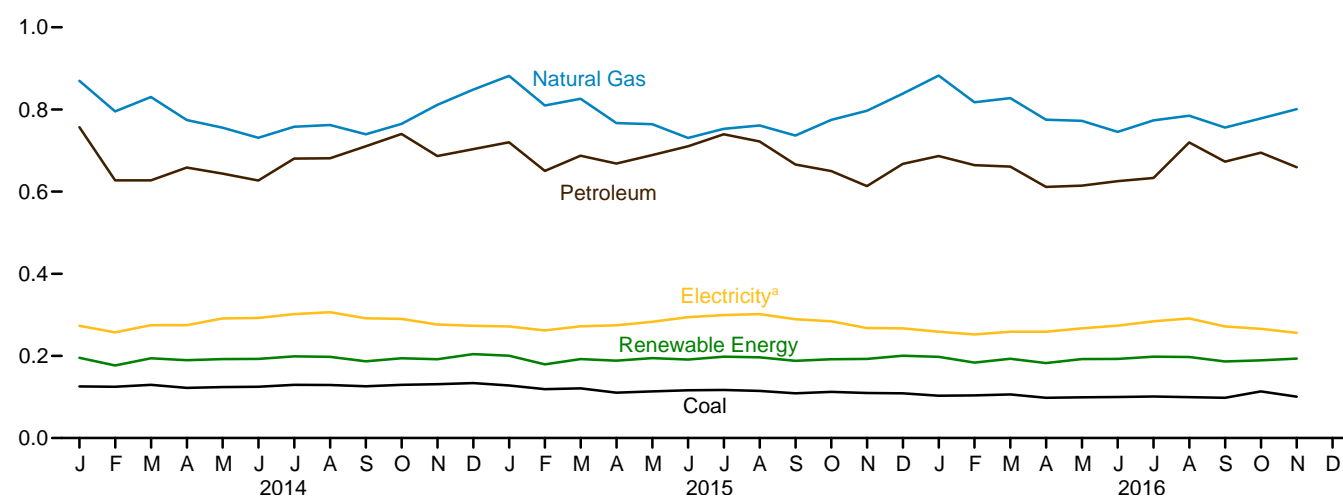
Sources: See end of section.

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

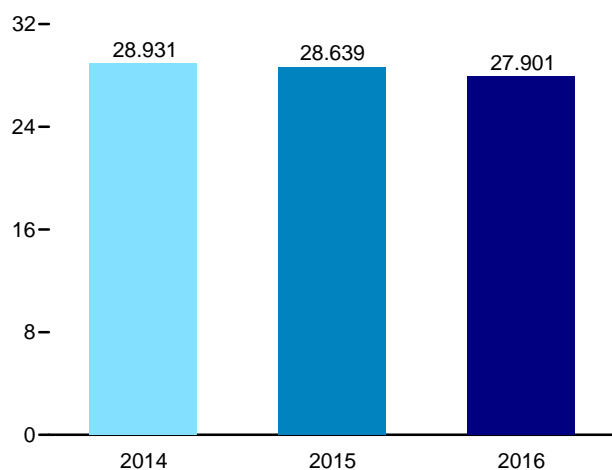
By Major Source, 1949–2015



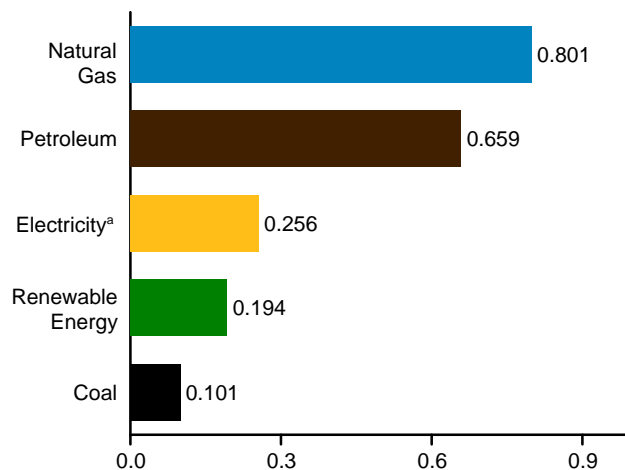
By Major Source, Monthly



Total, January–November



By Major Source, November 2016



<sup>a</sup> 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 <sup>a</sup>										Total Primary	Electricity Retail Sales <sup>h</sup>	Electrical System Energy Losses <sup>i</sup>	Total <sup>g</sup>
	Fossil Fuels				Renewable Energy <sup>b</sup>									
	Coal	Natural Gas <sup>c</sup>	Petro-leum <sup>d</sup>	Total <sup>e</sup>	Hydro-electric Power <sup>f</sup>	Geo-thermal	Solar <sup>g</sup>	Wind	Bio-mass	Total				
1950 Total .....	5,781	3,546	3,960	13,288	69		NA	NA	532	602	13,890	500	1,852	16,241
1955 Total .....	5,620	4,701	5,123	15,434	38		NA	NA	631	669	16,103	887	2,495	19,485
1960 Total .....	4,543	5,973	5,766	16,277	39		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	855	888	20,148	1,463	3,487	25,098
1970 Total .....	4,656	9,536	7,776	21,911	34		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	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	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	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	8,167	18,070	16	4	3	—	2,185	2,208	20,278	3,314	6,934	30,526
2011 Total .....	1,561	8,481	8,131	18,184	17	4	4	(s)	2,246	2,272	20,456	3,382	7,005	30,843
2012 Total .....	1,513	8,819	8,147	18,482	22	4	7	(s)	2,226	2,259	20,742	3,363	6,810	30,915
2013 Total .....	1,546	9,140	8,321	18,991	33	4	9	(s)	2,226	2,272	21,263	3,362	6,785	31,409
2014 January .....	126	870	757	1,751	1	(s)	1	(s)	193	195	1,947	273	567	2,787
February .....	125	795	627	1,546	1	(s)	1	(s)	175	177	1,722	257	496	2,475
March .....	129	830	627	1,586	1	(s)	1	(s)	192	194	1,781	275	559	2,614
April .....	122	774	658	1,554	1	(s)	1	(s)	187	189	1,743	275	538	2,556
May .....	124	755	644	1,522	1	(s)	1	(s)	190	192	1,714	291	605	2,610
June .....	125	731	627	1,482	1	(s)	1	(s)	190	193	1,675	292	607	2,574
July .....	129	758	681	1,566	1	(s)	1	(s)	196	199	1,765	302	616	2,682
August .....	129	762	681	1,570	1	(s)	1	(s)	195	198	1,767	306	619	2,693
September .....	126	740	710	1,573	1	(s)	1	(s)	185	187	1,760	292	545	2,597
October .....	130	765	740	1,633	1	(s)	1	(s)	192	194	1,827	290	555	2,672
November .....	131	811	687	1,627	1	(s)	1	(s)	190	192	1,819	277	575	2,671
December .....	134	848	703	1,683	1	(s)	1	(s)	202	204	1,887	273	550	2,710
Total .....	1,530	9,441	8,143	19,093	12	4	11	1	2,286	2,314	21,407	3,404	6,832	31,643
2015 January .....	128	882	720	1,728	1	(s)	1	(s)	198	200	1,928	272	539	2,739
February .....	119	810	650	1,578	1	(s)	1	(s)	177	179	1,758	262	515	2,534
March .....	121	826	688	1,634	1	(s)	1	(s)	190	192	1,826	272	512	2,610
April .....	110	767	668	1,543	1	(s)	1	(s)	185	188	1,732	275	521	2,527
May .....	114	764	689	1,564	1	(s)	1	(s)	192	195	1,759	283	581	2,623
June .....	116	731	710	1,554	1	(s)	1	(s)	188	191	1,746	294	599	2,639
July .....	117	753	740	1,609	1	(s)	1	(s)	195	198	1,807	299	605	2,712
August .....	115	761	722	1,596	1	(s)	1	(s)	194	197	1,793	302	591	2,685
September .....	109	736	666	1,512	1	(s)	1	(s)	186	188	1,700	289	538	2,527
October .....	112	775	650	1,535	1	(s)	1	(s)	189	192	1,727	284	528	2,539
November .....	110	797	613	1,517	1	(s)	1	(s)	190	193	1,710	268	526	2,504
December .....	109	839	667	1,614	1	(s)	1	(s)	198	200	1,815	267	520	2,602
Total .....	1,380	9,440	8,184	18,986	13	4	14	(s)	2,283	2,315	21,301	3,366	6,578	31,244
2016 January .....	103	R 883	687	R 1,671	1	(s)	1	(s)	195	198	R 1,869	259	522	R 2,650
February .....	104	R 817	664	R 1,585	1	(s)	1	(s)	181	184	R 1,769	252	476	R 2,497
March .....	106	R 828	661	R 1,594	1	(s)	1	(s)	190	193	R 1,787	259	493	R 2,539
April .....	98	R 775	611	R 1,483	1	(s)	2	(s)	179	183	R 1,666	259	506	R 2,431
May .....	99	R 772	614	R 1,485	1	(s)	2	(s)	189	192	R 1,677	267	548	R 2,492
June .....	100	R 745	626	R 1,474	1	(s)	2	(s)	190	193	R 1,664	274	567	R 2,505
July .....	R 101	R 773	633	R 1,506	1	(s)	2	(s)	195	198	R 1,704	284	587	R 2,576
August .....	R 100	R 785	720	R 1,602	1	(s)	2	(s)	194	197	R 1,799	291	571	R 2,662
September .....	R 98	R 756	673	R 1,525	1	(s)	2	(s)	184	186	R 1,711	272	508	R 2,491
October .....	114	R 778	695	R 1,584	1	(s)	1	(s)	187	189	R 1,773	266	511	R 2,550
November .....	101	801	659	1,556	1	(s)	1	(s)	191	194	1,749	256	503	2,508
11-Month Total ...	1,123	8,713	7,244	17,063	11	4	16	1	2,075	2,106	19,169	2,939	5,793	27,901
2015 11-Month Total ...	1,271	8,601	7,516	17,371	12	4	13	(s)	2,085	2,114	19,485	3,099	6,055	28,639
2014 11-Month Total ...	1,397	8,592	7,440	17,410	11	4	10	(s)	2,084	2,110	19,520	3,130	6,281	28,931

<sup>a</sup> See "Primary Energy Consumption" in Glossary.

<sup>b</sup> See Table 10.2b for notes on series components and estimation.

<sup>c</sup> Natural gas only; excludes the estimated portion of supplemental gaseous fuels. See Note 3, "Supplemental Gaseous Fuels," at end of Section 4.

<sup>d</sup> Does not include biofuels that have been blended with petroleum—biofuels are included in "Biomass."

<sup>e</sup> Includes coal coke net imports, which are not separately displayed. See Tables 1.4a and 1.4b.

<sup>f</sup> Conventional hydroelectric power.

<sup>g</sup> Solar photovoltaic (PV) electricity net generation in the industrial sector, both utility-scale and distributed (small-scale). See Tables 10.2b and 10.5.

<sup>h</sup> Electricity retail sales to ultimate customers reported by electric utilities and, beginning in 1996, other energy service providers.

<sup>i</sup> 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.

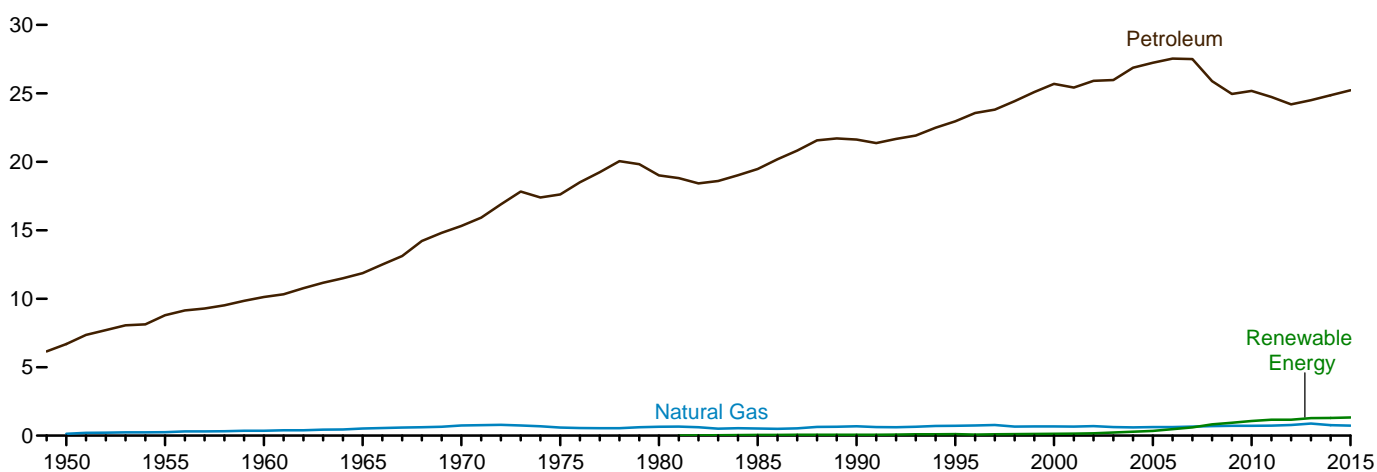
Notes: • Data are estimates, except for coal totals; hydroelectric power in 1949–1978 and 1989 forward; solar; wind; and electricity retail sales. • The industrial sector includes industrial combined-heat-and-power (CHP) and industrial electricity-only plants. See Note 2, "Classification of Power Plants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

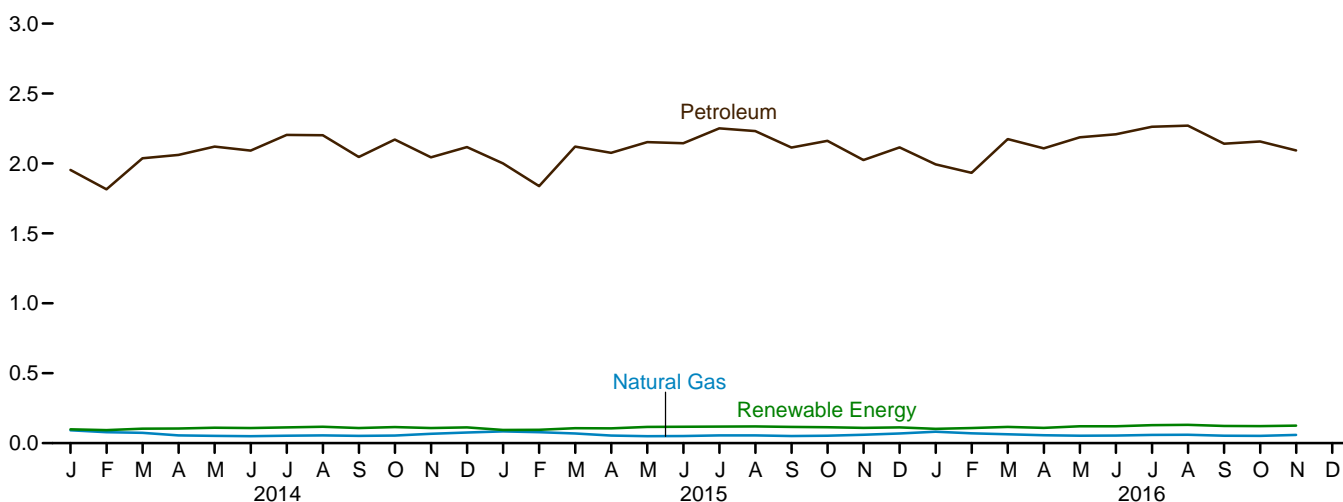
Sources: See end of section.

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

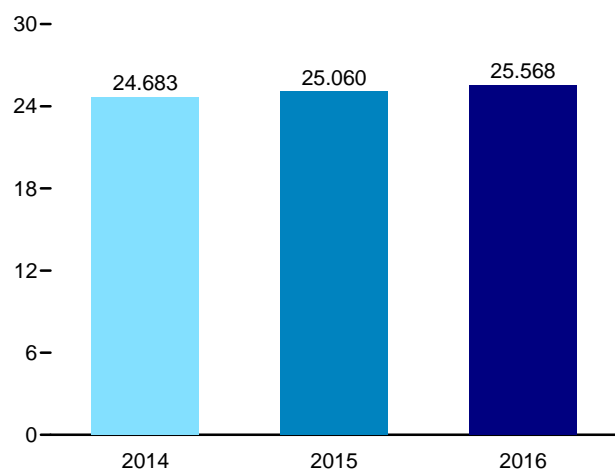
By Major Source, 1949–2015



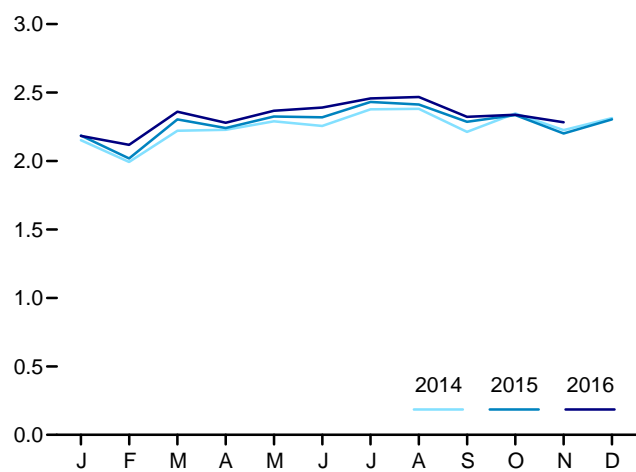
By Major Source, Monthly



Total, January–November



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 <sup>a</sup>						Electricity Retail Sales <sup>e</sup>	Electrical System Energy Losses <sup>f</sup>	Total
	Fossil Fuels				Renewable Energy <sup>b</sup>	Total Primary			
	Coal	Natural Gas <sup>c</sup>	Petroleum <sup>d</sup>	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 January .....	(g)	92	1,954	2,046	99	2,144	2	5	2,152
February .....	(g)	79	1,815	1,894	93	1,987	2	5	1,994
March .....	(g)	73	2,037	2,111	103	2,214	2	4	2,221
April .....	(g)	56	2,061	2,117	104	2,221	2	4	2,228
May .....	(g)	52	2,121	2,173	110	2,283	2	5	2,290
June .....	(g)	50	2,092	2,142	108	2,250	2	4	2,256
July .....	(g)	54	2,204	2,258	113	2,371	2	4	2,377
August .....	(g)	55	2,202	2,258	117	2,374	2	4	2,381
September .....	(g)	52	2,046	2,098	109	2,207	2	4	2,213
October .....	(g)	54	2,171	2,226	115	2,340	2	4	2,347
November .....	(g)	67	2,044	2,111	108	2,219	2	5	2,226
December .....	(g)	77	2,117	2,194	113	2,307	2	4	2,313
Total .....	(g)	760	24,865	25,625	1,292	26,917	26	53	26,996
2015 January .....	(g)	84	2,001	2,084	94	2,179	2	5	2,186
February .....	(g)	78	1,838	1,916	95	2,012	2	5	2,019
March .....	(g)	69	2,120	2,190	107	2,297	2	4	2,304
April .....	(g)	54	2,076	2,130	105	2,235	2	4	2,241
May .....	(g)	50	2,153	2,203	116	2,319	2	4	2,325
June .....	(g)	51	2,145	2,196	117	2,313	2	4	2,319
July .....	(g)	56	2,251	2,306	118	2,425	2	4	2,431
August .....	(g)	55	2,231	2,286	120	2,406	2	4	2,412
September .....	(g)	51	2,114	2,165	116	2,281	2	4	2,287
October .....	(g)	53	2,162	2,215	114	2,329	2	4	2,336
November .....	(g)	60	2,024	2,085	110	2,195	2	4	2,201
December .....	(g)	69	2,115	2,185	113	2,297	2	4	2,304
Total .....	(g)	732	25,230	25,962	1,325	27,287	26	51	27,364
2016 January .....	(g)	82	1,993	2,075	102	2,177	2	5	2,184
February .....	(g)	70	1,933	2,003	108	2,111	2	4	2,118
March .....	(g)	63	2,175	2,238	117	2,354	2	4	2,361
April .....	(g)	56	2,108	2,164	109	2,273	2	4	2,279
May .....	(g)	53	2,187	2,240	121	2,361	2	4	2,367
June .....	(g)	54	2,209	2,263	121	2,384	2	4	2,390
July .....	(g)	59	2,262	2,321	129	2,450	2	5	2,457
August .....	(g)	60	2,270	2,330	131	2,461	2	4	2,467
September .....	(g)	53	2,141	2,194	123	2,317	2	4	2,323
October .....	(g)	53	2,158	2,210	122	2,332	2	4	2,338
November .....	(g)	58	2,093	2,151	125	2,277	2	4	2,283
11-Month Total ...	(g)	662	23,529	24,191	1,308	25,498	23	46	25,568
2015 11-Month Total ...	(g)	662	23,114	23,777	1,213	24,989	24	47	25,060
2014 11-Month Total ...	(g)	683	22,748	23,431	1,179	24,610	24	49	24,683

<sup>a</sup> See "Primary Energy Consumption" in Glossary.

<sup>b</sup> See Table 10.2b for notes on series components.

<sup>c</sup> 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.

<sup>d</sup> Does not include biofuels that have been blended with petroleum—biofuels are included in "Biomass."

<sup>e</sup> Electricity retail sales to ultimate customers reported by electric utilities and, beginning in 1996, other energy service providers.

<sup>f</sup> 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.

<sup>9</sup> Beginning in 1978, the small amounts of coal consumed for transportation are reported as industrial sector consumption.

R=Revised. NA=Not available.

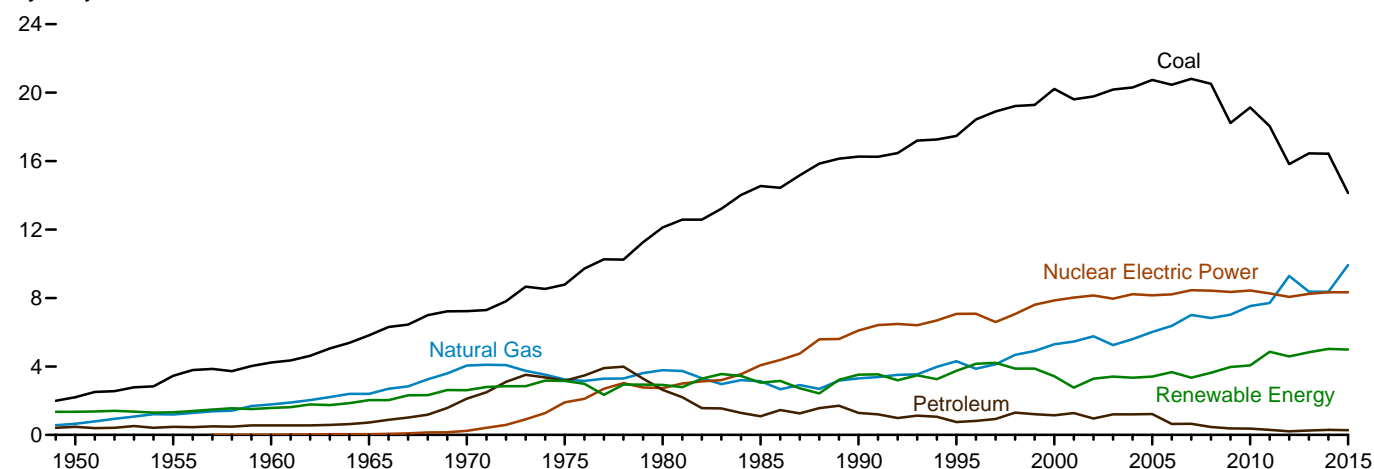
Notes: • Data are estimates, except for coal totals through 1977; and electricity retail sales beginning in 1979. • See Note 2, "Energy Consumption Data and Surveys," at end of section. • Totals may not equal sum of components due to independent rounding. • Geographic coverage is the 50 states and the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

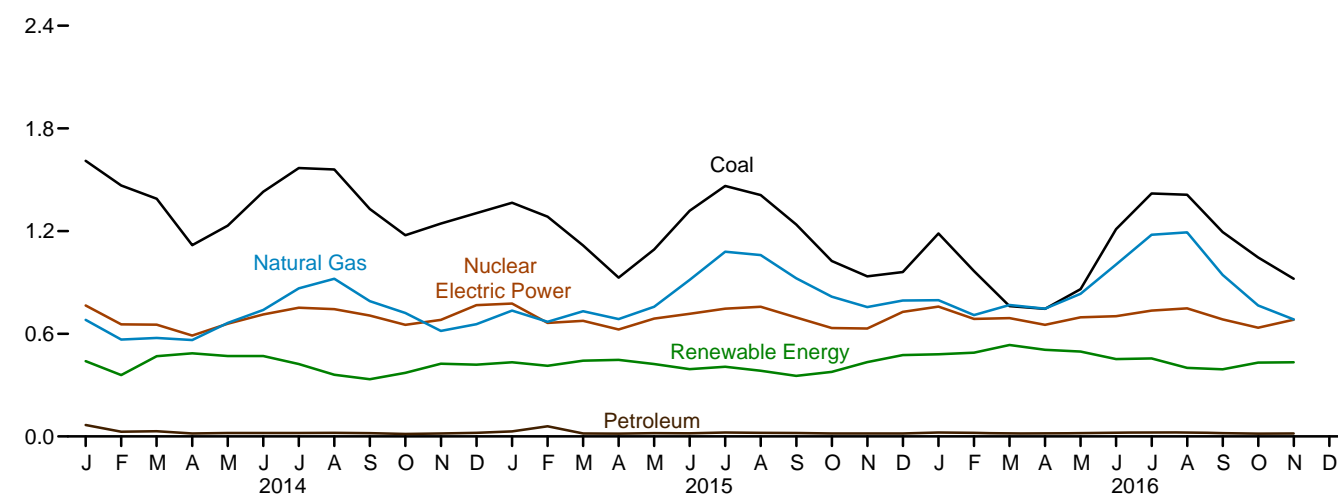
Sources: See end of section.

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

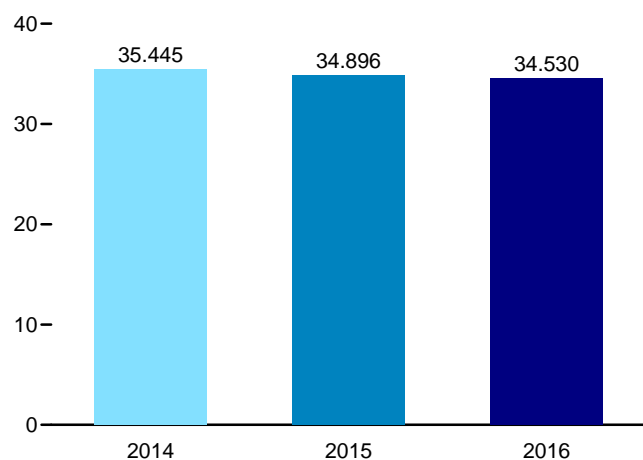
By Major Source, 1949–2015



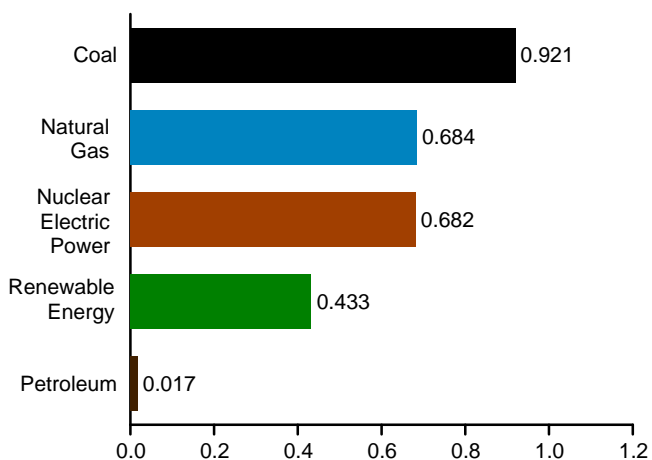
By Major Source, Monthly



Total, January–November



By Major Source, November 2016



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 <sup>a</sup>													Elec- tricity Net Imports <sup>f</sup>	Total Primary
	Fossil Fuels				Nuclear Electric Power	Renewable Energy <sup>b</sup>									
	Coal	Natural Gas <sup>c</sup>	Petro- leum	Total		Hydro- electric Power <sup>d</sup>	Geo- thermal	Solar <sup>e</sup>	Wind	Bio- mass	Total				
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 <sup>g</sup> .....	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		
<b>2014 January .....</b>	<b>1,611</b>	<b>681</b>	<b>67</b>	<b>2,359</b>	<b>765</b>	<b>205</b>	<b>13</b>	<b>7</b>	<b>170</b>	<b>45</b>	<b>440</b>	<b>14</b>	<b>3,578</b>		
February .....	1,467	566	27	2,060	655	164	11	8	133	42	359	11	3,085		
March .....	1,389	576	31	1,996	653	230	13	12	169	46	469	12	3,130		
April .....	1,118	563	17	1,698	590	241	12	14	177	41	485	12	2,785		
May .....	1,232	664	20	1,916	658	251	13	16	148	41	469	16	3,059		
June .....	1,430	739	20	2,189	713	244	12	18	150	45	470	15	3,387		
July .....	1,568	865	20	2,453	752	231	13	17	116	48	423	18	3,647		
August .....	1,560	921	21	2,502	744	187	13	17	97	46	361	20	3,626		
September .....	1,329	791	19	2,140	706	152	12	17	109	43	334	18	3,198		
October .....	1,176	722	15	1,912	653	162	13	16	138	42	371	15	2,951		
November .....	1,244	616	17	1,878	681	176	13	13	179	44	425	16	3,000		
December .....	1,305	656	21	1,982	767	211	13	10	140	45	419	15	3,183		
<b>Total .....</b>	<b>16,427</b>	<b>8,362</b>	<b>295</b>	<b>25,085</b>	<b>8,338</b>	<b>2,454</b>	<b>151</b>	<b>165</b>	<b>1,726</b>	<b>530</b>	<b>5,026</b>	<b>182</b>	<b>38,629</b>		
<b>2015 January .....</b>	<b>1,366</b>	<b>735</b>	<b>29</b>	<b>2,130</b>	<b>777</b>	<b>224</b>	<b>13</b>	<b>11</b>	<b>141</b>	<b>45</b>	<b>433</b>	<b>18</b>	<b>3,357</b>		
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		
<b>Total .....</b>	<b>14,138</b>	<b>9,926</b>	<b>276</b>	<b>24,341</b>	<b>8,337</b>	<b>2,308</b>	<b>148</b>	<b>228</b>	<b>1,776</b>	<b>525</b>	<b>4,985</b>	<b>227</b>	<b>37,890</b>		
<b>2016 January .....</b>	<b>1,186</b>	<b>797</b>	<b>23</b>	<b>2,005</b>	<b>759</b>	<b>235</b>	<b>14</b>	<b>14</b>	<b>172</b>	<b>45</b>	<b>480</b>	<b>21</b>	<b>3,265</b>		
February .....	967	709	21	1,697	686	224	13	22	188	43	490	17	2,890		
March .....	761	768	18	1,548	692	250	14	24	203	43	534	18	2,792		
April .....	746	746	18	1,510	652	236	12	27	191	40	506	15	2,684		
May .....	860	834	19	1,713	696	235	14	32	175	40	496	19	2,924		
June .....	1,211	1,004	20	2,235	703	212	13	32	152	42	452	23	3,412		
July .....	1,420	1,179	24	2,623	736	197	13	37	164	45	456	25	3,840		
August .....	1,412	1,192	24	2,629	748	180	13	36	126	46	401	24	3,801		
September .....	1,194	944	20	2,158	684	151	14	33	153	41	392	20	3,254		
October .....	1,045	765	16	1,827	635	160	14	29	190	39	431	18	2,911		
November .....	921	684	17	1,623	682	175	14	24	180	40	433	21	2,758		
<b>11-Month Total .....</b>	<b>11,724</b>	<b>9,623</b>	<b>220</b>	<b>21,567</b>	<b>7,672</b>	<b>2,255</b>	<b>147</b>	<b>310</b>	<b>1,894</b>	<b>464</b>	<b>5,070</b>	<b>220</b>	<b>34,530</b>		
<b>2015 11-Month Total .....</b>	<b>13,178</b>	<b>9,131</b>	<b>259</b>	<b>22,568</b>	<b>7,609</b>	<b>2,093</b>	<b>136</b>	<b>214</b>	<b>1,589</b>	<b>478</b>	<b>4,509</b>	<b>210</b>	<b>34,896</b>		
<b>2014 11-Month Total .....</b>	<b>15,123</b>	<b>7,704</b>	<b>274</b>	<b>23,101</b>	<b>7,570</b>	<b>2,243</b>	<b>138</b>	<b>155</b>	<b>1,586</b>	<b>485</b>	<b>4,607</b>	<b>167</b>	<b>35,445</b>		

<sup>a</sup> See "Primary Energy Consumption" in Glossary.

<sup>b</sup> See Table 10.2c for notes on series components.

<sup>c</sup> Natural gas only; excludes the estimated portion of supplemental gaseous fuels. See Note 3, "Supplemental Gaseous Fuels," at end of Section 4.

<sup>d</sup> Conventional hydroelectric power.

<sup>e</sup> Solar photovoltaic (PV) and solar thermal electricity net generation in the electric power sector. See Tables 10.2c and 10.5.

<sup>f</sup> Net imports equal imports minus exports.

<sup>g</sup> Through 1988, data are for electric utilities only. Beginning in 1989, data are for electric utilities and independent power producers.

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

Notes: • Data are for fuels consumed to produce electricity and useful thermal output. • The electric power sector comprises electricity-only and combined-heat-and-power (CHP) plants within the NAICS 22 category whose primary business is to sell electricity, or electricity and heat, to the public. • See Note 2, "Energy Consumption Data and Surveys," at end of section. • Totals may not equal sum of components due to independent rounding. • Geographic coverage is the 50 states and the District of Columbia.

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

Sources: See end of section.

**Table 2.7 U.S. Government Energy Consumption by Agency, Fiscal Years**  
(Trillion Btu)

Fiscal Year <sup>a</sup>	Agri- culture	Defense	Energy	GSA <sup>b</sup>	HHS <sup>c</sup>	Interior	Justice	NASA <sup>d</sup>	Postal Service	Trans- portation	Veterans Affairs	Other <sup>e</sup>	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	42.4	1,141.5
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	735.1	30.1	16.9	9.0	6.6	16.2	8.4	44.0	6.0	30.7	37.8	947.0

<sup>a</sup> 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).

<sup>b</sup> General Services Administration.

<sup>c</sup> Health and Human Services.

<sup>d</sup> National Aeronautics and Space Administration.

<sup>e</sup> Includes all U.S. government agencies not separately displayed. See <http://ctsedwebweb.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://ctsedwebweb.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.

**Table 2.8 U.S. Government Energy Consumption by Source, Fiscal Years**  
(Trillion Btu)

Fiscal Year <sup>a</sup>	Coal	Natural Gas <sup>b</sup>	Petroleum						Other Mobility Fuels <sup>f</sup>	Elec- tricity	Purchased Steam and Other <sup>g</sup>	Total
			Aviation Gasoline	Fuel Oil <sup>c</sup>	Jet Fuel	LPG <sup>d</sup>	Motor Gasoline <sup>e</sup>	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	129.4	.4	198.4	524.3	2.3	48.7	774.0	3.6	196.0	17.7	1,141.5
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	134.3	418.9	1.8	46.8	602.1	3.7	184.0	21.3	947.0

<sup>a</sup> 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).

<sup>b</sup> Natural gas, plus a small amount of supplemental gaseous fuels.

<sup>c</sup> Distillate fuel oil, including diesel fuel; and residual fuel oil, including Navy Special.

<sup>d</sup> Liquefied petroleum gases, primarily propane.

<sup>e</sup> Includes E10 (a mixture of 10% ethanol and 90% motor gasoline) and E15 (a mixture of 15% ethanol and 85% motor gasoline).

<sup>f</sup> 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.

<sup>g</sup> 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://cts.edweb.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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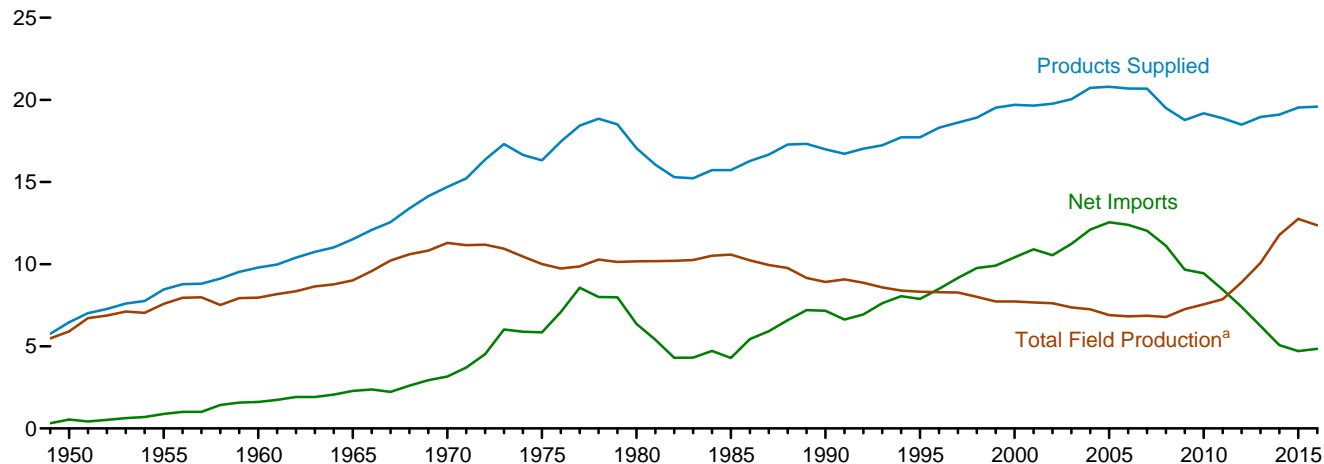


### **3. Petroleum**

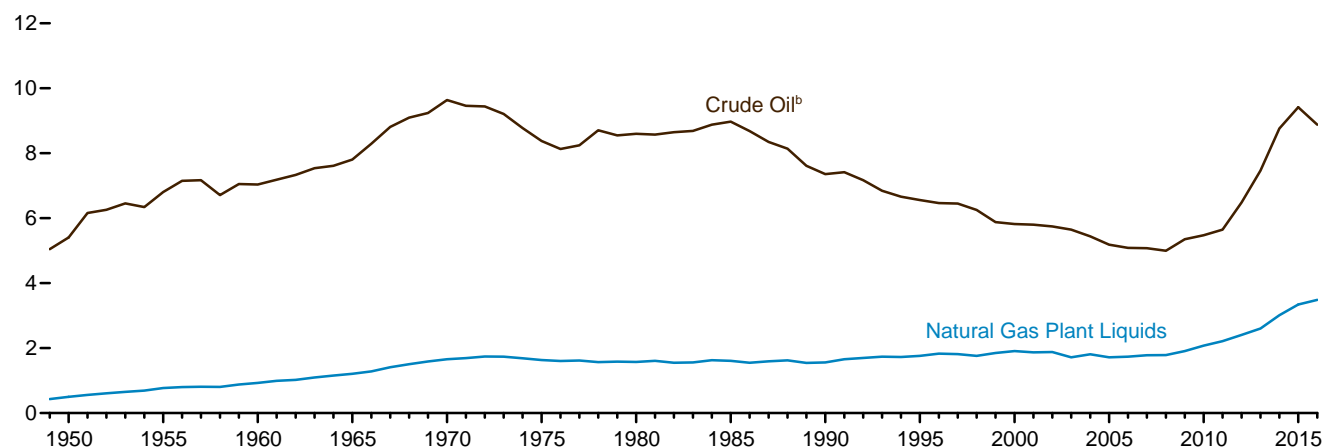
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**Figure 3.1 Petroleum Overview**  
(Million Barrels per Day)

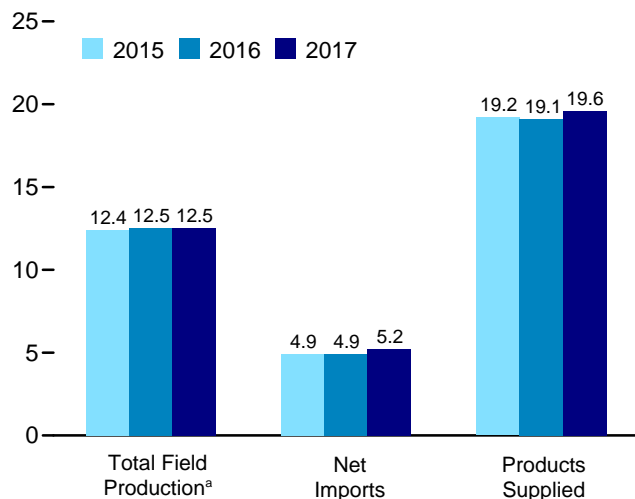
Overview, 1949–2016



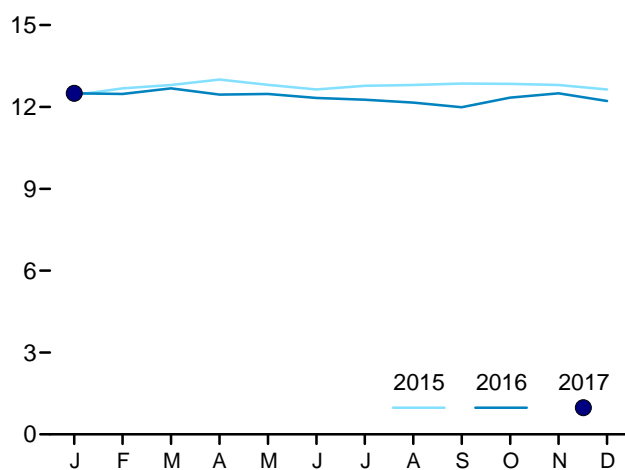
Crude Oil and Natural Gas Plant Liquids Field Production, 1949–2016



Overview, January



Total Field Production,<sup>a</sup> Monthly



<sup>a</sup> Crude oil, including lease condensate, and natural gas plant liquids field production.

<sup>b</sup> 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 <sup>a</sup>					Renewable Fuels and Oxygenates <sup>f</sup>	Processing Gain <sup>g</sup>	Trade			Stock Change <sup>i</sup>	Adjustments <sup>c,k</sup>	Petroleum Products Supplied
	Crude Oil <sup>b,c</sup>			NGPL <sup>e</sup>	Total <sup>c</sup>			Imports <sup>h</sup>	Exports	Net Imports <sup>j</sup>			
	48 States <sup>d</sup>	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	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	4,355	722	5,077	1,783	6,860	NA	996	13,468	1,433	12,036	-152	637	20,680
2008 Average	4,317	683	5,000	1,784	6,784	NA	993	12,915	1,802	11,114	195	803	19,498
2009 Average	4,708	645	5,353	1,910	7,263	746	979	11,691	2,024	9,667	107	224	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	5,085	561	5,646	2,216	7,862	1,016	1,076	11,436	2,986	8,450	-124	353	18,882
2012 Average	5,961	526	6,487	2,408	8,895	964	1,059	10,598	3,205	7,393	143	323	18,490
2013 Average	6,953	515	7,468	2,606	10,073	1,002	1,087	9,859	3,621	6,237	-133	428	18,961
2014 January	7,491	542	8,033	2,695	10,728	1,001	1,107	9,305	3,911	5,394	-437	435	19,102
February	7,611	516	8,127	2,710	10,837	1,000	1,064	9,155	3,658	5,497	54	563	18,908
March	7,731	530	8,262	2,829	11,091	1,026	991	9,256	3,993	5,263	254	346	18,464
April	8,068	537	8,605	2,950	11,555	1,040	1,078	9,600	3,974	5,626	916	466	18,849
May	8,080	524	8,604	2,956	11,560	1,057	1,013	9,387	4,113	5,274	948	629	18,585
June	8,234	485	8,718	3,094	11,812	1,091	1,122	8,837	4,155	4,682	106	289	18,890
July	8,392	422	8,815	3,115	11,929	1,088	1,107	9,496	4,464	5,032	105	231	19,283
August	8,478	398	8,876	3,142	12,017	1,051	1,163	9,319	4,457	4,861	162	469	19,400
September	8,569	478	9,047	3,195	12,242	1,059	1,015	9,181	3,947	5,234	430	126	19,246
October	8,733	500	9,233	3,196	12,430	1,044	1,028	8,924	4,134	4,790	-189	210	19,691
November	8,794	513	9,307	3,115	12,422	1,059	1,178	9,009	4,353	4,656	314	370	19,370
December	8,981	515	9,496	3,156	12,652	1,134	1,100	9,402	4,892	4,510	481	543	19,457
Average	8,267	496	8,764	3,015	11,778	1,055	1,081	9,241	4,176	5,065	262	389	19,106
2015 January	8,879	500	9,379	3,055	12,434	1,055	1,075	9,461	4,575	4,886	752	521	19,218
February	9,029	488	9,517	3,162	12,678	1,048	1,021	9,272	4,640	4,632	3	300	19,677
March	9,060	506	9,566	3,237	12,802	1,052	1,013	9,619	4,092	5,527	1,060	17	19,352
April	9,117	510	9,627	3,375	13,002	1,065	1,068	9,374	4,938	4,436	856	548	19,263
May	8,999	473	9,472	3,337	12,808	1,107	1,083	9,502	4,853	4,649	704	357	19,301
June	8,873	447	9,320	3,319	12,638	1,148	1,028	9,605	4,657	4,948	350	429	19,841
July	8,968	450	9,418	3,355	12,773	1,124	1,092	9,571	4,960	4,611	-63	462	20,126
August	8,977	408	9,384	3,419	12,803	1,103	1,099	9,858	4,507	5,351	720	294	19,930
September	8,950	472	9,423	3,437	12,860	1,090	1,046	9,358	4,851	4,507	326	241	19,418
October	8,861	497	9,358	3,489	12,847	1,104	1,040	8,842	4,617	4,225	234	519	19,500
November	8,782	523	9,304	3,498	12,803	1,117	1,065	9,151	4,903	4,248	449	361	19,144
December	8,703	522	9,225	3,417	12,642	1,124	1,108	9,742	5,266	4,476	-244	6	19,600
Average	8,932	483	9,415	3,342	12,757	1,095	1,062	9,449	4,738	4,711	432	338	19,531
2016 January	E 8,678	E 516	E 9,194	3,303	E 12,497	1,105	1,106	9,734	4,878	4,857	855	346	19,055
February	E 8,639	E 507	E 9,147	3,329	E 12,476	1,124	1,058	10,020	4,948	5,072	141	92	19,680
March	E 8,663	E 511	E 9,174	3,509	E 12,683	1,140	1,041	10,002	5,002	5,000	264	16	19,616
April	E 8,458	E 489	E 8,947	3,504	E 12,451	1,088	1,066	9,829	5,154	4,674	353	337	19,264
May	E 8,377	E 505	E 8,882	3,593	E 12,476	1,141	1,140	10,183	5,658	4,525	505	427	19,202
June	E 8,241	E 470	E 8,711	3,618	E 12,329	1,174	1,106	10,076	5,240	4,836	-28	327	19,799
July	E 8,253	E 438	E 8,691	3,573	E 12,264	1,174	1,184	10,507	5,209	5,298	503	296	19,712
August	E 8,300	E 459	E 8,759	3,399	E 12,158	1,184	1,142	10,311	5,114	5,196	11	462	20,131
September	RE 8,115	E 452	RE 8,567	3,420	RE 11,987	1,159	1,117	10,194	5,250	4,944	-506	R 151	19,864
October	RE 8,304	E 495	RE 8,799	3,541	RE 12,340	1,145	1,079	9,723	4,942	4,781	85	R 361	19,622
November	RE 8,391	RE 513	RE 8,904	RE 3,598	RE 12,502	R 1,190	R 1,119	R 10,312	R 5,392	R 4,921	R 114	R 47	R 19,655
December	E 8,266	E 522	E 8,788	RE 3,427	RE 12,215	E 1,072	E 1,119	E 9,834	E 5,824	E 4,010	E -539	RE 559	E 19,513
Average	RE 8,390	E 490	RE 8,880	RE 3,485	RE 12,365	RE 1,141	RE 1,106	RE 10,060	RE 5,219	RE 4,842	RE 148	RE 287	RE 19,592
2017 January	E 8,426	E 521	E 8,947	E 3,550	E 12,497	E 1,092	E 1,102	E 10,771	E 5,564	E 5,207	E 733	E 436	E 19,601

<sup>a</sup> Crude oil production on leases, and natural gas liquids (liquefied petroleum gases, pentanes plus, 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."

<sup>b</sup> Includes lease condensate.

<sup>c</sup> 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.

<sup>d</sup> United States excluding Alaska and Hawaii.

<sup>e</sup> Natural gas plant liquids.

<sup>f</sup> Renewable fuels and oxygenate plant net production.

<sup>g</sup> Refinery and blender net production minus refinery and blender net inputs.

See Table 3.2.

<sup>h</sup> Includes Strategic Petroleum Reserve imports. See Table 3.3b.

<sup>i</sup> Net imports equal imports minus exports.

<sup>j</sup> 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.

<sup>k</sup> 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.

<sup>l</sup> Derived from the 2004 petroleum stocks value that excludes crude oil stocks on leases (1,628 million barrels), not the 2004 petroleum stocks value that includes crude oil stocks on leases (1,645 million barrels).

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

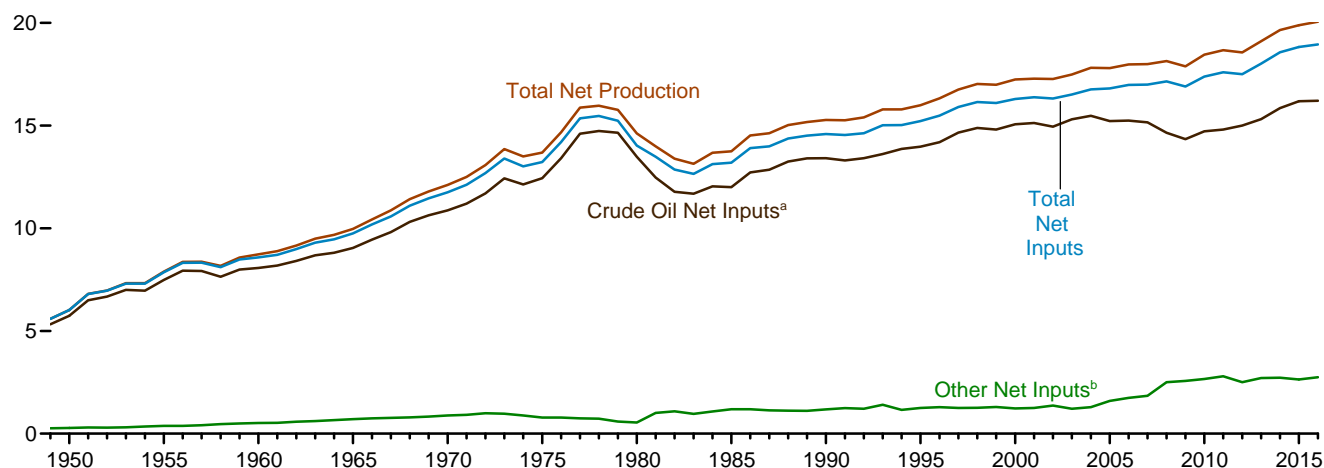
Notes: • Totals may not equal sum of components due to independent rounding. • Geographic coverage is the 50 states and the District of Columbia.

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

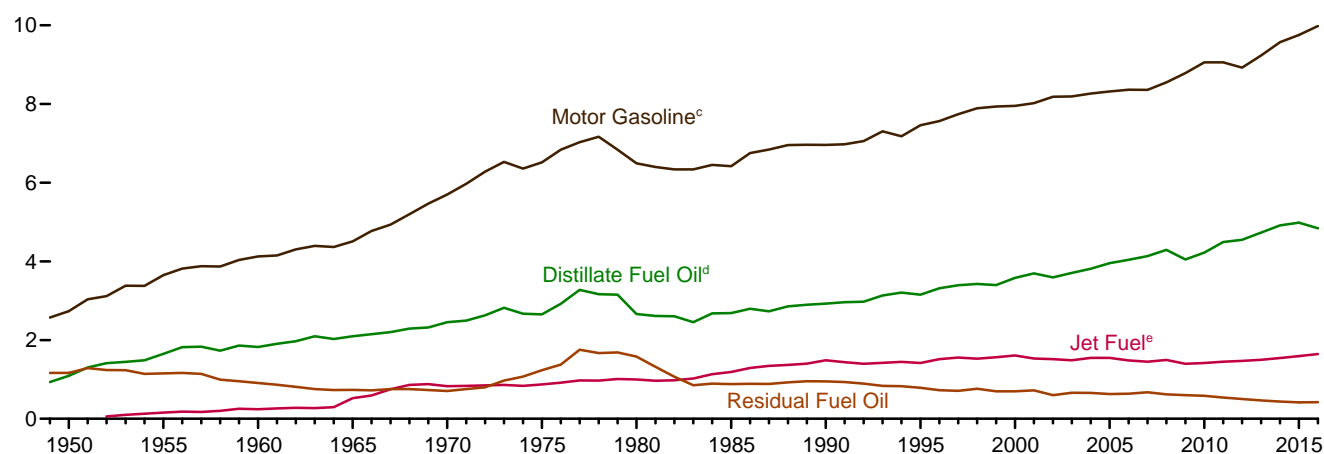
Sources: See end of section.

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

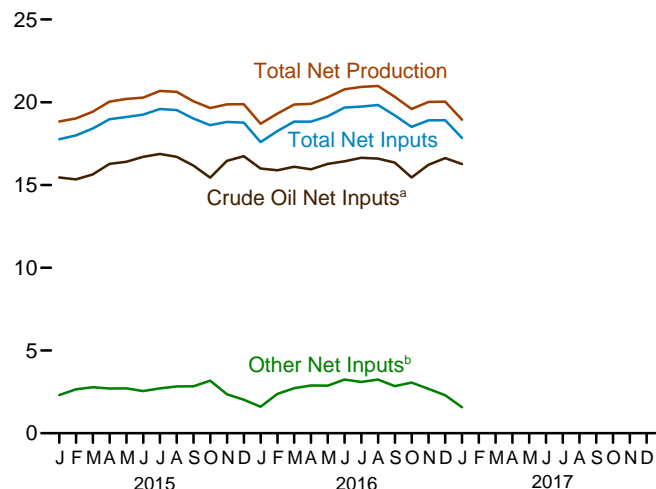
Net Inputs and Net Production, 1949–2016



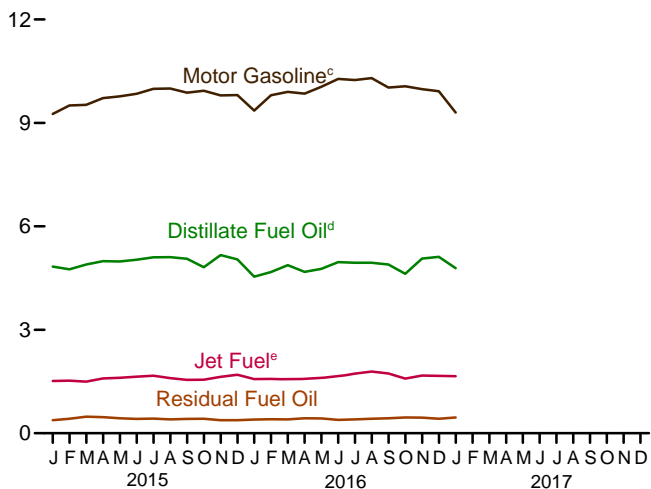
Net Production, Selected Products, 1949–2016



Net Inputs and Net Production, Monthly



Net Production, Selected Products, Monthly



<sup>a</sup> Includes lease condensate.

<sup>b</sup> Natural gas plant liquids and other liquids.

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

<sup>d</sup> Beginning in 2009, includes renewable diesel fuel (including biodie-

sel) blended into distillate fuel oil.

<sup>e</sup> 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 <sup>a</sup>				Refinery and Blender Net Production <sup>b</sup>							
	Crude Oil <sup>d</sup>	NGPL <sup>e</sup>	Other Liquids <sup>f</sup>	Total	Distillate Fuel Oil <sup>g</sup>	Jet Fuel <sup>h</sup>	LPG <sup>c</sup>		Motor Gasoline <sup>i</sup>	Residual Fuel Oil	Other Products <sup>k</sup>	Total
							Propane <sup>j</sup>	Total				
1950 Average	5,739	259	19	6,018	1,093	( <sup>h</sup> )	NA	80	2,735	1,165	947	6,019
1955 Average	7,480	345	32	7,857	1,651	155	NA	119	3,648	1,152	1,166	7,891
1960 Average	8,067	455	61	8,583	1,823	241	NA	212	4,126	908	1,420	8,729
1965 Average	9,043	618	88	9,750	2,096	523	NA	293	4,507	736	1,814	9,970
1970 Average	10,870	763	121	11,754	2,454	827	NA	345	5,699	706	2,082	12,113
1975 Average	12,442	710	72	13,225	2,653	871	234	311	6,518	1,235	2,097	13,685
1980 Average	13,481	462	81	14,025	2,661	999	269	330	6,492	1,580	2,559	14,622
1985 Average	12,002	509	681	13,192	2,686	1,189	295	391	6,419	882	2,183	13,750
1990 Average	13,409	467	713	14,589	2,925	1,488	404	499	6,959	950	2,452	15,272
1995 Average	13,973	471	775	15,220	3,155	1,416	503	654	7,459	788	2,522	15,994
2000 Average	15,067	380	849	16,295	3,580	1,606	583	705	7,951	696	2,705	17,243
2001 Average	15,128	429	825	16,382	3,695	1,530	556	667	8,022	721	2,651	17,285
2002 Average	14,947	429	941	16,316	3,592	1,514	572	671	8,183	601	2,712	17,273
2003 Average	15,304	419	791	16,513	3,707	1,488	570	658	8,194	660	2,780	17,487
2004 Average	15,475	422	866	16,762	3,814	1,547	584	645	8,265	655	2,887	17,814
2005 Average	15,220	441	1,149	16,811	3,954	1,546	540	573	8,318	628	2,782	17,800
2006 Average	15,242	501	1,238	16,981	4,040	1,481	543	627	8,364	635	2,827	17,975
2007 Average	15,156	505	1,337	16,999	4,133	1,448	562	655	8,358	673	2,728	17,994
2008 Average	14,648	485	2,019	17,153	4,294	1,493	519	630	8,548	620	2,561	18,146
2009 Average	14,336	485	2,082	16,904	4,048	1,396	537	623	8,786	598	2,431	17,882
2010 Average	14,724	442	2,219	17,385	4,223	1,418	560	659	9,059	585	2,509	18,452
2011 Average	14,806	490	2,300	17,596	4,492	1,449	552	619	9,058	537	2,518	18,673
2012 Average	14,999	509	1,997	17,505	4,550	1,471	553	630	8,926	501	2,487	18,564
2013 Average	15,312	496	2,211	18,019	4,733	1,499	564	623	9,234	467	2,550	19,106
2014 January	15,311	524	1,412	17,247	4,685	1,479	584	406	8,849	476	2,459	18,354
February	15,128	531	1,790	17,448	4,594	1,453	572	505	9,111	427	2,423	18,513
March	15,116	495	2,476	18,087	4,780	1,421	564	666	9,368	461	2,383	19,078
April	15,864	433	2,529	18,826	4,988	1,498	600	860	9,652	420	2,485	19,904
May	15,946	432	2,761	19,139	5,026	1,468	596	887	9,834	454	2,483	20,152
June	15,817	431	2,727	18,975	4,896	1,521	596	870	9,809	455	2,545	20,097
July	16,534	414	2,615	19,563	5,021	1,637	613	909	9,983	402	2,718	20,670
August	16,460	424	2,440	19,325	5,042	1,675	602	888	9,741	439	2,703	20,488
September	16,074	543	2,026	18,642	4,940	1,619	552	610	9,404	410	2,676	19,658
October	15,361	594	2,035	17,990	4,662	1,485	529	444	9,552	416	2,460	19,018
November	16,043	658	1,701	18,402	5,012	1,570	603	387	9,607	462	2,542	19,580
December	16,469	659	2,019	19,147	5,323	1,665	635	398	9,898	401	2,563	20,247
Average	15,848	511	2,214	18,574	4,916	1,541	587	653	9,570	435	2,537	19,654
2015 January	15,456	589	1,721	17,766	4,835	1,513	561	392	9,260	377	2,464	18,841
February	15,342	545	2,112	17,998	4,752	1,525	529	401	9,504	420	2,418	19,019
March	15,640	494	2,281	18,415	4,894	1,498	536	610	9,524	478	2,424	19,428
April	16,273	406	2,292	18,971	4,991	1,591	589	815	9,720	467	2,455	20,039
May	16,402	394	2,317	19,112	4,983	1,608	582	885	9,771	436	2,513	20,195
June	16,701	418	2,131	19,250	5,032	1,640	569	864	9,846	413	2,483	20,278
July	16,879	432	2,280	19,591	5,101	1,670	580	853	9,989	426	2,644	20,683
August	16,700	449	2,377	19,526	5,107	1,600	574	839	9,998	404	2,677	20,625
September	16,168	546	2,294	19,008	5,061	1,547	529	583	9,878	414	2,572	20,054
October	15,440	600	2,573	18,613	4,817	1,554	520	442	9,935	419	2,487	19,653
November	16,458	683	1,669	18,810	5,169	1,634	559	343	9,799	377	2,554	19,875
December	16,742	649	1,377	18,768	5,042	1,698	578	333	9,806	376	2,621	19,876
Average	16,188	517	2,119	18,824	4,983	1,590	559	615	9,754	417	2,527	19,886
2016 January	15,994	668	930	17,592	4,541	1,572	581	346	9,355	397	2,487	18,698
February	15,884	567	1,803	18,254	4,677	1,575	566	418	9,804	405	2,433	19,312
March	16,105	487	2,232	18,824	4,873	1,562	586	655	9,900	401	2,473	19,865
April	15,942	450	2,439	18,830	4,680	1,585	591	821	9,849	436	2,525	19,896
May	16,276	426	2,453	19,155	4,768	1,603	609	889	10,049	428	2,557	20,294
June	16,432	430	2,812	19,674	4,963	1,654	590	879	10,275	389	2,620	20,780
July	16,640	423	2,678	19,741	4,943	1,729	584	861	10,243	401	2,749	20,925
August	16,592	423	2,822	19,837	4,945	1,789	571	828	10,301	422	2,693	20,979
September	16,356	545	2,305	19,205	4,894	1,731	576	644	10,025	436	2,594	20,323
October	15,454	630	2,429	18,513	4,626	1,583	556	476	10,065	457	2,386	19,592
November	R 16,219	R 695	R 1,989	R 18,902	R 5,065	R 1,674	R 590	R 347	R 9,979	R 450	R 2,497	R 20,012
December	E 16,622	RF 634	RE 1,658	RF 18,915	E 5,118	E 1,664	RE 571	RF 377	E 9,921	E 418	RE 2,535	RE 20,034
Average	RE 16,211	RE 531	RE 2,213	E 18,955	E 4,841	RE 1,644	RE 581	RE 629	RE 9,981	RE 420	RE 2,546	RE 20,061
2017 January	E 16,266	F 594	E 980	F 17,841	E 4,787	E 1,652	E 544	F 422	E 9,300	E 457	E 2,325	E 18,943

<sup>a</sup> See "Refinery and Blender Net Inputs" in Glossary.

<sup>b</sup> See "Refinery and Blender Net Production" in Glossary.

<sup>c</sup> Liquefied petroleum gases.

<sup>d</sup> Includes lease condensate.

<sup>e</sup> Natural gas plant liquids (liquefied petroleum gases and pentanes plus).

<sup>f</sup> 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).

<sup>g</sup> Beginning in 2009, includes renewable diesel fuel (including biodiesel) blended into distillate fuel oil.

<sup>h</sup> 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.")

<sup>i</sup> Includes propylene.

<sup>j</sup> Finished motor gasoline. Through 1963, also includes aviation gasoline and special naphthas. Beginning in 1993, also includes fuel ethanol blended into motor

gasoline.

<sup>k</sup> 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.

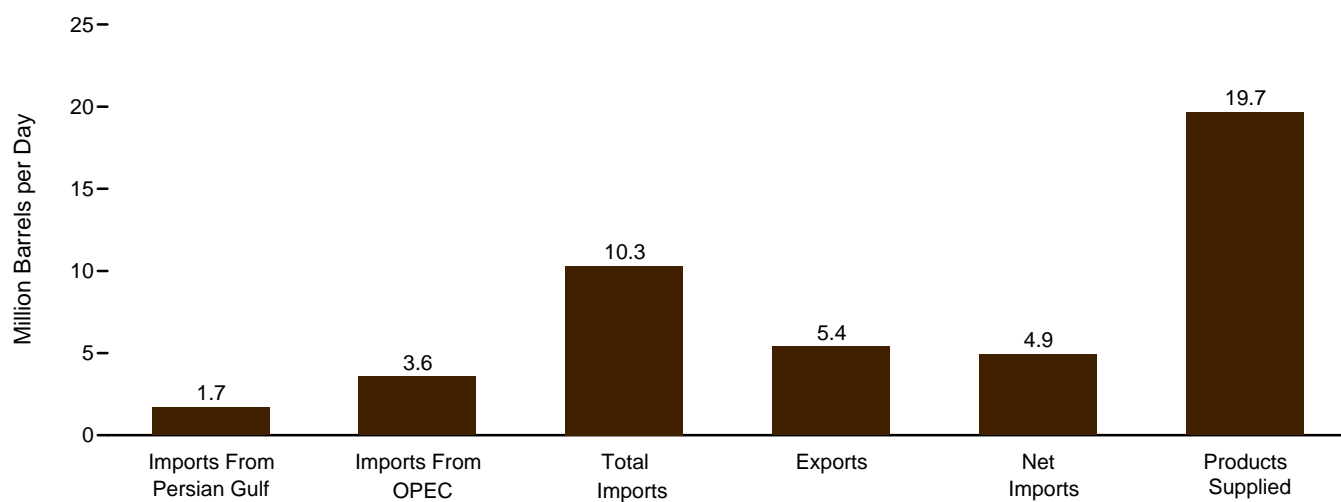
Notes: • Totals may not equal sum of components due to independent rounding. • Geographic coverage is the 50 states and the District of Columbia.

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.

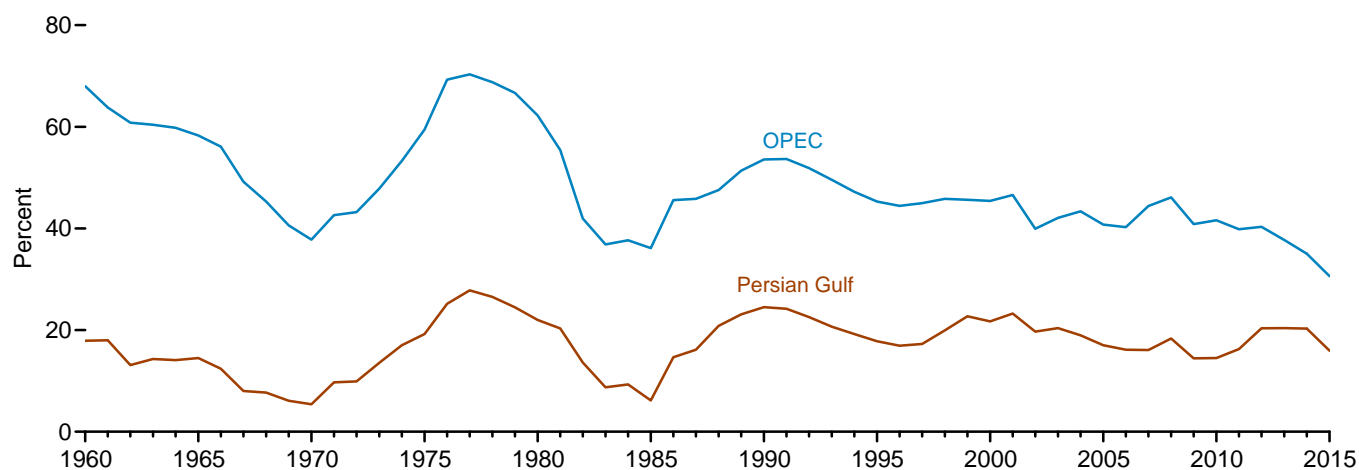
Sources: • 1949–1975: Bureau of Mines, Mineral Industry Surveys, *Petroleum Statement, Annual*, annual reports. • 1976–1980: U.S. Energy Information Administration (EIA), *Energy Data Reports, Petroleum Statement, Annual*, annual reports. • 1981–2015: EIA, *Petroleum Supply Annual*, annual reports. • 2016 and 2017: EIA, *Petroleum Supply Monthly*, monthly reports; and, for the current two months, *Weekly Petroleum Status Report* data system, Short-Term Integrated Forecasting System, and *Monthly Energy Review* data system calculations.

### Figure 3.3a Petroleum Trade: Overview

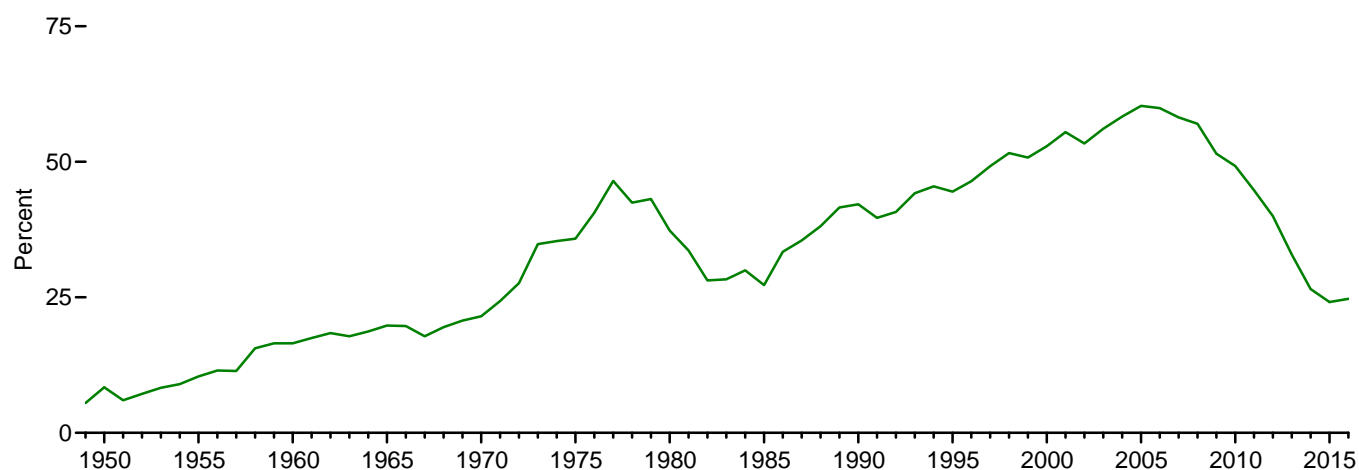
Overview, November 2016



Imports From OPEC and Persian Gulf as Share of Total Imports, 1960–2015



Net Imports as Share of Products Supplied, 1949–2016



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

Table 3.3a Petroleum Trade: Overview

	Imports From Persian Gulf <sup>a</sup>	Imports From OPEC <sup>b</sup>	Imports	Exports	Net Imports	Products Supplied	As Share of Products Supplied				As Share of Total Imports		
							Imports From Persian Gulf <sup>a</sup>	Imports From OPEC <sup>b</sup>	Imports	Net Imports	Imports From Persian Gulf <sup>a</sup>	Imports From OPEC <sup>b</sup>	
Thousand Barrels per Day							Percent						
1950 Average .....	NA	NA	850	305	545	6,458	NA	NA	13.2	8.4	NA	NA	
1955 Average .....	NA	NA	1,248	368	880	8,455	NA	NA	14.8	10.4	NA	NA	
1960 Average .....	326	1,233	1,815	202	1,613	9,797	3.3	12.6	18.5	16.5	17.9	68.0	
1965 Average .....	359	1,439	2,468	187	2,281	11,512	3.1	12.5	21.4	19.8	14.5	58.3	
1970 Average .....	184	1,294	3,419	259	3,161	14,697	1.3	8.8	23.3	21.5	5.4	37.8	
1975 Average .....	1,165	3,601	6,056	209	5,846	16,322	7.1	22.1	37.1	35.8	19.2	59.5	
1980 Average .....	1,519	4,300	6,909	544	6,365	17,056	8.9	25.2	40.5	37.3	22.0	62.2	
1985 Average .....	311	1,830	5,067	781	4,286	15,726	2.0	11.6	32.2	27.3	6.1	36.1	
1990 Average .....	1,966	4,296	8,018	857	7,161	16,988	11.6	25.3	47.2	42.2	24.5	53.6	
1995 Average .....	1,573	4,002	8,835	949	7,886	17,725	8.9	22.6	49.8	44.5	17.8	45.3	
2000 Average .....	2,488	5,203	11,459	1,040	10,419	19,701	12.6	26.4	58.2	52.9	21.7	45.4	
2001 Average .....	2,761	5,528	11,871	971	10,900	19,649	14.1	28.1	60.4	55.5	23.3	46.6	
2002 Average .....	2,269	4,605	11,530	984	10,546	19,761	11.5	23.3	58.3	53.4	19.7	39.9	
2003 Average .....	2,501	5,162	12,264	1,027	11,238	20,034	12.5	25.8	61.2	56.1	20.4	42.1	
2004 Average .....	2,493	5,701	13,145	1,048	12,097	20,731	12.0	27.5	63.4	58.4	19.0	43.4	
2005 Average .....	2,334	5,587	13,714	1,165	12,549	20,802	11.2	26.9	65.9	60.3	17.0	40.7	
2006 Average .....	2,211	5,517	13,707	1,317	12,390	20,687	10.7	26.7	66.3	59.9	16.1	40.2	
2007 Average .....	2,163	5,980	13,468	1,433	12,036	20,680	10.5	28.9	65.1	58.2	16.1	44.4	
2008 Average .....	2,370	5,954	12,915	1,802	11,114	19,498	12.2	30.5	66.2	57.0	18.4	46.1	
2009 Average .....	1,689	4,776	11,691	2,024	9,667	18,771	9.0	25.4	62.3	51.5	14.4	40.9	
2010 Average .....	1,711	4,906	11,793	2,353	9,441	19,180	8.9	25.6	61.5	49.2	14.5	41.6	
2011 Average .....	1,861	4,555	11,436	2,986	8,450	18,882	9.9	24.1	60.6	44.8	16.3	39.8	
2012 Average .....	2,156	4,271	10,598	3,205	7,393	18,490	11.7	23.1	57.3	40.0	20.3	40.3	
2013 Average .....	2,009	3,720	9,859	3,621	6,237	18,961	10.6	19.6	52.0	32.9	20.4	37.7	
2014 January .....	2,187	3,350	9,305	3,911	5,394	19,102	11.4	17.5	48.7	28.2	23.5	36.0	
February .....	2,172	3,398	9,155	3,658	5,497	18,908	11.5	18.0	48.4	29.1	23.7	37.1	
March .....	2,132	3,395	9,256	3,993	5,263	18,464	11.5	18.4	50.1	28.5	23.0	36.7	
April .....	2,274	3,708	9,600	3,974	5,626	18,849	12.1	19.7	50.9	29.8	23.7	38.6	
May .....	1,929	3,313	9,387	4,113	5,274	18,585	10.4	17.8	50.5	28.4	20.5	35.3	
June .....	1,941	3,252	8,837	4,155	4,682	18,890	10.3	17.2	46.8	24.8	22.0	36.8	
July .....	2,145	3,598	9,496	4,464	5,032	19,283	11.1	18.7	49.2	26.1	22.6	37.9	
August .....	1,781	3,275	9,319	4,457	4,861	19,400	9.2	16.9	48.0	25.1	19.1	35.1	
September .....	1,645	3,217	9,181	3,947	5,234	19,246	8.5	16.7	47.7	27.2	17.9	35.0	
October .....	1,428	2,677	8,924	4,134	4,790	19,691	7.3	13.6	45.3	24.3	16.0	30.0	
November .....	1,584	2,921	9,009	4,353	4,656	19,370	8.2	15.1	46.5	24.0	17.6	32.4	
December .....	1,304	2,760	9,402	4,892	4,510	19,457	6.7	14.2	48.3	23.2	13.9	29.4	
Average .....	1,875	3,237	9,241	4,176	5,065	19,106	9.8	16.9	48.4	26.5	20.3	35.0	
2015 January .....	1,334	2,538	9,461	4,575	4,886	19,218	6.9	13.2	49.2	25.4	14.1	26.8	
February .....	1,433	2,794	9,272	4,640	4,632	19,677	7.3	14.2	47.1	23.5	15.5	30.1	
March .....	1,466	2,801	9,619	4,092	5,527	19,352	7.6	14.5	49.7	28.6	15.2	29.1	
April .....	1,532	2,734	9,374	4,938	4,436	19,263	8.0	14.2	48.7	23.0	16.3	29.2	
May .....	1,724	3,133	9,502	4,853	4,649	19,301	8.9	16.2	49.2	24.1	18.1	33.0	
June .....	1,617	2,869	9,605	4,657	4,948	19,841	8.1	14.5	48.4	24.9	16.8	29.9	
July .....	1,479	2,911	9,571	4,960	4,611	20,126	7.3	14.5	47.6	22.9	15.5	30.4	
August .....	1,247	2,750	9,858	4,507	5,351	19,930	6.3	13.8	49.5	26.8	12.7	27.9	
September .....	1,290	2,854	9,358	4,851	4,507	19,418	6.6	14.7	48.2	23.2	13.8	30.5	
October .....	1,519	2,899	8,842	4,617	4,225	19,500	7.8	14.9	45.3	21.7	17.2	32.8	
November .....	1,662	3,169	9,151	4,903	4,248	19,144	8.7	16.6	47.8	22.2	18.2	34.6	
December .....	1,773	3,274	9,742	5,266	4,476	19,600	9.0	16.7	49.7	22.8	18.2	33.6	
Average .....	1,507	2,894	9,449	4,738	4,711	19,531	7.7	14.8	48.4	24.1	15.9	30.6	
2016 January .....	1,520	3,052	9,734	4,878	4,857	19,055	8.0	16.0	51.1	25.5	15.6	31.4	
February .....	1,574	3,210	10,020	4,948	5,072	19,680	8.0	16.3	50.9	25.8	15.7	32.0	
March .....	1,820	3,576	10,002	5,002	5,000	19,616	9.3	18.2	51.0	25.5	18.2	35.8	
April .....	1,709	3,351	9,829	5,154	4,674	19,264	8.9	17.4	51.0	24.3	17.4	34.1	
May .....	1,933	3,642	10,183	5,658	4,525	19,202	10.1	19.0	53.0	23.6	19.0	35.8	
June .....	1,716	3,303	10,076	5,240	4,836	19,799	8.7	16.7	50.9	24.4	17.0	32.8	
July .....	1,793	3,803	10,507	5,209	5,298	19,712	9.1	19.3	53.3	26.9	17.1	36.2	
August .....	1,815	3,422	10,311	5,114	5,196	20,131	9.0	17.0	51.2	25.8	17.6	33.2	
September .....	1,982	3,572	10,194	5,250	4,944	19,864	10.0	18.0	51.3	24.9	19.4	35.0	
October .....	1,698	3,329	9,723	4,942	4,781	19,622	8.7	17.0	49.6	24.4	17.5	34.2	
November .....	R 1,703	R 3,567	R 10,312	R 5,392	R 4,921	R 19,655	R 8.7	R 18.1	R 52.5	R 25.0	R 16.5	R 34.6	
December .....	E 9,834	E 5,834	E 10,060	E 5,824	E 4,010	E 19,513	NA	NA	E 50.4	E 20.6	NA	NA	
Average .....	NA	NA	RE 10,060	RE 5,219	RE 4,842	RE 19,592	NA	NA	E 51.3	RE 24.7	NA	NA	
2017 January .....	NA	NA	E 10,771	E 5,564	E 5,207	E 19,601	NA	NA	E 55.0	E 26.6	NA	NA	

<sup>a</sup> Bahrain, Iran, Iraq, Kuwait, Qatar, Saudi Arabia, United Arab Emirates, and the Neutral Zone (between Kuwait and Saudi Arabia).

<sup>b</sup> 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](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

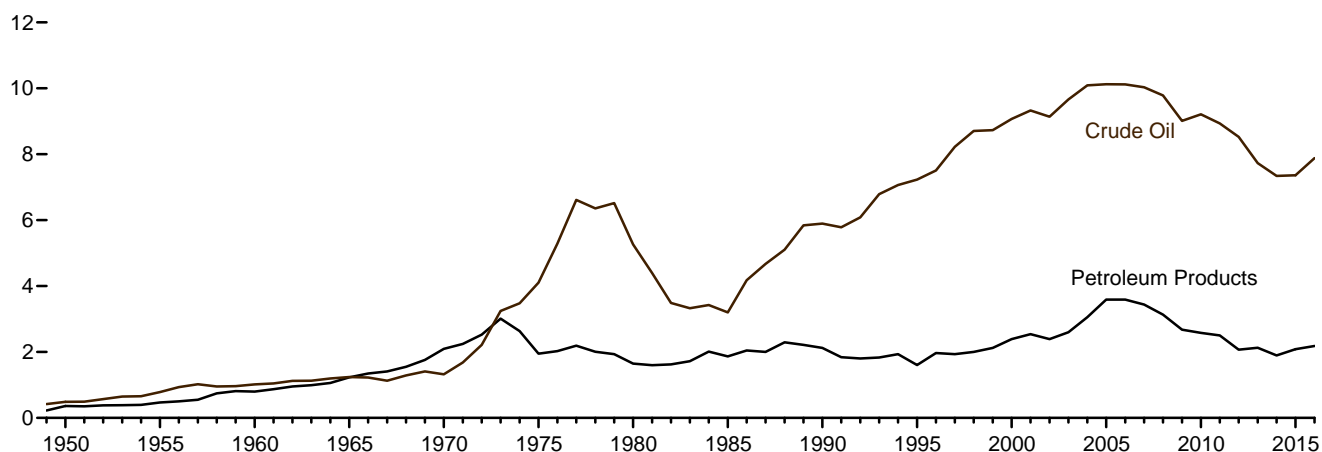
receipts from U.S. territories.

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.

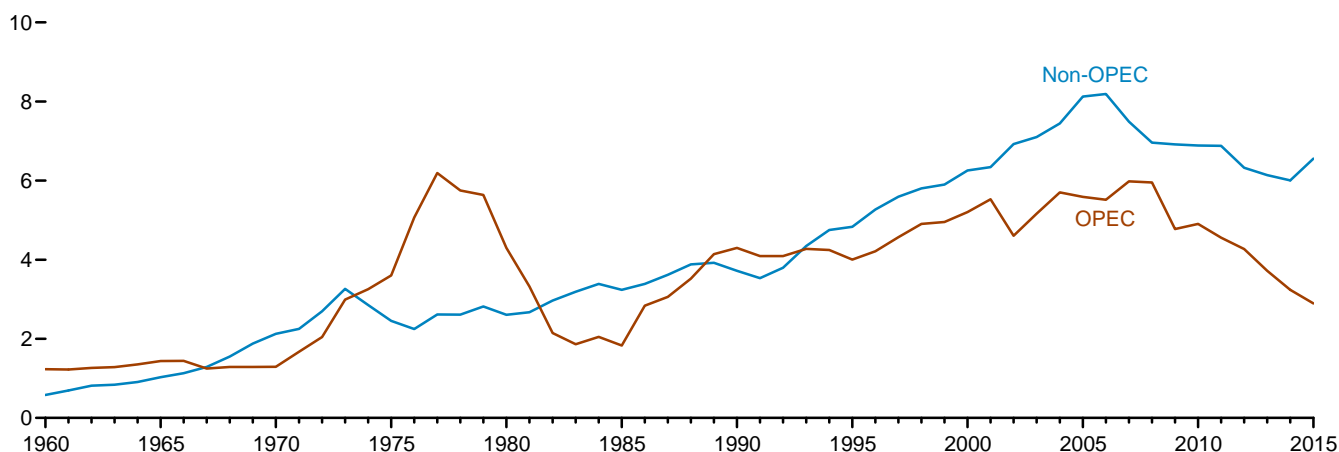
Sources: • **1949–1975:** Bureau of Mines, Mineral Industry Surveys, *Petroleum Statement, Annual*, annual reports. • **1976–1980:** U.S. Energy Information Administration (EIA), *Energy Data Reports, Petroleum Statement, Annual*, annual reports. • **1981–2015:** EIA, *Petroleum Supply Annual*, annual reports, and unpublished revisions. • **2016 and 2017:** EIA, *Petroleum Supply Monthly*, monthly reports; and, for the current two months, *Weekly Petroleum Status Report* data system and *Monthly Energy Review* data system calculations.

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

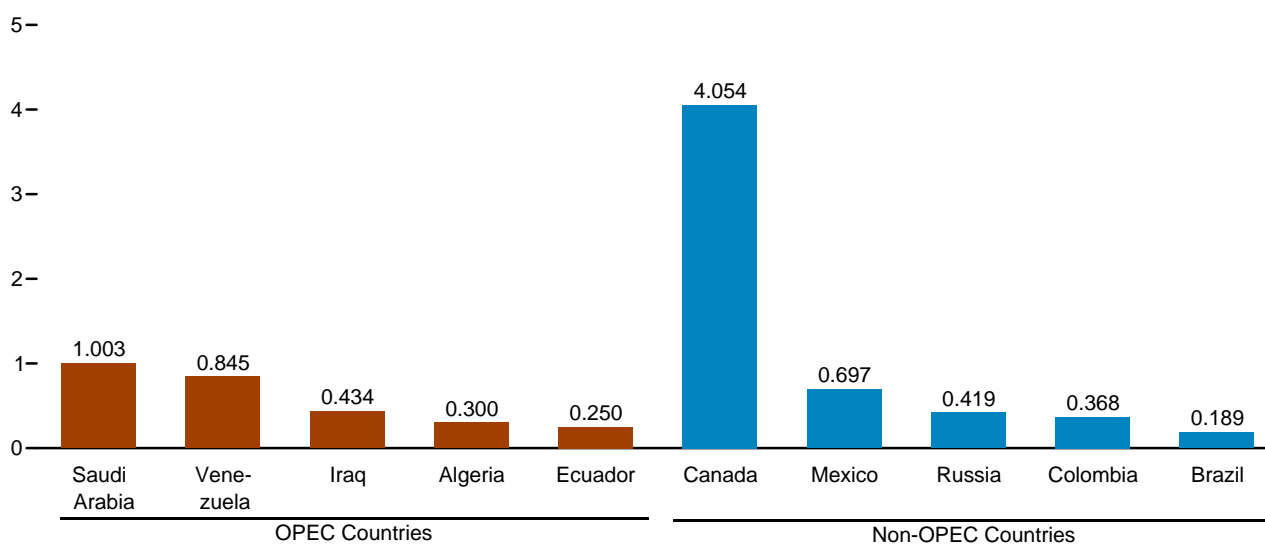
Overview, 1949–2016



OPEC and Non-OPEC, 1960–2015



From Selected Countries, November 2016



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 <sup>a</sup>		Distillate Fuel Oil	Jet Fuel <sup>d</sup>	LPG <sup>b</sup>		Motor Gasoline <sup>f</sup>	Residual Fuel Oil	Other <sup>g</sup>	Total	Crude Oil <sup>a</sup>	Petroleum Products	Total	
	SPR <sup>c</sup>	Total			Propane <sup>e</sup>	Total								
1950 Average	--	487	7	{ <sup>d</sup> <sub>d</sub> }	--	--	(s)	329	27	850	95	210	305	
1955 Average	--	782	12		--	--	13	417	24	1,248	32	336	368	
1960 Average	--	1,015	35		34	NA	4	27	637	62	1,815	8	193	202
1965 Average	--	1,238	36		81	NA	21	28	946	119	2,468	3	184	187
1970 Average	--	1,324	147	144	26	52	67	1,528	157	3,419	14	245	259	
1975 Average	--	4,105	155	133	60	112	184	1,223	144	6,056	6	204	209	
1980 Average	44	5,263	142	80	69	216	140	939	130	6,909	287	258	544	
1985 Average	118	3,201	200	39	67	187	381	510	550	5,067	204	577	781	
1990 Average	27	5,894	278	108	115	188	342	504	705	8,018	109	748	857	
1995 Average	--	7,230	193	106	102	146	265	187	708	8,835	95	855	949	
2000 Average	8	9,071	295	162	161	215	427	352	938	11,459	50	990	1,040	
2001 Average	11	9,328	344	148	145	206	454	295	1,095	11,871	20	951	971	
2002 Average	16	9,140	267	107	145	183	498	249	1,085	11,530	9	975	984	
2003 Average	--	9,665	333	109	168	225	518	327	1,087	12,264	12	1,014	1,027	
2004 Average	77	10,088	325	127	209	263	496	426	1,419	13,145	27	1,021	1,048	
2005 Average	52	10,126	329	190	233	328	603	530	1,609	13,714	32	1,133	1,165	
2006 Average	8	10,118	365	186	228	332	475	350	1,881	13,707	25	1,292	1,317	
2007 Average	7	10,031	304	217	182	247	413	372	1,885	13,468	27	1,405	1,433	
2008 Average	19	9,783	213	103	185	253	302	349	1,913	12,915	29	1,773	1,802	
2009 Average	56	9,013	225	81	147	182	223	331	1,635	11,691	44	1,980	2,024	
2010 Average	--	9,213	228	98	121	153	134	366	1,600	11,793	42	2,311	2,353	
2011 Average	--	8,935	179	69	110	135	105	328	1,686	11,436	47	2,939	2,986	
2012 Average	--	8,527	126	55	116	141	44	256	1,450	10,598	67	3,137	3,205	
2013 Average	--	7,730	155	84	127	148	45	225	1,471	9,859	134	3,487	3,621	
2014 January	--	7,589	283	42	187	206	42	132	1,011	9,305	248	3,663	3,911	
February	--	7,199	337	94	221	244	11	221	1,049	9,155	247	3,411	3,658	
March	--	7,274	324	91	122	142	36	156	1,233	9,256	251	3,741	3,993	
April	--	7,555	181	144	79	101	57	183	1,379	9,600	282	3,693	3,974	
May	--	7,167	198	104	66	85	47	175	1,611	9,387	309	3,804	4,113	
June	--	7,068	121	109	91	117	51	151	1,222	8,837	394	3,761	4,155	
July	--	7,630	129	85	64	83	60	177	1,331	9,496	421	4,043	4,464	
August	--	7,473	143	63	76	90	73	166	1,311	9,319	391	4,066	4,457	
September	--	7,495	126	133	75	96	77	178	1,076	9,181	349	3,598	3,947	
October	--	7,148	120	90	99	122	64	218	1,161	8,924	376	3,758	4,134	
November	--	7,295	136	80	90	110	41	175	1,172	9,009	521	3,832	4,353	
December	--	7,225	245	102	129	153	29	152	1,495	9,402	421	4,471	4,892	
Average	--	7,344	195	94	108	128	49	173	1,257	9,241	351	3,824	4,176	
2015 January	--	7,171	349	132	156	176	74	218	1,341	9,461	495	4,080	4,575	
February	--	7,100	388	127	163	182	51	225	1,199	9,272	442	4,198	4,640	
March	--	7,592	324	163	147	161	61	146	1,173	9,619	438	3,654	4,092	
April	--	7,208	243	134	127	145	75	179	1,390	9,374	599	4,339	4,938	
May	--	7,245	191	170	91	111	109	239	1,436	9,502	527	4,326	4,853	
June	--	7,321	132	204	96	116	100	174	1,557	9,605	445	4,211	4,657	
July	--	7,360	143	160	107	129	33	144	1,603	9,571	546	4,414	4,960	
August	--	7,717	140	132	111	130	33	177	1,529	9,858	461	4,047	4,507	
September	--	7,228	103	66	92	114	63	243	1,541	9,358	410	4,441	4,851	
October	--	7,102	101	83	120	148	103	136	1,168	8,842	500	4,116	4,617	
November	--	7,371	150	102	129	153	70	198	1,108	9,151	320	4,584	4,903	
December	--	7,902	155	108	145	171	84	222	1,100	9,742	392	4,874	5,266	
Average	--	7,363	200	132	124	145	71	192	1,346	9,449	465	4,273	4,738	
2016 January	--	7,675	175	154	147	189	60	291	1,190	9,734	364	4,514	4,878	
February	--	7,910	231	117	190	210	65	173	1,314	10,020	374	4,573	4,948	
March	--	8,042	150	155	122	144	66	277	1,168	10,002	508	4,495	5,002	
April	--	7,637	177	122	103	116	78	211	1,488	9,829	591	4,563	5,154	
May	--	7,946	123	180	101	116	44	152	1,621	10,183	662	4,996	5,658	
June	--	7,611	88	132	96	116	76	270	1,784	10,076	383	4,857	5,240	
July	--	8,092	123	174	104	127	82	275	1,636	10,507	474	4,735	5,209	
August	--	8,035	164	147	117	138	34	259	1,534	10,311	657	4,457	5,114	
September	--	8,057	150	138	121	136	71	170	1,470	10,194	692	4,558	5,250	
October	--	7,607	75	155	136	162	44	159	1,521	9,723	491	4,451	4,942	
November	--	R 8,054	R 145	R 156	R 160	R 190	R 63	R 258	R 1,447	R 10,312	R 597	R 4,795	R 5,392	
December	--	E 7,893	E 168	E 136	E 172	NA	E 32	E 171	NA	E 9,834	E 595	E 5,229	E 5,824	
Average	--	RE 7,880	E 147	RE 147	RE 131	NA	RE 59	RE 222	NA	RE 10,060	RE 533	RE 4,686	RE 5,219	
2017 January	--	E 8,499	E 174	E 153	E 229	NA	E 31	E 192	NA	E 10,771	E 627	E 4,937	E 5,564	

<sup>a</sup> Includes lease condensate.

<sup>b</sup> Liquefied petroleum gases.

<sup>c</sup> "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.

<sup>d</sup> 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.")

<sup>e</sup> Includes propylene.

<sup>f</sup> 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.

<sup>g</sup> Asphalt and road oil, aviation gasoline blending components, kerosene, lubricants, pentanes plus, 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. • 1981–2015: EIA, *Petroleum Supply Annual*, annual reports, and unpublished revisions. • 2016 and 2017: EIA, *Petroleum Supply Monthly*, monthly reports; and, for the current two months, *Weekly Petroleum Status Report* data system and *Monthly Energy Review* data system calculations.

**Table 3.3c Petroleum Trade: Imports From OPEC Countries**  
(Thousand Barrels per Day)

	Algeria <sup>a</sup>	Angola <sup>b</sup>	Ecuador <sup>c</sup>	Iraq	Kuwait <sup>d</sup>	Libya <sup>e</sup>	Nigeria <sup>f</sup>	Saudi Arabia <sup>d</sup>	Venezuela	Other <sup>g</sup>	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	—	896	1,572	1,546	72	5,203
2001 Average .....	278	(b)	(c)	795	250	—	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
<b>2014</b> January .....	68	94	227	249	474	—	89	1,462	687	1	3,350
February .....	79	114	207	290	348	—	59	1,464	807	31	3,398
March .....	92	117	173	306	360	—	112	1,444	772	19	3,395
April .....	69	157	170	321	342	—	187	1,607	853	1	3,708
May .....	102	178	217	351	334	—	118	1,241	772	1	3,313
June .....	147	166	138	529	355	—	115	1,017	748	38	3,252
July .....	118	159	214	496	375	—	61	1,232	901	40	3,598
August .....	137	129	305	543	263	10	48	897	867	76	3,275
September .....	185	202	305	350	245	—	57	1,005	824	42	3,217
October .....	101	147	242	286	304	—	59	830	702	6	2,677
November .....	98	209	120	421	137	57	55	1,014	800	10	2,921
December .....	125	180	255	282	197	11	144	813	744	10	2,760
<b>Average</b> .....	<b>110</b>	<b>154</b>	<b>215</b>	<b>369</b>	<b>311</b>	<b>6</b>	<b>92</b>	<b>1,166</b>	<b>789</b>	<b>23</b>	<b>3,237</b>
<b>2015</b> 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
<b>Average</b> .....	<b>108</b>	<b>136</b>	<b>231</b>	<b>229</b>	<b>204</b>	<b>7</b>	<b>81</b>	<b>1,059</b>	<b>827</b>	<b>12</b>	<b>2,894</b>
<b>2016</b> January .....	126	166	334	252	205	10	132	1,054	702	72	3,052
February .....	174	133	246	245	289	5	274	1,011	773	61	3,210
March .....	147	172	264	365	123	—	290	1,309	846	59	3,576
April .....	137	242	182	349	199	10	243	1,154	788	45	3,351
May .....	102	161	230	555	177	75	297	1,171	787	87	3,642
June .....	183	128	223	434	135	—	252	1,104	748	97	3,303
July .....	191	299	234	390	323	5	299	1,053	933	75	3,803
August .....	169	159	253	488	156	22	181	1,142	773	78	3,422
September .....	155	157	213	448	275	4	168	1,211	825	116	3,572
October .....	296	122	203	508	154	—	232	1,025	741	48	3,329
November .....	300	174	250	434	228	27	247	1,003	845	59	3,567
<b>11-Month Average</b> .....	<b>180</b>	<b>174</b>	<b>240</b>	<b>407</b>	<b>205</b>	<b>14</b>	<b>238</b>	<b>1,113</b>	<b>797</b>	<b>73</b>	<b>3,440</b>
<b>2015 11-Month Average</b> .....	<b>111</b>	<b>134</b>	<b>234</b>	<b>209</b>	<b>205</b>	<b>7</b>	<b>74</b>	<b>1,053</b>	<b>821</b>	<b>12</b>	<b>2,859</b>
<b>2014 11-Month Average</b> .....	<b>109</b>	<b>152</b>	<b>211</b>	<b>377</b>	<b>322</b>	<b>6</b>	<b>87</b>	<b>1,199</b>	<b>794</b>	<b>24</b>	<b>3,281</b>

<sup>a</sup> Algeria joined OPEC in 1969. For 1960–1968, Algeria is included in "Total Non-OPEC" on Table 3.3d.

<sup>b</sup> Angola joined OPEC in January 2007. For 1960–2006, Angola is included in "Total Non-OPEC" on Table 3.3d.

<sup>c</sup> 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.

<sup>d</sup> 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.

<sup>e</sup> Libya joined OPEC in 1962. For 1960 and 1961, Libya is included in "Total Non-OPEC" on Table 3.3d.

<sup>f</sup> Nigeria joined OPEC in 1971. For 1960–1970, Nigeria is included in "Total Non-OPEC" on Table 3.3d.

<sup>g</sup> Includes these countries for the dates indicated: Gabon (1975–1994 and July 2016 forward), Indonesia (1962–2008 and 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. • **1981–2015:** EIA, *Petroleum Supply Annual*, annual reports. • **2016:** 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 <sup>a</sup>	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
<b>2014</b> January .....	128	3,412	381	1,030	106	36	212	142	—	508	5,955
February .....	181	3,213	320	864	105	88	365	68	—	554	5,757
March .....	72	3,201	382	871	90	70	424	131	—	620	5,861
April .....	100	3,140	334	753	110	72	405	170	—	809	5,893
May .....	136	3,276	247	799	127	39	351	179	—	921	6,074
June .....	143	3,258	210	777	15	30	274	97	—	781	5,585
July .....	157	3,289	202	753	32	55	405	128	—	877	5,897
August .....	214	3,432	336	798	61	44	394	84	—	680	6,044
September .....	113	3,543	333	859	56	7	282	57	—	713	5,964
October .....	258	3,429	354	834	119	28	316	109	—	801	6,247
November .....	224	3,466	427	945	68	35	170	110	—	644	6,088
December .....	198	3,971	287	821	129	42	355	119	—	720	6,642
<b>Average .....</b>	<b>160</b>	<b>3,388</b>	<b>318</b>	<b>842</b>	<b>85</b>	<b>45</b>	<b>330</b>	<b>117</b>	<b>—</b>	<b>720</b>	<b>6,004</b>
<b>2015</b> 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
<b>Average .....</b>	<b>215</b>	<b>3,765</b>	<b>395</b>	<b>758</b>	<b>57</b>	<b>61</b>	<b>371</b>	<b>123</b>	<b>—</b>	<b>811</b>	<b>6,554</b>
<b>2016</b> January .....	168	4,111	509	710	57	58	384	115	—	569	6,683
February .....	148	4,201	507	539	73	61	436	71	—	773	6,810
March .....	112	3,882	561	657	30	143	329	141	—	571	6,426
April .....	160	3,558	386	788	54	89	509	149	—	784	6,478
May .....	110	3,571	570	676	62	44	435	106	—	967	6,541
June .....	194	3,485	583	739	59	113	472	168	1	958	6,773
July .....	158	3,436	536	733	43	108	531	92	—	1,066	6,704
August .....	274	3,823	534	672	31	49	479	141	—	884	6,888
September .....	154	3,794	500	595	67	124	406	132	—	851	6,622
October .....	199	3,618	346	614	107	75	483	89	—	862	6,394
November .....	189	4,054	368	697	74	38	419	137	—	770	6,746
<b>11-Month Average .....</b>	<b>170</b>	<b>3,774</b>	<b>491</b>	<b>675</b>	<b>60</b>	<b>82</b>	<b>444</b>	<b>122</b>	<b>(s)</b>	<b>823</b>	<b>6,641</b>
<b>2015 11-Month Average .....</b>	<b>215</b>	<b>3,739</b>	<b>395</b>	<b>758</b>	<b>59</b>	<b>63</b>	<b>385</b>	<b>124</b>	<b>—</b>	<b>825</b>	<b>6,562</b>
<b>2014 11-Month Average .....</b>	<b>157</b>	<b>3,333</b>	<b>320</b>	<b>844</b>	<b>81</b>	<b>46</b>	<b>327</b>	<b>116</b>	<b>—</b>	<b>720</b>	<b>5,945</b>

<sup>a</sup> 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

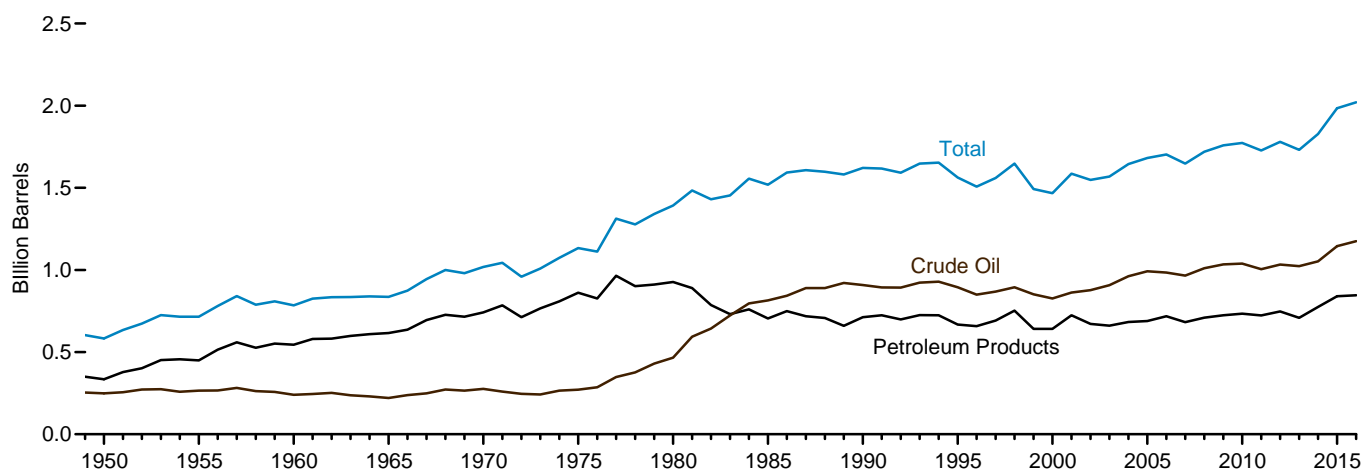
states and the District of Columbia.

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.

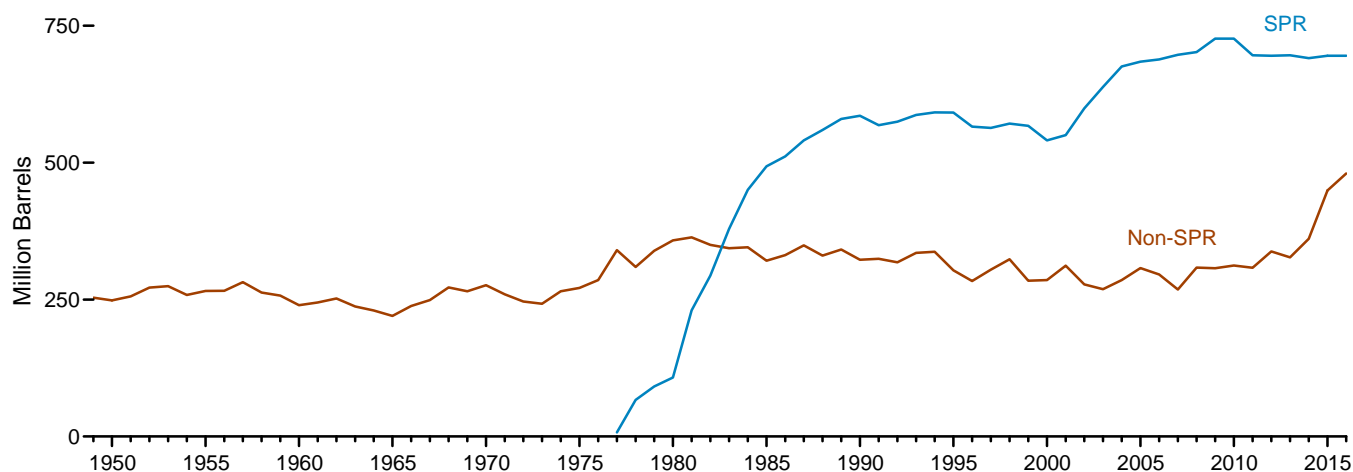
Sources: • **1960–1972:** Bureau of Mines, *Minerals Yearbook*, annual reports. • **1973–1975:** Bureau of Mines, Mineral Industry Surveys, *Petroleum Statement, Annual*, annual reports. • **1976–1980:** U.S. Energy Information Administration (EIA), Energy Data Reports, *Petroleum Statement, Annual*, annual reports. • **1981–2015:** EIA, *Petroleum Supply Annual*, annual reports. • **2016:** EIA, *Petroleum Supply Monthly*, monthly reports.

**Figure 3.4 Petroleum Stocks**

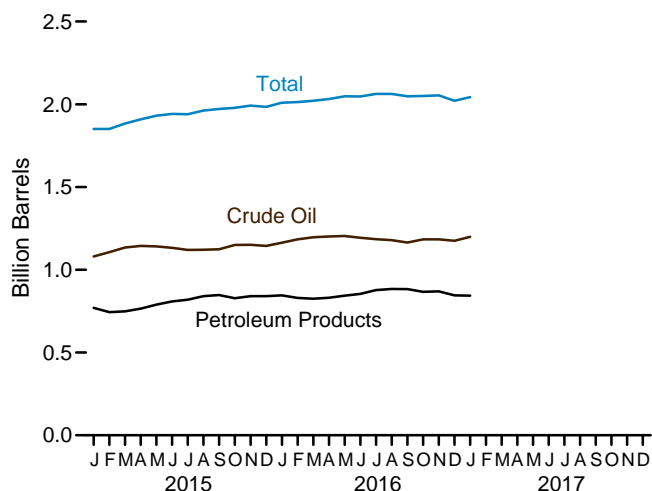
Overview, 1949–2016



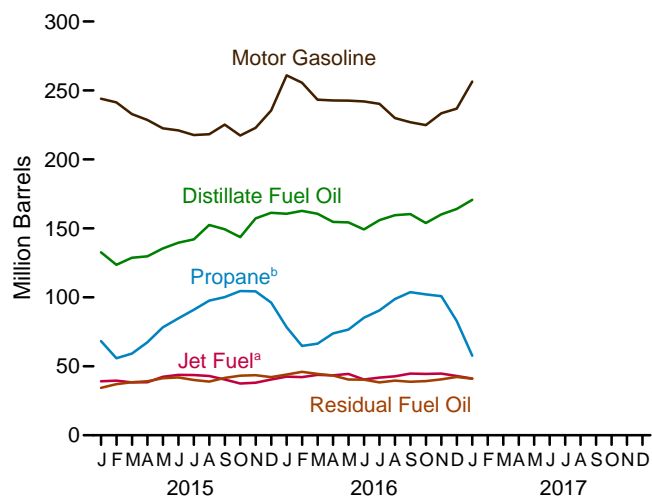
SPR and Non-SPR Crude Oil Stocks, 1949–2016



Overview, Monthly



Selected Products, Monthly



<sup>a</sup> Includes kerosene-type jet fuel only.

<sup>b</sup> 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 <sup>a</sup>			Distillate Fuel Oil <sup>e</sup>	Jet Fuel <sup>f</sup>	LPG <sup>b</sup>		Motor Gasoline <sup>h</sup>	Residual Fuel Oil	Other <sup>i</sup>	Total
	SPR <sup>c</sup>	Non-SPR <sup>d</sup>	Total			Propane <sup>g</sup>	Total				
1950 Year .....	--	248	248	72	( <sup>f</sup> )	NA	2	116	41	104	583
1955 Year .....	--	266	266	111	3	NA	7	165	39	123	715
1960 Year .....	--	240	240	138	7	NA	23	195	45	137	785
1965 Year .....	--	220	220	155	19	NA	30	175	56	181	836
1970 Year .....	--	276	276	195	28	NA	67	209	54	188	1,018
1975 Year .....	--	271	271	209	30	82	125	235	74	188	1,133
1980 Year .....	108	358	466	205	42	65	120	261	92	205	1,392
1985 Year .....	493	321	814	144	40	39	74	223	50	174	1,519
1990 Year .....	586	323	908	132	52	49	98	220	49	162	1,621
1995 Year .....	592	303	895	130	40	43	93	202	37	165	1,563
2000 Year .....	541	286	826	118	45	41	83	196	36	164	1,468
2001 Year .....	550	312	862	145	42	66	121	210	41	166	1,586
2002 Year .....	599	278	877	134	39	53	106	209	31	152	1,548
2003 Year .....	638	269	907	137	39	50	94	207	38	147	1,568
2004 Year .....	676	286	961	126	40	55	104	218	42	153	1,645
2005 Year .....	685	308	992	136	42	57	109	208	37	157	1,682
2006 Year .....	689	296	984	144	39	62	113	212	42	169	1,703
2007 Year .....	697	268	965	134	39	52	96	218	39	156	1,648
2008 Year .....	702	308	1,010	146	38	55	113	214	36	162	1,719
2009 Year .....	727	307	1,034	166	43	50	102	223	37	153	1,758
2010 Year .....	727	312	1,039	164	43	49	108	219	41	158	1,773
2011 Year .....	696	308	1,004	149	41	55	112	223	34	164	1,728
2012 Year .....	695	338	1,033	135	40	68	141	231	34	167	1,780
2013 Year .....	696	327	1,023	128	37	45	114	228	38	163	1,732
2014 January .....	696	336	1,032	115	38	32	90	236	37	171	1,718
February .....	696	345	1,041	113	38	28	82	229	36	179	1,719
March .....	696	355	1,051	115	36	29	86	222	36	182	1,727
April .....	693	365	1,059	117	39	35	103	217	36	186	1,755
May .....	691	365	1,056	122	39	47	126	218	38	185	1,784
June .....	691	354	1,045	122	37	58	150	219	37	177	1,787
July .....	691	339	1,030	125	36	68	172	218	36	175	1,791
August .....	691	331	1,022	128	36	77	187	212	38	172	1,796
September .....	691	332	1,023	131	40	81	191	212	37	174	1,809
October .....	691	352	1,043	120	36	82	186	204	37	177	1,803
November .....	691	357	1,048	126	36	81	171	220	36	175	1,812
December .....	691	361	1,052	136	38	78	155	240	34	172	1,827
2015 January .....	691	389	1,080	133	39	68	135	244	34	185	1,850
February .....	691	415	1,106	124	40	56	116	241	37	187	1,850
March .....	691	443	1,134	129	38	59	123	233	38	187	1,883
April .....	691	453	1,144	130	38	68	141	229	39	188	1,909
May .....	692	449	1,141	135	42	78	161	223	41	187	1,931
June .....	694	439	1,133	140	44	85	175	221	42	187	1,941
July .....	695	425	1,120	142	44	91	188	218	40	188	1,939
August .....	695	426	1,121	153	43	98	205	218	39	183	1,962
September .....	695	429	1,124	149	40	100	210	225	42	180	1,971
October .....	695	455	1,150	144	37	105	209	217	43	177	1,979
November .....	695	456	1,151	157	38	104	197	223	44	182	1,992
December .....	695	449	1,144	161	40	96	177	235	42	184	1,985
2016 January .....	695	469	1,164	161	42	78	145	261	44	192	2,009
February .....	695	488	1,184	163	42	65	127	256	46	196	2,013
March .....	695	502	1,197	161	44	66	134	243	45	199	2,021
April .....	695	506	1,201	155	43	74	150	243	43	197	2,032
May .....	695	509	1,204	154	45	77	167	243	40	195	2,048
June .....	695	498	1,193	149	40	85	191	242	40	191	2,047
July .....	695	490	1,185	156	42	91	208	240	38	193	2,062
August .....	695	484	1,179	160	43	99	224	230	40	188	2,063
September .....	695	469	1,164	160	45	104	227	227	39	186	2,048
October .....	695	489	1,184	154	45	102	219	225	39	184	2,050
November .....	695	<sup>R</sup> 489	<sup>R</sup> 1,184	<sup>R</sup> 160	<sup>R</sup> 45	<sup>R</sup> 101	<sup>R</sup> 209	<sup>R</sup> 233	<sup>R</sup> 41	<sup>R</sup> 182	<sup>R</sup> 2,054
December .....	<sup>E</sup> 695	<sup>E</sup> 480	<sup>E</sup> 1,175	<sup>E</sup> 164	<sup>E</sup> 43	<sup>E</sup> 83	<sup>RF</sup> 179	<sup>E</sup> 237	<sup>E</sup> 42	<sup>RE</sup> 180	<sup>E</sup> 2,021
2017 January .....	<sup>E</sup> 695	<sup>E</sup> 505	<sup>E</sup> 1,200	<sup>E</sup> 171	<sup>E</sup> 41	<sup>E</sup> 58	<sup>F</sup> 147	<sup>E</sup> 256	<sup>E</sup> 41	<sup>E</sup> 187	<sup>E</sup> 2,044

<sup>a</sup> Includes lease condensate.

<sup>b</sup> Liquefied petroleum gases.

<sup>c</sup> "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.

<sup>d</sup> Crude oil stocks at (or in) refineries, pipelines, tank farms, and bulk terminals. Through 2004, also includes crude oil stocks on leases. Beginning in 1981, also includes stocks of Alaskan crude oil in transit by water.

<sup>e</sup> Excludes stocks in the Northeast Home Heating Oil Reserve. Beginning in 2009, includes renewable diesel fuel (including biodiesel) blended into distillate fuel oil.

<sup>f</sup> 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.")

<sup>g</sup> Includes propylene.

<sup>h</sup> Includes finished motor gasoline and motor gasoline blending components; excludes oxygenates. Through 1963, also includes aviation gasoline and special naphthas.

<sup>i</sup> Asphalt and road oil, aviation gasoline blending components, kerosene, lubricants, pentanes plus, 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.

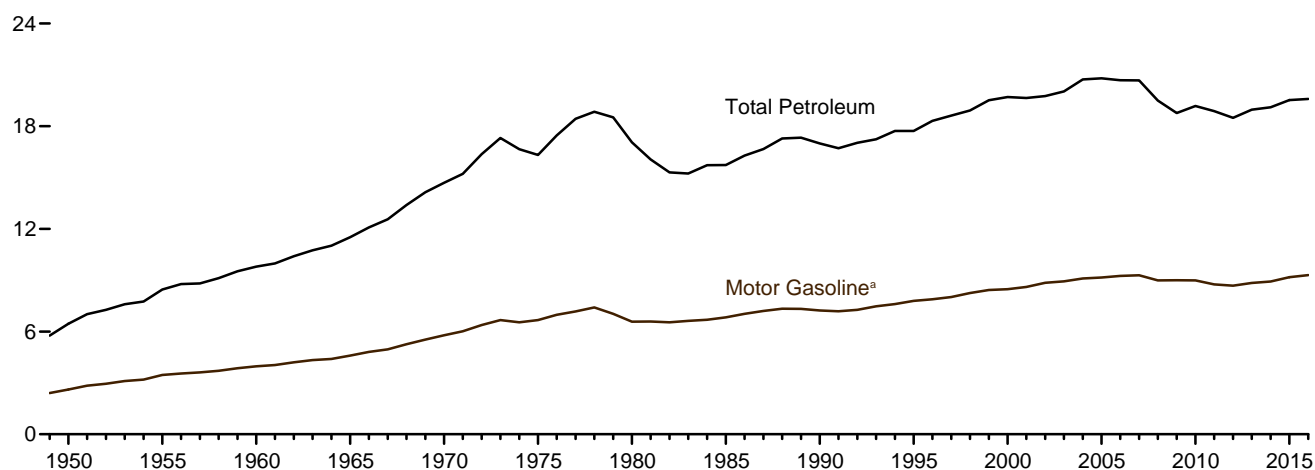
Notes: • Stocks are at end of period. • Totals may not equal sum of components due to independent rounding. • Geographic coverage is the 50 states and the District of Columbia.

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.

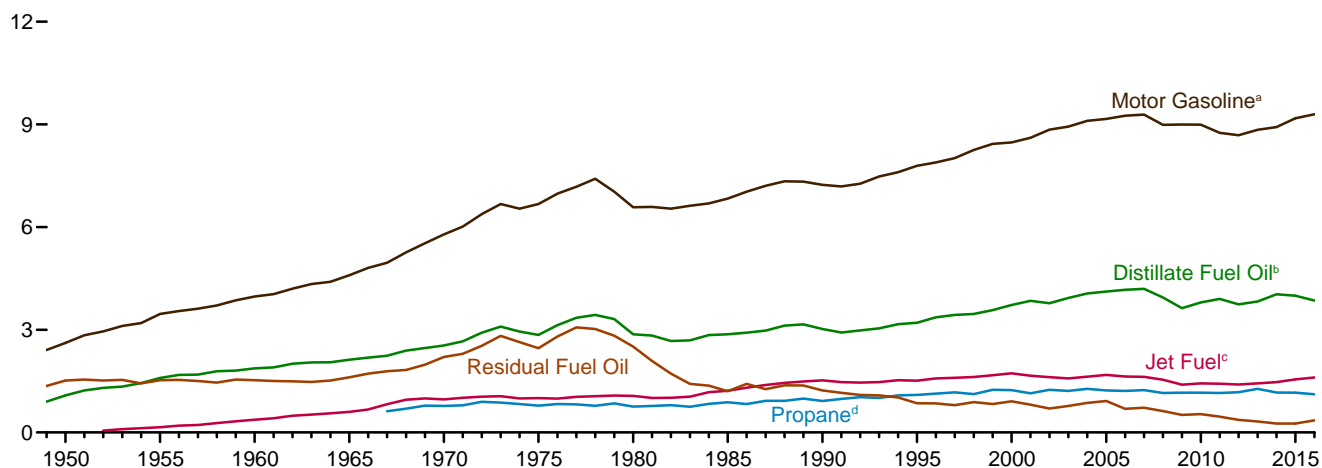
Sources: • 1949–1975: Bureau of Mines, Mineral Industry Surveys, *Petroleum Statement, Annual*, annual reports. • 1976–1980: U.S. Energy Information Administration (EIA), *Energy Data Reports, Petroleum Statement, Annual*, annual reports. • 1981–2015: EIA, *Petroleum Supply Annual*, annual reports. • 2016 and 2017: EIA, *Petroleum Supply Monthly*, monthly reports; and, for the current two months, *Weekly Petroleum Status Report* data system, Short-Term Integrated Forecasting System, and *Monthly Energy Review* data system calculations.

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

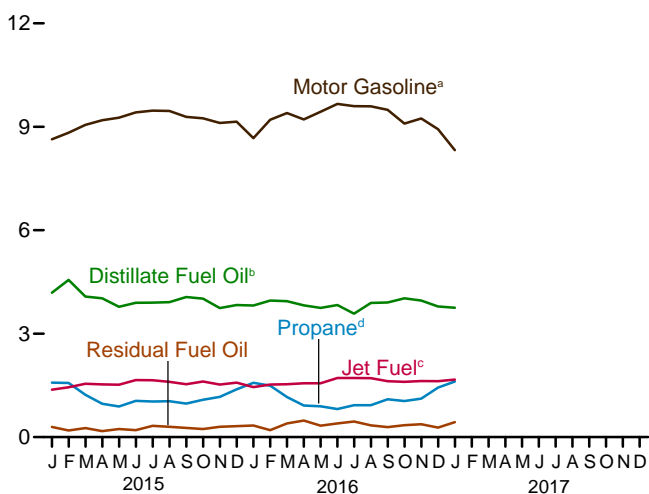
Total Petroleum and Motor Gasoline, 1949–2016



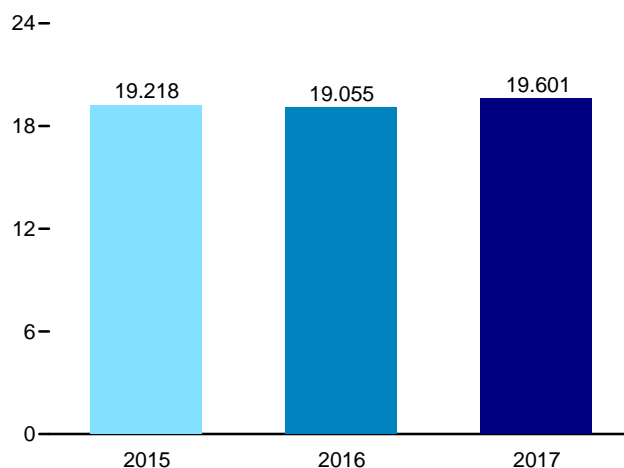
Selected Products, 1949–2016



Selected Products, Monthly



Total, January



<sup>a</sup> Beginning in 1993, includes fuel ethanol blended into motor gasoline.  
<sup>b</sup> Beginning in 2009, includes renewable diesel fuel (including biodiesel) blended into distillate fuel oil.  
<sup>c</sup> Beginning in 2005, includes kerosene-type jet fuel only.

<sup>d</sup> 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 <sup>b</sup>	Jet Fuel <sup>c</sup>	Kero- sene	LPG <sup>a</sup>		Lubri- cants	Motor Gasoline <sup>e</sup>	Petro- leum Coke	Residual Fuel Oil	Other <sup>f</sup>	Total
						Propane <sup>d</sup>	Total						
1950 Average .....	180	108	1,082	( <sup>c</sup> )	323	NA	234	106	2,616	41	1,517	250	6,458
1955 Average .....	254	192	1,592	154	320	NA	404	116	3,463	67	1,526	366	8,455
1960 Average .....	302	161	1,872	371	271	NA	621	117	3,969	149	1,529	435	9,797
1965 Average .....	368	120	2,126	602	267	NA	841	129	4,593	202	1,608	657	11,512
1970 Average .....	447	55	2,540	967	263	776	1,224	136	5,785	212	2,204	866	14,697
1975 Average .....	419	39	2,851	1,001	159	783	1,333	137	6,675	247	2,462	1,001	16,322
1980 Average .....	396	35	2,866	1,068	158	754	1,469	159	6,579	237	2,508	1,581	17,056
1985 Average .....	425	27	2,868	1,218	114	883	1,599	145	6,831	264	1,202	1,032	15,726
1990 Average .....	483	24	3,021	1,522	43	917	1,556	164	7,235	339	1,229	1,373	16,988
1995 Average .....	486	21	3,207	1,514	54	1,096	1,899	156	7,789	365	852	1,381	17,725
2000 Average .....	525	20	3,722	1,725	67	1,235	2,231	166	8,472	406	909	1,458	19,701
2001 Average .....	519	19	3,847	1,655	72	1,142	2,044	153	8,610	437	811	1,481	19,649
2002 Average .....	512	18	3,776	1,614	43	1,248	2,163	151	8,848	463	700	1,474	19,761
2003 Average .....	503	16	3,927	1,578	55	1,215	2,074	140	8,935	455	772	1,579	20,034
2004 Average .....	537	17	4,058	1,630	64	1,276	2,132	141	9,105	524	865	1,657	20,731
2005 Average .....	546	19	4,118	1,679	70	1,229	2,030	141	9,159	515	920	1,605	20,802
2006 Average .....	521	18	4,169	1,633	54	1,215	2,052	137	9,253	522	689	1,640	20,687
2007 Average .....	494	17	4,196	1,622	32	1,235	2,085	142	9,286	490	723	1,593	20,680
2008 Average .....	417	15	3,945	1,539	14	1,154	1,954	131	8,989	464	622	1,408	19,498
2009 Average .....	360	14	3,631	1,393	18	1,160	2,051	118	8,997	427	511	1,251	18,771
2010 Average .....	362	15	3,800	1,432	20	1,160	2,173	131	8,993	376	535	1,343	19,180
2011 Average .....	355	15	3,899	1,425	12	1,153	2,204	125	8,753	361	461	1,272	18,882
2012 Average .....	340	14	3,741	1,398	5	1,175	2,251	114	8,682	360	369	1,215	18,490
2013 Average .....	323	12	3,827	1,434	5	1,275	2,440	121	8,843	354	319	1,282	18,961
2014 January .....	195	10	4,340	1,364	18	1,703	2,935	105	8,273	439	325	1,098	19,102
February .....	208	7	4,160	1,380	5	1,445	2,603	103	8,647	300	238	1,256	18,908
March .....	215	12	4,066	1,433	2	1,241	2,405	145	8,697	178	180	1,130	18,464
April .....	278	12	3,990	1,455	2	1,009	2,198	131	8,955	324	279	1,224	18,849
May .....	346	13	3,952	1,400	2	770	1,943	129	9,023	368	226	1,183	18,585
June .....	402	11	3,902	1,544	2	942	2,096	117	9,039	352	254	1,171	18,890
July .....	466	17	3,866	1,559	12	936	2,143	138	9,249	413	253	1,166	19,283
August .....	458	14	3,875	1,522	1	1,010	2,342	128	9,311	346	218	1,184	19,400
September .....	447	12	3,933	1,482	18	1,076	2,340	144	8,822	413	278	1,358	19,246
October .....	392	11	4,266	1,479	16	1,134	2,410	127	9,148	362	246	1,234	19,691
November .....	264	11	3,917	1,476	6	1,346	2,674	137	8,921	400	339	1,225	19,370
December .....	247	12	4,178	1,537	22	1,408	2,668	111	8,941	265	252	1,223	19,457
Average .....	327	12	4,037	1,470	9	1,167	2,396	126	8,921	347	257	1,204	19,106
2015 January .....	200	8	4,186	1,375	3	1,580	2,814	153	8,639	404	294	1,142	19,218
February .....	215	8	4,559	1,445	9	1,572	2,822	123	8,829	217	195	1,255	19,677
March .....	222	9	4,078	1,548	11	1,228	2,419	152	9,057	377	263	1,215	19,352
April .....	303	14	4,027	1,527	1	966	2,261	148	9,189	377	172	1,243	19,263
May .....	343	13	3,778	1,519	20	890	2,238	159	9,262	383	235	1,351	19,301
June .....	472	12	3,897	1,654	(s)	1,053	2,326	132	9,417	407	200	1,324	19,841
July .....	480	18	3,901	1,650	1	1,030	2,382	156	9,470	399	325	1,343	20,126
August .....	510	11	3,915	1,601	2	1,042	2,291	121	9,460	412	298	1,309	19,930
September .....	469	11	4,063	1,534	1	970	2,196	127	9,289	283	267	1,179	19,418
October .....	400	14	4,014	1,614	3	1,084	2,411	145	9,245	329	236	1,090	19,500
November .....	287	9	3,740	1,524	1	1,169	2,557	104	9,112	306	300	1,203	19,144
December .....	212	9	3,831	1,578	25	1,384	2,751	130	9,148	283	317	1,317	19,600
Average .....	343	11	3,995	1,548	6	1,162	2,454	138	9,178	349	259	1,248	19,531
2016 January .....	200	7	3,816	1,449	-3	1,577	2,898	134	8,670	349	339	1,195	19,055
February .....	219	11	3,959	1,525	1	1,490	2,723	141	9,206	362	200	1,333	19,680
March .....	262	10	3,941	1,536	12	1,160	2,444	145	9,399	362	398	1,108	19,616
April .....	304	14	3,823	1,560	5	918	2,255	128	9,213	292	481	1,189	19,264
May .....	392	11	3,745	1,562	4	894	2,230	134	9,436	271	333	1,083	19,202
June .....	479	12	3,830	1,714	8	815	2,144	147	9,663	247	398	1,156	19,799
July .....	475	12	3,578	1,715	9	927	2,299	113	9,597	314	454	1,145	19,712
August .....	527	14	3,890	1,710	1	924	2,248	121	9,595	429	342	1,255	20,131
September .....	438	11	3,905	1,624	11	1,096	2,442	127	9,492	289	290	1,236	19,864
October .....	415	10	4,024	1,605	14	1,047	2,414	131	9,095	310	345	1,259	19,622
November .....	R 312	R 12	R 3,961	R 1,627	R 3	R 1,116	R 2,402	R 113	R 9,243	R 489	R 375	R 1,118	R 19,655
December .....	F 226	F 9	F 3,789	E 1,621	RF 13	E 1,435	RF 2,843	RF 116	E 8,932	RF 306	E 275	RE 1,384	E 19,513
Average .....	RE 355	E 11	RE 3,854	RE 1,604	RE 6	RE 1,116	RE 2,445	E 129	RE 9,295	RE 335	E 353	RE 1,205	RE 19,592
2017 January .....	F 231	F 8	E 3,754	E 1,669	F 11	E 1,614	F 2,841	F 127	E 8,322	F 388	E 436	E 1,815	E 19,601

<sup>a</sup> Liquefied petroleum gases.

<sup>b</sup> Beginning in 2009, includes renewable diesel fuel (including biodiesel) blended into distillate fuel oil.

<sup>c</sup> 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.")

<sup>d</sup> Includes propylene.

<sup>e</sup> Finished motor gasoline. Through 1963, also includes special naphthas. Beginning in 1993, also includes fuel ethanol blended into motor gasoline.

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

R=Revised. E=Estimate. F=Forecast. NA=Not available. (s)=Less than 500

barrels per day and greater than -500 barrels per day.

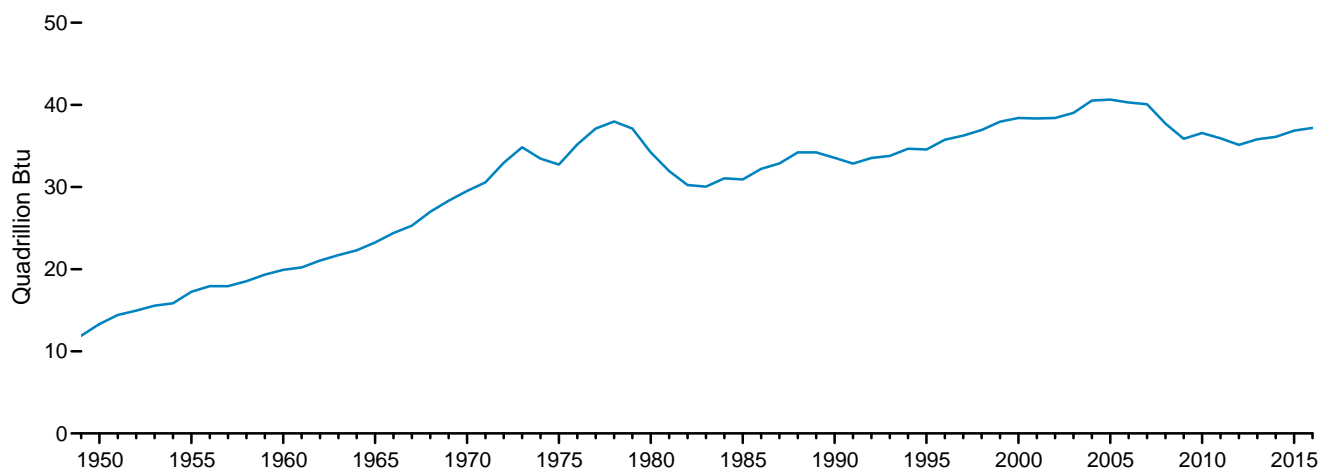
Notes: • Petroleum products supplied is an approximation of petroleum consumption and is synonymous with the term "petroleum consumption" in Tables 3.7a–3.8c. See Note 1, "Petroleum Products Supplied and Petroleum Consumption," at end of section. • Totals may not equal sum of components due to independent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

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

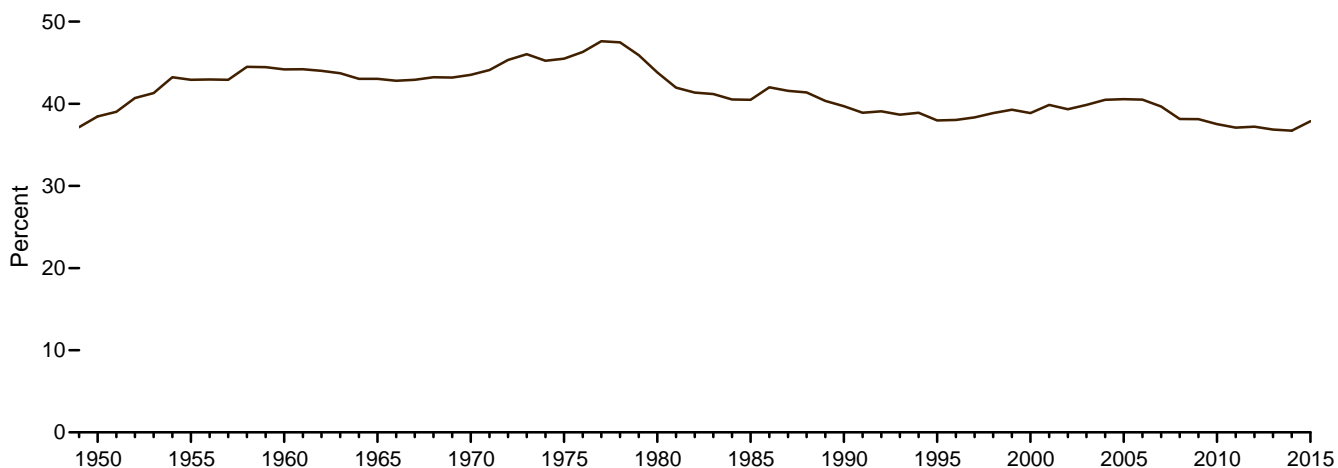
Sources: • 1949–1975: Bureau of Mines, Mineral Industry Surveys, *Petroleum Statement, Annual*, annual reports. • 1976–1980: U.S. Energy Information Administration (EIA), *Energy Data Reports, Petroleum Statement, Annual*, annual reports. • 1981–2015: EIA, *Petroleum Supply Annual*, annual reports, and unpublished revisions. • 2016 and 2017: EIA, *Petroleum Supply Monthly*, monthly reports; and, for the current two months, *Weekly Petroleum Status Report* data system, *Short-Term Integrated Forecasting System*, and *Monthly Energy Review* data system calculations.

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

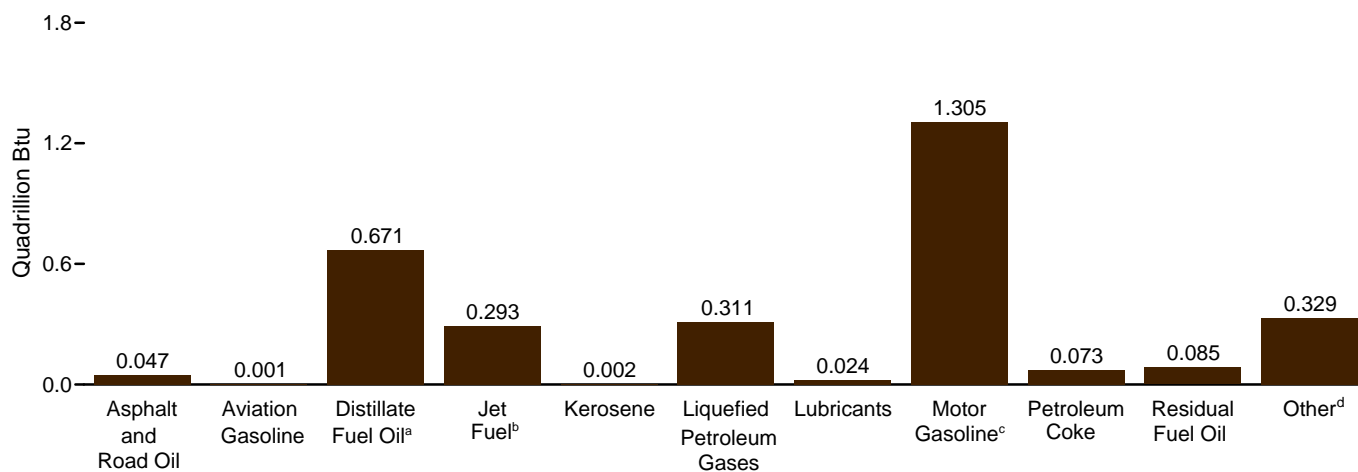
Total, 1949–2016



Petroleum Products Supplied as Share of Total Energy Consumption, 1949–2015



By Product, January 2017



<sup>a</sup> Includes renewable diesel fuel (including biodiesel) blended into distillate fuel oil.

<sup>b</sup> Includes kerosene-type jet fuel only.

<sup>c</sup> Includes fuel ethanol blended into motor gasoline.

<sup>d</sup> All petroleum products not separately displayed.

Web Page: <http://www.eia.gov/totalenergy/data/monthly/#petroleum>.

Sources: Tables 1.1 and 3.6.



**Table 3.6 Heat Content of Petroleum Products Supplied by Type**  
(Trillion Btu)

	Asphalt and Road Oil	Aviation Gasoline	Distillate Fuel Oil <sup>b</sup>	Jet Fuel <sup>c</sup>	Kero- sene	LPG <sup>a</sup>		Lubri- cants	Motor Gasoline <sup>e</sup>	Petro- leum Coke	Residual Fuel Oil	Other <sup>f</sup>	Total
						Propane <sup>d</sup>	Total						
1950 Total .....	435	199	2,300	( ° )	668	NA	343	236	5,015	90	3,482	546	13,315
1955 Total .....	615	354	3,385	301	662	NA	592	258	6,640	147	3,502	798	17,255
1960 Total .....	734	298	3,992	739	563	NA	912	259	7,631	328	3,517	947	19,919
1965 Total .....	890	222	4,519	1,215	553	NA	1,232	286	8,806	444	3,691	1,390	23,246
1970 Total .....	1,082	100	5,401	1,973	544	1,086	1,689	301	11,091	465	5,057	1,817	29,521
1975 Total .....	1,014	71	6,061	2,047	329	1,097	1,807	304	12,798	542	5,649	2,109	32,732
1980 Total .....	962	64	6,110	2,190	329	1,059	1,976	354	12,648	522	5,772	3,278	34,205
1985 Total .....	1,029	50	6,098	2,497	236	1,236	2,103	322	13,098	582	2,759	2,152	30,925
1990 Total .....	1,170	45	6,422	3,129	88	1,284	2,059	362	13,872	745	2,820	2,839	33,552
1995 Total .....	1,178	40	6,812	3,132	112	1,534	2,512	346	14,834	802	1,955	2,837	34,558
2000 Total .....	1,276	36	7,927	3,580	140	1,734	2,945	369	16,167	895	2,091	2,979	38,406
2001 Total .....	1,257	35	8,170	3,426	150	1,598	2,697	338	16,386	961	1,861	3,056	38,337
2002 Total .....	1,240	34	8,020	3,340	90	1,747	2,852	334	16,829	1,018	1,605	3,040	38,401
2003 Total .....	1,220	30	8,341	3,265	113	1,701	2,748	309	16,968	1,000	1,772	3,264	39,030
2004 Total .....	1,304	31	8,642	3,383	133	1,791	2,824	313	17,333	1,148	1,990	3,428	40,528
2005 Total .....	1,323	35	8,745	3,475	144	1,721	2,682	312	17,378	1,125	2,111	3,318	40,647
2006 Total .....	1,261	33	8,831	3,379	111	1,701	2,700	303	17,531	1,141	1,581	3,416	40,289
2007 Total .....	1,197	32	8,858	3,358	67	1,729	2,733	313	17,472	1,072	1,659	3,313	40,073
2008 Total .....	1,012	28	8,346	3,193	30	1,620	2,574	291	16,865	1,017	1,432	2,941	37,728
2009 Total .....	873	27	7,661	2,883	36	1,624	2,664	262	16,750	937	1,173	2,611	35,877
2010 Total .....	878	27	8,014	2,963	41	1,624	2,821	291	16,668	831	1,228	2,800	36,561
2011 Total .....	859	27	8,217	2,950	25	1,614	2,839	276	16,191	801	1,058	2,676	35,920
2012 Total .....	827	25	7,903	2,901	11	1,649	2,912	254	16,089	802	849	2,558	35,130
2013 Total .....	783	22	8,059	2,969	11	1,785	3,167	268	16,339	786	731	2,677	35,812
2014 January .....	40	2	776	240	3	203	326	20	1,298	83	63	195	3,045
February .....	39	1	672	219	1	155	260	18	1,225	51	42	201	2,727
March .....	44	2	727	252	(s)	148	263	27	1,364	34	35	202	2,950
April .....	55	2	690	248	(s)	116	233	24	1,359	59	53	212	2,936
May .....	71	2	707	246	(s)	92	210	24	1,415	70	44	212	3,001
June .....	80	2	675	263	(s)	108	220	21	1,372	64	48	201	2,946
July .....	96	3	691	274	2	111	232	26	1,451	78	49	209	3,111
August .....	94	2	693	268	(s)	120	254	24	1,461	65	42	211	3,115
September .....	89	2	681	252	3	124	246	26	1,339	75	52	233	2,999
October .....	81	2	763	260	3	135	265	24	1,435	69	48	218	3,166
November .....	53	2	678	251	1	155	286	25	1,354	73	64	211	2,997
December .....	51	2	747	270	4	167	295	21	1,402	50	49	215	3,106
Total .....	793	22	8,499	3,042	19	1,634	3,090	280	16,476	772	590	2,518	36,101
2015 January .....	41	1	749	242	(s)	188	313	29	1,355	76	57	202	3,065
February .....	40	1	736	229	1	169	281	21	1,251	37	34	200	2,832
March .....	46	1	729	272	2	146	266	29	1,421	71	51	213	3,101
April .....	60	2	697	260	(s)	111	238	27	1,395	69	32	212	2,992
May .....	70	2	675	267	4	106	245	30	1,453	72	46	241	3,105
June .....	94	2	674	281	(s)	121	247	24	1,430	74	38	227	3,091
July .....	99	3	697	290	(s)	123	262	29	1,486	75	63	239	3,244
August .....	105	2	700	281	(s)	124	252	23	1,484	78	58	229	3,212
September .....	93	2	703	261	(s)	112	230	23	1,410	52	50	202	3,026
October .....	82	2	718	284	1	129	263	27	1,450	62	46	190	3,125
November .....	57	1	647	259	(s)	135	270	19	1,383	56	57	207	2,956
December .....	44	1	685	277	4	165	302	24	1,435	53	62	233	3,121
Total .....	832	21	8,411	3,204	13	1,627	3,168	305	16,952	776	595	2,595	36,870
2016 January .....	41	1	682	255	(s)	188	321	25	1,360	66	66	218	3,035
February .....	42	2	662	251	(s)	166	280	25	1,351	64	36	230	2,943
March .....	54	2	705	270	2	138	266	27	1,474	68	78	203	3,148
April .....	61	2	661	265	1	106	238	23	1,399	53	91	211	3,005
May .....	81	2	670	275	1	106	242	25	1,480	51	65	199	3,090
June .....	95	2	663	292	1	94	225	27	1,467	45	75	206	3,097
July .....	98	2	640	301	2	110	248	21	1,505	59	89	209	3,174
August .....	109	2	695	300	(s)	110	243	23	1,505	81	67	230	3,256
September .....	87	2	676	276	2	126	261	23	1,441	53	55	218	3,092
October .....	85	2	719	282	2	124	263	25	1,427	59	67	227	3,158
November .....	R 62	R 2	R 685	R 277	R (s)	R 128	R 252	R 21	R 1,403	R 89	R 71	R 197	R 3,059
December .....	F 47	F 1	E 677	E 285	F 2	E 171	RF 312	RF 22	E 1,401	RF 58	E 54	RE 270	E 3,129
Total .....	RE 861	E 20	RE 8,135	RE 3,329	RE 13	RE 1,567	RE 3,151	RE 286	RE 17,213	RE 746	RE 812	RE 2,619	RE 37,186
2017 January .....	F 47	F 1	E 671	E 293	F 2	E 192	F 311	F 24	E 1,305	F 73	E 85	E 329	E 3,143

<sup>a</sup> Liquefied petroleum gases.

<sup>b</sup> Beginning in 2009, includes renewable diesel fuel (including biodiesel) blended into distillate fuel oil.

<sup>c</sup> 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.")

<sup>d</sup> Includes propylene.

<sup>e</sup> Finished motor gasoline. Through 1963, also includes special naphthas. Beginning in 1993, also includes fuel ethanol blended into motor gasoline.

<sup>f</sup> Pentanes plus, 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.

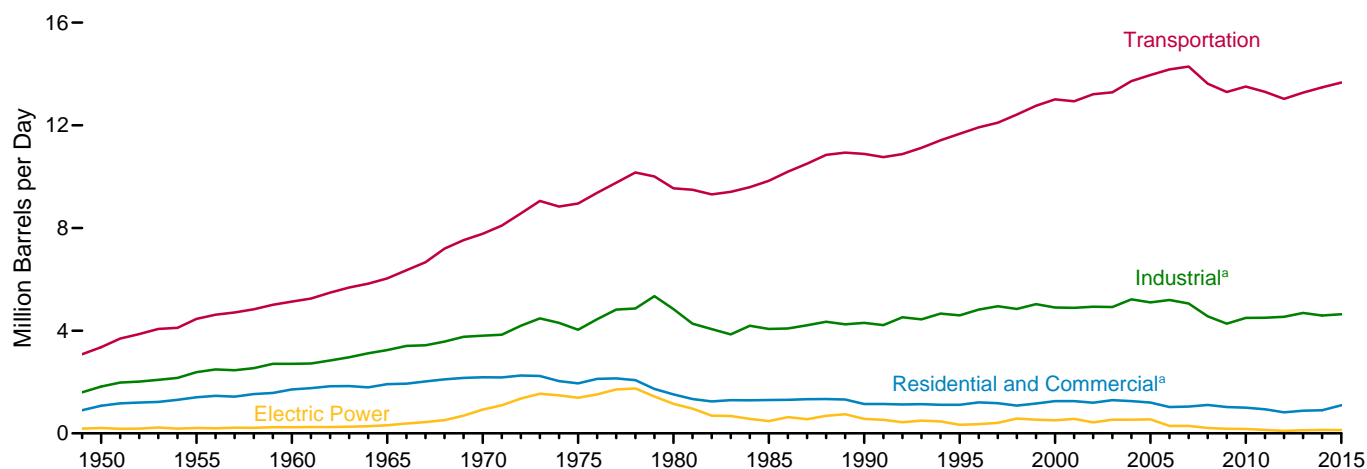
Notes: • Petroleum products supplied is an approximation of petroleum consumption and is synonymous with the term "petroleum consumption" in Tables 3.7a–3.8c. See Note 1, "Petroleum Products Supplied and Petroleum Consumption," at end of section. • Totals may not equal sum of components due to independent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

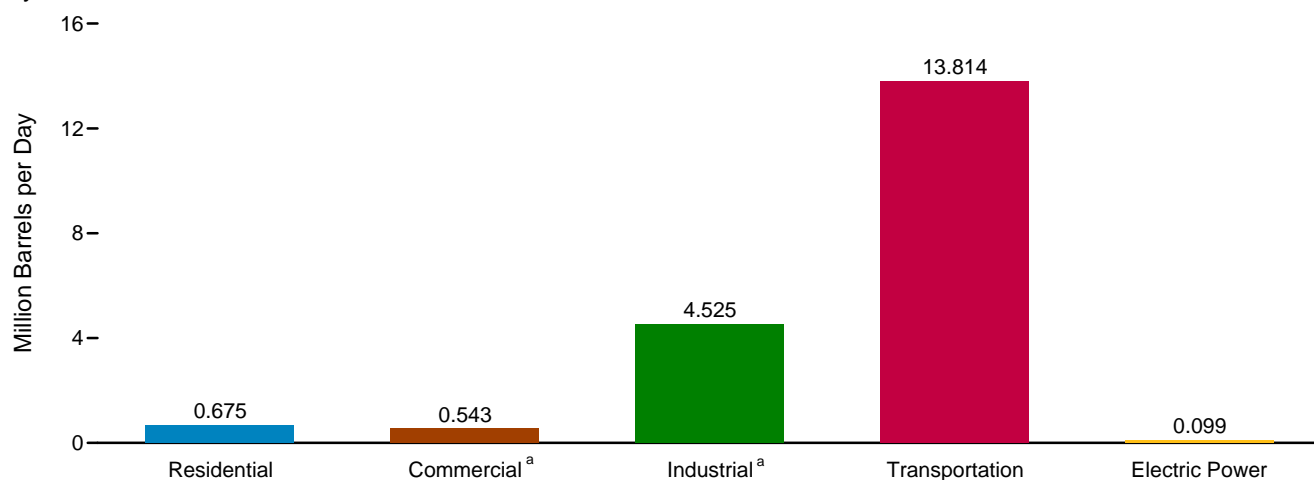
Sources: See end of section.

**Figure 3.7 Petroleum Consumption by Sector**

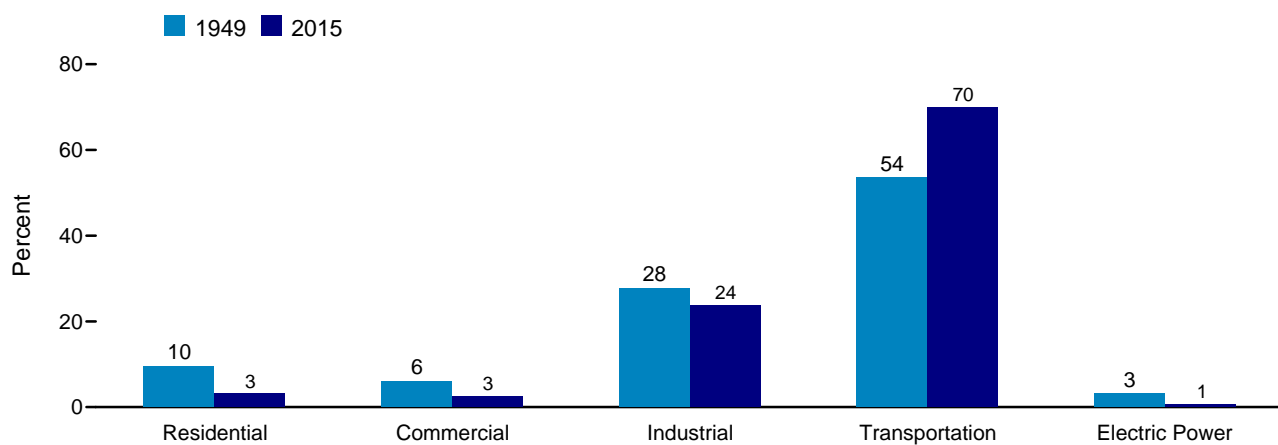
By Sector, 1949–2015



By Sector, November 2016



Sector Shares 1949 and 2015



<sup>a</sup> 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 <sup>a</sup>						
	Distillate Fuel Oil	Kero-sene	Liquefied Petroleum Gases	Total	Distillate Fuel Oil	Kero-sene	Liquefied Petroleum Gases	Motor Gasoline <sup>b,c</sup>	Petro-leum Coke	Residual Fuel Oil	Total
1950 Average .....	390	168	104	662	123	23	28	52	NA	185	411
1955 Average .....	562	179	144	885	177	24	38	69	NA	209	519
1960 Average .....	736	171	217	1,123	232	23	58	35	NA	243	590
1965 Average .....	805	161	275	1,242	251	26	74	40	NA	281	672
1970 Average .....	883	144	392	1,419	276	30	102	45	NA	311	764
1975 Average .....	850	78	365	1,293	276	24	92	46	NA	214	653
1980 Average .....	617	51	222	890	243	20	63	56	NA	245	626
1985 Average .....	514	77	224	815	297	16	68	50	NA	99	530
1990 Average .....	460	31	252	742	252	6	73	58	0	100	489
1995 Average .....	426	36	282	743	225	11	78	10	(s)	62	385
2000 Average .....	424	46	395	865	230	14	107	23	(s)	40	415
2001 Average .....	427	46	375	849	239	15	102	20	(s)	30	406
2002 Average .....	404	29	384	817	209	8	101	24	(s)	35	376
2003 Average .....	438	34	389	861	233	9	112	32	(s)	48	434
2004 Average .....	433	41	364	839	221	10	108	23	(s)	53	416
2005 Average .....	402	40	366	809	210	10	94	24	(s)	50	389
2006 Average .....	335	32	318	685	189	7	88	26	(s)	33	343
2007 Average .....	342	21	345	708	181	4	87	32	(s)	33	337
2008 Average .....	354	10	394	758	181	2	113	24	(s)	31	351
2009 Average .....	276	13	391	680	187	2	99	28	(s)	31	348
2010 Average .....	266	14	379	659	185	2	100	28	(s)	27	343
2011 Average .....	248	9	347	604	186	2	100	24	(s)	23	335
2012 Average .....	228	4	286	518	168	1	98	21	(s)	14	301
2013 Average .....	233	4	336	573	163	(s)	110	22	(s)	11	306
2014 January .....	330	14	404	748	221	2	133	27	(s)	5	387
February .....	406	4	358	768	272	1	118	28	(s)	6	424
March .....	328	2	331	661	219	(s)	109	28	(s)	4	361
April .....	164	1	303	469	110	(s)	99	29	(s)	2	241
May .....	215	1	268	484	144	(s)	88	29	(s)	3	264
June .....	191	1	289	481	128	(s)	95	30	0	3	255
July .....	155	9	295	459	104	1	97	30	(s)	2	234
August .....	162	1	323	486	108	(s)	106	30	(s)	2	247
September .....	234	14	322	569	156	2	106	29	(s)	3	296
October .....	244	12	332	588	164	2	109	30	(s)	3	308
November .....	297	5	368	670	199	1	121	29	(s)	4	354
December .....	319	16	367	703	213	2	120	29	(s)	4	370
Average .....	253	7	330	589	169	1	108	29	(s)	3	311
2015 January .....	424	2	388	814	277	(s)	127	<sup>c</sup> 195	(s)	3	603
February .....	405	7	389	801	265	1	127	200	(s)	3	596
March .....	290	9	333	632	190	1	109	205	(s)	2	507
April .....	181	1	311	493	118	(s)	102	208	(s)	1	429
May .....	175	16	308	499	114	2	101	209	(s)	1	428
June .....	106	(s)	320	427	69	(s)	105	213	0	1	388
July .....	118	1	328	447	77	(s)	108	214	0	1	400
August .....	147	1	315	463	96	(s)	103	214	(s)	1	415
September .....	144	(s)	302	447	94	(s)	99	210	(s)	1	405
October .....	353	2	332	687	230	(s)	109	209	(s)	2	551
November .....	391	1	352	744	256	(s)	115	206	(s)	3	580
December .....	412	19	379	809	269	3	124	207	(s)	3	605
Average .....	262	5	338	604	171	1	111	208	(s)	2	492
2016 January .....	477	NM	399	874	311	(s)	131	196	(s)	3	642
February .....	498	1	375	874	325	(s)	123	208	(s)	3	660
March .....	329	9	337	675	215	1	110	213	(s)	2	542
April .....	299	4	311	614	195	1	102	208	(s)	2	508
May .....	262	3	307	573	171	(s)	101	213	0	2	488
June .....	186	6	295	487	121	1	97	219	(s)	1	439
July .....	191	7	317	514	124	1	104	217	(s)	1	448
August .....	149	1	310	459	97	(s)	102	217	0	1	417
September .....	233	8	336	578	152	1	110	215	0	2	480
October .....	319	11	332	662	208	1	109	206	0	2	527
November .....	342	2	331	675	223	(s)	108	209	(s)	2	543
11-Month Average .....	298	4	332	634	194	1	109	211	(s)	2	517
2015 11-Month Average .....	248	4	334	585	162	(s)	110	208	(s)	2	481
2014 11-Month Average .....	247	6	326	579	165	1	107	29	(s)	3	306

<sup>a</sup> Commercial sector fuel use, including that at commercial combined-heat-and-power (CHP) and commercial electricity-only plants.

<sup>b</sup> Finished motor gasoline. Through 1963, also includes special naphthas. Beginning in 1993, also includes fuel ethanol blended into motor gasoline.

<sup>c</sup> 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.

NA=Not available. NM=Not meaningful. (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 <sup>a</sup>									
	Asphalt and Road Oil	Distillate Fuel Oil	Kerosene	Liquefied Petroleum Gases	Lubricants	Motor Gasoline <sup>b,c</sup>	Petroleum Coke	Residual Fuel Oil	Other <sup>d</sup>	Total
<b>1950 Average</b> .....	180	328	132	100	43	131	41	617	250	1,822
<b>1955 Average</b> .....	254	466	116	212	47	173	67	686	366	2,387
<b>1960 Average</b> .....	302	476	78	333	48	198	149	689	435	2,708
<b>1965 Average</b> .....	368	541	80	470	62	179	202	689	657	3,247
<b>1970 Average</b> .....	447	577	89	699	70	150	203	708	866	3,808
<b>1975 Average</b> .....	419	630	58	844	68	116	246	658	1,001	4,038
<b>1980 Average</b> .....	396	621	87	1,172	82	82	234	586	1,581	4,842
<b>1985 Average</b> .....	425	526	21	1,285	75	114	261	326	1,032	4,065
<b>1990 Average</b> .....	483	541	6	1,215	84	97	325	179	1,373	4,304
<b>1995 Average</b> .....	486	532	7	1,527	80	105	328	147	1,381	4,594
<b>2000 Average</b> .....	525	563	8	1,720	86	79	361	105	1,458	4,903
<b>2001 Average</b> .....	519	611	11	1,557	79	155	390	89	1,481	4,892
<b>2002 Average</b> .....	512	566	7	1,668	78	163	383	83	1,474	4,934
<b>2003 Average</b> .....	503	551	12	1,560	72	171	375	96	1,579	4,918
<b>2004 Average</b> .....	537	570	14	1,646	73	195	423	108	1,657	5,222
<b>2005 Average</b> .....	546	594	19	1,549	72	187	404	123	1,605	5,100
<b>2006 Average</b> .....	521	594	14	1,627	71	198	425	104	1,640	5,193
<b>2007 Average</b> .....	494	595	6	1,637	73	161	412	84	1,593	5,056
<b>2008 Average</b> .....	417	637	2	1,419	67	131	394	84	1,408	4,559
<b>2009 Average</b> .....	360	509	2	1,541	61	128	363	57	1,251	4,272
<b>2010 Average</b> .....	362	547	4	1,673	68	140	310	52	1,343	4,500
<b>2011 Average</b> .....	355	586	2	1,733	64	138	295	59	1,272	4,503
<b>2012 Average</b> .....	340	602	1	1,841	59	136	319	30	1,215	4,543
<b>2013 Average</b> .....	323	601	1	1,962	62	142	295	21	1,282	4,690
<b>2014 January</b> .....	195	913	3	2,357	54	105	372	19	1,098	5,117
<b>February</b> .....	208	712	1	2,090	53	110	240	17	1,256	4,688
<b>March</b> .....	215	669	(s)	1,932	75	111	114	12	1,130	4,258
<b>April</b> .....	278	714	(s)	1,765	68	114	278	19	1,224	4,461
<b>May</b> .....	346	586	(s)	1,560	67	115	308	16	1,183	4,182
<b>June</b> .....	402	517	(s)	1,684	60	115	287	18	1,171	4,255
<b>July</b> .....	466	513	2	1,721	71	118	356	17	1,166	4,430
<b>August</b> .....	458	498	(s)	1,881	66	119	288	14	1,184	4,508
<b>September</b> .....	447	555	3	1,879	74	112	354	19	1,358	4,801
<b>October</b> .....	392	768	2	1,935	65	117	328	17	1,234	4,858
<b>November</b> .....	264	575	1	2,147	71	114	354	24	1,225	4,775
<b>December</b> .....	247	757	3	2,142	57	114	200	18	1,223	4,761
<b>Average</b> .....	327	648	1	1,924	65	114	290	18	1,204	4,591
<b>2015 January</b> .....	200	714	(s)	2,260	79	<sup>c</sup> 132	342	17	1,142	4,886
<b>February</b> .....	215	826	1	2,266	63	135	146	8	1,255	4,915
<b>March</b> .....	222	658	1	1,943	78	138	334	16	1,215	4,606
<b>April</b> .....	303	650	(s)	1,815	76	140	330	11	1,243	4,569
<b>May</b> .....	343	466	3	1,797	82	141	330	14	1,351	4,526
<b>June</b> .....	472	543	(s)	1,868	68	144	357	12	1,324	4,787
<b>July</b> .....	480	515	(s)	1,913	80	144	335	18	1,343	4,827
<b>August</b> .....	510	486	(s)	1,840	62	144	350	17	1,309	4,718
<b>September</b> .....	469	662	(s)	1,763	65	142	222	15	1,179	4,517
<b>October</b> .....	400	444	(s)	1,936	75	141	281	14	1,090	4,381
<b>November</b> .....	287	328	(s)	2,054	54	139	264	17	1,203	4,344
<b>December</b> .....	212	396	3	2,209	67	139	239	18	1,317	4,602
<b>Average</b> .....	343	555	1	1,971	71	140	295	15	1,248	4,639
<b>2016 January</b> .....	200	455	(s)	2,327	69	132	296	20	1,195	4,694
<b>February</b> .....	219	499	(s)	2,187	72	140	306	11	1,333	4,769
<b>March</b> .....	262	548	2	1,963	74	143	304	23	1,108	4,427
<b>April</b> .....	304	422	1	1,811	66	140	229	28	1,189	4,190
<b>May</b> .....	392	367	1	1,791	69	144	214	19	1,083	4,080
<b>June</b> .....	479	433	1	1,722	76	147	185	23	1,156	4,221
<b>July</b> .....	475	261	1	1,846	58	146	251	25	1,145	4,209
<b>August</b> .....	527	470	(s)	1,805	62	146	363	19	1,255	4,648
<b>September</b> .....	438	488	1	1,961	65	145	227	16	1,236	4,577
<b>October</b> .....	415	485	2	1,939	67	139	271	20	1,259	4,596
<b>November</b> .....	312	505	(s)	1,929	58	141	440	21	1,118	4,525
<b>11-Month Average</b> ...	367	448	1	1,934	67	142	281	20	1,188	4,448
<b>2015 11-Month Average</b> ...	356	570	1	1,949	71	140	301	14	1,241	4,642
<b>2014 11-Month Average</b> ...	335	638	1	1,904	66	114	298	18	1,202	4,575

<sup>a</sup> Industrial sector fuel use, including that at industrial combined-heat-and-power (CHP) and industrial electricity-only plants.

<sup>b</sup> Finished motor gasoline. Through 1963, also includes special naphthas. Beginning in 1993, also includes fuel ethanol blended into motor gasoline.

<sup>c</sup> 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.

<sup>d</sup> Pentanes plus, 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.

(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.

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Sources: See end of section.

**Table 3.7c Petroleum Consumption: Transportation and Electric Power Sectors**  
(Thousand Barrels per Day)

	Transportation Sector								Electric Power Sector <sup>a</sup>			
	Aviation Gasoline	Distillate Fuel Oil <sup>b</sup>	Jet Fuel <sup>c</sup>	Liquefied Petroleum Gases	Lubricants	Motor Gasoline <sup>d,e</sup>	Residual Fuel Oil	Total	Distillate Fuel Oil <sup>f</sup>	Petroleum Coke	Residual Fuel Oil <sup>g</sup>	Total
1950 Average .....	108	226	( <sup>c</sup> )	2	64	2,433	524	3,356	15	NA	192	207
1955 Average .....	192	372	154	9	70	3,221	440	4,458	15	NA	191	206
1960 Average .....	161	418	371	13	68	3,736	367	5,135	10	NA	231	241
1965 Average .....	120	514	602	23	67	4,374	336	6,036	14	NA	302	316
1970 Average .....	55	738	967	32	66	5,589	332	7,778	66	9	853	928
1975 Average .....	39	998	992	31	70	6,512	310	8,951	107	1	1,280	1,388
1980 Average .....	35	1,311	1,062	13	77	6,441	608	9,546	79	2	1,069	1,151
1985 Average .....	27	1,491	1,218	21	71	6,667	342	9,838	40	3	435	478
1990 Average .....	24	1,722	1,522	16	80	7,080	443	10,888	45	14	507	566
1995 Average .....	21	1,973	1,514	13	76	7,674	397	11,668	51	37	247	334
2000 Average .....	20	2,422	1,725	8	81	8,370	386	13,012	82	45	378	505
2001 Average .....	19	2,489	1,655	10	74	8,435	255	12,938	80	47	437	564
2002 Average .....	18	2,536	1,614	10	73	8,662	295	13,208	60	80	287	427
2003 Average .....	16	2,629	1,578	13	68	8,733	249	13,286	76	79	379	534
2004 Average .....	17	2,783	1,630	14	69	8,887	321	13,720	52	101	382	535
2005 Average .....	19	2,858	1,679	20	68	8,948	365	13,957	54	111	382	547
2006 Average .....	18	3,017	1,633	20	67	9,029	395	14,178	35	97	157	289
2007 Average .....	17	3,037	1,622	16	69	9,093	433	14,287	42	78	173	293
2008 Average .....	15	2,738	1,539	29	64	8,834	402	13,621	34	70	104	209
2009 Average .....	14	2,626	1,393	20	57	8,841	344	13,297	33	63	79	175
2010 Average .....	15	2,764	1,432	21	64	8,824	389	13,508	38	65	67	170
2011 Average .....	15	2,849	1,425	24	61	8,591	338	13,303	30	66	41	137
2012 Average .....	14	2,719	1,398	26	56	8,525	291	13,029	25	41	33	99
2013 Average .....	12	2,804	1,434	32	59	8,679	253	13,274	26	59	34	119
<b>2014 January .....</b>	<b>10</b>	<b>2,716</b>	<b>1,364</b>	<b>41</b>	<b>51</b>	<b>8,141</b>	<b>162</b>	<b>12,486</b>	<b>159</b>	<b>66</b>	<b>138</b>	<b>364</b>
February .....	7	2,723	1,380	37	50	8,508	160	12,865	48	60	55	164
March .....	12	2,803	1,433	34	70	8,557	107	13,016	47	64	57	168
April .....	12	2,979	1,455	31	64	8,812	229	13,582	22	46	28	96
May .....	13	2,980	1,400	27	63	8,878	182	13,544	27	60	24	110
June .....	11	3,042	1,544	29	57	8,895	207	13,785	23	64	27	114
July .....	17	3,074	1,559	30	67	9,101	203	14,051	21	58	31	110
August .....	14	3,084	1,522	33	62	9,162	169	14,046	23	58	33	113
September .....	12	2,965	1,482	33	70	8,680	228	13,470	23	59	28	110
October .....	11	3,069	1,479	34	61	9,001	200	13,856	21	34	26	81
November .....	11	2,819	1,476	38	67	8,778	285	13,473	27	45	26	98
December .....	12	2,862	1,537	38	54	8,798	206	13,507	27	65	24	116
<b>Average .....</b>	<b>12</b>	<b>2,928</b>	<b>1,470</b>	<b>34</b>	<b>61</b>	<b>8,778</b>	<b>195</b>	<b>13,477</b>	<b>39</b>	<b>57</b>	<b>41</b>	<b>137</b>
<b>2015 January .....</b>	<b>8</b>	<b>2,729</b>	<b>1,375</b>	<b>40</b>	<b>74</b>	<b>8,312</b>	<b>218</b>	<b>12,756</b>	<b>41</b>	<b>61</b>	<b>57</b>	<b>159</b>
February .....	8	2,931	1,445	40	60	8,494	35	13,013	132	71	149	352
March .....	9	2,913	1,548	34	74	8,714	217	13,509	27	43	28	97
April .....	14	3,058	1,527	32	72	8,842	133	13,677	21	47	27	95
May .....	13	2,996	1,519	31	77	8,912	194	13,743	26	53	25	105
June .....	12	3,153	1,654	33	64	9,061	158	14,135	26	50	29	105
July .....	18	3,168	1,650	33	76	9,112	269	14,326	23	65	38	126
August .....	11	3,165	1,601	32	59	9,102	247	14,217	22	61	33	116
September .....	11	3,142	1,534	31	62	8,937	221	13,938	21	61	30	112
October .....	14	2,967	1,614	34	70	8,895	193	13,787	20	47	27	94
November .....	9	2,740	1,524	36	51	8,767	250	13,376	26	42	30	99
December .....	9	2,731	1,578	39	63	8,801	270	13,491	24	43	26	93
<b>Average .....</b>	<b>11</b>	<b>2,974</b>	<b>1,548</b>	<b>35</b>	<b>67</b>	<b>8,831</b>	<b>202</b>	<b>13,668</b>	<b>33</b>	<b>54</b>	<b>41</b>	<b>128</b>
<b>2016 January .....</b>	<b>7</b>	<b>2,536</b>	<b>1,449</b>	<b>41</b>	<b>65</b>	<b>8,342</b>	<b>282</b>	<b>12,722</b>	<b>38</b>	<b>53</b>	<b>34</b>	<b>124</b>
February .....	11	2,608	1,525	38	68	8,858	146	13,255	28	55	39	123
March .....	10	2,828	1,536	34	70	9,043	352	13,874	21	58	21	100
April .....	14	2,887	1,560	32	62	8,864	428	13,847	20	63	22	105
May .....	11	2,919	1,562	31	65	9,079	289	13,956	25	57	24	106
June .....	12	3,068	1,714	30	72	9,298	346	14,540	23	61	28	112
July .....	12	2,977	1,715	32	55	9,234	385	14,410	26	63	43	131
August .....	14	3,149	1,710	32	59	9,232	281	14,476	25	66	41	132
September .....	11	3,011	1,624	34	62	9,133	244	14,118	20	62	29	111
October .....	10	2,993	1,605	34	64	8,751	293	13,748	19	39	30	88
November .....	12	2,866	1,627	34	55	8,894	328	13,614	25	49	24	99
<b>11-Month Average .....</b>	<b>11</b>	<b>2,896</b>	<b>1,602</b>	<b>34</b>	<b>63</b>	<b>8,975</b>	<b>307</b>	<b>13,889</b>	<b>25</b>	<b>57</b>	<b>30</b>	<b>112</b>
<b>2015 11-Month Average .....</b>	<b>12</b>	<b>2,997</b>	<b>1,545</b>	<b>34</b>	<b>67</b>	<b>8,834</b>	<b>196</b>	<b>13,685</b>	<b>34</b>	<b>54</b>	<b>42</b>	<b>131</b>
<b>2014 11-Month Average .....</b>	<b>12</b>	<b>2,934</b>	<b>1,464</b>	<b>33</b>	<b>62</b>	<b>8,776</b>	<b>194</b>	<b>13,474</b>	<b>40</b>	<b>56</b>	<b>43</b>	<b>139</b>

<sup>a</sup> Electricity-only and combined-heat-and-power (CHP) plants within the NAICS 22 category whose primary business is to sell electricity, or electricity and heat, to the public. Through 1988, data are for electric utilities only; beginning in 1989, data are for electric utilities and independent power producers.

<sup>b</sup> Beginning in 2009, includes renewable diesel fuel (including biodiesel) blended into distillate fuel oil.

<sup>c</sup> 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.)

<sup>d</sup> Finished motor gasoline. Through 1963, also includes special naphthas. Beginning in 1993, also includes fuel ethanol blended into motor gasoline.

<sup>e</sup> 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.

<sup>f</sup> 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.

<sup>g</sup> 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.

NA=Not available.

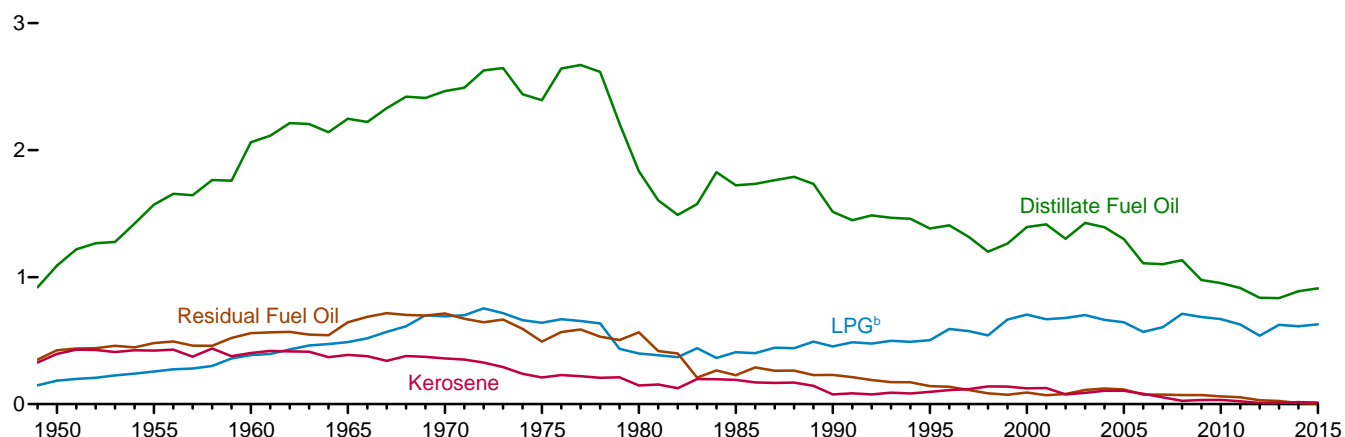
Notes: • Transportation sector data are estimates. • For total petroleum consumption by all sectors, see petroleum products supplied data in Table 3.5. Petroleum products supplied is an approximation of petroleum consumption and is synonymous with the term "petroleum consumption" in Tables 3.7a–3.8c. 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.

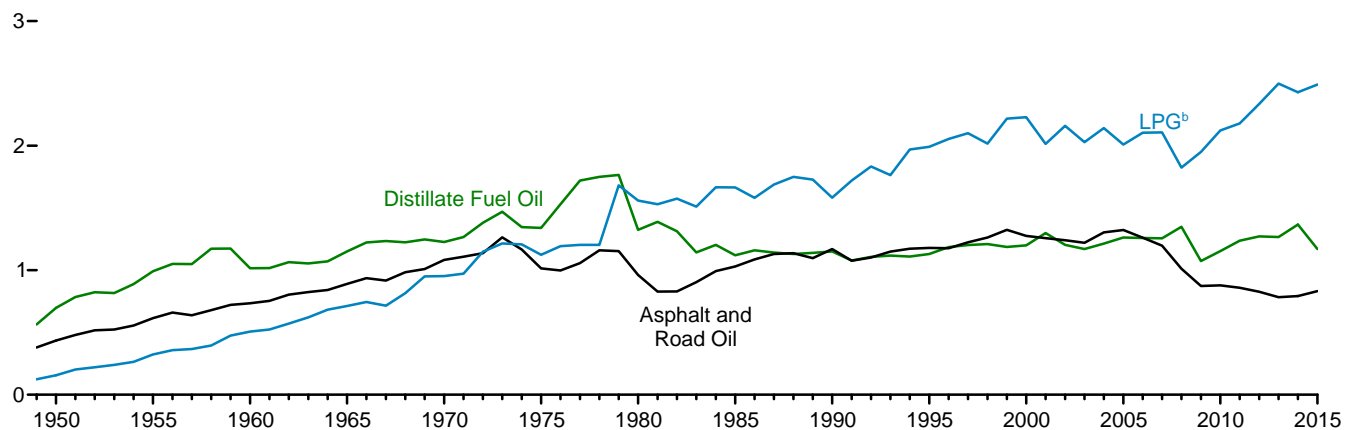
Sources: See end of section.

**Figure 3.8a Heat Content of Petroleum Consumption by End-Use Sector, 1949–2015**  
(Quadrillion Btu)

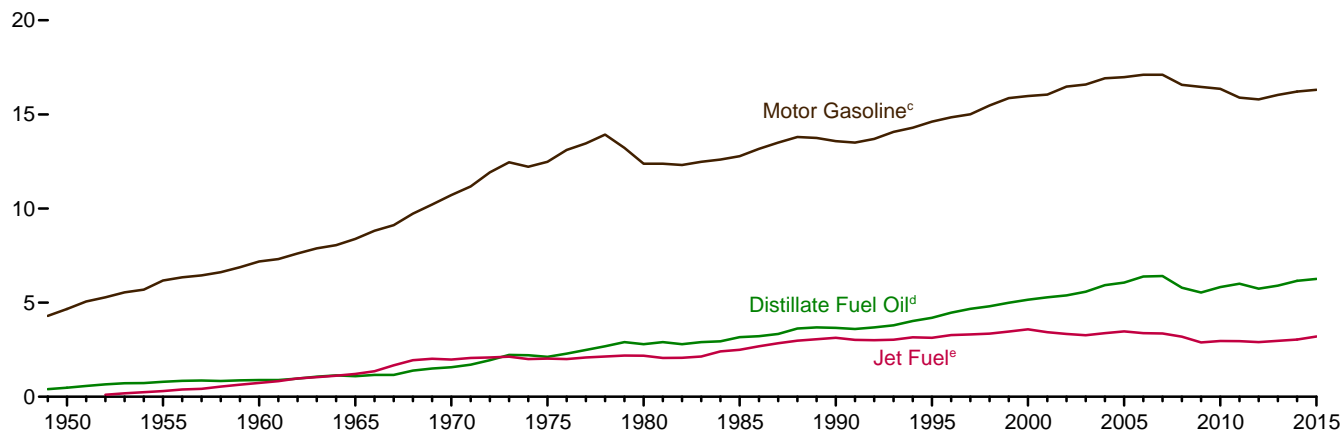
Residential and Commercial<sup>a</sup> Sectors, Selected Products



Industrial<sup>a</sup> Sector, Selected Products



Transportation Sector, Selected Products



<sup>a</sup> Includes combined-heat-and-power plants and a small number of electricity-only plants.

<sup>b</sup> Liquefied petroleum gases.

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

<sup>d</sup> Beginning in 2009, includes renewable diesel fuel (including biodiesel) blended into distillate fuel oil.

<sup>e</sup> Beginning in 2005, includes kerosene-type jet fuel only.

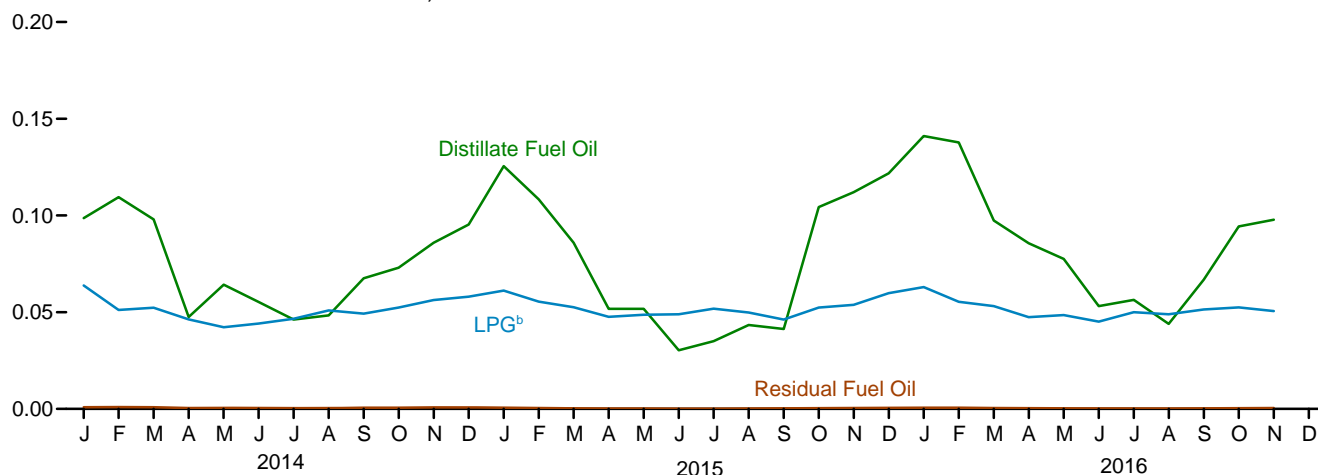
Note: Petroleum products supplied is an approximation of petroleum consumption and is synonymous with the term "petroleum consumption" in Tables 3.7a–3.8c. Other measurements of consumption by fuel type or sector may differ. For example, jet fuel product supplied may not equal jet fuel consumed by U.S.-flagged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

Web Page: <http://www.eia.gov/totalenergy/data/monthly/#petroleum>.

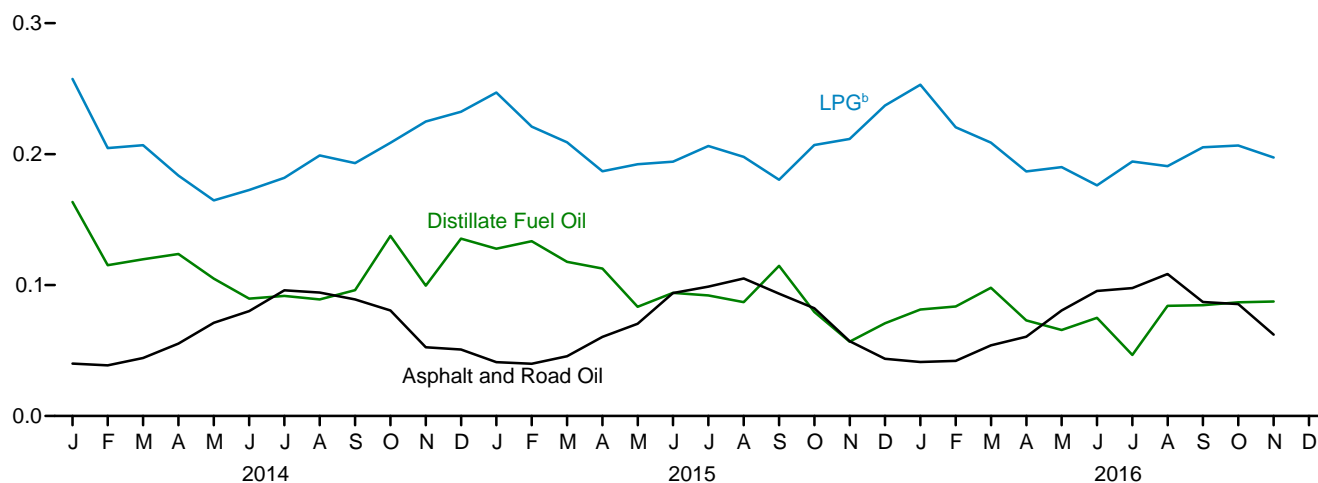
Sources: Tables 3.8a–3.8c.

**Figure 3.8b Heat Content of Petroleum Consumption by End-Use Sector, Monthly**  
(Quadrillion Btu)

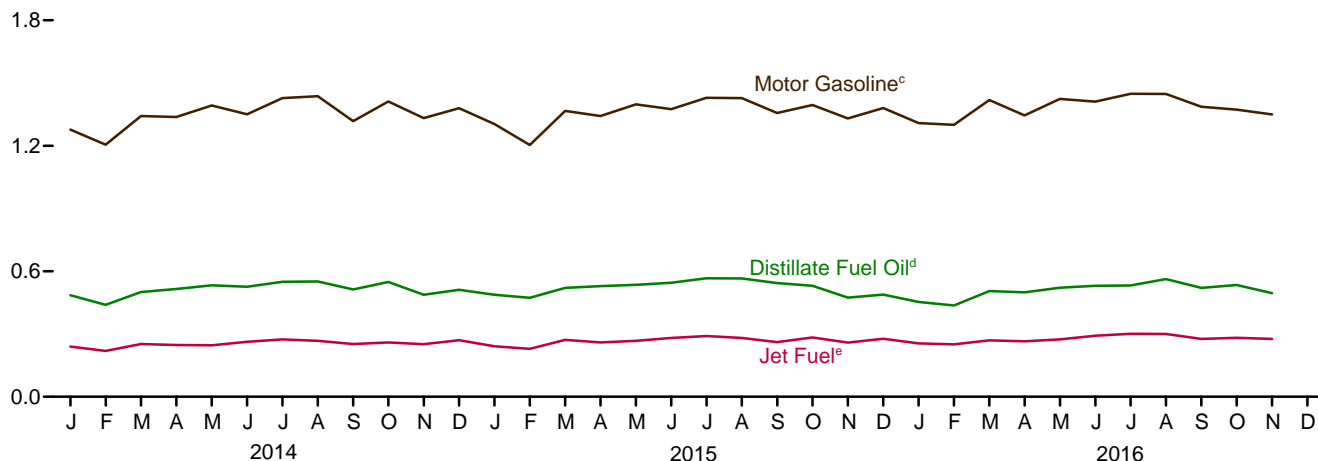
Residential and Commercial<sup>a</sup> Sectors, Selected Products



Industrial<sup>a</sup> Sector, Selected Products



Transportation Sector, Selected Products



<sup>a</sup> Includes combined-heat-and-power plants and a small number of electricity-only plants.

<sup>b</sup> Liquefied petroleum gases.

<sup>c</sup> Includes fuel ethanol blended into motor gasoline.

<sup>d</sup> Includes renewable diesel fuel (including biodiesel) blended into distillate fuel oil.

<sup>e</sup> 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 <sup>a</sup>						
	Distillate Fuel Oil	Kerosene	Liquefied Petroleum Gases	Total	Distillate Fuel Oil	Kerosene	Liquefied Petroleum Gases	Motor Gasoline <sup>b,c</sup>	Petroleum Coke	Residual Fuel Oil	Total
1950 Total .....	829	347	146	1,322	262	47	39	100	NA	424	872
1955 Total .....	1,194	371	202	1,767	377	51	54	133	NA	480	1,095
1960 Total .....	1,568	354	305	2,227	494	48	81	67	NA	559	1,248
1965 Total .....	1,713	334	385	2,432	534	54	103	77	NA	645	1,413
1970 Total .....	1,878	298	549	2,725	587	61	143	86	NA	714	1,592
1975 Total .....	1,807	161	512	2,479	587	49	129	89	NA	492	1,346
1980 Total .....	1,316	107	311	1,734	518	41	88	107	NA	565	1,318
1985 Total .....	1,092	159	314	1,565	631	33	95	96	NA	228	1,083
1990 Total .....	978	64	352	1,394	536	12	102	111	0	230	991
1995 Total .....	904	74	395	1,373	478	22	109	18	(s)	141	769
2000 Total .....	904	95	555	1,553	490	30	150	45	(s)	92	807
2001 Total .....	907	95	526	1,528	508	31	143	37	(s)	70	789
2002 Total .....	859	60	537	1,456	444	16	141	45	(s)	80	726
2003 Total .....	931	70	544	1,546	496	19	157	60	(s)	111	842
2004 Total .....	923	85	512	1,519	470	20	152	45	(s)	122	810
2005 Total .....	853	84	513	1,450	447	22	131	46	(s)	116	762
2006 Total .....	709	66	446	1,221	400	15	123	48	(s)	75	662
2007 Total .....	721	44	484	1,249	381	9	121	60	(s)	75	648
2008 Total .....	750	21	553	1,324	384	4	158	45	(s)	71	663
2009 Total .....	582	28	547	1,157	395	4	139	52	(s)	71	662
2010 Total .....	562	29	530	1,121	391	5	140	52	(s)	62	650
2011 Total .....	523	19	486	1,027	391	3	141	44	(s)	54	633
2012 Total .....	482	8	402	892	355	1	138	39	(s)	31	564
2013 Total .....	491	8	470	970	344	1	154	40	(s)	24	563
2014 January .....	59	2	48	110	40	(s)	16	4	(s)	1	61
February .....	66	1	39	105	44	(s)	13	4	(s)	1	62
March .....	59	(s)	39	98	39	(s)	13	4	(s)	1	58
April .....	28	(s)	35	64	19	(s)	11	4	(s)	(s)	35
May .....	38	(s)	32	71	26	(s)	10	5	(s)	1	41
June .....	33	(s)	33	67	22	(s)	11	4	0	(s)	38
July .....	28	2	35	64	19	(s)	12	5	(s)	(s)	35
August .....	29	(s)	38	68	19	(s)	13	5	(s)	(s)	37
September .....	40	2	37	80	27	(s)	12	4	(s)	1	45
October .....	44	2	39	85	29	(s)	13	5	(s)	1	48
November .....	51	1	42	95	34	(s)	14	4	(s)	1	54
December .....	57	3	44	104	38	(s)	14	5	(s)	1	58
Total .....	533	14	462	1,009	357	2	151	54	1	8	572
2015 January .....	76	(s)	46	122	50	(s)	15	<sup>c</sup> 31	(s)	1	96
February .....	66	1	42	108	43	(s)	14	28	(s)	(s)	85
March .....	52	2	40	93	34	(s)	13	32	(s)	(s)	80
April .....	31	(s)	36	67	20	(s)	12	32	(s)	(s)	64
May .....	31	3	37	71	20	(s)	12	33	(s)	(s)	66
June .....	18	(s)	37	55	12	(s)	12	32	0	(s)	57
July .....	21	(s)	39	60	14	(s)	13	34	0	(s)	60
August .....	26	(s)	38	64	17	(s)	12	34	(s)	(s)	63
September .....	25	(s)	35	60	16	(s)	11	32	(s)	(s)	60
October .....	63	(s)	39	103	41	(s)	13	33	(s)	(s)	88
November .....	68	(s)	41	108	44	(s)	13	31	(s)	(s)	89
December .....	74	3	45	122	48	(s)	15	32	(s)	1	96
Total .....	551	10	473	1,035	360	1	155	383	1	4	904
2016 January .....	85	(s)	47	132	56	(s)	16	31	(s)	1	103
February .....	83	(s)	42	125	54	(s)	14	31	(s)	1	99
March .....	59	2	40	101	38	(s)	13	33	(s)	(s)	86
April .....	52	1	36	88	34	(s)	12	32	(s)	(s)	78
May .....	47	1	37	84	31	(s)	12	33	0	(s)	77
June .....	32	1	34	67	21	(s)	11	33	(s)	(s)	66
July .....	34	1	38	73	22	(s)	12	34	(s)	(s)	69
August .....	27	(s)	37	64	17	(s)	12	34	0	(s)	64
September .....	40	1	39	80	26	(s)	13	33	0	(s)	72
October .....	57	2	40	99	37	(s)	13	32	0	(s)	83
November .....	59	(s)	38	98	39	(s)	12	32	(s)	(s)	83
11-Month Total .....	576	9	426	1,011	376	1	140	358	(s)	4	879
2015 11-Month Total .....	478	7	428	913	312	1	140	351	(s)	3	808
2014 11-Month Total .....	476	11	418	905	318	2	137	49	(s)	7	514

<sup>a</sup> Commercial sector fuel use, including that at commercial combined-heat-and-power (CHP) and commercial electricity-only plants.

<sup>b</sup> Finished motor gasoline. Through 1963, also includes special naphthas. Beginning in 1993, also includes fuel ethanol blended into motor gasoline.

<sup>c</sup> 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.

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 <sup>a</sup>									Total
	Asphalt and Road Oil	Distillate Fuel Oil	Kerosene	Liquefied Petroleum Gases	Lubricants	Motor Gasoline <sup>b,c</sup>	Petroleum Coke	Residual Fuel Oil	Other <sup>d</sup>	
1950 Total .....	435	698	274	156	94	251	90	1,416	546	3,960
1955 Total .....	615	991	241	323	103	332	147	1,573	798	5,123
1960 Total .....	734	1,016	161	507	107	381	328	1,584	947	5,766
1965 Total .....	890	1,150	165	712	137	342	444	1,582	1,390	6,813
1970 Total .....	1,082	1,226	185	953	155	288	446	1,624	1,817	7,776
1975 Total .....	1,014	1,339	119	1,123	149	223	540	1,509	2,109	8,127
1980 Total .....	962	1,324	181	1,559	182	158	516	1,349	3,278	9,509
1985 Total .....	1,029	1,119	44	1,664	166	218	575	748	2,152	7,714
1990 Total .....	1,170	1,150	12	1,582	186	185	714	411	2,839	8,251
1995 Total .....	1,178	1,130	15	1,990	178	200	721	337	2,837	8,587
2000 Total .....	1,276	1,199	16	2,228	190	150	796	241	2,979	9,075
2001 Total .....	1,257	1,299	23	2,014	174	295	858	203	3,056	9,179
2002 Total .....	1,240	1,203	14	2,160	172	309	842	190	3,040	9,170
2003 Total .....	1,220	1,169	24	2,028	159	324	825	220	3,264	9,233
2004 Total .....	1,304	1,213	28	2,141	161	371	937	249	3,428	9,832
2005 Total .....	1,323	1,262	39	2,009	160	355	894	281	3,318	9,641
2006 Total .....	1,261	1,258	30	2,104	156	374	938	239	3,416	9,777
2007 Total .....	1,197	1,256	13	2,106	161	302	910	193	3,313	9,452
2008 Total .....	1,012	1,348	4	1,823	150	246	870	194	2,941	8,588
2009 Total .....	873	1,073	4	1,950	135	238	805	130	2,611	7,819
2010 Total .....	878	1,153	7	2,121	149	260	694	120	2,800	8,183
2011 Total .....	859	1,236	4	2,179	142	255	663	135	2,676	8,148
2012 Total .....	827	1,271	2	2,335	130	252	717	70	2,558	8,163
2013 Total .....	783	1,266	1	2,498	138	263	663	48	2,677	8,339
2014 January .....	40	163	(s)	257	10	17	71	4	195	758
February .....	39	115	(s)	205	9	16	42	3	201	628
March .....	44	120	(s)	207	14	17	22	2	202	628
April .....	55	124	(s)	184	12	17	51	4	212	660
May .....	71	105	(s)	165	13	18	59	3	212	645
June .....	80	90	(s)	173	11	17	53	3	201	628
July .....	96	92	(s)	182	13	18	68	3	209	682
August .....	94	89	(s)	199	12	19	55	3	211	682
September .....	89	96	(s)	193	13	17	65	4	233	711
October .....	81	137	(s)	209	12	18	62	3	218	742
November .....	53	100	(s)	225	13	17	65	5	211	688
December .....	51	135	1	232	11	18	39	4	215	705
Total .....	793	1,366	3	2,430	144	210	653	41	2,518	8,157
2015 January .....	41	128	(s)	247	15	<sup>c</sup> 21	65	3	202	722
February .....	40	134	(s)	221	11	19	26	1	200	652
March .....	46	118	(s)	209	15	22	63	3	213	689
April .....	60	113	(s)	187	14	21	61	2	212	670
May .....	70	83	(s)	192	15	22	63	3	241	690
June .....	94	94	(s)	194	12	22	66	2	227	712
July .....	99	92	(s)	206	15	23	64	4	239	741
August .....	105	87	(s)	198	12	23	67	3	229	724
September .....	93	115	(s)	180	12	21	41	3	202	668
October .....	82	80	(s)	207	14	22	54	3	190	651
November .....	57	57	(s)	212	10	21	49	3	207	615
December .....	44	71	1	237	13	22	46	4	233	669
Total .....	832	1,170	2	2,491	157	258	663	34	2,595	8,201
2016 January .....	41	81	(s)	253	13	21	56	4	218	688
February .....	42	84	(s)	221	13	21	55	2	230	666
March .....	54	98	(s)	209	14	22	58	4	203	663
April .....	61	73	(s)	187	12	21	43	5	211	613
May .....	81	66	(s)	190	13	23	41	4	199	616
June .....	95	75	(s)	176	14	22	34	4	206	627
July .....	98	47	(s)	194	11	23	48	5	209	635
August .....	109	84	(s)	191	12	23	69	4	230	721
September .....	87	85	(s)	205	12	22	42	3	218	674
October .....	85	87	(s)	207	13	22	52	4	227	696
November .....	62	87	(s)	197	11	21	81	4	197	661
11-Month Total .....	815	866	1	2,230	136	241	579	43	2,349	7,260
2015 11-Month Total .....	788	1,099	1	2,254	144	236	618	30	2,362	7,532
2014 11-Month Total .....	742	1,231	2	2,197	133	192	615	37	2,303	7,453

<sup>a</sup> Industrial sector fuel use, including that at industrial combined-heat-and-power (CHP) and industrial electricity-only plants.

<sup>b</sup> Finished motor gasoline. Through 1963, also includes special naphthas. Beginning in 1993, also includes fuel ethanol blended into motor gasoline.

<sup>c</sup> 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.

<sup>d</sup> Pentanes plus, 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.

(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 <sup>a</sup>			
	Aviation Gasoline	Distillate Fuel Oil <sup>b</sup>	Jet Fuel <sup>c</sup>	Liquefied Petroleum Gases	Lubricants	Motor Gasoline <sup>d,e</sup>	Residual Fuel Oil	Total	Distillate Fuel Oil <sup>f</sup>	Petroleum Coke	Residual Fuel Oil <sup>g</sup>	Total
1950 Total .....	199	480	( <sup>c</sup> )	3	141	4,664	1,201	6,690	32	NA	440	472
1955 Total .....	354	791	301	13	155	6,175	1,009	8,799	32	NA	439	471
1960 Total .....	298	892	739	19	152	7,183	844	10,125	22	NA	530	553
1965 Total .....	222	1,093	1,215	32	149	8,386	770	11,866	29	NA	693	722
1970 Total .....	100	1,569	1,973	44	147	10,716	761	15,310	141	19	1,958	2,117
1975 Total .....	71	2,121	2,029	43	155	12,485	711	17,615	226	2	2,937	3,163
1980 Total .....	64	2,795	2,179	18	172	12,383	1,398	19,009	169	5	2,459	2,634
1985 Total .....	50	3,170	2,497	30	156	12,784	786	19,472	85	7	998	1,090
1990 Total .....	45	3,661	3,129	23	176	13,575	1,016	21,626	97	30	1,163	1,289
1995 Total .....	40	4,191	3,132	18	168	14,616	911	23,075	108	81	566	755
2000 Total .....	36	5,159	3,580	12	179	15,973	888	25,827	175	99	871	1,144
2001 Total .....	35	5,286	3,426	14	164	16,053	586	25,564	170	103	1,003	1,276
2002 Total .....	34	5,387	3,340	14	162	16,474	677	26,089	127	175	659	961
2003 Total .....	30	5,584	3,265	18	150	16,585	571	26,203	161	175	869	1,205
2004 Total .....	31	5,925	3,383	19	152	16,917	740	27,166	111	211	879	1,201
2005 Total .....	35	6,068	3,475	28	151	16,977	837	27,573	114	231	876	1,222
2006 Total .....	33	6,390	3,379	27	147	17,108	906	27,991	73	203	361	637
2007 Total .....	32	6,411	3,358	22	152	17,109	994	28,077	89	163	397	648
2008 Total .....	28	5,792	3,193	40	141	16,574	926	26,695	73	146	240	459
2009 Total .....	27	5,541	2,883	28	127	16,460	791	25,857	70	132	181	382
2010 Total .....	27	5,828	2,963	29	141	16,356	892	26,236	80	137	154	370
2011 Total .....	27	6,003	2,950	34	134	15,892	776	25,817	64	138	93	295
2012 Total .....	25	5,741	2,901	37	123	15,798	671	25,297	52	85	77	214
2013 Total .....	22	5,902	2,969	44	130	16,036	581	25,685	55	123	77	255
2014 January .....	2	485	240	5	10	1,277	32	2,050	29	12	27	67
February .....	1	440	219	4	9	1,205	28	1,906	8	10	10	27
March .....	2	501	252	4	13	1,342	21	2,135	8	11	11	31
April .....	2	515	248	4	12	1,338	43	2,161	4	8	5	17
May .....	2	533	246	3	12	1,393	36	2,224	5	11	5	20
June .....	2	526	263	3	10	1,350	39	2,193	4	11	5	20
July .....	3	550	274	4	13	1,428	39	2,309	4	10	6	20
August .....	2	551	268	4	12	1,437	33	2,307	4	10	6	21
September .....	2	513	252	4	13	1,318	43	2,144	4	10	5	19
October .....	2	549	260	4	12	1,412	39	2,277	4	6	5	15
November .....	2	488	251	4	12	1,333	54	2,143	5	8	5	17
December .....	2	512	270	4	10	1,380	40	2,219	5	12	5	21
Total .....	22	6,162	3,042	47	136	16,212	447	26,067	82	118	95	295
2015 January .....	1	488	242	5	14	*1,304	42	2,096	7	11	11	29
February .....	1	473	229	4	10	1,203	6	1,928	21	11	26	59
March .....	1	521	272	4	14	1,367	42	2,221	5	8	5	18
April .....	2	529	260	4	13	1,342	25	2,175	4	8	5	17
May .....	2	535	267	4	15	1,398	38	2,259	5	9	5	19
June .....	2	545	281	4	12	1,375	30	2,249	4	9	6	19
July .....	3	566	290	4	14	1,429	52	2,359	4	11	7	23
August .....	2	566	281	4	11	1,428	48	2,340	4	11	6	21
September .....	2	543	261	4	11	1,357	42	2,219	4	10	6	20
October .....	2	530	284	4	13	1,395	38	2,266	4	8	5	17
November .....	1	474	259	4	9	1,331	47	2,126	5	7	6	18
December .....	1	488	277	5	12	1,381	53	2,217	4	8	5	17
Total .....	21	6,259	3,204	48	148	16,310	463	26,454	70	112	94	276
2016 January .....	1	453	255	5	12	1,309	55	2,090	7	9	7	23
February .....	2	436	251	4	12	1,300	27	2,031	5	9	7	21
March .....	2	506	270	4	13	1,419	69	2,281	4	10	4	18
April .....	2	499	265	4	11	1,346	81	2,208	3	11	4	18
May .....	2	522	275	4	12	1,424	56	2,294	4	10	5	19
June .....	2	531	292	3	13	1,411	65	2,317	4	11	5	20
July .....	2	532	301	4	10	1,448	75	2,373	5	11	8	24
August .....	2	563	300	4	11	1,448	55	2,383	4	12	8	24
September .....	2	521	276	4	11	1,386	46	2,246	4	11	5	20
October .....	2	535	282	4	12	1,373	57	2,264	3	7	6	16
November .....	2	496	277	4	10	1,350	62	2,200	4	8	5	17
11-Month Total .....	19	5,592	3,044	44	129	15,213	647	24,688	48	109	64	220
2015 11-Month Total .....	20	5,771	2,927	44	136	14,929	411	24,237	66	104	89	259
2014 11-Month Total .....	20	5,650	2,772	43	126	14,832	406	23,849	77	107	90	274

<sup>a</sup> Electricity-only and combined-heat-and-power (CHP) plants within the NAICS 22 category whose primary business is to sell electricity, or electricity and heat, to the public. Through 1988, data are for electric utilities only; beginning in 1989, data are for electric utilities and independent power producers.

<sup>b</sup> Beginning in 2009, includes renewable diesel fuel (including biodiesel) blended into distillate fuel oil.

<sup>c</sup> 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.)

<sup>d</sup> Finished motor gasoline. Through 1963, also includes special naphthas. Beginning in 1993, also includes fuel ethanol blended into motor gasoline.

<sup>e</sup> 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.

<sup>f</sup> 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.

<sup>g</sup> 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.

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. For each of these except crude oil, product supplied is calculated by adding refinery production, natural gas plant liquids production, new supply of other liquids, imports, and stock withdrawals, and subtracting stock additions, refinery inputs, and 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.

### **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.

### **Liquefied Petroleum Gases (LPG) Total**

Prior to the current two months, product supplied data in thousand barrels per day for the component products of LPG (ethane/ethylene, propane/propylene, normal butane/butylene, and isobutane/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 LPG product supplied is the sum of the data in trillion Btu for the LPG component products.

For the current two months, product supplied data in thousand barrels per day for total LPG are from Table 3.5, and are converted to trillion Btu by multiplying by the LPG heat content factors in Table A3.

### **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 pentanes plus, 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 LPG, 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.

### **Propane**

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

### **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.

1981–2015: EIA, *Petroleum Supply Annual*, annual reports, and unpublished revisions.

2016: EIA, *Petroleum Supply Monthly*, 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.

### 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.

### Liquefied Petroleum Gases (LPG)

The annual shares of LPG’s 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 LPG 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, 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 LPG sold each year for consumption in internal combustion engines is allocated between the transportation and industrial sectors on the basis of data for special fuels used on highways published by the U.S. Department of Transportation, Federal Highway Administration, in *Highway Statistics*.

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 sales data for creating annual energy 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 forward: American Petroleum Institute (API), “Sales of Natural Gas Liquids and Liquefied Refinery Gases,” which is based on an LPG sales survey jointly sponsored by API, the Gas Processors Association, and the National Liquefied Petroleum Gas Association. EIA adjusts the data to remove quantities of pentanes plus and to estimate withheld values.

### 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 pentanes plus, 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.

### 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.

### Liquefied Petroleum Gases (LPG)

Residential and commercial sector consumption data in thousand barrels per day for LPG are from Table 3.7a, and are converted to trillion Btu by multiplying by the propane/propylene 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.

### 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.

### Liquefied Petroleum Gases (LPG)

Industrial sector consumption data for LPG are calculated by subtracting LPG consumption data in trillion Btu for the residential (Table 3.8a), commercial (Table 3.8a), and transportation (Table 3.8c) sectors from total LPG consumption (Table 3.6).

### 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.

### **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.)

### **Liquefied Petroleum Gases (LPG)**

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

### **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.

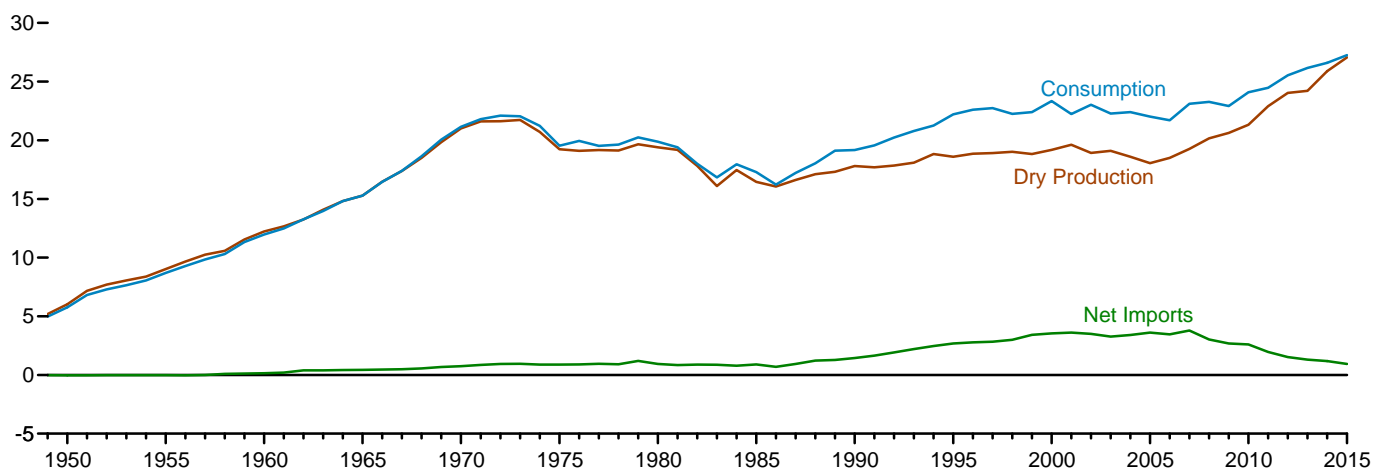
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## 4. Natural Gas

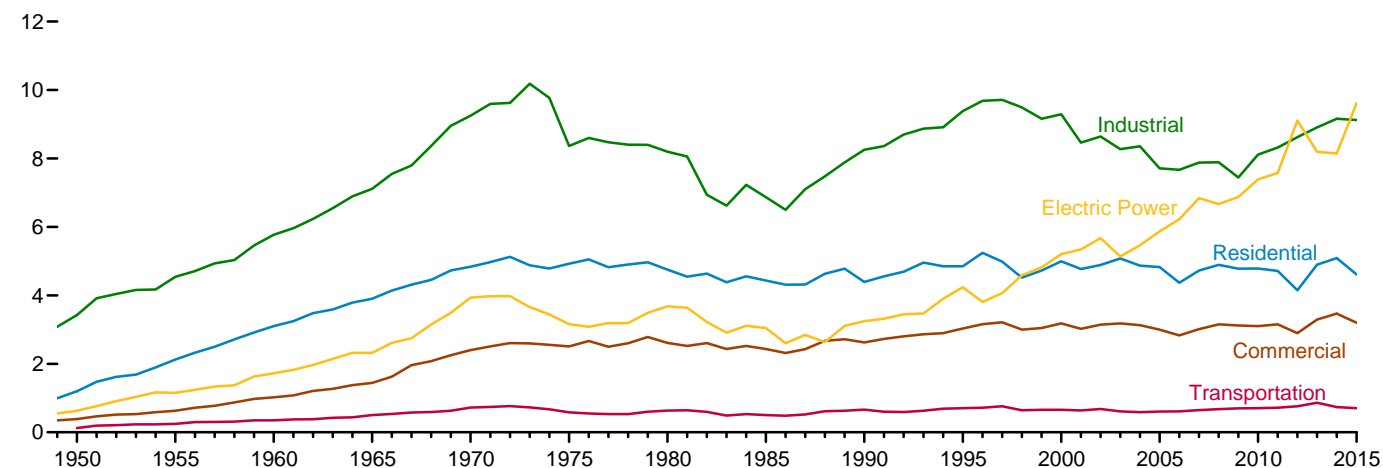
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**Figure 4.1 Natural Gas**  
(Trillion Cubic Feet)

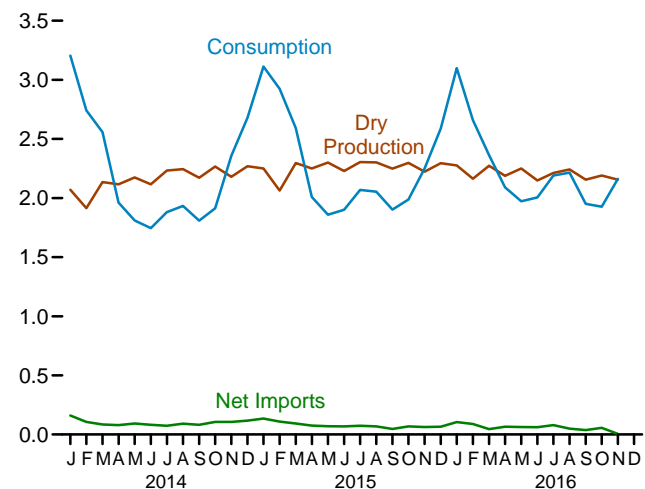
Overview, 1949–2015



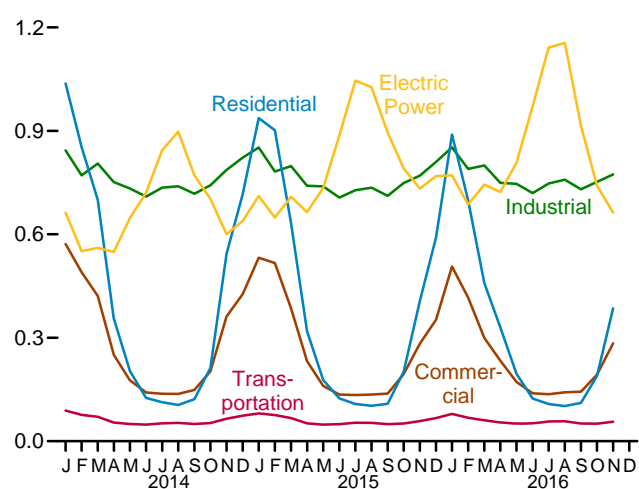
Consumption by Sector, 1949–2015



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 <sup>a</sup>	Marketed Production (Wet) <sup>b</sup>	NGPL Production <sup>c</sup>	Dry Gas Production <sup>d</sup>	Supplemental Gaseous Fuels <sup>e</sup>	Trade			Net Storage Withdrawals <sup>f</sup>	Balancing Item <sup>g</sup>	Consumption <sup>h</sup>
						Imports	Exports	Net Imports			
1950 Total	8,480	6,282	260	6,022	NA	0	26	-26	-54	-175	5,767
1955 Total	11,720	9,405	377	9,029	NA	11	31	-20	-68	-247	8,694
1960 Total	15,088	12,771	543	12,228	NA	156	11	144	-132	-274	11,967
1965 Total	17,963	16,040	753	15,286	NA	456	26	430	-118	-319	15,280
1970 Total	23,786	21,921	906	21,014	NA	821	70	751	-398	-228	21,139
1975 Total	21,104	20,109	872	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	19,174
1995 Total	23,744	19,506	908	18,599	110	2,841	154	2,687	415	396	22,239
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 January	2,580	2,199	129	2,070	5	295	135	161	992	-23	3,204
February	2,357	2,033	119	1,914	4	245	139	107	745	-29	2,741
March	2,624	2,267	133	2,135	5	234	150	85	363	-30	2,558
April	2,584	2,248	131	2,116	5	201	122	79	-224	-14	1,962
May	2,633	2,310	135	2,175	5	207	114	93	-488	26	1,810
June	2,560	2,247	131	2,116	5	202	120	82	-473	16	1,745
July	2,629	2,371	139	2,233	5	201	127	74	-409	-22	1,881
August	2,645	2,384	139	2,245	5	207	115	91	-383	-26	1,933
September	2,626	2,307	135	2,172	5	202	120	82	-431	-18	1,809
October	2,736	2,407	141	2,266	5	221	115	106	-409	-55	1,913
November	2,662	2,315	135	2,179	5	227	121	107	-107	-102	2,358
December	2,770	2,410	141	2,269	5	254	137	117	295	-7	2,679
Total	31,405	27,498	1,608	25,890	60	2,695	1,514	1,181	-254	-283	26,593
2015 January	2,771	2,391	141	2,250	5	279	145	135	741	-18	3,113
February	2,516	2,193	129	2,063	4	254	145	109	757	-10	2,924
March	2,824	2,439	144	2,296	5	257	164	93	201	-3	2,592
April	2,750	2,391	141	2,251	5	205	130	75	-329	8	2,009
May	2,791	2,444	144	2,300	5	204	134	70	-508	-8	1,859
June	2,669	2,368	139	2,229	5	206	138	68	-370	-30	1,901
July	2,758	2,448	144	2,304	5	217	144	73	-291	-23	2,069
August	2,742	2,446	144	2,302	5	214	145	69	-317	-6	2,053
September	2,727	2,390	141	2,249	5	209	163	46	-381	-17	1,903
October	2,801	2,441	144	2,298	5	226	159	68	-339	-44	1,988
November	2,731	2,362	139	2,223	5	218	156	63	-17	-57	2,250
December	2,814	2,438	144	2,295	5	227	162	66	272	-49	2,588
Total	32,895	28,753	1,693	27,060	59	2,718	1,784	935	-546	-258	27,249
2016 January	E 2,819	E 2,424	148	E 2,275	5	274	169	105	728	R -16	R 3,098
February	E 2,668	E 2,304	140	E 2,164	5	252	163	89	403	R -3	R 2,659
March	E 2,823	E 2,431	157	E 2,274	5	241	195	46	59	R -21	R 2,363
April	E 2,682	E 2,340	151	E 2,188	5	241	176	66	-164	R -4	R 2,090
May	E 2,779	E 2,411	160	E 2,250	5	248	186	62	-327	R -18	R 1,973
June	E 2,635	E 2,304	156	E 2,148	2	242	181	61	-224	R 18	R 2,006
July	E 2,710	E 2,372	160	E 2,213	5	265	186	79	-133	R 27	R 2,190
August	E 2,742	E 2,394	152	E 2,242	5	261	212	49	-124	R 43	R 2,215
September	RE 2,640	RE 2,303	147	RE 2,155	5	237	200	37	-263	R 16	R 1,951
October	RE 2,716	E 2,351	160	E 2,191	5	230	R 174	R 56	-309	R -17	R 1,926
November	E 2,685	E 2,310	155	E 2,155	5	231	226	5	35	-38	2,162
11-Month Total	E 29,900	E 25,942	1,687	E 24,255	53	2,721	2,067	655	-318	-12	24,632
2015 11-Month Total	30,080	26,315	1,550	24,765	54	2,491	1,622	869	-818	-209	24,660
2014 11-Month Total	28,635	25,088	1,467	23,620	54	2,442	1,377	1,064	-549	-276	23,914

<sup>a</sup> 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.

<sup>b</sup> Gross withdrawals minus natural gas repressuring, nonhydrocarbon gases removed, and vented and flared. See Note 1, "Natural Gas Production," at end of section.

<sup>c</sup> 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.

<sup>d</sup> Marketed production (wet) minus NGPL production.

<sup>e</sup> See Note 3, "Supplemental Gaseous Fuels," at end of section.

<sup>f</sup> 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.

<sup>g</sup> 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).

<sup>h</sup> See Note 6, "Natural Gas Consumption," at end of section.

<sup>i</sup> Through 1979, may include unknown quantities of nonhydrocarbon gases.

<sup>j</sup> 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: 1949–2013—U.S. Energy Information Administration (EIA), *Natural Gas Annual*, annual reports. 2014 forward—EIA, *Natural Gas Monthly*, January 2017, Table 1.

**Table 4.2 Natural Gas Trade by Country**  
(Billion Cubic Feet)

	Imports									Exports <sup>a</sup>				
	Algeria <sup>b</sup>	Canada <sup>c</sup>	Egypt <sup>b</sup>	Mexico <sup>c</sup>	Nigeria <sup>b</sup>	Qatar <sup>b</sup>	Trinidad and Tobago <sup>b</sup>	Other <sup>b,d</sup>	Total	Canada <sup>c</sup>	Japan <sup>b</sup>	Mexico <sup>c</sup>	Other <sup>b,e</sup>	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	R(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 January .....	0	287	0	(s)	0	0	6	2	295	82	0	53	0	135
February .....	0	242	0	(s)	0	0	4	0	245	85	0	51	3	139
March .....	0	231	0	(s)	0	0	3	0	234	91	0	58	0	150
April .....	0	198	0	(s)	0	0	3	0	201	65	0	57	0	122
May .....	0	204	0	(s)	0	0	0	3	207	50	2	62	0	114
June .....	0	192	0	(s)	0	0	7	3	202	55	0	65	0	120
July .....	0	195	0	(s)	0	0	6	0	201	55	3	69	0	127
August .....	0	205	0	(s)	0	0	2	0	207	47	3	66	0	115
September .....	0	196	0	(s)	0	0	3	3	202	52	3	65	0	120
October .....	0	214	0	(s)	0	0	4	3	221	52	3	60	0	115
November .....	0	227	0	(s)	0	0	0	0	227	62	0	59	0	121
December .....	0	246	0	(s)	0	0	5	3	254	73	0	64	0	137
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	103	10	176
May .....	0	243	0	(s)	0	0	5	0	248	63	0	113	10	186
June .....	0	234	0	(s)	0	0	8	0	242	51	0	114	16	181
July .....	0	259	0	(s)	0	0	6	0	265	50	0	121	16	186
August .....	0	253	0	(s)	0	0	8	0	261	55	0	134	23	212
September .....	0	234	0	(s)	0	0	3	0	237	61	0	125	13	200
October .....	0	224	0	(s)	0	0	6	0	230	R 43	0	R 128	3	R 174
November .....	0	221	0	(s)	0	0	6	3	231	75	0	132	20	226
11-Month Total .....	0	2,642	0	1	0	0	75	3	2,721	674	0	1,268	124	2,067
2015 11-Month Total ...	0	2,404	0	1	0	0	69	17	2,491	642	8	954	17	1,622
2014 11-Month Total ...	0	2,389	0	1	0	0	38	13	2,442	696	13	665	3	1,377

<sup>a</sup> Includes re-exports.

<sup>b</sup> As liquefied natural gas.

<sup>c</sup> 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.

<sup>d</sup> 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.

<sup>e</sup> Argentina in 2016; Barbados in 2016; Brazil in 2010–2012, and 2014 forward; Chile in 2011 and 2016; China in 2011 and 2016; Dominican Republic in 2016; Egypt in 2015; India in 2010–2012, and 2016; Italy in 2016; Jordan in 2016; Kuwait in 2016; Portugal in 2012 and 2016; Russia in 2007; South Korea in 2009–2011; Spain in 2010–2011 and 2016; Taiwan in 2015; Turkey in 2015 and 2016; United Arab Emirates in 2016; and United Kingdom in 2010 and 2011.

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."

• 1988–2013: EIA, *Natural Gas Annual*, annual reports. • 2014 forward: EIA, *Natural Gas Monthly*, January 2017, Tables 4 and 5; and U.S. Department of Energy, Office of Fossil Energy, "Natural Gas Imports and Exports."

**Table 4.3 Natural Gas Consumption by Sector**  
(Billion Cubic Feet)

	End-Use Sectors										Electric Power Sector <sup>g</sup>	Total
	Residential	Commercial <sup>a</sup>	Lease and Plant Fuel	Industrial			Transportation					
				Other Industrial		Total	Pipelines <sup>d</sup> and Distribution <sup>e</sup>	Vehicle Fuel	Total			
				CHP <sup>b</sup>	Non-CHP <sup>c</sup>							
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		<sup>1</sup> 5,963	<sup>1</sup> 7,018	8,255	660	(s)	660	<sup>1</sup> 3,245	<sup>1</sup> 19,174
1995 Total .....	4,850	3,031	1,220		6,906	8,164	9,384	700	5	705	4,237	22,207
2000 Total .....	4,996	3,182	1,151		6,757	8,142	9,293	642	13	655	5,206	23,333
2001 Total .....	4,771	3,023	1,119		6,035	7,344	8,463	625	15	640	5,342	22,239
2002 Total .....	4,889	3,144	1,113		6,287	7,527	8,640	667	15	682	5,672	23,027
2003 Total .....	5,079	3,179	1,122		6,007	7,150	8,273	591	18	610	5,135	22,277
2004 Total .....	4,869	3,129	1,098		6,066	7,256	8,354	566	21	587	5,464	22,403
2005 Total .....	4,827	2,999	1,112		5,518	6,601	7,713	584	23	607	5,869	22,014
2006 Total .....	4,368	2,832	1,142		5,412	6,527	7,669	584	24	608	6,222	21,699
2007 Total .....	4,722	3,013	1,226		5,050	6,655	7,881	621	25	646	6,841	23,104
2008 Total .....	4,892	3,153	1,220		5,515	6,670	7,890	648	26	674	6,668	23,277
2009 Total .....	4,779	3,119	1,275		5,990	6,167	7,443	670	27	697	6,873	22,910
2010 Total .....	4,782	3,103	1,286		5,029	6,826	8,112	674	29	703	7,387	24,087
2011 Total .....	4,714	3,155	1,323		5,931	6,994	8,317	688	30	718	7,574	24,477
2012 Total .....	4,150	2,895	1,396		6,077	7,226	8,622	731	30	761	9,111	25,538
2013 Total .....	4,897	3,295	1,483		6,255	7,425	8,909	833	30	863	8,191	26,155
2014 January .....	1,037	572	121	106	617	722	843	86	3	89	663	3,204
February .....	853	490	112	89	570	659	771	73	3	76	551	2,741
March .....	700	421	125	94	586	681	805	68	3	71	561	2,558
April .....	356	251	124	89	538	628	751	51	3	54	549	1,962
May .....	203	177	127	92	514	606	733	47	3	50	647	1,810
June .....	126	141	124	91	495	586	709	45	3	48	721	1,745
July .....	113	138	130	99	506	605	735	49	3	52	843	1,881
August .....	105	137	131	101	508	609	740	50	3	53	898	1,933
September .....	122	149	127	95	496	591	718	47	3	50	771	1,809
October .....	212	202	132	95	515	610	742	50	3	53	703	1,913
November .....	544	362	127	94	565	660	787	62	3	65	600	2,358
December .....	717	427	133	100	590	690	823	71	3	74	639	2,679
Total .....	5,087	3,466	1,512	1,145	6,501	7,646	9,158	700	35	735	8,146	26,593
2015 January .....	937	532	132	103	616	720	852	77	3	81	711	3,113
February .....	902	517	121	92	569	661	782	73	3	76	648	2,924
March .....	633	385	135	99	564	663	798	64	3	67	709	2,592
April .....	319	232	132	93	516	609	741	49	3	52	664	2,009
May .....	177	160	135	95	509	604	739	45	3	48	734	1,859
June .....	124	135	131	101	475	576	706	46	3	49	886	1,901
July .....	108	134	135	109	483	593	728	50	3	54	1,046	2,069
August .....	103	135	135	110	490	601	735	50	3	53	1,027	2,053
September .....	108	138	132	102	477	580	712	46	3	49	895	1,903
October .....	201	195	135	102	512	614	749	48	3	52	792	1,988
November .....	406	283	130	103	536	639	770	55	3	58	732	2,250
December .....	591	352	135	110	565	675	810	64	3	67	769	2,588
Total .....	4,610	3,199	1,587	1,222	6,313	7,535	9,121	666	39	706	9,613	27,249
2016 January .....	889	507	E 134	108	R 611	R 719	R 852	E 76	E 3	E 79	771	R 3,098
February .....	698	416	E 127	100	R 563	R 662	R 790	E 65	E 3	E 68	686	R 2,659
March .....	458	299	E 134	103	R 562	R 666	R 800	E 58	E 3	E 61	744	R 2,363
April .....	330	234	E 129	101	R 519	R 620	R 749	E 51	E 3	E 54	723	R 2,090
May .....	196	172	E 133	102	R 511	R 613	R 746	E 48	E 3	E 51	808	R 1,973
June .....	124	139	E 127	104	R 488	R 592	R 720	E 49	E 3	E 52	971	R 2,006
July .....	108	136	E 131	109	R 507	R 616	R 747	RE 53	E 4	E 57	1,142	R 2,190
August .....	102	<sup>R</sup> 142	E 132	110	R 516	R 626	R 758	E 54	E 4	E 58	1,155	R 2,215
September .....	111	<sup>R</sup> 143	E 127	104	R 499	R 604	R 731	E 48	E 4	E 51	915	R 1,951
October .....	189	193	E 130	102	R 521	R 622	R 752	E 47	E 4	E 51	741	R 1,926
November .....	385	284	E 127	106	541	646	774	E 53	E 4	E 56	663	2,162
11-Month Total .....	3,591	2,665	E 1,431	1,149	5,839	6,988	8,419	E 601	E 38	E 638	9,320	24,632
2015 11-Month Total ...	4,019	2,847	1,452	1,112	5,747	6,859	8,311	603	36	639	8,845	24,660
2014 11-Month Total ...	4,371	3,040	1,380	1,045	5,911	6,956	8,336	629	32	661	7,507	23,914

<sup>a</sup> 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.

<sup>b</sup> Industrial combined-heat-and-power (CHP) and a small number of industrial electricity-only plants.

<sup>c</sup> All industrial sector fuel use other than that in "Lease and Plant Fuel" and "CHP."

<sup>d</sup> 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.

<sup>e</sup> 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.

<sup>f</sup> 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.

<sup>g</sup> Through 1988, data are for electric utilities only. Beginning in 1989, data are for electric utilities and independent power producers.

<sup>h</sup> Included in "Non-CHP."

<sup>i</sup> 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: 1949–2013**—U.S. Energy Information Administration (EIA), *Natural Gas Annual (NGA)*, annual reports and unpublished revisions. **2014 forward**—EIA, *Natural Gas Monthly (NGM)*, January 2017, Table 2. • **Other Industrial CHP:** Table 7.4c. • **Other Industrial Non-CHP:** Calculated as other industrial total minus other industrial CHP. • **Industrial Total:** Calculated as lease and plant fuel plus other industrial total. • **Vehicle Fuel: 1990 and 1991**—EIA, NGA 2000, (November 2001), Table 95. **1992–1998**—EIA, "Alternatives to Traditional Transportation Fuels 1999" (October 1999), Table 10, and "Alternatives to Traditional Transportation Fuels 2003" (February 2004), Table 10. Data for compressed natural gas and liquefied natural gas in gasoline-equivalent gallons were converted to cubic feet by multiplying by the motor gasoline conversion factor (see Table A3) and dividing by the natural gas end-use sectors conversion factor (see Table A4). **1999–2013**—EIA, NGA, annual reports. **2014 forward**—EIA, NGM, January 2017, Table 2. • **Transportation Total:** Calculated as pipelines and distribution plus vehicle fuel. • **Electric Power Sector:** Table 7.4b. • **Total Consumption:** Calculated as the sum of residential, commercial, industrial total, transportation total, and electric power sector.

**Table 4.4 Natural Gas in Underground Storage**  
(Volumes in Billion Cubic Feet)

	Natural Gas in Underground Storage, End of Period			Change in Working Gas From Same Period Previous Year		Storage Activity		
	Base Gas	Working Gas	Total <sup>a</sup>	Volume	Percent	Withdrawals	Injections	Net <sup>b,c</sup>
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	R -500
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 January .....	4,363	1,925	6,288	-774	-28.7	1,039	68	971
February .....	4,360	1,200	5,560	-899	-42.8	833	104	728
March .....	4,350	857	5,207	-863	-50.2	488	134	353
April .....	4,357	1,066	5,423	-789	-42.5	105	323	-217
May .....	4,353	1,548	5,901	-722	-31.8	51	529	-478
June .....	4,358	2,005	6,364	-637	-24.1	44	506	-463
July .....	4,361	2,400	6,761	-537	-18.3	63	463	-400
August .....	4,366	2,768	7,135	-444	-13.8	73	447	-374
September .....	4,369	3,187	7,556	-377	-10.6	47	469	-422
October .....	4,367	3,587	7,955	-230	-6.0	52	452	-400
November .....	4,367	3,427	7,794	-178	-5.0	361	200	161
December .....	4,365	3,141	7,506	251	8.7	429	143	286
Total .....	4,365	3,141	7,506	251	8.7	3,586	3,839	-253
2015 January .....	4,361	2,415	6,776	490	25.5	795	70	725
February .....	4,360	1,674	6,034	474	39.5	803	62	742
March .....	4,361	1,480	5,841	623	72.6	376	182	193
April .....	4,360	1,802	6,162	736	69.0	84	405	-321
May .....	4,363	2,296	6,659	748	48.3	44	542	-497
June .....	4,367	2,656	7,023	650	32.4	68	430	-362
July .....	4,372	2,933	7,305	533	22.2	96	379	-283
August .....	4,364	3,250	7,614	482	17.4	85	394	-309
September .....	4,365	3,622	7,987	435	13.7	63	435	-372
October .....	4,365	3,951	8,316	363	10.1	70	401	-331
November .....	4,368	3,935	8,303	508	14.8	214	201	12
December .....	4,363	3,675	8,038	534	17.0	403	138	264
Total .....	4,363	3,675	8,038	534	17.0	3,101	3,639	-538
2016 January .....	4,361	2,949	7,311	534	22.1	795	66	728
February .....	4,361	2,546	6,907	872	52.1	515	111	403
March .....	4,352	2,496	6,848	1,016	68.6	274	215	59
April .....	4,356	2,654	7,010	852	47.3	130	294	-164
May .....	4,358	2,975	7,333	679	29.6	75	402	-327
June .....	4,360	3,197	7,557	541	20.4	94	318	-224
July .....	4,360	3,329	7,689	396	13.5	150	284	-133
August .....	4,361	3,453	7,814	203	6.2	162	286	-124
September .....	4,360	3,717	8,077	94	2.6	88	351	-263
October .....	4,363	4,025	8,388	74	1.9	78	387	-309
November .....	4,364	3,987	8,351	52	1.3	213	178	35
11-Month Total .....	--	--	--	--	--	2,574	2,892	-318
2015 11-Month Total ...	--	--	--	--	--	2,698	3,501	-803
2014 11-Month Total ...	--	--	--	--	--	3,157	3,696	-539

<sup>a</sup> For total underground storage capacity at the end of each calendar year, see Note 4, "Natural Gas Storage," at end of section.

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

<sup>c</sup> 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. --=Not applicable.

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. **1996–2013**—EIA, *Natural Gas Monthly (NGM)*, monthly issues. **2014 forward**—EIA, NGM, January 2017, Table 8. • **All Other Data: 1954–1974**—American Gas Association, *Gas Facts*, annual issues. **1975 and 1976**—Federal Energy Administration (FEA), Form FEA-G318-M-0, "Underground Gas Storage Report," and Federal Power Commission (FPC), Form FPC-8, "Underground Gas Storage Report." **1977 and 1978**—EIA, Form FEA-G318-M-0, "Underground Gas Storage Report," and Federal Energy Regulatory Commission (FERC), Form FERC-8, "Underground Gas Storage Report." **1979–1995**—EIA, Form EIA-191, "Underground Gas Storage Report," and FERC, Form FERC-8, "Underground Gas Storage Report." **1996–2013**—EIA, NGA, annual reports. **2014 forward**—EIA, NGM, January 2017, Table 8.



# Natural Gas

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

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

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

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

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

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

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

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

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

Annual data beginning with 1980 are from EIA's *Natural Gas Annual* (NGA). Unknown quantities of supplemental gaseous fuels are included in consumption data for 1979 and earlier years. Monthly data are considered preliminary until after publication of the NGA. Monthly estimates are based on

the annual ratio of supplemental gaseous fuels to the sum of dry gas production, net imports, and net withdrawals from storage. The ratio is applied to the monthly sum of the three elements to compute a monthly supplemental gaseous fuels figure.

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

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

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

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

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; “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](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), and 2016 (908 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, Portugal, Russia, South Korea, Spain, Taiwan, 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.

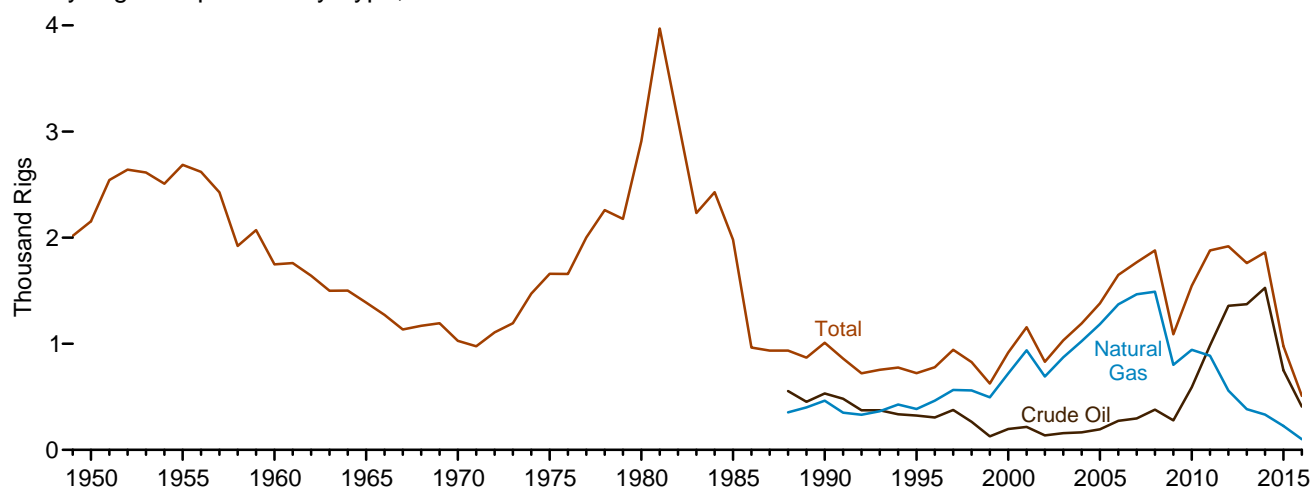
Preliminary monthly data are EIA estimates. For a discussion of estimation procedures, see EIA's *Natural Gas Monthly*. Preliminary data are revised after publication of EIA's *U.S. Imports and Exports of Natural Gas*.

## **5. Crude Oil and Natural Gas Resource Development**

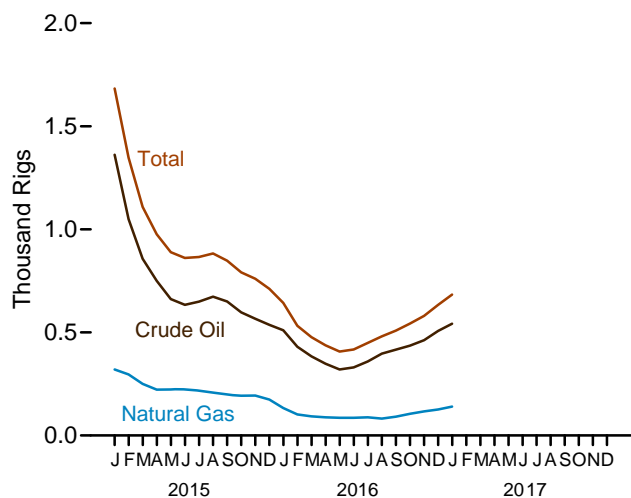
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**Figure 5.1 Crude Oil and Natural Gas Resource Development Indicators**

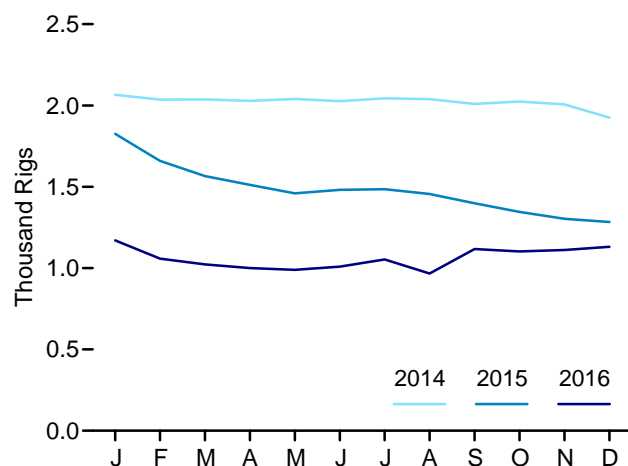
Rotary Rigs in Operation by Type, 1949–2016



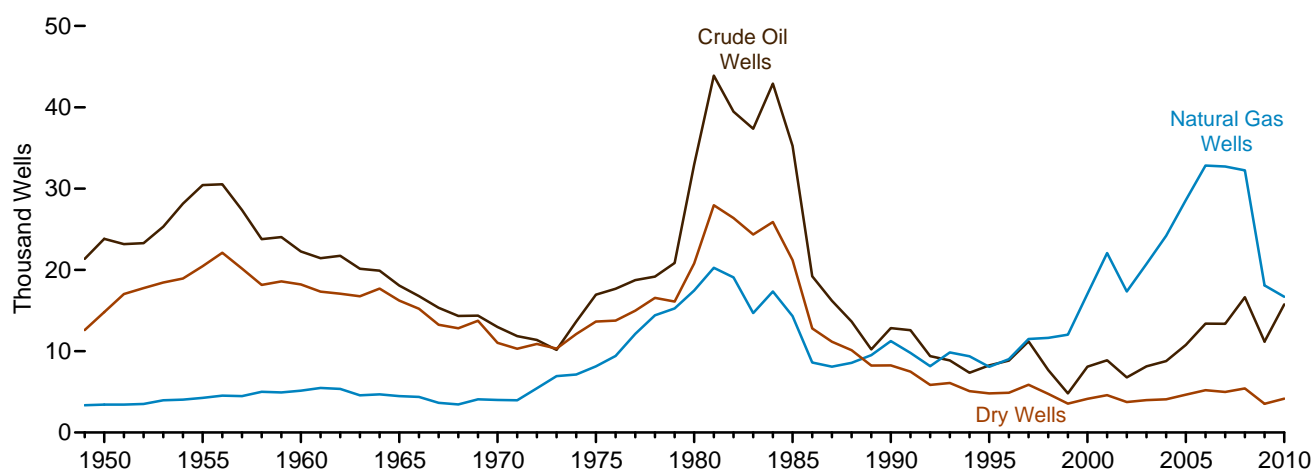
Rotary Rigs in Operation by Type, Monthly



Active Well Service Rig Count, Monthly



Total Wells Drilled by Type, 1949–2010



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

**Table 5.1 Crude Oil and Natural Gas Drilling Activity Measurements**  
(Number of Rigs)

	Rotary Rigs in Operation <sup>a</sup>					Active Well Service Rig Count <sup>c</sup>
	By Site		By Type		Total <sup>b</sup>	
	Onshore	Offshore	Crude Oil	Natural Gas		
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 January .....	1,711	58	1,403	362	1,769	2,066
February .....	1,714	55	1,424	341	1,769	2,036
March .....	1,750	54	1,466	333	1,803	2,037
April .....	1,784	52	1,515	316	1,835	2,028
May .....	1,801	58	1,530	325	1,859	2,040
June .....	1,804	58	1,545	314	1,861	2,026
July .....	1,819	57	1,560	314	1,876	2,044
August .....	1,842	62	1,578	324	1,904	2,039
September .....	1,866	64	1,592	336	1,930	2,010
October .....	1,867	58	1,596	328	1,924	2,024
November .....	1,872	53	1,573	351	1,925	2,007
December .....	1,824	59	1,539	342	1,882	1,925
Average .....	1,804	57	1,527	333	1,862	2,024
2015 January .....	1,629	53	1,362	320	1,683	1,826
February .....	1,296	52	1,050	296	1,348	1,659
March .....	1,066	43	857	250	1,109	1,566
April .....	943	33	750	222	976	1,512
May .....	858	32	662	223	889	1,460
June .....	833	28	634	224	861	1,481
July .....	835	31	649	216	866	1,485
August .....	849	34	673	209	883	1,456
September .....	816	32	650	198	848	1,399
October .....	758	33	597	193	791	1,345
November .....	729	31	566	194	760	1,303
December .....	686	24	537	174	711	1,283
Average .....	943	35	750	226	978	1,481
2016 January .....	615	28	510	133	643	1,170
February .....	506	26	430	102	532	1,058
March .....	451	27	384	93	477	1,023
April .....	411	26	348	88	437	1,000
May .....	384	24	320	86	407	989
June .....	396	21	330	86	417	1,009
July .....	429	20	359	88	449	1,053
August .....	464	17	397	82	481	967
September .....	491	18	416	91	509	1,117
October .....	521	23	436	105	543	1,102
November .....	558	22	462	117	580	1,111
December .....	611	23	507	126	634	1,131
Average .....	486	23	408	100	509	1,061
2017 January .....	659	24	542	140	683	NA

<sup>a</sup> Rotary rigs in operation are reported weekly. Monthly data are averages of 4- or 5-week reporting periods, not calendar months. Multi-month data are averages of the reported data over the covered months, not averages of the weekly data. Annual data are averages over 52 or 53 weeks, not calendar years. Published data are rounded to the nearest whole number.

<sup>b</sup> 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.

<sup>c</sup> 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-reports&other>. • **Active Well Service Rig Count:** Cameron International Corporation, Houston, 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](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												
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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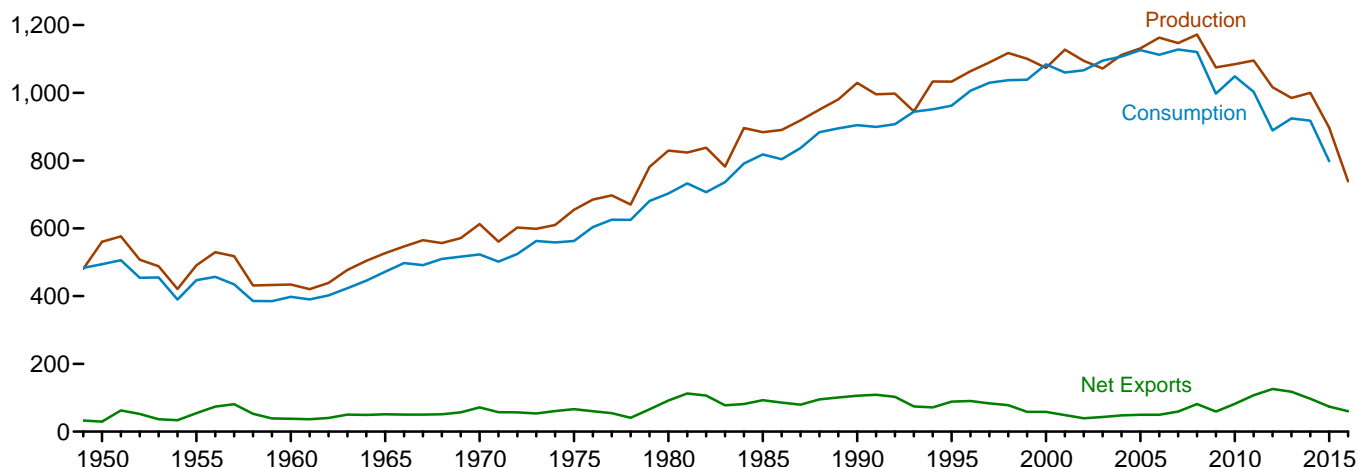


## 6. Coal

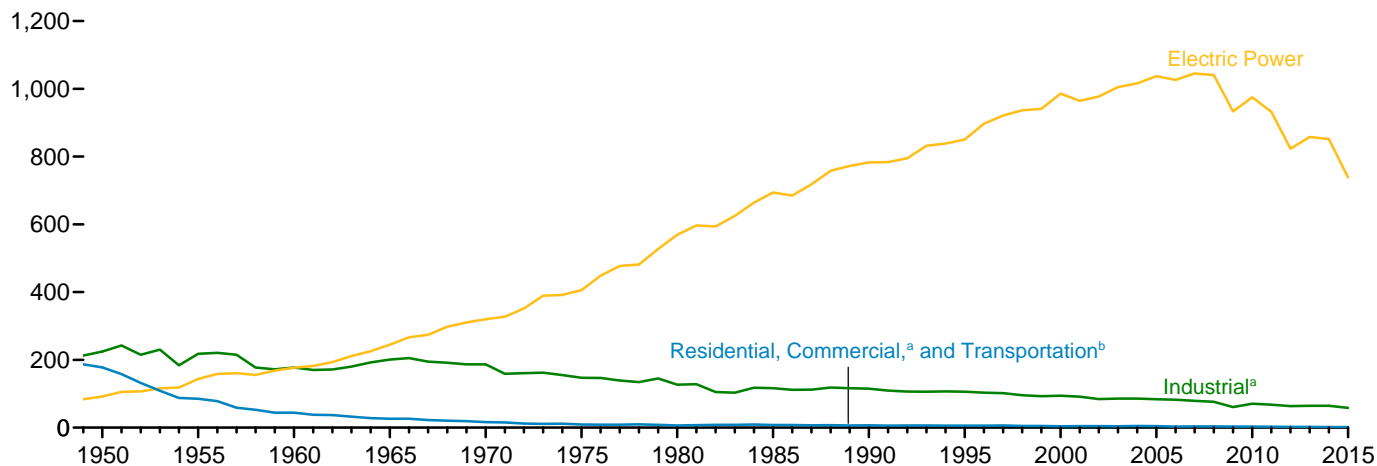
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**Figure 6.1 Coal**  
(Million Short Tons)

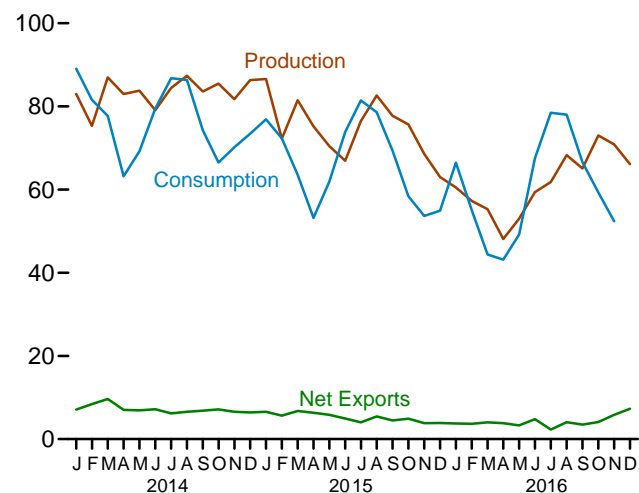
Overview, 1949–2016



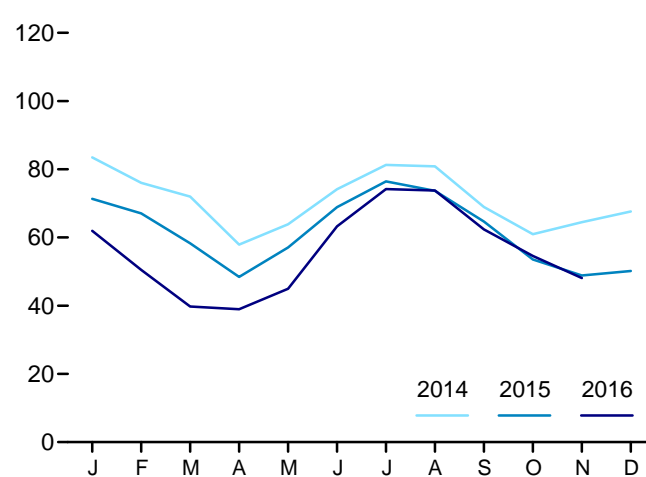
Consumption by Sector, 1949–2015



Overview, Monthly



Electric Power Sector Consumption, Monthly



<sup>a</sup> Includes combined-heat-and-power (CHP) plants and a small number of electricity-only-plants.

<sup>b</sup> 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 <sup>a</sup>	Waste Coal Supplied <sup>b</sup>	Trade			Stock Change <sup>d,e</sup>	Losses and Unaccounted for <sup>e,f</sup>	Consumption
			Imports	Exports	Net Imports <sup>c</sup>			
<b>1950 Total</b> .....	560,388	NA	365	29,360	-28,995	27,829	9,462	494,102
<b>1955 Total</b> .....	490,838	NA	337	54,429	-54,092	-3,974	-6,292	447,012
<b>1960 Total</b> .....	434,329	NA	262	37,981	-37,719	-3,194	1,722	398,081
<b>1965 Total</b> .....	526,954	NA	184	51,032	-50,848	1,897	2,244	471,965
<b>1970 Total</b> .....	612,661	NA	36	71,733	-71,697	11,100	6,633	523,231
<b>1975 Total</b> .....	654,641	NA	940	66,309	-65,369	32,154	-5,522	562,640
<b>1980 Total</b> .....	829,700	NA	1,194	91,742	-90,548	25,595	10,827	702,730
<b>1985 Total</b> .....	883,638	NA	1,952	92,680	-90,727	-27,934	2,796	818,049
<b>1990 Total</b> .....	1,029,076	3,339	2,699	105,804	-103,104	26,542	-1,730	904,498
<b>1995 Total</b> .....	1,032,974	8,561	9,473	88,547	-79,074	-275	632	962,104
<b>2000 Total</b> .....	1,073,612	9,089	12,513	58,489	-45,976	-48,309	938	1,084,095
<b>2001 Total</b> .....	1,127,689	10,085	19,787	48,666	-28,879	41,630	7,120	1,060,146
<b>2002 Total</b> .....	1,094,283	9,052	16,875	39,601	-22,726	10,215	4,040	1,066,355
<b>2003 Total</b> .....	1,071,753	10,016	25,044	43,014	-17,970	-26,659	-4,403	1,094,861
<b>2004 Total</b> .....	1,112,099	11,299	27,280	47,998	-20,718	-11,462	6,887	1,107,255
<b>2005 Total</b> .....	1,131,498	13,352	30,460	49,942	-19,482	-9,702	9,092	1,125,978
<b>2006 Total</b> .....	1,162,750	14,409	36,246	49,647	-13,401	42,642	8,824	1,112,292
<b>2007 Total</b> .....	1,146,635	14,076	36,347	59,163	-22,816	5,812	4,085	1,127,998
<b>2008 Total</b> .....	1,171,809	14,146	34,208	81,519	-47,311	12,354	5,740	1,120,548
<b>2009 Total</b> .....	1,074,923	13,666	22,639	59,097	-36,458	39,668	14,985	997,478
<b>2010 Total</b> .....	1,084,368	13,651	19,353	81,716	-62,363	-13,039	182	1,048,514
<b>2011 Total</b> .....	1,095,628	13,209	13,088	107,259	-94,171	211	11,506	1,002,948
<b>2012 Total</b> .....	1,016,458	11,196	9,159	125,746	-116,586	6,902	14,980	889,185
<b>2013 Total</b> .....	984,842	11,279	8,906	117,659	-108,753	-38,525	1,451	924,442
<b>2014 January</b> .....	82,992	1,199	1,065	8,152	-7,087	-15,235	3,277	89,063
February .....	75,320	1,019	582	8,972	-8,390	-14,302	670	81,581
March .....	86,959	1,059	803	10,460	-9,657	-2,074	2,749	77,685
April .....	82,981	914	930	7,952	-7,022	10,837	2,826	63,210
May .....	83,793	927	1,280	8,182	-6,902	7,141	1,493	69,185
June .....	79,069	1,054	1,365	8,540	-7,175	-4,543	-1,996	79,487
July .....	84,448	1,122	928	7,119	-6,192	-8,070	646	86,802
August .....	87,346	1,105	1,076	7,637	-6,561	-6,265	1,798	86,357
September .....	83,582	1,029	1,148	7,966	-6,818	2,396	1,103	74,294
October .....	85,462	715	584	7,738	-7,154	12,005	524	66,494
November .....	81,755	973	1,005	7,557	-6,552	5,673	349	70,155
December .....	86,341	974	586	6,981	-6,396	9,836	-2,337	73,419
<b>Total</b> .....	<b>1,000,049</b>	<b>12,090</b>	<b>11,350</b>	<b>97,257</b>	<b>-85,907</b>	<b>-2,601</b>	<b>11,101</b>	<b>917,731</b>
<b>2015 January</b> .....	86,597	1,065	1,293	7,871	-6,579	2,390	1,799	76,895
February .....	72,251	1,001	866	6,496	-5,630	-4,929	233	72,318
March .....	81,476	755	850	7,612	-6,762	4,930	6,979	63,560
April .....	75,209	580	879	7,216	-6,337	13,571	2,673	53,207
May .....	70,415	756	919	6,761	-5,842	5,575	-2,169	61,923
June .....	66,933	872	842	5,789	-4,947	-6,552	-4,434	73,845
July .....	76,476	883	1,091	5,117	-4,026	-8,638	523	81,449
August .....	82,623	954	970	6,409	-5,439	-3,360	2,924	78,574
September .....	77,724	885	904	5,388	-4,485	5,283	-529	69,369
October .....	75,662	544	854	5,744	-4,889	13,278	-366	58,405
November .....	68,574	840	882	4,709	-3,827	13,061	-1,114	53,640
December .....	63,001	834	969	4,846	-3,877	6,094	-1,067	54,930
<b>Total</b> .....	<b>896,941</b>	<b>9,969</b>	<b>11,318</b>	<b>73,958</b>	<b>-62,640</b>	<b>40,704</b>	<b>5,452</b>	<b>798,115</b>
<b>2016 January</b> .....	60,500	937	693	4,433	-3,740	-8,192	-584	66,473
February .....	57,263	822	819	4,511	-3,693	444	-1,088	55,037
March .....	55,265	719	1,186	5,208	-4,023	5,047	2,519	44,395
April .....	48,115	543	740	4,583	-3,843	2,190	-538	43,163
May .....	53,012	609	910	4,209	-3,298	-921	2,052	49,192
June .....	59,388	747	641	5,432	-4,790	-10,788	-1,393	67,526
July .....	61,796	R 859	990	3,276	-2,286	R -14,591	R -3,520	R 78,481
August .....	68,261	R 851	943	5,003	-4,060	R -10,651	R -2,314	R 78,016
September .....	65,083	R 685	800	4,273	-3,473	R -3,474	R -797	R 66,566
October .....	73,019	F 817	768	4,863	-4,095	R 7,508	R 2,914	R 59,319
November .....	70,837	RF 817	706	6,554	-5,847	R 8,699	R 4,710	R 52,398
December .....	66,123	NA	R 652	R 7,926	R -7,274	NA	NA	NA
<b>Total</b> .....	<b>738,661</b>	<b>NA</b>	<b>R 9,850</b>	<b>R 60,271</b>	<b>R -50,421</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>
<b>2017 January</b> .....	69,500	NA	NA	NA	NA	NA	NA	NA

<sup>a</sup> 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).

<sup>b</sup> 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."

<sup>c</sup> Net imports equal imports minus exports. A minus sign indicates exports are greater than imports.

<sup>d</sup> A negative value indicates a decrease in stocks and a positive value indicates an increase. See Table 6.3 for stocks data coverage.

<sup>e</sup> In 1949, stock change is included in "Losses and Unaccounted for."

<sup>f</sup> 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										Electric Power Sector <sup>e,f</sup>	Total
	Residential	Commercial			Coke Plants	Industrial			Transportation			
		CHP <sup>a</sup>	Other <sup>b</sup>	Total		Other Industrial		Total				
						CHP <sup>c</sup>	Non-CHP <sup>d</sup>					
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	523,230
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)	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 January	(i)	132	120	252	1,621	1,791	1,901	3,692	5,313	(h)	83,498	89,063
February	(i)	131	120	251	1,559	1,633	2,101	3,734	5,294	(h)	76,036	81,581
March	(i)	118	108	226	1,705	1,729	2,027	3,755	5,460	(h)	72,000	77,685
April	(i)	82	50	132	1,660	1,472	2,011	3,482	5,142	(h)	57,936	63,210
May	(i)	72	43	115	1,743	1,549	1,915	3,464	5,207	(h)	63,863	69,185
June	(i)	78	47	126	1,771	1,540	1,928	3,467	5,238	(h)	74,123	79,487
July	(i)	85	41	126	1,925	1,589	1,876	3,465	5,390	(h)	81,287	86,802
August	(i)	72	34	106	1,913	1,591	1,885	3,476	5,389	(h)	80,863	86,357
September	(i)	64	30	94	1,799	1,502	1,982	3,484	5,283	(h)	68,916	74,294
October	(i)	58	58	116	1,818	1,482	2,131	3,613	5,431	(h)	60,947	66,494
November	(i)	82	82	164	1,850	1,554	2,091	3,645	5,495	(h)	64,495	70,155
December	(i)	90	90	180	1,933	1,644	2,023	3,667	5,600	(h)	67,638	73,419
Total	(i)	1,063	824	1,887	21,297	19,076	23,870	42,946	64,243	(h)	851,602	917,731
2015 January	(i)	97	101	198	1,908	1,613	1,852	3,465	5,373	(h)	71,323	76,895
February	(i)	97	101	198	1,598	1,483	1,977	3,460	5,058	(h)	67,061	72,318
March	(i)	83	87	171	1,649	1,506	1,962	3,468	5,117	(h)	58,272	63,560
April	(i)	54	45	99	1,543	1,336	1,780	3,116	4,659	(h)	48,449	53,207
May	(i)	50	41	92	1,677	1,378	1,717	3,095	4,772	(h)	57,060	61,923
June	(i)	61	50	111	1,766	1,381	1,720	3,101	4,867	(h)	68,867	73,845
July	(i)	64	39	104	1,801	1,505	1,588	3,093	4,894	(h)	76,452	81,449
August	(i)	58	35	93	1,711	1,420	1,673	3,093	4,804	(h)	73,678	78,574
September	(i)	51	31	82	1,519	1,391	1,696	3,087	4,606	(h)	64,682	69,369
October	(i)	52	49	101	1,586	1,296	1,865	3,161	4,747	(h)	53,557	58,405
November	(i)	59	56	115	1,479	1,325	1,841	3,166	4,645	(h)	48,879	53,640
December	(i)	72	69	141	1,469	1,350	1,805	3,155	4,624	(h)	50,165	54,930
Total	(i)	798	706	1,503	19,708	16,984	21,475	38,459	58,167	(h)	738,444	798,115
2016 January	(i)	76	73	148	1,372	1,503	1,498	3,002	4,374	(h)	61,951	66,473
February	(i)	78	75	153	1,406	1,395	1,595	2,990	4,396	(h)	50,488	55,037
March	(i)	75	72	147	1,481	1,370	1,628	2,998	4,479	(h)	39,769	44,395
April	(i)	49	27	77	1,370	1,006	1,762	2,768	4,137	(h)	38,949	43,163
May	(i)	40	22	62	1,414	1,147	1,627	2,773	4,187	(h)	44,943	49,192
June	(i)	46	25	71	1,453	1,212	1,548	2,760	4,213	(h)	63,242	67,526
July	(i)	46	R 17	R 63	R 1,491	1,234	R 1,518	R 2,752	R 4,243	(h)	74,175	R 78,481
August	(i)	50	R 18	R 69	R 1,452	1,234	F 1,504	R 2,738	R 4,190	(h)	73,757	R 78,016
September	(i)	49	R 19	R 67	R 1,390	1,053	R 1,689	R 2,742	R 4,132	(h)	62,366	R 66,566
October	(i)	50	F 1	F 50	F 1,977	993	F 1,698	F 2,691	F 4,668	(h)	54,601	59,319
November	(i)	61	F 0	F 61	F 1,472	998	F 1,769	F 2,767	F 4,239	(h)	48,102	52,398
11-Month Total	(i)	621	E 349	E 970	E 16,277	13,145	E 17,836	E 30,981	E 47,259	(h)	612,343	660,566
2015 11-Month Total	(i)	726	637	1,363	18,239	15,634	19,670	35,304	53,543	(h)	688,279	743,185
2014 11-Month Total	(i)	973	734	1,706	19,363	17,432	21,847	39,279	58,642	(h)	783,963	844,312

<sup>a</sup> 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.

<sup>b</sup> All commercial sector fuel use other than that in "Commercial CHP."

<sup>c</sup> 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.

<sup>d</sup> All industrial sector fuel use other than that in "Coke Plants" and "Industrial CHP."

<sup>e</sup> 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.

<sup>f</sup> Through 1988, data are for electric utilities only. Beginning in 1989, data are for electric utilities and independent power producers.

<sup>g</sup> Included in "Commercial Other."

<sup>h</sup> Included in "Industrial Non-CHP."

<sup>i</sup> 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.

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 <sup>c,d</sup>	Total
		Residential <sup>a</sup> and Commercial	Industrial			Total		
			Coke Plants	Other <sup>b</sup>	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 January .....	44,951	465	2,064	3,909	5,973	6,438	133,705	185,093
February .....	44,804	435	1,927	3,721	5,649	6,083	119,904	170,792
March .....	44,728	405	1,791	3,534	5,325	5,729	118,260	168,718
April .....	44,813	413	1,840	3,564	5,404	5,817	128,925	179,555
May .....	43,871	421	1,888	3,595	5,483	5,904	136,921	186,696
June .....	42,682	429	1,937	3,626	5,563	5,992	133,479	182,153
July .....	41,939	440	2,060	3,774	5,834	6,274	125,870	174,083
August .....	39,892	451	2,184	3,922	6,106	6,557	121,369	167,818
September .....	38,828	462	2,307	4,070	6,377	6,840	124,546	170,214
October .....	38,266	458	2,418	4,112	6,530	6,988	136,964	182,218
November .....	38,159	454	2,529	4,154	6,683	7,136	142,595	187,891
December .....	38,894	449	2,640	4,196	6,836	7,285	151,548	197,727
2015 January .....	38,817	429	2,471	4,010	6,482	6,911	154,390	200,117
February .....	39,581	408	2,303	3,825	6,128	6,536	149,071	195,189
March .....	39,610	388	2,135	3,639	5,775	6,162	154,347	200,119
April .....	40,226	387	2,299	3,714	6,013	6,400	167,063	213,690
May .....	39,817	386	2,463	3,789	6,252	6,639	172,809	219,265
June .....	39,399	386	2,627	3,864	6,491	6,877	166,437	212,713
July .....	38,993	388	2,756	3,999	6,755	7,143	157,938	204,074
August .....	37,353	390	2,884	4,135	7,019	7,410	155,952	200,714
September .....	36,213	392	3,013	4,271	7,284	7,676	162,109	205,997
October .....	36,233	393	2,754	4,308	7,062	7,455	175,588	219,276
November .....	36,509	394	2,495	4,345	6,840	7,233	188,595	232,337
December .....	35,871	394	2,236	4,382	6,618	7,012	195,548	238,431
2016 January .....	F 35,935	373	2,144	4,216	6,360	6,734	187,570	230,239
February .....	F 36,656	353	2,051	4,051	6,103	6,455	187,571	230,682
March .....	F 37,304	332	1,959	3,886	5,845	6,177	192,248	235,729
April .....	F 37,808	334	1,917	3,856	5,773	6,107	194,004	237,919
May .....	F 37,549	336	1,876	3,825	5,701	6,037	193,412	236,998
June .....	F 37,127	337	1,834	3,795	5,630	5,967	183,115	226,209
July .....	F 36,287	R 348	R 1,796	R 3,746	R 5,541	R 5,890	169,441	R 211,618
August .....	F 34,719	R 359	R 1,757	R 3,703	R 5,460	R 5,820	160,428	R 200,967
September .....	F 33,574	R 371	R 1,718	R 3,661	R 5,379	R 5,750	158,169	R 197,493
October .....	F 33,417	F 485	F 1,831	F 5,793	F 7,624	F 8,110	163,474	205,001
November .....	F 33,336	F 488	F 1,828	F 5,909	F 7,736	F 8,224	172,139	213,699

<sup>a</sup> Through 1979, data are for the residential and commercial sectors. Beginning in 2008, data are for the commercial sector only.

<sup>b</sup> 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.

<sup>c</sup> 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.

<sup>d</sup> 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.

**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; non-metallic 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.”

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.”

2008 forward: EIA, Form EIA-923, “Power Plant Operations Report,” and Form EIA-3, “Quarterly Coal Consumption and Quality Report—Manufacturing and Transformation/Processing Coal Plants and Commercial and Institutional Coal Users”; 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 Coal Consumption and Quality Report—Manufacturing and Transformation/Processing Coal Plants and Commercial and Institutional Coal Users” (data for “Commercial and Institutional Coal Users”); 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, “Monthly Coal Consumption Report—Manufacturing Plants.”

1980–1997: EIA, Form EIA-3, “Quarterly Coal Consumption Report—Manufacturing Plants,” and Form EIA-6, “Coal Distribution Report,” quarterly.

1998–2007: EIA, Form EIA-3, “Quarterly Coal Consumption Report—Manufacturing Plants,” Form EIA-6A, “Coal Distribution Report,” annual, and Form EIA-7A, “Coal Production Report,” annual.

2008 forward: EIA, Form EIA-3, “Quarterly Coal Consumption and Quality Report—Manufacturing and Transformation/Processing Coal Plants and Commercial and Institutional Coal Users,” 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-7A, “Coal Production Report,” annual, and Form EIA-8A, “Coal Stocks Report,” annual; and, for forecast values, EIA, Short-Term Integrated Forecasting System (STIFS).

#### **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 Coal Consumption and Quality Report, Manufacturing and

Transformation/Processing Coal Plants and Commercial and Institutional Coal Users” (data for “Commercial and Institutional Coal Users”); 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 1977–1979: EIA, Form EIA-3, “Monthly Coal Consumption Report—Manufacturing Plants.”

1998–2007: EIA, Form EIA-3, “Quarterly Coal Consumption Report—Manufacturing Plants.”

2008 forward: EIA, Form EIA-3, “Quarterly Coal Consumption and Quality Report—Manufacturing and Transformation/Processing Coal Plants and Commercial and Institutional Coal Users”; and, for forecast values, EIA, STIFS.

#### **Electric Power**

1949 forward: Table 7.5.

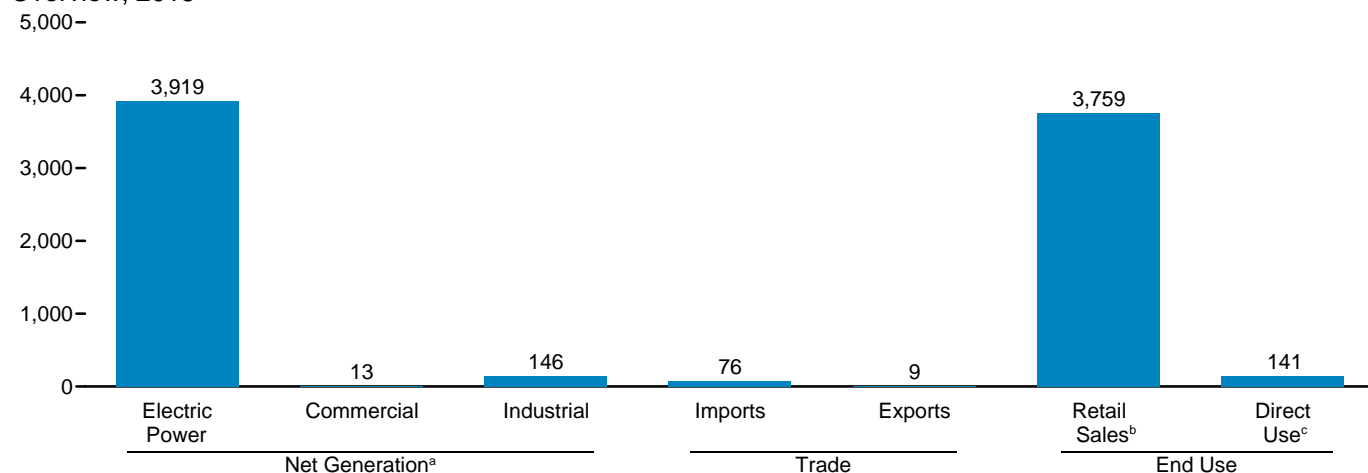
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## 7. Electricity

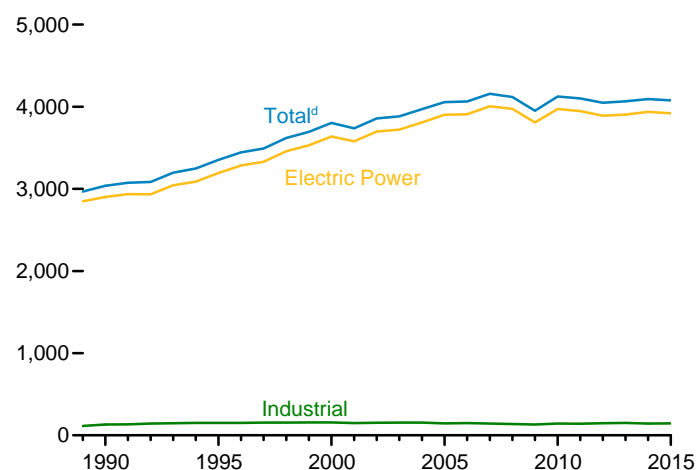
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**Figure 7.1 Electricity Overview**  
(Billion Kilowatthours)

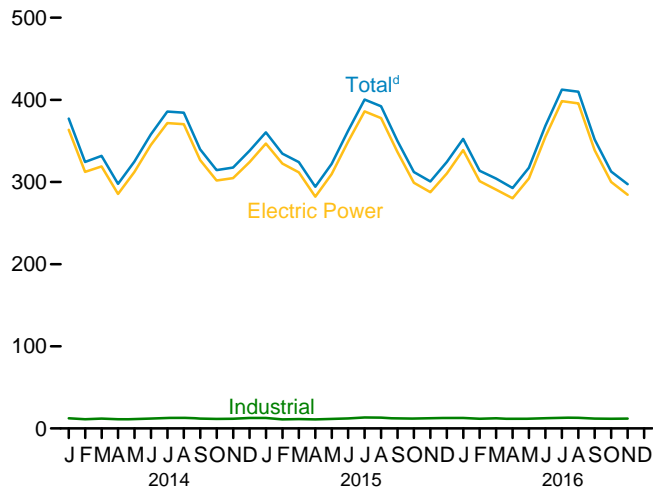
Overview, 2015



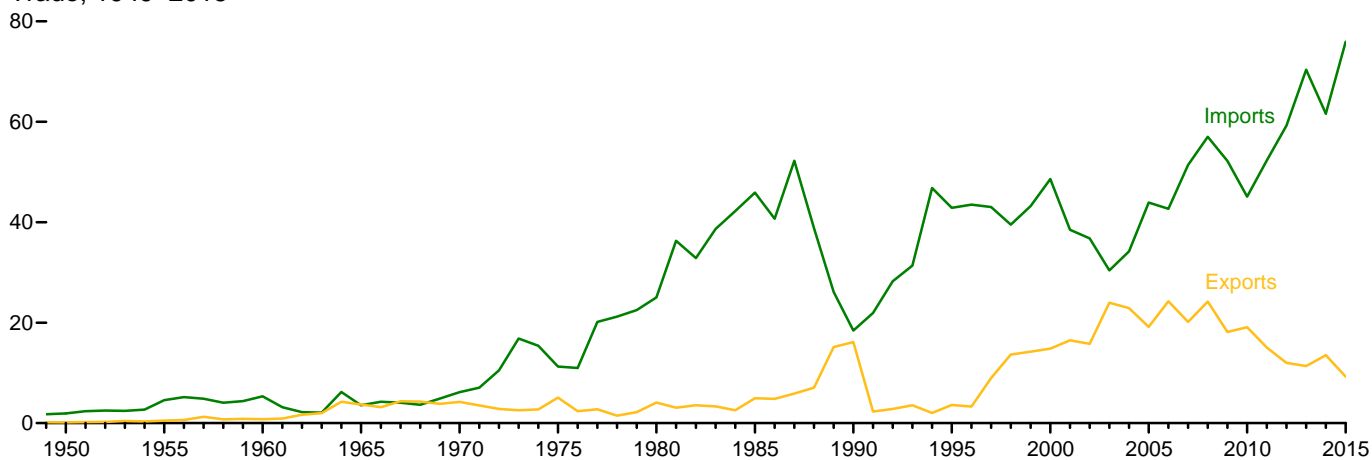
Net Generation<sup>a</sup> by Sector, 1989–2015



Net Generation<sup>a</sup> by Sector, Monthly



Trade, 1949–2015



<sup>a</sup> Data are for utility-scale facilities.

<sup>b</sup> Electricity retail sales to ultimate customers reported by electric utilities and other energy service providers.

<sup>c</sup> See "Direct Use" in Glossary.

<sup>d</sup> 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 <sup>a</sup>				Trade			T&D Losses <sup>f</sup> and Unaccounted for <sup>g</sup>	End Use		
	Electric Power Sector <sup>b</sup>	Com- mercial Sector <sup>c</sup>	Indus- trial Sector <sup>d</sup>	Total	Imports <sup>e</sup>	Exports <sup>e</sup>	Net Imports <sup>e</sup>		Retail Sales <sup>h</sup>	Direct Use <sup>i</sup>	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	<sup>c</sup> 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 January .....	364	1	12	377	5	1	4	28	341	<sup>E</sup> 12	353
February .....	312	1	11	324	4	1	3	8	309	<sup>E</sup> 11	320
March .....	319	1	12	332	6	2	4	22	302	<sup>E</sup> 11	314
April .....	285	1	11	298	5	1	3	14	276	<sup>E</sup> 11	287
May .....	312	1	12	325	5	1	5	27	291	<sup>E</sup> 11	303
June .....	345	1	12	358	5	1	4	28	323	<sup>E</sup> 11	334
July .....	372	1	13	386	6	1	5	27	352	<sup>E</sup> 12	364
August .....	370	1	13	384	7	1	6	26	352	<sup>E</sup> 12	364
September .....	327	1	12	340	6	1	5	7	327	<sup>E</sup> 12	339
October .....	302	1	12	315	5	1	4	11	297	<sup>E</sup> 11	308
November .....	305	1	12	317	6	1	5	26	285	<sup>E</sup> 11	297
December .....	324	1	13	338	5	1	4	20	310	<sup>E</sup> 12	322
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	<sup>E</sup> 12	342
February .....	322	1	11	334	6	1	4	21	307	<sup>E</sup> 11	317
March .....	312	1	11	324	7	1	6	13	305	<sup>E</sup> 11	316
April .....	282	1	11	294	7	1	6	14	275	<sup>E</sup> 11	286
May .....	310	1	12	322	7	1	6	29	288	<sup>E</sup> 11	299
June .....	349	1	12	362	7	1	6	30	326	<sup>E</sup> 12	338
July .....	386	1	13	400	7	1	6	31	363	<sup>E</sup> 13	376
August .....	378	1	13	392	7	1	7	24	362	<sup>E</sup> 13	375
September .....	337	1	12	350	7	1	6	11	333	<sup>E</sup> 12	345
October .....	299	1	12	312	5	1	5	9	296	<sup>E</sup> 12	308
November .....	288	1	12	301	6	1	5	18	276	<sup>E</sup> 12	288
December .....	310	1	13	324	6	1	5	20	297	<sup>E</sup> 12	310
Total .....	3,919	13	146	4,078	76	9	67	244	3,759	141	3,900
2016 January .....	339	1	13	353	7	1	6	29	317	<sup>E</sup> 12	329
February .....	301	1	12	314	6	1	5	14	293	<sup>E</sup> 11	305
March .....	291	1	12	304	6	1	5	16	282	<sup>E</sup> 12	294
April .....	280	1	12	293	5	1	4	20	266	<sup>E</sup> 11	277
May .....	304	1	12	317	6	1	5	31	281	<sup>E</sup> 12	292
June .....	355	1	12	368	7	1	7	38	325	<sup>E</sup> 12	337
July .....	398	1	13	412	8	1	7	40	367	<sup>E</sup> 13	380
August .....	396	1	13	410	8	1	7	28	376	<sup>E</sup> 13	389
September .....	339	1	12	352	7	1	6	13	332	<sup>E</sup> 12	344
October .....	300	1	12	313	6	1	5	15	292	<sup>E</sup> 11	303
November .....	284	1	12	297	7	1	6	19	273	<sup>E</sup> 12	284
11-Month Total ...	3,587	12	134	3,733	74	9	65	263	3,405	<sup>E</sup> 130	3,535
2015 11-Month Total ...	3,609	12	133	3,753	70	8	62	224	3,462	<sup>E</sup> 129	3,590
2014 11-Month Total ...	3,613	12	131	3,756	61	12	49	223	3,455	<sup>E</sup> 126	3,581

<sup>a</sup> 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.

<sup>b</sup> Electricity-only and combined-heat-and-power (CHP) plants within the NAICS 22 category whose primary business is to sell electricity, or electricity and heat, to the public. Through 1988, data are for electric utilities only; beginning in 1989, data are for electric utilities and independent power producers.

<sup>c</sup> Commercial combined-heat-and-power (CHP) and commercial electricity-only plants.

<sup>d</sup> Industrial combined-heat-and-power (CHP) and industrial electricity-only plants. Through 1988, data are for industrial hydroelectric power only.

<sup>e</sup> Electricity transmitted across U.S. borders. Net imports equal imports minus exports.

<sup>f</sup> 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.

<sup>g</sup> Data collection frame differences and nonsampling error.

<sup>h</sup> Electricity retail sales to ultimate customers by electric utilities and, beginning in 1996, other energy service providers.

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

E=Estimate. NA=Not available. (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.

• Totals may not equal sum of components due to independent rounding.

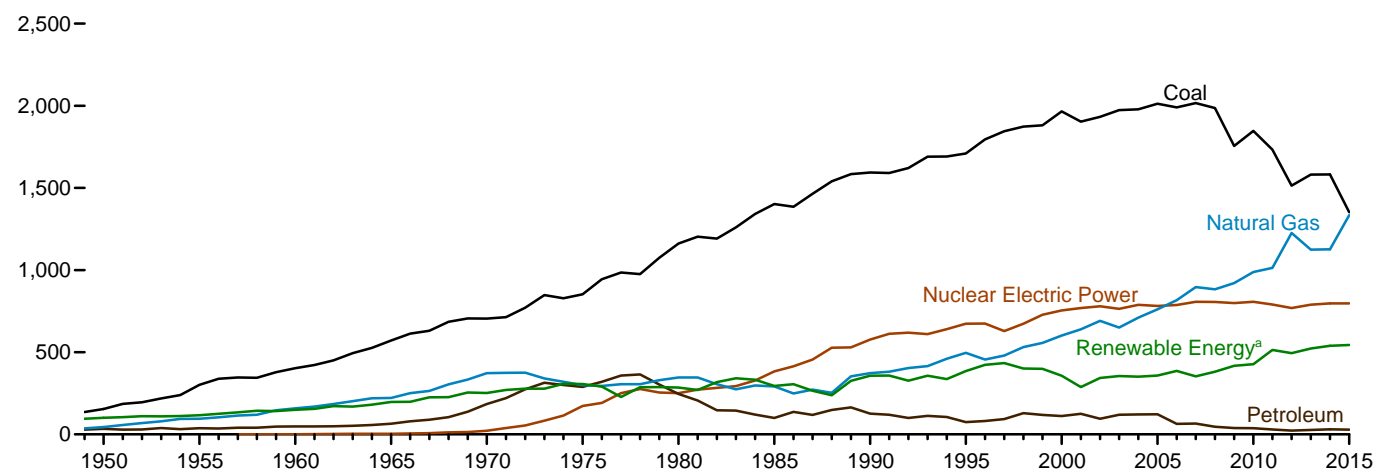
• Geographic coverage is the 50 states and the District of Columbia.

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.

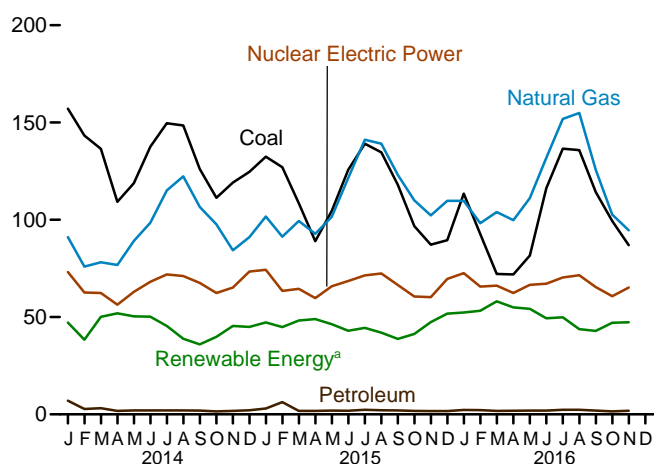
Sources: See end of section.

**Figure 7.2 Electricity Net Generation**  
(Billion Kilowatthours)

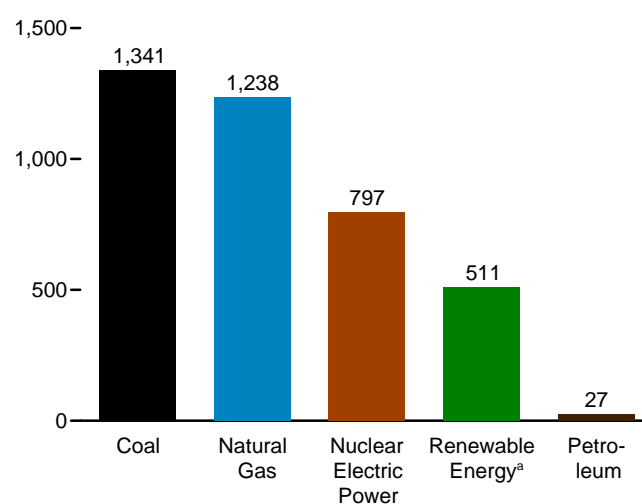
Total (All Sectors), Major Sources, 1949–2015



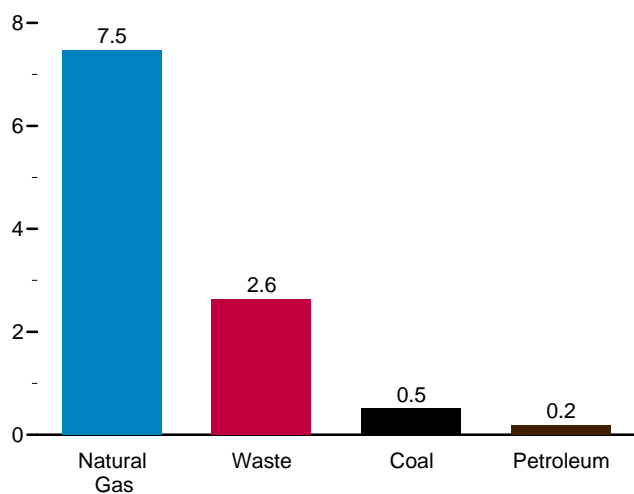
Total (All Sectors), Major Sources, Monthly



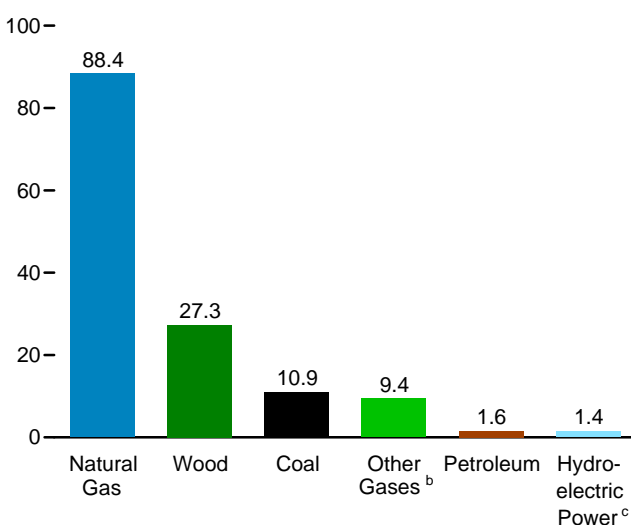
Electric Power Sector, Major Sources, 2015



Commercial Sector, Major Sources, 2015



Industrial Sector, Major Sources, 2015



<sup>a</sup> Conventional hydroelectric power, wood, waste, geothermal, solar/PV, and wind.

<sup>b</sup> Blast furnace gas, and other manufactured and waste gases derived from fossil fuels.

<sup>c</sup> 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				Nuclear Electric Power	Hydro-electric Pumped Storage <sup>e</sup>	Conventional Hydro-electric Power <sup>f</sup>	Renewable Energy					Total <sup>l</sup>
	Coal <sup>a</sup>	Petroleum <sup>b</sup>	Natural Gas <sup>c</sup>	Other Gases <sup>d</sup>				Biomass		Geo-thermal	Solar <sup>i</sup>	Wind	
								Wood <sup>g</sup>	Waste <sup>h</sup>				
1950 Total .....	154,520	33,734	44,559	NA	0	{ }	100,885	390	NA	NA	NA	NA	334,088
1955 Total .....	301,363	37,138	95,285	NA	0	{ }	116,236	276	NA	NA	NA	NA	550,299
1960 Total .....	403,067	47,987	157,970	NA	518	{ }	149,440	140	NA	33	NA	NA	759,156
1965 Total .....	570,926	64,801	221,559	NA	3,657	{ }	196,984	269	NA	189	NA	NA	1,058,386
1970 Total .....	704,394	184,183	372,890	NA	21,804	{ }	250,957	136	220	525	NA	NA	1,535,111
1975 Total .....	852,786	289,095	299,778	NA	172,505	{ }	303,153	18	174	3,246	NA	NA	1,920,755
1980 Total .....	1,161,562	245,994	346,240	NA	251,116	{ }	279,182	275	158	5,073	NA	NA	2,289,600
1985 Total .....	1,402,128	100,202	291,946	NA	383,691	{ }	284,311	743	640	9,325	11	6	2,473,002
1990 Total <sup>k</sup> .....	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	606,058	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 January .....	157,097	7,072	91,061	933	73,163	-290	21,634	3,626	1,850	1,355	751	17,911	377,255
February .....	143,294	2,763	75,942	817	62,639	-445	17,396	3,265	1,686	1,206	835	14,009	324,348
March .....	136,443	3,188	78,151	866	62,397	-421	24,257	3,609	1,851	1,338	1,317	17,736	331,823
April .....	109,281	1,753	76,782	854	56,385	-378	25,440	3,230	1,810	1,314	1,487	18,636	297,631
May .....	118,786	2,044	89,120	944	62,947	-601	26,544	3,290	1,849	1,332	1,750	15,601	324,724
June .....	137,577	2,021	98,468	969	68,138	-653	25,744	3,622	1,826	1,293	1,923	15,799	357,844
July .....	149,627	2,042	115,081	1,069	71,940	-545	24,357	3,807	1,942	1,320	1,788	12,187	385,780
August .....	148,452	2,050	122,348	1,135	71,129	-840	19,807	3,761	1,880	1,329	1,879	10,171	384,341
September .....	126,110	1,948	106,582	1,126	67,535	-542	16,074	3,462	1,772	1,308	1,832	11,520	339,887
October .....	111,296	1,518	97,683	1,082	62,391	-448	17,159	3,422	1,726	1,345	1,717	14,508	314,522
November .....	119,127	1,738	84,354	1,073	65,140	-531	18,625	3,508	1,691	1,362	1,380	18,867	317,495
December .....	124,620	2,095	91,038	1,153	73,363	-480	22,329	3,737	1,767	1,375	1,032	14,711	337,957
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	324,348
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 .....	113,453	2,293	109,767	1,263	72,536	-312	25,355	3,604	1,930	1,471	1,492	18,527	352,523
February .....	92,709	2,140	98,226	1,169	65,638	-399	24,150	3,391	1,713	1,372	2,404	20,199	313,729
March .....	72,133	1,765	104,003	1,241	66,149	-384	27,025	3,375	1,810	1,460	2,667	21,761	304,104
April .....	71,946	1,830	99,770	1,143	62,365	-452	25,475	2,895	1,819	1,340	2,897	20,566	292,719
May .....	81,639	1,931	111,156	977	66,563	-321	25,363	3,171	1,929	1,476	3,539	18,792	317,433
June .....	116,220	1,944	131,904	1,085	67,175	-497	22,902	3,400	1,829	1,364	3,544	16,314	368,348
July .....	136,583	2,319	151,827	1,066	70,349	-784	21,247	3,640	1,910	1,424	4,024	17,591	412,408
August .....	135,809	2,358	154,921	1,102	71,526	-902	19,359	3,637	1,907	1,444	3,877	13,558	409,827
September .....	114,280	1,924	125,661	1,050	65,420	-715	16,281	3,367	1,762	1,451	3,613	16,435	351,692
October .....	99,348	1,552	102,635	891	60,733	-561	17,249	3,105	1,755	1,489	3,132	20,376	312,788
November .....	87,000	1,839	94,586	1,001	65,179	-607	18,815	3,257	1,777	1,507	2,642	19,334	297,422
11-Mon. Total .....	1,121,120	21,894	1,284,457	11,987	733,632	-5,933	243,220	36,842	20,140	15,797	33,832	203,453	3,732,992
2015 11-Mon. Total .....	1,262,903	26,552	1,223,705	12,007	727,544	-4,811	225,915	38,341	19,734	14,541	23,323	170,620	3,753,174
2014 11-Mon. Total .....	1,457,090	28,137	1,035,571	10,869	723,803	-5,694	237,038	38,603	19,883	14,502	16,659	166,944	3,755,649

<sup>a</sup> Anthracite, bituminous coal, subbituminous coal, lignite, waste coal, and coal synfuel.

<sup>b</sup> Distillate fuel oil, residual fuel oil, petroleum coke, jet fuel, kerosene, other petroleum, waste oil, and, beginning in 2011, propane.

<sup>c</sup> Natural gas, plus a small amount of supplemental gaseous fuels.

<sup>d</sup> Blast furnace gas, and other manufactured and waste gases derived from fossil fuels. Through 2010, also includes propane gas.

<sup>e</sup> Pumped storage facility production minus energy used for pumping.

<sup>f</sup> Through 1989, hydroelectric pumped storage is included in "Conventional Hydroelectric Power."

<sup>g</sup> Wood and wood-derived fuels.

<sup>h</sup> 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).

<sup>i</sup> 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.

<sup>j</sup> 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).

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

NA=Not available.

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

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

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

**Table 7.2b Electricity Net Generation: Electric Power Sector**  
(Subset of Table 7.2a; Million Kilowatthours)

	Fossil Fuels				Nuclear Electric Power	Hydro-electric Pumped Storage <sup>e</sup>	Renewable Energy						Total <sup>l</sup>
	Coal <sup>a</sup>	Petroleum <sup>b</sup>	Natural Gas <sup>c</sup>	Other Gases <sup>d</sup>			Conventional Hydro-electric Power <sup>f</sup>	Biomass		Geo-thermal	Solar <sup>i</sup>	Wind	
								Wood <sup>g</sup>	Waste <sup>h</sup>				
1950 Total .....	154,520	33,734	44,559	NA	0	( )	95,938	390	NA	NA	NA	NA	329,141
1955 Total .....	301,363	37,138	95,285	NA	0	( )	112,975	276	NA	NA	NA	NA	547,038
1960 Total .....	403,067	47,987	157,970	NA	518	( )	145,833	140	NA	33	NA	NA	755,549
1965 Total .....	570,926	64,801	221,559	NA	3,657	( )	193,851	269	NA	189	NA	NA	1,055,252
1970 Total .....	704,394	184,183	372,890	NA	21,804	( )	247,714	136	220	525	NA	NA	1,531,868
1975 Total .....	852,786	289,095	299,778	NA	172,505	( )	300,047	18	174	3,246	NA	NA	1,917,649
1980 Total .....	1,161,562	245,994	346,240	NA	251,116	( )	276,021	275	158	5,073	NA	NA	2,286,439
1985 Total .....	1,402,128	100,202	291,946	NA	383,691	( )	281,149	743	640	9,325	11	6	2,469,841
1990 Total <sup>k</sup> .....	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 January .....	155,916	6,784	82,969	266	73,163	-290	21,510	1,273	1,490	1,355	734	17,895	363,645
February .....	142,218	2,578	68,730	211	62,639	-445	17,289	1,150	1,385	1,206	814	13,997	312,276
March .....	135,290	2,999	70,517	215	62,397	-421	24,139	1,291	1,514	1,338	1,286	17,722	318,914
April .....	108,279	1,583	69,583	231	56,385	-378	25,310	1,040	1,466	1,314	1,453	18,621	285,453
May .....	117,738	1,870	81,645	283	62,947	-601	26,410	1,007	1,520	1,332	1,710	15,591	312,072
June .....	136,470	1,845	90,902	257	68,138	-653	25,640	1,317	1,491	1,293	1,883	15,786	344,988
July .....	148,472	1,867	106,696	283	71,940	-545	24,265	1,374	1,574	1,320	1,748	12,176	371,817
August .....	147,329	1,873	113,910	315	71,129	-840	19,708	1,372	1,526	1,329	1,839	10,162	370,304
September .....	125,062	1,777	98,690	298	67,535	-542	15,986	1,288	1,439	1,308	1,795	11,510	326,756
October .....	110,322	1,368	90,053	334	62,391	-448	17,063	1,238	1,393	1,345	1,680	14,492	301,847
November .....	118,118	1,577	76,711	302	65,140	-531	18,524	1,331	1,373	1,362	1,351	18,848	304,738
December .....	123,561	1,921	82,766	363	73,363	-480	22,202	1,347	1,432	1,375	1,011	14,696	324,193
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 .....	112,535	2,160	101,368	370	72,536	-312	25,214	1,235	1,603	1,471	1,469	18,509	338,789
February .....	91,846	2,012	90,476	341	65,638	-399	24,014	1,200	1,423	1,372	2,357	20,179	301,029
March .....	71,251	1,650	95,852	373	66,149	-384	26,873	1,148	1,460	1,460	2,618	21,739	290,779
April .....	71,205	1,716	91,893	330	62,365	-452	25,339	857	1,501	1,340	2,851	20,546	280,094
May .....	80,879	1,777	102,953	296	66,563	-321	25,226	952	1,628	1,476	3,483	18,772	304,349
June .....	115,369	1,817	123,478	365	67,175	-497	22,791	1,137	1,557	1,364	3,480	16,297	354,970
July .....	135,668	2,173	142,959	345	70,349	-784	21,140	1,288	1,595	1,424	3,953	17,574	398,325
August .....	134,906	2,208	145,995	346	71,526	-902	19,267	1,315	1,610	1,444	3,816	13,545	395,723
September .....	113,527	1,799	117,287	369	65,420	-715	16,217	1,159	1,502	1,451	3,555	16,420	338,593
October .....	98,635	1,429	94,535	246	60,733	-561	17,166	920	1,477	1,489	3,085	20,358	300,102
November .....	86,365	1,723	86,213	361	65,179	-607	18,744	973	1,501	1,507	2,603	19,316	284,478
11-Mon. Total .....	1,112,184	20,463	1,193,011	3,739	733,632	-5,933	241,989	12,184	16,858	15,797	33,270	203,255	3,587,231
2015 11-Mon. Total .....	1,252,372	24,930	1,136,634	3,412	727,544	-4,811	224,619	13,309	16,202	14,541	22,910	170,467	3,608,870
2014 11-Mon. Total .....	1,445,214	26,122	950,406	2,995	723,803	-5,694	235,845	13,680	16,170	14,502	16,293	166,799	3,612,811

<sup>a</sup> Anthracite, bituminous coal, subbituminous coal, lignite, waste coal, and coal synfuel.

<sup>b</sup> Distillate fuel oil, residual fuel oil, petroleum coke, jet fuel, kerosene, other petroleum, waste oil, and, beginning in 2011, propane.

<sup>c</sup> Natural gas, plus a small amount of supplemental gaseous fuels.

<sup>d</sup> Blast furnace gas, and other manufactured and waste gases derived from fossil fuels. Through 2010, also includes propane gas.

<sup>e</sup> Pumped storage facility production minus energy used for pumping.

<sup>f</sup> Through 1989, hydroelectric pumped storage is included in "Conventional Hydroelectric Power."

<sup>g</sup> Wood and wood-derived fuels.

<sup>h</sup> 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).

<sup>i</sup> 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.

<sup>j</sup> 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).

<sup>k</sup> Through 1988, data are for electric utilities only. Beginning in 1989, data are for electric utilities and independent power producers.

NA=Not available.

Notes: • Data are for utility-scale facilities. See Note 1, "Coverage of Electricity Statistics," at end of section. • The electric power sector comprises electricity-only and combined-heat-and-power (CHP) plants within the NAICS 22 category whose primary business is to sell electricity, or electricity and heat, to the public. • 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 <sup>a</sup>					Industrial Sector <sup>b</sup>							
	Coal <sup>c</sup>	Petro- leum <sup>d</sup>	Natural Gas <sup>e</sup>	Biomass Waste <sup>f</sup>	Total <sup>g</sup>	Coal <sup>c</sup>	Petro- leum <sup>d</sup>	Natural Gas <sup>e</sup>	Other Gases <sup>h</sup>	Hydro- electric Power <sup>i</sup>	Biomass		Total <sup>k</sup>
											Wood <sup>j</sup>	Waste <sup>f</sup>	
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
<b>2014 January .....</b>	<b>76</b>	<b>103</b>	<b>651</b>	<b>243</b>	<b>1,218</b>	<b>1,105</b>	<b>185</b>	<b>7,441</b>	<b>667</b>	<b>120</b>	<b>2,343</b>	<b>116</b>	<b>12,391</b>
February .....	79	38	533	199	961	998	147	6,680	606	104	2,105	103	11,112
March .....	66	30	529	214	972	1,087	159	7,105	651	114	2,311	123	11,937
April .....	47	10	509	219	927	955	160	6,690	624	127	2,188	125	11,251
May .....	39	8	557	224	966	1,009	165	6,918	662	130	2,276	105	11,667
June .....	42	8	605	225	1,041	1,065	167	6,960	711	100	2,295	110	11,814
July .....	50	9	701	248	1,173	1,105	166	7,685	786	89	2,426	120	12,790
August .....	42	8	722	244	1,181	1,081	169	7,716	820	96	2,384	111	12,856
September .....	36	9	657	231	1,086	1,013	162	7,234	828	86	2,171	102	12,044
October .....	31	10	601	215	1,008	942	140	7,028	748	93	2,180	118	11,667
November .....	44	10	560	202	960	966	151	7,083	772	99	2,175	115	11,797
December .....	45	11	602	216	1,007	1,015	163	7,670	790	125	2,386	119	12,757
<b>Total .....</b>	<b>595</b>	<b>255</b>	<b>7,227</b>	<b>2,681</b>	<b>12,520</b>	<b>12,341</b>	<b>1,934</b>	<b>86,209</b>	<b>8,664</b>	<b>1,282</b>	<b>27,239</b>	<b>1,367</b>	<b>144,083</b>
<b>2015 January .....</b>	<b>56</b>	<b>24</b>	<b>564</b>	<b>209</b>	<b>981</b>	<b>964</b>	<b>161</b>	<b>7,674</b>	<b>852</b>	<b>121</b>	<b>2,404</b>	<b>105</b>	<b>12,717</b>
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
<b>Total .....</b>	<b>509</b>	<b>191</b>	<b>7,471</b>	<b>2,637</b>	<b>12,595</b>	<b>10,896</b>	<b>1,552</b>	<b>88,355</b>	<b>9,401</b>	<b>1,410</b>	<b>27,318</b>	<b>1,243</b>	<b>145,712</b>
<b>2016 January .....</b>	<b>43</b>	<b>12</b>	<b>648</b>	<b>216</b>	<b>1,057</b>	<b>875</b>	<b>121</b>	<b>7,751</b>	<b>893</b>	<b>136</b>	<b>2,362</b>	<b>111</b>	<b>12,677</b>
February .....	47	14	550	188	944	816	113	7,199	828	131	2,185	101	11,755
March .....	44	6	596	230	1,043	838	108	7,555	868	147	2,225	119	12,281
April .....	29	8	616	206	1,023	712	106	7,261	814	131	2,033	112	11,603
May .....	26	8	650	202	1,055	734	147	7,553	681	130	2,218	98	12,030
June .....	28	7	694	181	1,079	823	121	7,732	720	105	2,254	90	12,299
July .....	30	10	764	209	1,204	884	136	8,104	721	101	2,344	105	12,879
August .....	33	14	781	203	1,212	870	136	8,144	756	87	2,311	94	12,892
September .....	34	7	675	182	1,064	718	118	7,699	681	60	2,199	78	12,035
October .....	36	8	583	191	968	677	115	7,517	646	80	2,181	87	11,719
November .....	39	8	591	184	960	595	109	7,782	641	68	2,281	91	11,983
<b>11-Month Total ...</b>	<b>391</b>	<b>101</b>	<b>7,148</b>	<b>2,193</b>	<b>11,608</b>	<b>8,544</b>	<b>1,330</b>	<b>84,298</b>	<b>8,248</b>	<b>1,177</b>	<b>24,593</b>	<b>1,089</b>	<b>134,153</b>
<b>2015 11-Month Total ...</b>	<b>468</b>	<b>184</b>	<b>6,853</b>	<b>2,411</b>	<b>11,562</b>	<b>10,064</b>	<b>1,437</b>	<b>80,218</b>	<b>8,595</b>	<b>1,265</b>	<b>24,987</b>	<b>1,121</b>	<b>132,742</b>
<b>2014 11-Month Total ...</b>	<b>551</b>	<b>244</b>	<b>6,625</b>	<b>2,466</b>	<b>11,512</b>	<b>11,326</b>	<b>1,771</b>	<b>78,540</b>	<b>7,874</b>	<b>1,157</b>	<b>24,853</b>	<b>1,247</b>	<b>131,326</b>

<sup>a</sup> Commercial combined-heat-and-power (CHP) and commercial electricity-only plants.

<sup>b</sup> Industrial combined-heat-and-power (CHP) and industrial electricity-only plants.

<sup>c</sup> Anthracite, bituminous coal, subbituminous coal, lignite, waste coal, and coal synfuel.

<sup>d</sup> Distillate fuel oil, residual fuel oil, petroleum coke, jet fuel, kerosene, other petroleum, waste oil, and, beginning in 2011, propane.

<sup>e</sup> Natural gas, plus a small amount of supplemental gaseous fuels.

<sup>f</sup> 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).

<sup>g</sup> 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.

<sup>h</sup> Blast furnace gas, and other manufactured and waste gases derived from

fossil fuels. Through 2010, also includes propane gas.

<sup>i</sup> Conventional hydroelectric power.

<sup>j</sup> Wood and wood-derived fuels.

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

NA=Not available.

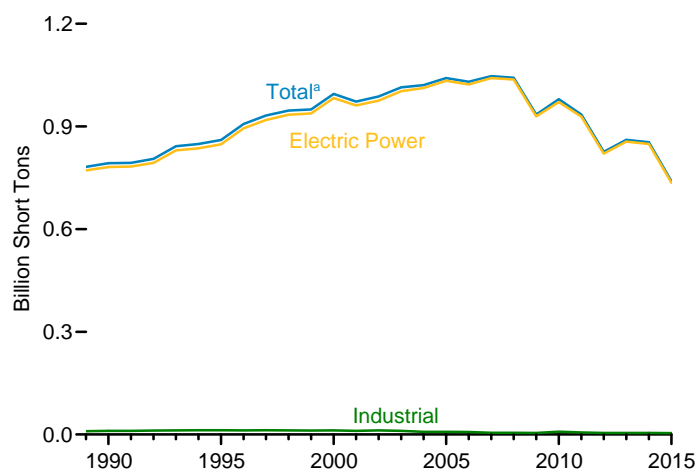
Notes: • Data are for utility-scale facilities. See Note 1, "Coverage of Electricity Statistics," at end of section. • See Note 2, "Classification of Power Plants Into Energy-Use Sectors," at end of section. • Totals may not equal sum of components due to independent rounding. • Geographic coverage is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

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

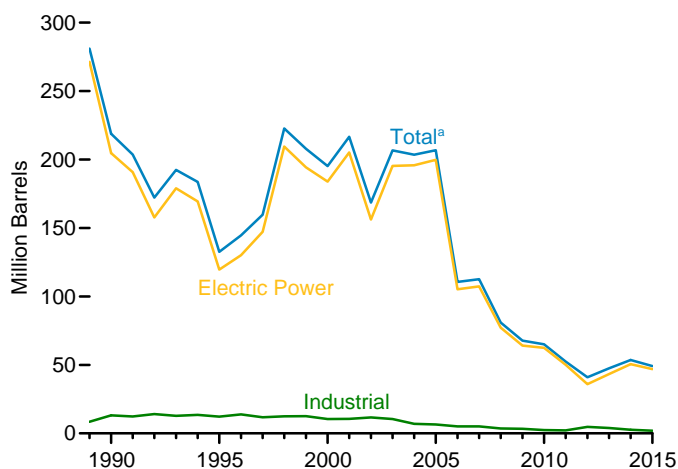
Sources: See end of section.

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

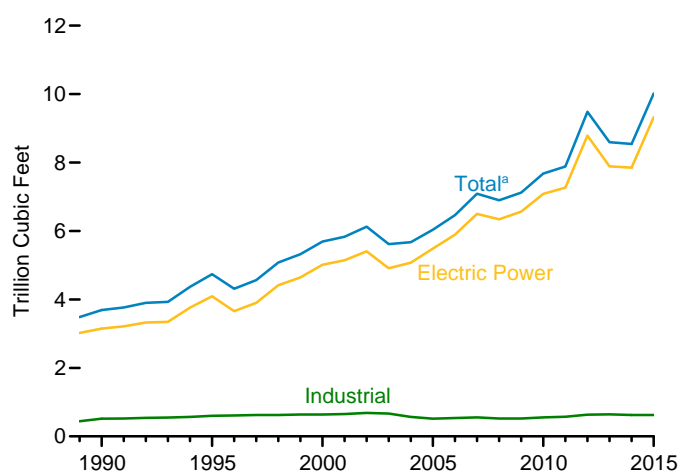
**Coal by Sector, 1989–2015**



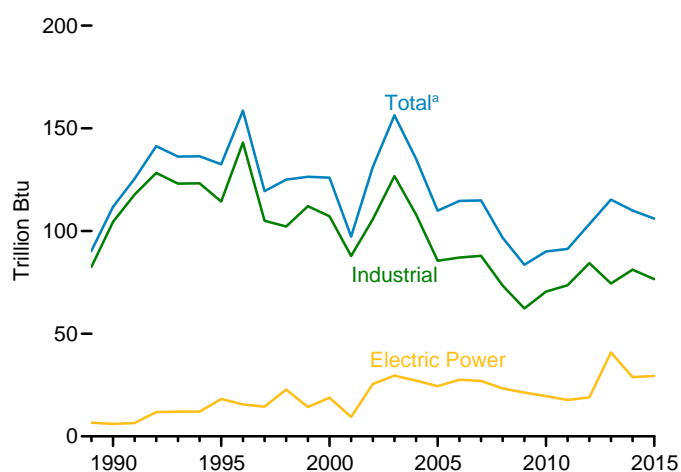
**Petroleum by Sector, 1989–2015**



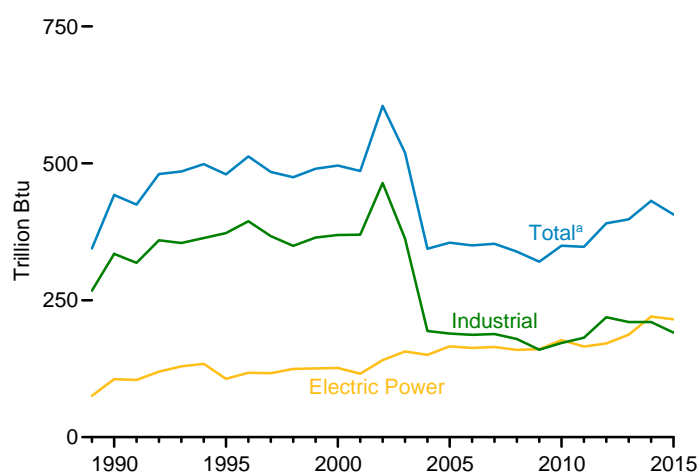
**Natural Gas by Sector, 1989–2015**



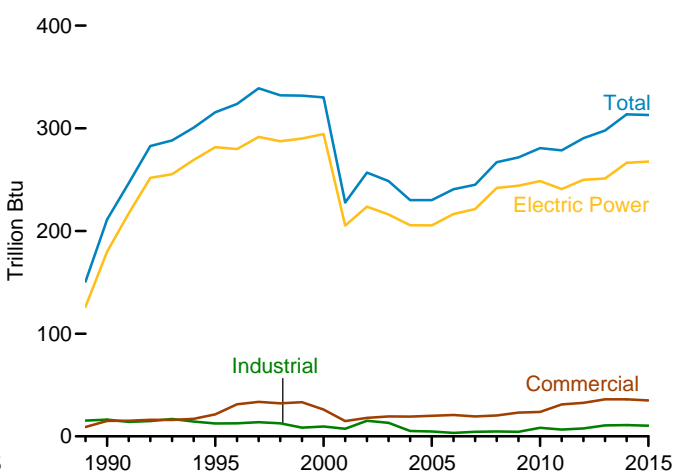
**Other Gases<sup>b</sup> by Sector, 1989–2015**



**Wood by Sector, 1989–2015**



**Waste by Sector, 1989–2015**



<sup>a</sup>Includes commercial sector.

<sup>b</sup>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 <sup>a</sup>	Petroleum					Natural Gas <sup>i</sup>	Other Gases <sup>g</sup>	Biomass		Other <sup>j</sup>
		Distillate Fuel Oil <sup>b</sup>	Residual Fuel Oil <sup>c</sup>	Other Liquids <sup>d</sup>	Petroleum Coke <sup>e</sup>	Total <sup>e</sup>			Wood <sup>h</sup>	Waste <sup>i</sup>	
	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 <sup>k</sup> .....	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 January .....	83,647	4,958	4,278	954	436	12,369	695	9	37	27	17
February .....	76,160	1,380	1,538	199	361	4,924	580	8	34	25	15
March .....	72,124	1,480	1,731	264	421	5,578	591	8	37	27	16
April .....	58,065	672	801	83	303	3,070	579	8	32	26	16
May .....	64,033	840	698	109	393	3,614	680	9	32	27	17
June .....	74,328	690	762	50	418	3,591	754	9	37	27	17
July .....	81,495	673	921	102	385	3,621	881	10	39	28	17
August .....	81,074	700	954	97	382	3,661	935	10	38	27	18
September .....	69,127	718	805	121	372	3,504	806	10	36	26	17
October .....	61,129	675	753	123	230	2,701	736	9	35	25	16
November .....	64,651	841	734	106	288	3,121	633	10	36	24	17
December .....	67,799	837	730	153	424	3,840	674	10	38	25	18
Total .....	853,634	14,465	14,704	2,363	4,412	53,593	8,544	110	431	314	200
2015 January .....	71,384	1,294	1,718	281	402	5,301	745	10	36	25	17
February .....	67,136	3,732	4,102	755	413	10,655	676	8	33	22	15
March .....	58,367	851	805	129	275	3,160	736	8	34	25	16
April .....	48,543	638	762	122	300	3,020	692	8	31	25	16
May .....	57,153	841	714	143	339	3,394	766	9	32	26	17
June .....	68,982	785	823	137	306	3,277	922	9	34	26	17
July .....	76,570	741	1,091	163	409	4,039	1,084	10	37	29	19
August .....	73,810	706	961	134	388	3,740	1,065	10	37	28	18
September .....	64,823	643	830	183	376	3,538	930	9	34	26	17
October .....	53,659	636	759	146	300	3,041	825	7	31	26	17
November .....	48,943	804	840	76	260	3,019	767	7	33	27	17
December .....	50,224	768	718	94	276	2,961	807	9	35	28	18
Total .....	739,594	12,438	14,124	2,363	4,044	49,145	10,017	106	407	313	204
2016 January .....	62,032	1,186	979	160	341	4,032	804	10	34	27	16
February .....	50,570	837	1,091	183	329	3,753	717	9	33	25	14
March .....	39,852	659	593	114	366	3,197	777	10	33	26	15
April .....	38,965	617	610	91	390	3,267	756	9	27	27	16
May .....	44,998	794	657	108	372	3,421	841	8	29	27	17
June .....	63,328	694	772	111	382	3,488	1,007	8	32	26	17
July .....	74,282	814	1,255	138	403	4,222	1,179	9	34	27	17
August .....	73,871	792	1,196	205	422	4,302	1,192	9	35	28	17
September .....	62,430	631	781	120	383	3,449	951	8	32	25	16
October .....	54,638	623	846	97	246	2,798	776	7	29	27	16
November .....	48,126	787	651	122	304	3,079	700	8	30	26	16
11-Month Total ...	613,093	8,434	9,431	1,449	3,939	39,009	9,699	94	347	289	177
2015 11-Month Total ...	689,370	11,670	13,406	2,269	3,768	46,184	9,209	97	372	285	186
2014 11-Month Total ...	785,834	13,628	13,973	2,209	3,989	49,753	7,870	100	393	288	182

<sup>a</sup> Anthracite, bituminous coal, subbituminous coal, lignite, waste coal, and coal synfuel.

<sup>b</sup> 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.

<sup>c</sup> 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.

<sup>d</sup> Jet fuel, kerosene, other petroleum liquids, waste oil, and, beginning in 2011, propane.

<sup>e</sup> Petroleum coke is converted from short tons to barrels by multiplying by 5.

<sup>f</sup> Natural gas, plus a small amount of supplemental gaseous fuels.

<sup>g</sup> Blast furnace gas, and other manufactured and waste gases derived from fossil fuels. Through 2010, also includes propane gas.

<sup>h</sup> Wood and wood-derived fuels.

<sup>i</sup> 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).

<sup>j</sup> 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).

<sup>k</sup> Through 1988, data are for electric utilities only. Beginning in 1989, data are for electric utilities, independent power producers, commercial plants, and industrial plants.

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

Notes: • Data are for utility-scale facilities. See Note 1, "Coverage of Electricity Statistics," at end of section. • Data are for fuels consumed to produce electricity. Data also include fuels consumed to produce useful thermal output at a small number of electric utility combined-heat-and-power (CHP) plants. • Totals may not equal sum of components due to independent rounding. • Geographic coverage is the 50 states and the District of Columbia.

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

Sources: See "Table 7.3b Sources" at end of section and sources for Table 7.3c.

**Table 7.3b Consumption of Combustible Fuels for Electricity Generation:  
Electric Power Sector (Subset of Table 7.3a)**

		Petroleum					Natural Gas <sup>f</sup>	Other Gases <sup>g</sup>	Biomass		Other <sup>i</sup>
		Distillate Fuel Oil <sup>b</sup>	Residual Fuel Oil <sup>c</sup>	Other Liquids <sup>d</sup>	Petroleum Coke <sup>e</sup>	Total <sup>e</sup>			Wood <sup>h</sup>	Waste <sup>j</sup>	
	Coal <sup>a</sup>	Thousand Short Tons	Thousand Barrels			Thousand Short Tons			Thousand Barrels	Billion Cubic Feet	
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 <sup>k</sup>	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 January	83,213	4,836	4,188	931	404	11,973	634	2	19	23	10
February	75,772	1,325	1,472	181	331	4,636	527	2	17	21	9
March	71,706	1,439	1,676	246	389	5,305	535	2	19	23	11
April	57,692	648	766	70	267	2,817	526	2	16	22	10
May	63,635	819	660	91	363	3,383	624	2	15	23	11
June	73,907	672	717	36	385	3,350	697	2	19	23	11
July	81,059	653	879	87	352	3,380	818	3	20	24	11
August	80,644	683	920	80	349	3,427	872	3	20	23	11
September	68,726	698	769	103	343	3,285	747	2	19	22	10
October	60,759	651	713	106	201	2,476	679	3	18	21	10
November	64,281	816	686	90	261	2,895	576	3	19	21	11
December	67,410	812	686	137	395	3,610	612	3	20	22	11
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	61,699	1,158	962	146	319	3,859	744	3	18	23	11
February	50,260	811	1,076	163	311	3,605	662	3	18	21	10
March	39,534	643	583	103	346	3,059	719	3	17	21	10
April	38,701	596	599	82	369	3,122	700	2	13	23	11
May	44,729	772	649	72	348	3,235	783	2	14	23	11
June	63,008	674	762	88	360	3,326	947	3	17	23	11
July	73,943	788	1,244	108	381	4,045	1,115	3	18	23	11
August	73,529	761	1,185	179	399	4,120	1,128	3	19	24	11
September	62,151	610	774	98	361	3,286	891	3	17	22	10
October	54,377	598	836	58	233	2,658	719	2	14	23	10
November	47,898	761	641	101	286	2,934	640	2	14	22	10
11-Month Total	609,830	8,171	9,310	1,199	3,714	37,249	9,047	28	178	248	116
2015 11-Month Total	685,514	11,307	13,188	2,010	3,531	44,157	8,577	27	197	244	116
2014 11-Month Total	781,394	13,240	13,446	2,020	3,645	46,928	7,237	26	201	245	117

<sup>a</sup> Anthracite, bituminous coal, subbituminous coal, lignite, waste coal, and coal synfuel.

<sup>b</sup> 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.

<sup>c</sup> 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.

<sup>d</sup> Jet fuel, kerosene, other petroleum liquids, waste oil, and, beginning in 2011, propane.

<sup>e</sup> Petroleum coke is converted from short tons to barrels by multiplying by 5.

<sup>f</sup> Natural gas, plus a small amount of supplemental gaseous fuels.

<sup>g</sup> Blast furnace gas, and other manufactured and waste gases derived from fossil fuels. Through 2010, also includes propane gas.

<sup>h</sup> Wood and wood-derived fuels.

<sup>i</sup> 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).

<sup>j</sup> 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).

<sup>k</sup> Through 1988, data are for electric utilities only. Beginning in 1989, data are for electric utilities and independent power producers.

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

Notes: • Data are for utility-scale facilities. See Note 1, "Coverage of Electricity Statistics," at end of section. • Data are for fuels consumed to produce electricity. Data also include fuels consumed to produce useful thermal output at a small number of electric utility combined-heat-and-power (CHP) plants. • The electric power sector comprises electricity-only and combined-heat-and-power (CHP) plants within the NAICS 22 category whose primary business is to sell electricity, or electricity and heat, to the public. • Totals may not equal sum of components due to independent rounding. • Geographic coverage is the 50 states and the District of Columbia.

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

Sources: See end of section.

**Table 7.3c Consumption of Selected Combustible Fuels for Electricity Generation: Commercial and Industrial Sectors** (Subset of Table 7.3a)

	Commercial Sector <sup>a</sup>				Industrial Sector <sup>b</sup>						
	Coal <sup>c</sup>	Petroleum <sup>d</sup>	Natural Gas <sup>e</sup>	Biomass	Coal <sup>c</sup>	Petroleum <sup>d</sup>	Natural Gas <sup>e</sup>	Other Gases <sup>g</sup>	Biomass		Other <sup>i</sup>
				Waste <sup>f</sup>					Wood <sup>h</sup>	Waste <sup>f</sup>	
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 January .....	27	113	6	3	407	283	54	6	18	1	5
February .....	27	58	5	3	362	229	48	6	16	1	4
March .....	22	44	5	3	396	229	51	6	17	1	4
April .....	16	32	5	3	357	220	48	6	16	1	4
May .....	12	23	6	3	385	208	51	7	17	1	4
June .....	15	27	6	3	406	214	51	7	18	1	4
July .....	16	24	7	3	420	216	55	7	19	1	4
August .....	14	24	7	3	417	210	56	8	18	1	5
September .....	12	25	6	3	389	194	52	8	17	1	5
October .....	11	29	6	3	359	196	51	7	17	1	4
November .....	14	29	5	3	356	197	52	7	17	1	5
December .....	16	32	6	3	373	198	55	7	19	1	5
Total .....	202	462	72	36	4,629	2,594	623	81	210	11	54
2015 January .....	18	34	5	3	338	227	54	7	17	1	5
February .....	19	95	5	3	318	228	46	6	15	1	4
March .....	17	19	5	3	351	153	48	6	15	1	4
April .....	12	15	5	3	302	194	45	6	15	1	4
May .....	10	15	6	3	323	154	49	6	16	1	5
June .....	14	14	6	3	359	148	53	7	16	1	5
July .....	14	16	7	3	376	129	57	8	17	1	6
August .....	12	18	7	3	368	133	57	7	17	1	5
September .....	10	9	7	3	360	146	54	7	16	1	5
October .....	11	8	6	3	317	127	51	5	16	1	5
November .....	12	8	5	3	295	139	53	5	16	1	5
December .....	14	9	6	3	292	131	57	6	16	1	5
Total .....	163	260	70	35	3,999	1,907	625	77	191	10	58
2016 January .....	14	13	6	3	319	160	54	7	16	1	4
February .....	15	15	5	3	296	133	50	7	15	1	3
March .....	14	8	5	3	304	131	52	7	15	1	4
April .....	11	10	5	3	254	135	50	7	14	1	4
May .....	9	11	6	3	259	176	53	5	15	1	4
June .....	10	9	6	3	310	153	54	6	15	1	4
July .....	11	11	7	3	328	165	57	6	16	1	4
August .....	12	15	7	3	330	166	57	6	16	1	4
September .....	12	10	6	3	267	153	54	6	15	1	4
October .....	13	11	5	3	248	129	51	5	15	1	4
November .....	13	11	5	3	215	134	55	5	16	1	4
11-Month Total ...	133	124	63	32	3,130	1,636	588	66	168	9	44
2015 11-Month Total ...	149	251	64	32	3,707	1,776	568	70	175	9	53
2014 11-Month Total ...	185	430	66	33	4,255	2,395	568	74	192	10	49

<sup>a</sup> Commercial combined-heat-and-power (CHP) and commercial electricity-only plants.

<sup>b</sup> Industrial combined-heat-and-power (CHP) and industrial electricity-only plants.

<sup>c</sup> Anthracite, bituminous coal, subbituminous coal, lignite, waste coal, and coal synfuel.

<sup>d</sup> Distillate fuel oil, residual fuel oil, petroleum coke, jet fuel, kerosene, other petroleum, waste oil, and, beginning in 2011, propane.

<sup>e</sup> Natural gas, plus a small amount of supplemental gaseous fuels.

<sup>f</sup> 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).

<sup>g</sup> Blast furnace gas, and other manufactured and waste gases derived from fossil fuels. Through 2010, also includes propane gas.

<sup>h</sup> Wood and wood-derived fuels.

<sup>i</sup> Batteries, chemicals, hydrogen, pitch, purchased steam, sulfur, miscellaneous

technologies, and, beginning in 2001, non-renewable waste (municipal solid waste from non-biogenic sources, and tire-derived fuels).

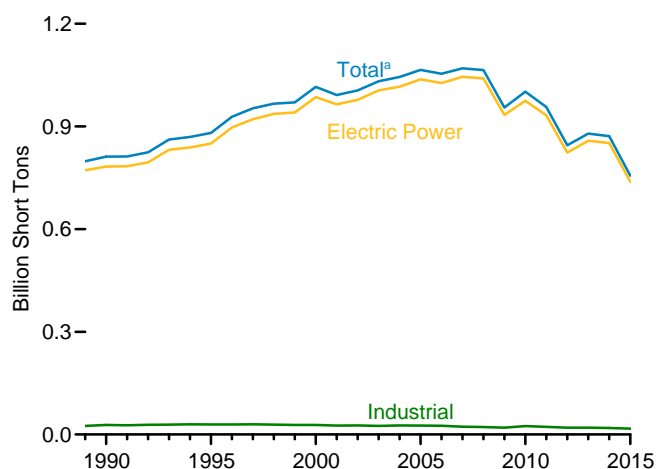
Notes: • Data are for utility-scale facilities. See Note 1, "Coverage of Electricity Statistics," at end of section. • See Note 2, "Classification of Power Plants Into Energy-Use Sectors," at end of section. • Data are for fuels consumed to produce electricity. Through 1988, data are not available. • Totals may not equal sum of components due to independent rounding. • Geographic coverage is the 50 states and the District of Columbia.

Web Page: See <http://www.eia.gov/totalenergy/data/monthly/#electricity> (Excel and CSV files) for all available annual and monthly data beginning in 1989.

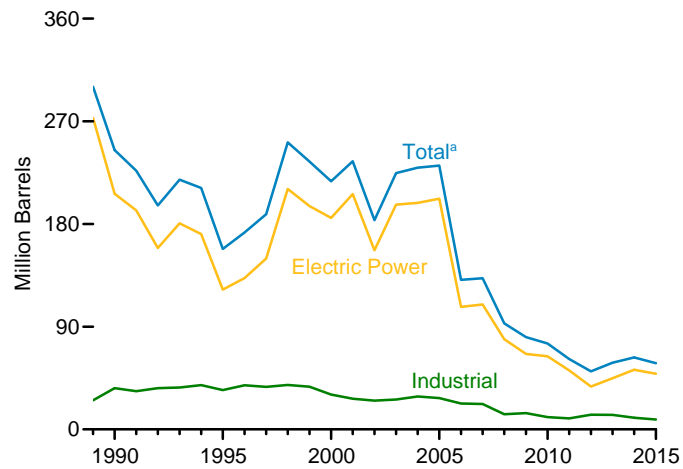
Sources: • **1989–1997:** U.S. Energy Information Administration (EIA), Form EIA-867, "Annual Nonutility Power Producer Report." • **1998–2000:** EIA, Form EIA-860B, "Annual Electric Generator Report—Nonutility." • **2001–2003:** EIA, Form EIA-906, "Power Plant Report." • **2004–2007:** EIA, Form EIA-906, "Power Plant Report," and Form EIA-920, "Combined Heat and Power Plant Report." • **2008 forward:** EIA, Form EIA-923, "Power Plant Operations Report."

**Figure 7.4 Consumption of Selected Combustible Fuels for Electricity Generation and Useful Thermal Output**

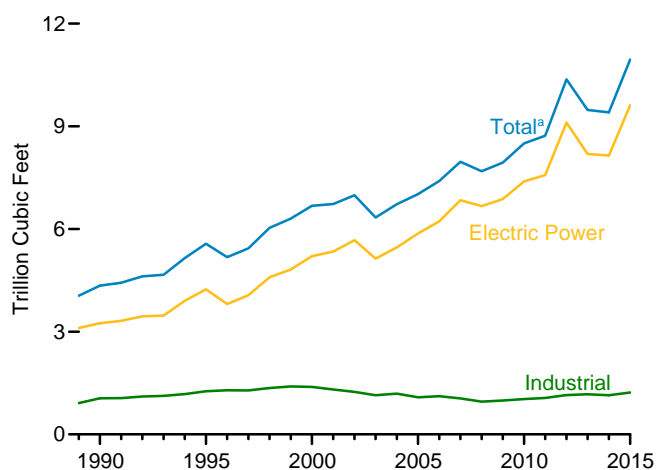
**Coal by Sector, 1989–2015**



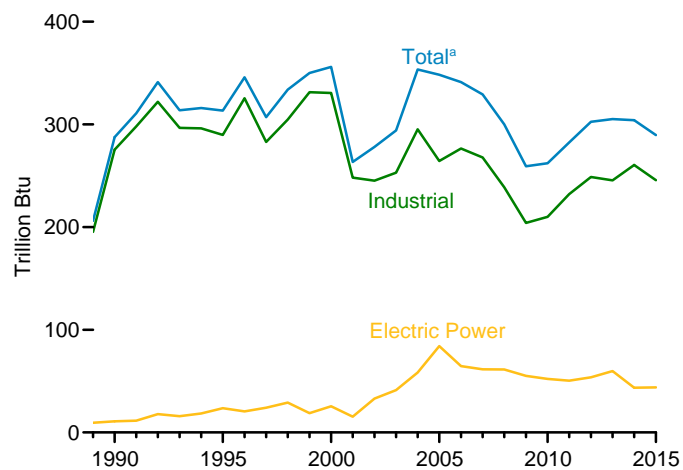
**Petroleum by Sector, 1989–2015**



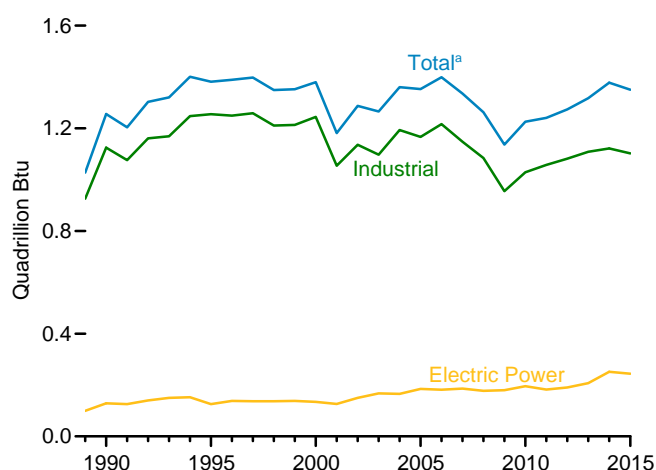
**Natural Gas by Sector, 1989–2015**



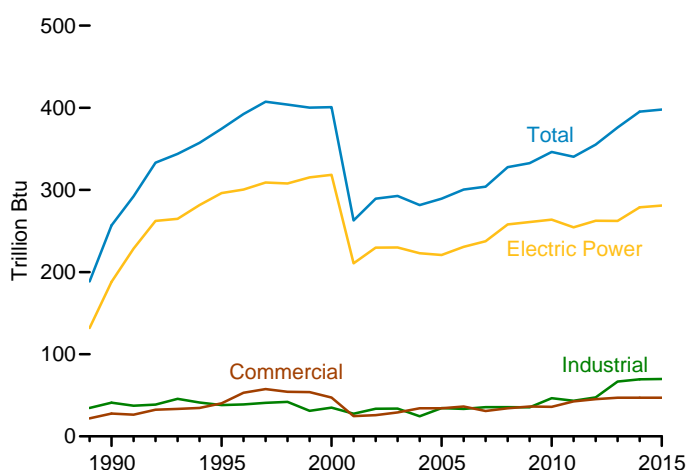
**Other Gases<sup>b</sup> by Sector, 1989–2015**



**Wood by Sector, 1989–2015**



**Waste by Sector, 1989–2015**



<sup>a</sup> Includes commercial sector.

<sup>b</sup> 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 <sup>a</sup>	Petroleum					Natural Gas <sup>f</sup>	Other Gases <sup>g</sup>	Biomass		Other <sup>i</sup>
		Distillate Fuel Oil <sup>b</sup>	Residual Fuel Oil <sup>c</sup>	Other Liquids <sup>d</sup>	Petroleum Coke <sup>e</sup>	Total <sup>e</sup>			Wood <sup>h</sup>	Waste <sup>i</sup>	
	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 <sup>k</sup> .....	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 January .....	85,420	5,177	4,609	1,046	541	13,536	782	25	118	35	20
February .....	77,801	1,460	1,746	247	454	5,722	649	23	107	32	17
March .....	73,846	1,528	1,932	316	527	6,410	664	25	117	34	19
April .....	59,489	710	932	118	418	3,852	646	24	109	34	19
May .....	65,483	869	835	153	504	4,376	748	24	109	33	19
June .....	75,741	726	904	81	527	4,343	822	24	116	33	20
July .....	82,961	702	1,050	138	499	4,386	953	26	120	35	20
August .....	82,526	741	1,073	137	494	4,422	1,010	27	121	33	21
September .....	70,482	752	908	158	485	4,243	876	26	112	31	20
October .....	62,488	701	893	165	316	3,339	808	26	114	32	19
November .....	66,131	870	878	152	393	3,863	704	27	115	32	20
December .....	69,372	871	853	196	538	4,612	749	27	121	33	21
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 .....	63,530	1,227	1,142	201	420	4,670	889	25	117	34	18
February .....	51,961	878	1,218	239	416	4,413	795	23	108	32	17
March .....	41,214	682	720	147	474	3,921	857	27	108	34	18
April .....	40,004	643	738	118	461	3,803	833	25	100	35	19
May .....	46,129	820	779	169	448	4,007	919	23	105	33	19
June .....	64,500	724	891	158	461	4,079	1,085	25	109	33	19
July .....	75,455	859	1,396	191	488	4,887	1,262	25	112	35	19
August .....	75,041	831	1,340	254	506	4,955	1,276	26	113	34	20
September .....	63,469	657	895	166	448	3,958	1,029	23	105	31	18
October .....	55,643	656	985	156	359	3,590	852	24	103	32	18
November .....	49,162	817	760	166	381	3,648	778	21	109	33	18
11-Month Total ...	626,108	8,793	10,864	1,965	4,862	45,931	10,575	265	1,189	366	203
2015 11-Month Total ...	704,639	12,128	15,281	2,868	4,826	54,407	10,063	266	1,235	361	216
2014 11-Month Total ...	802,369	14,236	15,762	2,712	5,157	58,494	8,661	277	1,256	362	215

<sup>a</sup> Anthracite, bituminous coal, subbituminous coal, lignite, waste coal, and coal synfuel.

<sup>b</sup> 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.

<sup>c</sup> 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.

<sup>d</sup> Jet fuel, kerosene, other petroleum liquids, waste oil, and, beginning in 2011, propane.

<sup>e</sup> Petroleum coke is converted from short tons to barrels by multiplying by 5.

<sup>f</sup> Natural gas, plus a small amount of supplemental gaseous fuels.

<sup>g</sup> Blast furnace gas, and other manufactured and waste gases derived from fossil fuels. Through 2010, also includes propane gas.

<sup>h</sup> Wood and wood-derived fuels.

<sup>i</sup> 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).

<sup>j</sup> 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).

<sup>k</sup> Through 1988, data are for electric utilities only. Beginning in 1989, data are for electric utilities, independent power producers, commercial plants, and industrial plants.

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

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

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

Sources: See "Table 7.4b Sources" at end of section and sources for Table 7.4c.

**Table 7.4b Consumption of Combustible Fuels for Electricity Generation and Useful Thermal Output: Electric Power Sector** (Subset of Table 7.4a)

		Petroleum					Natural Gas <sup>j</sup>	Other Gases <sup>g</sup>	Biomass		Other <sup>l</sup>
		Distillate Fuel Oil <sup>b</sup>	Residual Fuel Oil <sup>c</sup>	Other Liquids <sup>d</sup>	Petroleum Coke <sup>e</sup>	Total <sup>e</sup>			Wood <sup>h</sup>	Waste <sup>i</sup>	
	Coal <sup>a</sup>	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)	3	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 <sup>k</sup> .....	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 January .....	83,498	4,938	4,284	967	412	12,250	663	4	21	24	11
February .....	76,036	1,338	1,552	181	339	4,766	551	3	20	22	10
March .....	72,000	1,446	1,770	253	397	5,456	561	3	22	24	12
April .....	57,936	653	845	70	276	2,948	549	3	18	23	11
May .....	63,863	823	744	92	371	3,513	647	4	17	24	12
June .....	74,123	679	801	36	385	3,442	721	3	22	24	12
July .....	81,287	656	970	87	357	3,497	843	4	23	25	12
August .....	80,863	703	1,009	80	358	3,581	898	4	23	24	12
September .....	68,916	701	829	103	352	3,392	771	4	21	22	11
October .....	60,947	652	804	106	211	2,615	703	4	20	22	11
November .....	64,495	820	772	90	271	3,036	600	4	22	22	11
December .....	67,638	825	752	141	404	3,740	639	4	22	23	12
Total .....	851,602	14,235	15,132	2,208	4,132	52,235	8,146	44	251	279	137
2015 January .....	71,323	1,272	1,754	276	379	5,198	711	4	22	23	11
February .....	67,061	3,683	4,182	748	397	10,599	648	4	21	20	10
March .....	58,272	831	857	117	264	3,126	709	3	21	22	11
April .....	48,449	619	819	97	281	2,941	664	3	18	22	11
May .....	57,060	821	777	111	330	3,360	734	4	18	23	11
June .....	68,867	766	883	106	298	3,248	886	3	21	23	12
July .....	76,452	727	1,167	142	402	4,044	1,046	3	22	26	12
August .....	73,678	685	1,033	113	378	3,723	1,027	4	23	25	12
September .....	64,682	626	910	162	363	3,516	895	4	20	23	11
October .....	53,557	618	845	124	292	3,049	792	3	17	24	11
November .....	48,879	790	911	57	252	3,020	732	3	19	25	11
December .....	50,165	753	792	77	268	2,964	769	4	21	25	12
Total .....	738,444	12,193	14,929	2,131	3,907	48,787	9,613	44	244	281	136
2016 January .....	61,951	1,165	1,042	147	329	3,997	771	4	21	25	12
February .....	50,488	821	1,130	174	321	3,729	686	3	21	23	11
March .....	39,769	646	662	109	357	3,200	744	4	20	23	11
April .....	38,949	600	675	83	376	3,235	723	3	15	25	12
May .....	44,943	777	730	72	354	3,352	808	3	16	24	12
June .....	63,242	679	836	89	368	3,446	971	4	19	24	12
July .....	74,175	794	1,324	109	389	4,174	1,142	4	20	24	12
August .....	73,757	766	1,274	179	408	4,261	1,155	4	21	25	12
September .....	62,366	613	858	98	370	3,420	915	4	18	23	11
October .....	54,601	603	919	58	244	2,798	741	3	15	24	11
November .....	48,102	764	716	101	295	3,058	663	4	17	23	11
11-Month Total ...	612,343	8,229	10,166	1,219	3,811	38,670	9,320	40	201	262	125
2015 11-Month Total ...	688,279	11,439	14,137	2,054	3,638	45,823	8,845	40	222	256	124
2014 11-Month Total ...	783,963	13,410	14,381	2,067	3,728	48,495	7,507	39	229	256	125

<sup>a</sup> Anthracite, bituminous coal, subbituminous coal, lignite, waste coal, and coal synfuel.

<sup>b</sup> 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.

<sup>c</sup> 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.

<sup>d</sup> Jet fuel, kerosene, other petroleum liquids, waste oil, and, beginning in 2011, propane.

<sup>e</sup> Petroleum coke is converted from short tons to barrels by multiplying by 5.

<sup>f</sup> Natural gas, plus a small amount of supplemental gaseous fuels.

<sup>g</sup> Blast furnace gas, and other manufactured and waste gases derived from fossil fuels. Through 2010, also includes propane gas.

<sup>h</sup> Wood and wood-derived fuels.

<sup>i</sup> 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).

<sup>j</sup> 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).

<sup>k</sup> Through 1988, data are for electric utilities only. Beginning in 1989, data are for electric utilities and independent power producers.

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

Notes: • Data are for utility-scale facilities. See Note 1, "Coverage of Electricity Statistics," at end of section. • The electric power sector comprises electricity-only and combined-heat-and-power (CHP) plants within the NAICS 22 category whose primary business is to sell electricity, or electricity and heat, to the public. • Totals may not equal sum of components due to independent rounding. • Geographic coverage is the 50 states and the District of Columbia.

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

Sources: See end of section.



**Table 7.4c Consumption of Selected Combustible Fuels for Electricity Generation and Useful Thermal Output: Commercial and Industrial Sectors** (Subset of Table 7.4a)

	Commercial Sector <sup>a</sup>				Industrial Sector <sup>b</sup>						
	Coal <sup>c</sup>	Petroleum <sup>d</sup>	Natural Gas <sup>e</sup>	Biomass	Coal <sup>c</sup>	Petroleum <sup>d</sup>	Natural Gas <sup>e</sup>	Other Gases <sup>g</sup>	Biomass		Other <sup>i</sup>
				Waste <sup>f</sup>					Wood <sup>h</sup>	Waste <sup>f</sup>	
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 January .....	132	237	14	4	1,791	1,049	106	21	96	6	6
February .....	131	109	9	3	1,633	848	89	20	87	6	5
March .....	118	79	9	4	1,729	875	94	22	94	6	5
April .....	82	44	8	4	1,472	861	89	20	90	7	6
May .....	72	31	9	4	1,549	832	92	21	92	5	6
June .....	78	30	10	4	1,540	871	91	21	94	5	6
July .....	85	29	11	4	1,589	861	99	22	97	6	6
August .....	72	37	11	4	1,591	804	101	23	98	5	7
September .....	64	36	10	4	1,502	815	95	23	91	4	6
October .....	58	38	10	4	1,482	686	95	22	93	6	6
November .....	82	42	9	4	1,554	784	94	23	93	6	6
December .....	90	45	10	4	1,644	827	100	23	98	6	7
Total .....	1,063	758	119	47	19,076	10,112	1,145	260	1,122	70	72
2015 January .....	97	88	10	4	1,613	884	103	23	98	6	6
February .....	97	221	9	3	1,483	926	92	20	87	5	5
March .....	83	53	9	4	1,506	746	99	21	90	6	5
April .....	54	39	8	4	1,336	810	93	20	90	6	6
May .....	50	34	9	4	1,378	713	95	20	93	5	6
June .....	61	28	10	4	1,381	676	101	21	90	5	6
July .....	64	32	11	4	1,505	599	109	22	95	5	7
August .....	58	42	11	4	1,420	614	110	22	95	5	7
September .....	51	22	11	4	1,391	691	102	21	90	5	6
October .....	52	20	10	4	1,296	616	102	18	88	7	6
November .....	59	23	9	4	1,325	707	103	18	91	7	6
December .....	72	20	10	4	1,350	618	110	20	94	7	6
Total .....	798	622	116	47	16,984	8,600	1,222	246	1,103	70	73
2016 January .....	76	41	10	4	1,503	632	108	21	95	5	5
February .....	78	41	9	4	1,395	643	100	19	87	5	4
March .....	75	23	10	5	1,370	698	103	23	88	6	5
April .....	49	21	9	4	1,006	547	101	22	85	6	5
May .....	40	20	9	4	1,147	636	102	19	89	5	5
June .....	46	17	10	4	1,212	617	104	21	90	6	5
July .....	46	28	11	4	1,234	684	109	21	92	6	5
August .....	50	25	11	4	1,234	669	110	22	91	5	5
September .....	49	18	10	4	1,053	520	104	19	86	5	5
October .....	50	20	9	4	993	771	102	21	87	4	4
November .....	61	20	9	4	998	570	106	18	92	5	4
11-Month Total ...	621	275	107	44	13,145	6,986	1,149	225	983	59	51
2015 11-Month Total ...	726	602	107	43	15,634	7,982	1,112	226	1,008	63	66
2014 11-Month Total ...	973	713	109	43	17,432	9,285	1,045	238	1,023	63	65

<sup>a</sup> Commercial combined-heat-and-power (CHP) and commercial electricity-only plants.

<sup>b</sup> Industrial combined-heat-and-power (CHP) and industrial electricity-only plants.

<sup>c</sup> Anthracite, bituminous coal, subbituminous coal, lignite, waste coal, and coal synfuel.

<sup>d</sup> Distillate fuel oil, residual fuel oil, petroleum coke, jet fuel, kerosene, other petroleum, waste oil, and, beginning in 2011, propane.

<sup>e</sup> Natural gas, plus a small amount of supplemental gaseous fuels.

<sup>f</sup> 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).

<sup>g</sup> Blast furnace gas, and other manufactured and waste gases derived from fossil fuels. Through 2010, also includes propane gas.

<sup>h</sup> Wood and wood-derived fuels.

<sup>i</sup> Batteries, chemicals, hydrogen, pitch, purchased steam, sulfur, miscellaneous technologies, and, beginning in 2001, non-renewable waste (municipal solid waste from non-biogenic sources, and tire-derived fuels).

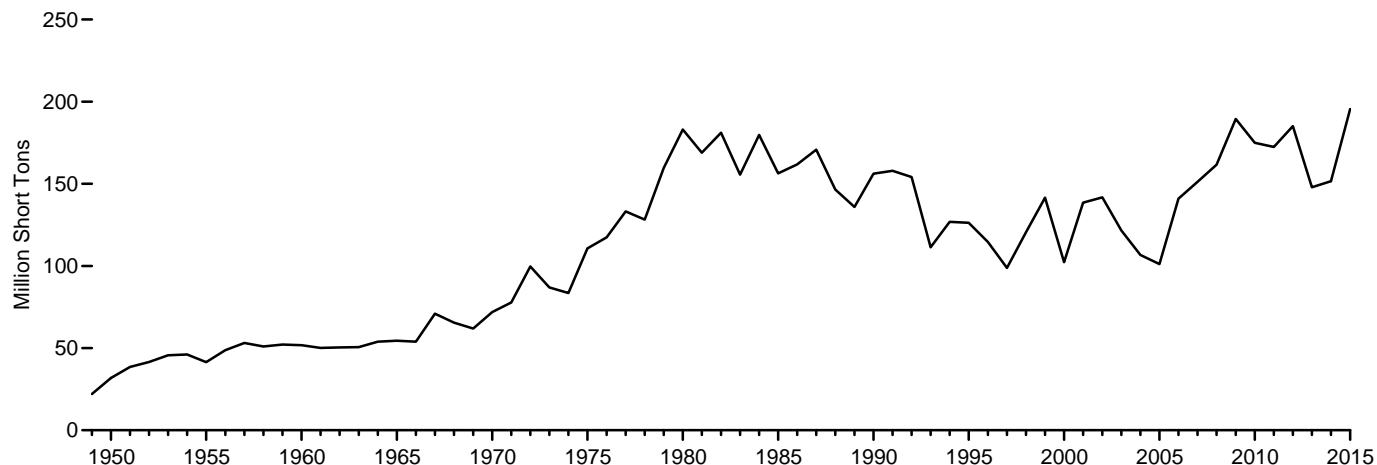
Notes: • Data are for utility-scale facilities. See Note 1, "Coverage of Electricity Statistics," at end of section. • See Note 2, "Classification of Power Plants Into Energy-Use Sectors," at end of section. • Totals may not equal sum of components due to independent rounding. • Geographic coverage is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

Web Page: See <http://www.eia.gov/totalenergy/data/monthly/#electricity> (Excel and CSV files) for all available annual and monthly data beginning in 1989.

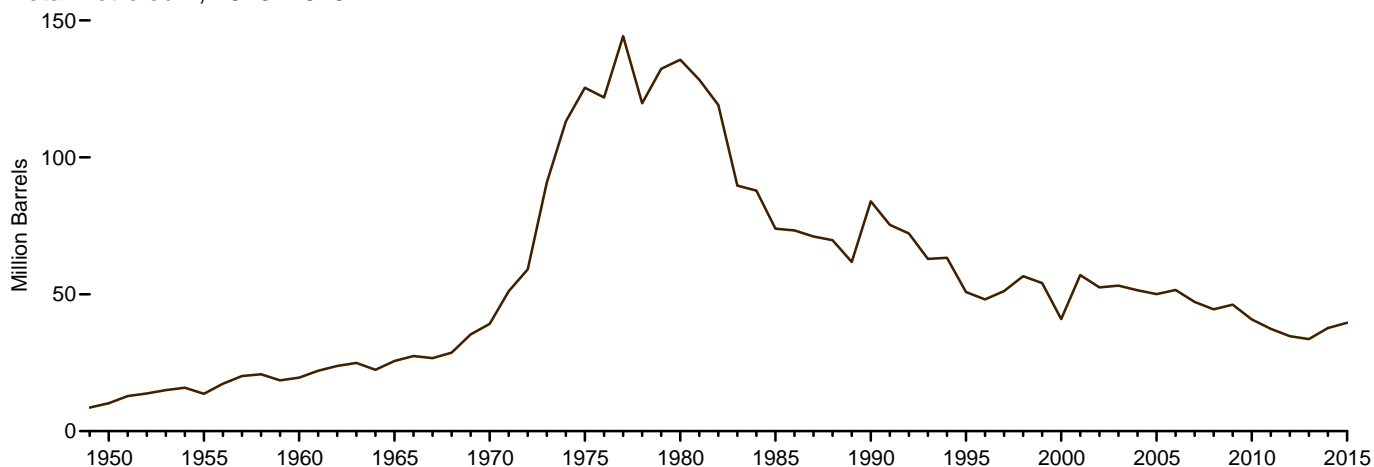
Sources: • **1989–1997:** U.S. Energy Information Administration (EIA), Form EIA-867, "Annual Nonutility Power Producer Report." • **1998–2000:** EIA, Form EIA-860B, "Annual Electric Generator Report—Nonutility." • **2001–2003:** EIA, Form EIA-906, "Power Plant Report." • **2004–2007:** EIA, Form EIA-906, "Power Plant Report," and Form EIA-920, "Combined Heat and Power Plant Report." • **2008 forward:** EIA, Form EIA-923, "Power Plant Operations Report."

**Figure 7.5 Stocks of Coal and Petroleum: Electric Power Sector**

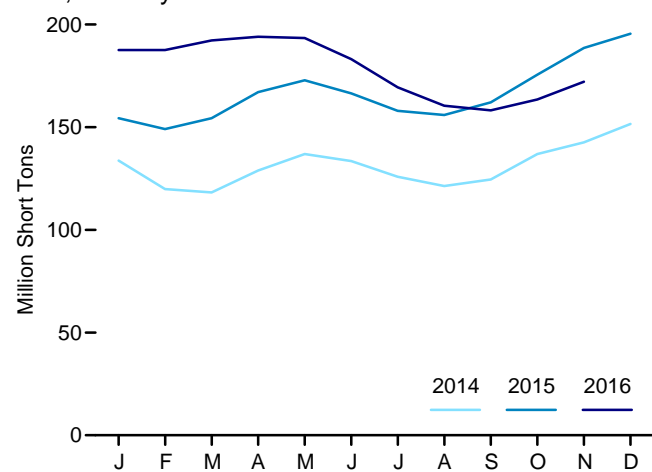
Coal, 1949–2015



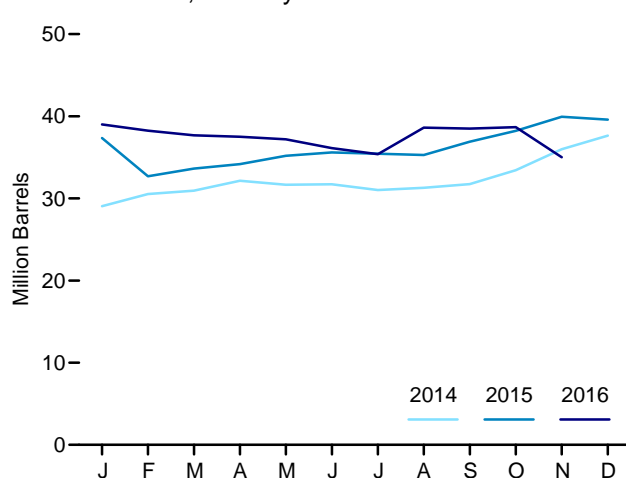
Total Petroleum, 1949–2015



Coal, Monthly



Total Petroleum, Monthly



Note: Data are for utility-scale facilities.  
 Web Page: <http://www.eia.gov/totalenergy/data/monthly/#electricity>.  
 Source: Table 7.5.

**Table 7.5 Stocks of Coal and Petroleum: Electric Power Sector**

	Coal <sup>a</sup>	Petroleum				
		Distillate Fuel Oil <sup>b</sup>	Residual Fuel Oil <sup>c</sup>	Other Liquids <sup>d</sup>	Petroleum Coke <sup>e</sup>	Total <sup>e,f</sup>
	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 <sup>g</sup> .....	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 January .....	133,705	15,058	10,057	2,439	298	29,044
February .....	119,904	16,003	10,677	2,479	277	30,541
March .....	118,260	16,148	10,606	2,443	350	30,946
April .....	128,925	16,483	10,608	2,477	515	32,143
May .....	136,921	16,285	10,581	2,511	458	31,665
June .....	133,479	16,583	10,659	2,495	397	31,724
July .....	125,870	16,490	10,250	2,380	381	31,025
August .....	121,369	16,510	10,460	2,375	388	31,286
September .....	124,546	16,863	10,532	2,394	389	31,734
October .....	136,964	17,429	10,891	2,564	510	33,433
November .....	142,595	18,166	11,978	2,685	633	35,994
December .....	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 .....	187,570	17,784	12,275	2,338	1,320	38,997
February .....	187,571	17,458	11,880	2,300	1,323	38,254
March .....	192,248	17,247	11,948	2,291	1,240	37,685
April .....	194,004	17,301	12,187	2,115	1,181	37,508
May .....	193,412	17,409	12,309	2,119	1,071	37,192
June .....	183,115	17,325	12,151	2,117	905	36,120
July .....	169,441	17,092	11,885	2,114	858	35,383
August .....	160,428	20,984	11,644	2,097	780	38,624
September .....	158,169	20,920	11,663	2,086	768	38,507
October .....	163,474	20,994	11,516	2,096	812	38,667
November .....	172,139	16,905	11,824	2,119	833	35,011

<sup>a</sup> Anthracite, bituminous coal, subbituminous coal, and lignite; excludes waste coal.

<sup>b</sup> 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.

<sup>c</sup> 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.

<sup>d</sup> Jet fuel and kerosene. Through 2003, data also include a small amount of waste oil.

<sup>e</sup> Petroleum coke is converted from short tons to barrels by multiplying by 5.

<sup>f</sup> Distillate fuel oil and residual fuel oil. Beginning in 1970, also includes petroleum coke. Beginning in 2002, also includes other liquids.

<sup>g</sup> Through 1998, data are for electric utilities only. Beginning in 1999, data are for electric utilities and independent power producers.

NA=Not available.

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

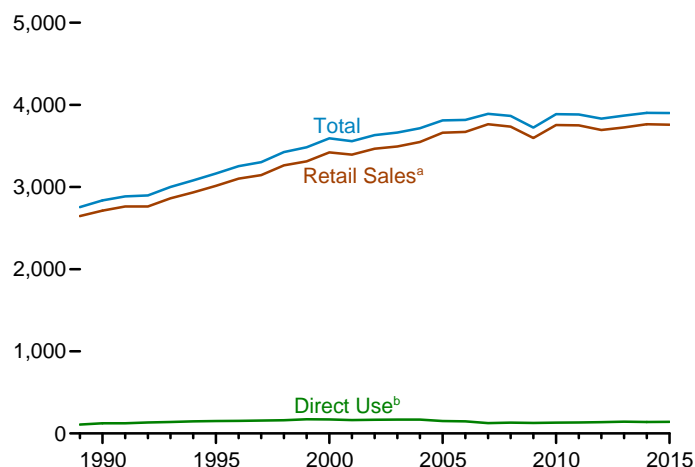
primary business is to sell electricity, or electricity and heat, to the public. • Stocks are at end of period. • Totals may not equal sum of components due to independent rounding. • Geographic coverage is the 50 states and the District of Columbia.

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

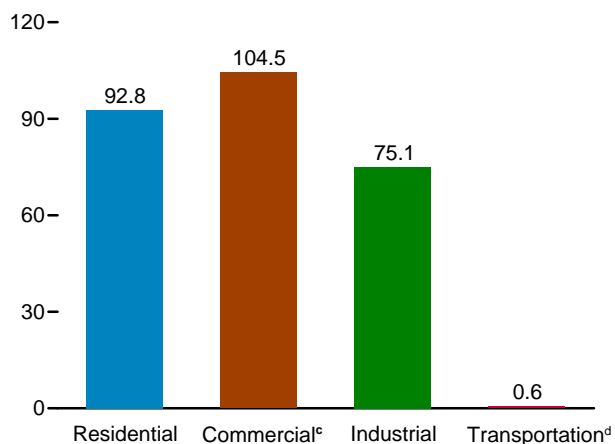
Sources: • **1949–September 1977:** Federal Power Commission, Form FPC-4, "Monthly Power Plant Report." • **October 1977–1981:** Federal Energy Regulatory Commission, Form FPC-4, "Monthly Power Plant Report." • **1982–1988:** U.S. Energy Information Administration (EIA), Form EIA-759, "Monthly Power Plant Report." • **1989–1997:** EIA, Form EIA-759, "Monthly Power Plant Report," and Form EIA-867, "Annual Nonutility Power Producer Report." • **1998–2000:** EIA, Form EIA-759, "Monthly Power Plant Report," and Form EIA-860B, "Annual Electric Generator Report—Nonutility." • **2001–2003:** EIA, Form EIA-906, "Power Plant Report." • **2004–2007:** EIA, Form EIA-906, "Power Plant Report," and Form EIA-920, "Combined Heat and Power Plant Report." • **2008 forward:** EIA, Form EIA-923, "Power Plant Operations Report."

**Figure 7.6 Electricity End Use**  
(Billion Kilowatthours)

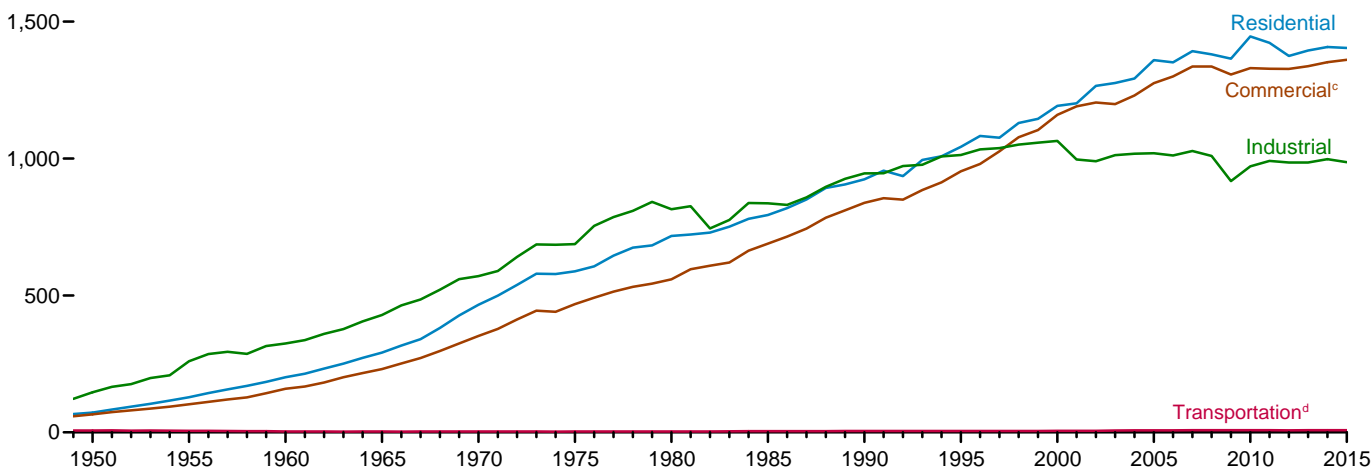
Electricity End Use Overview, 1989–2015



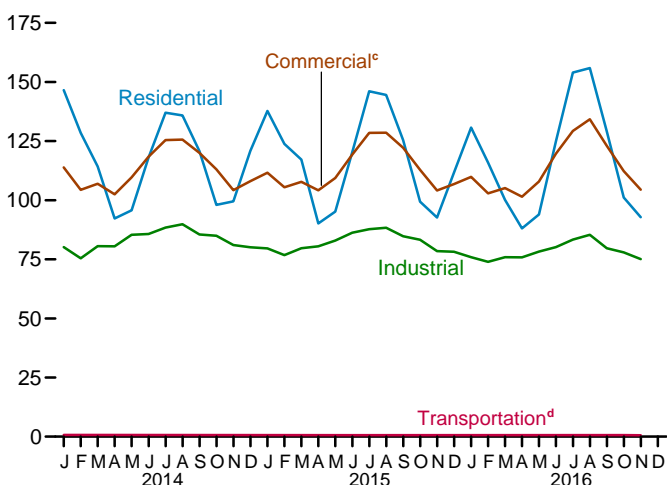
Retail Sales<sup>a</sup> by Sector, November 2016



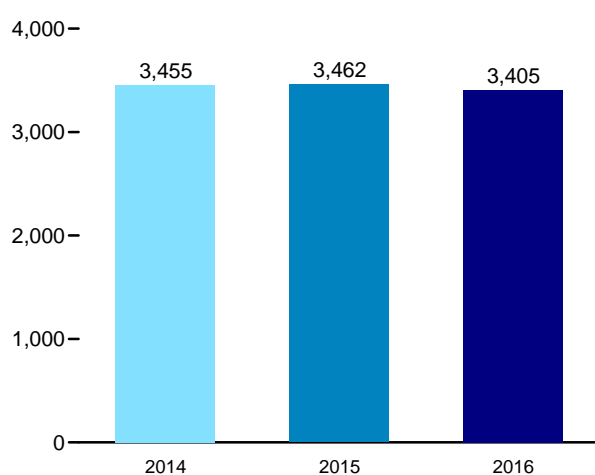
Retail Sales<sup>a</sup> by Sector, 1949–2015



Retail Sales<sup>a</sup> by Sector, Monthly



Retail Sales<sup>a</sup> Total, January–November



<sup>a</sup> Electricity retail sales to ultimate customers reported by utilities and other energy service providers.

<sup>b</sup> See “Direct Use” in Glossary.

<sup>c</sup> Commercial sector, including public street and highway lighting, inter-

departmental sales, and other sales to public authorities.

<sup>d</sup> 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 <sup>a</sup>					Direct Use <sup>f</sup>	Total End Use <sup>g</sup>
	Residential	Commercial <sup>b</sup>	Industrial <sup>c</sup>	Transportation <sup>d</sup>	Total Retail Sales <sup>e</sup>		
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	971,416	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 January .....	146,511	113,866	80,149	712	341,238	E 12,043	353,281
February .....	128,475	104,353	75,413	700	308,941	E 10,683	319,624
March .....	114,233	106,968	80,539	648	302,388	E 11,423	313,811
April .....	92,290	102,459	80,505	640	275,894	E 10,776	286,669
May .....	95,727	109,666	85,383	646	291,421	E 11,196	302,617
June .....	118,049	118,423	85,711	609	322,792	E 11,376	334,168
July .....	137,028	125,434	88,417	645	351,524	E 12,355	363,879
August .....	135,830	125,603	89,808	642	351,883	E 12,421	364,304
September .....	120,741	120,049	85,489	628	326,907	E 11,619	338,526
October .....	98,038	113,023	84,994	625	296,680	E 11,216	307,896
November .....	99,486	104,245	81,044	637	285,413	E 11,288	296,701
December .....	120,801	108,070	80,123	626	309,620	E 12,179	321,799
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 .....	130,727	109,874	75,892	660	317,153	E 12,247	329,400
February .....	115,871	102,890	73,916	647	293,323	E 11,324	304,647
March .....	100,134	105,159	75,882	610	281,785	E 11,882	293,667
April .....	88,097	101,454	75,826	595	265,973	E 11,258	277,231
May .....	93,980	107,897	78,249	582	280,708	E 11,668	292,375
June .....	124,887	119,670	80,185	632	325,374	E 11,929	337,303
July .....	153,975	129,261	83,319	648	367,203	E 12,558	379,761
August .....	155,859	134,229	85,336	630	376,055	E 12,577	388,632
September .....	129,114	122,960	79,666	637	332,378	E 11,681	344,059
October .....	101,138	112,314	77,919	613	291,985	E 11,313	303,297
November .....	92,797	104,451	75,092	591	272,932	E 11,542	284,474
11-Month Total ...	1,286,581	1,250,159	861,283	6,845	3,404,868	E 129,980	3,534,847
2015 11-Month Total ...	1,292,426	1,253,922	908,283	7,017	3,461,649	E 128,680	3,590,329
2014 11-Month Total ...	1,286,408	1,244,088	917,454	7,131	3,455,081	E 126,394	3,581,475

<sup>a</sup> Electricity retail sales to ultimate customers reported by electric utilities and, beginning in 1996, other energy service providers.

<sup>b</sup> Commercial sector, including public street and highway lighting, interdepartmental sales, and other sales to public authorities.

<sup>c</sup> Industrial sector. Through 2002, excludes agriculture and irrigation; beginning in 2003, includes agriculture and irrigation.

<sup>d</sup> Transportation sector, including sales to railroads and railways.

<sup>e</sup> The sum of "Residential," "Commercial," "Industrial," and "Transportation."

<sup>f</sup> 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.

<sup>g</sup> The sum of "Total Retail Sales" and "Direct Use."

E=Estimate. NA=Not available.

Notes: • See Note 1, "Coverage of Electricity Statistics," at end of section.

• Totals may not equal sum of components due to independent rounding.

• Geographic coverage is the 50 states and the District of Columbia.

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

Sources: See end of section.

## Electricity

**Note 1. Coverage of Electricity Statistics.** Data in Section 7 cover the following:

Through 1984, data for electric utilities also include institutions (such as universities) and military facilities that generated electricity primarily for their own use; beginning in 1985, data for electric utilities exclude institutions and military facilities. Beginning in 1989, data for the commercial sector include institutions and military facilities.

The generation, consumption, and stocks data in Section 7 are for utility-scale facilities—those with a combined generation nameplate capacity of 1 megawatt or more. Data exclude distributed (small-scale) facilities—those with a combined generator nameplate capacity of less than 1 megawatt. For data on distributed solar photovoltaic (PV) generation in the residential, commercial, and industrial sectors, see Table 10.6.

**Note 2. Classification of Power Plants Into Energy-Use Sectors.** The U.S. Energy Information Administration (EIA) classifies power plants (both electricity-only and combined-heat-and-power plants) into energy-use sectors based on the North American Industry Classification System (NAICS), which replaced the Standard Industrial Classification (SIC) system in 1997. Plants with a NAICS code of 22 are assigned to the Electric Power Sector. Those with NAICS codes beginning with 11 (agriculture, forestry, fishing, and hunting); 21 (mining, including oil and gas extraction); 23 (construction); 31–33 (manufacturing); 2212 (natural gas distribution); and 22131 (water supply and irrigation systems) are assigned to the Industrial Sector. Those with all other codes are assigned to the Commercial Sector. Form EIA-860, “Annual Electric Generator Report,” asks respondents to indicate the primary purpose of the facility by assigning a NAICS code from the list at [http://www.eia.gov/survey/form/eia\\_860/instructions.pdf](http://www.eia.gov/survey/form/eia_860/instructions.pdf).

### 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 forward: National Energy Board of Canada; California Independent System Operator; and EIA estimates for Texas transfers.

#### 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.”

### 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."

### **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."

### **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."

### **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)*, January 2017, Table 5.1.

#### **Retail Sales, Commercial**

1949–2002: Data are estimates. See estimation methodology at [http://www.eia.gov/state/seds/sep\\_use/notes/use\\_elec.pdf](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, January 2017, Table 5.1.

#### **Retail Sales, Transportation**

1949–2002: Data are estimates. See estimation methodology at [http://www.eia.gov/state/seds/sep\\_use/notes/use\\_elec.pdf](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, January 2017, Table 5.1.

#### **Direct Use, Annual**

1989–1997: EIA, Form EIA-867, "Annual Nonutility Power Producer Report."

1998–2000: EIA, Form EIA-860B, "Annual Electric Generator Report—Nonutility."

2001–2015: EIA, *Electric Power Annual 2015*, November 2016, Table 2.2.

#### **Direct Use, Monthly**

1989 forward: Annual shares are calculated as annual direct use divided by annual commercial and industrial net generation (on Table 7.1). Then monthly direct use estimates are calculated as the annual share multiplied by the monthly commercial and industrial net generation values. For 2016, the 2015 annual share is used.

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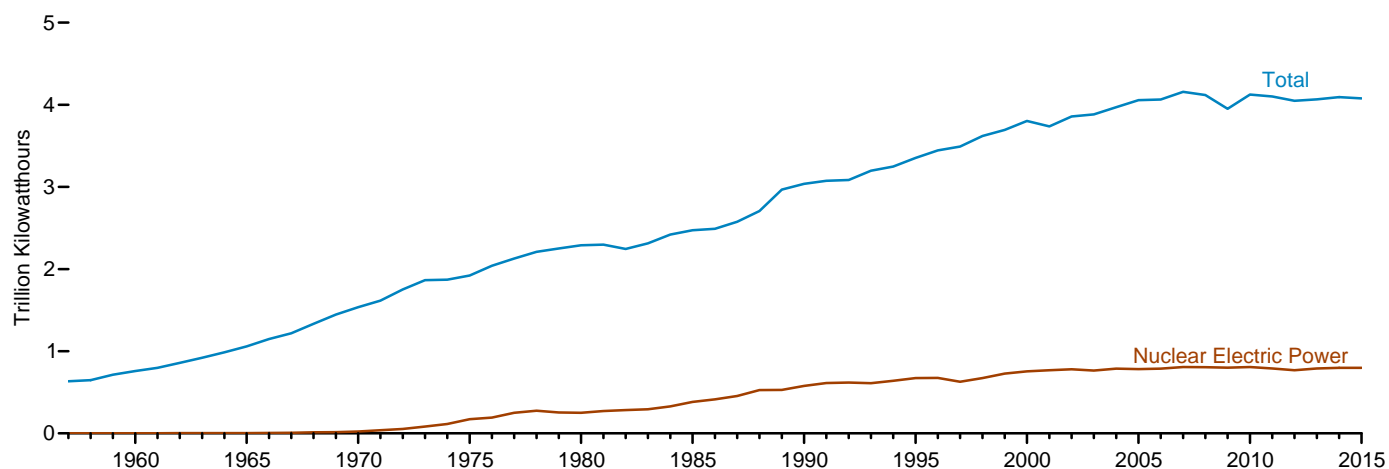


## 8. Nuclear Energy

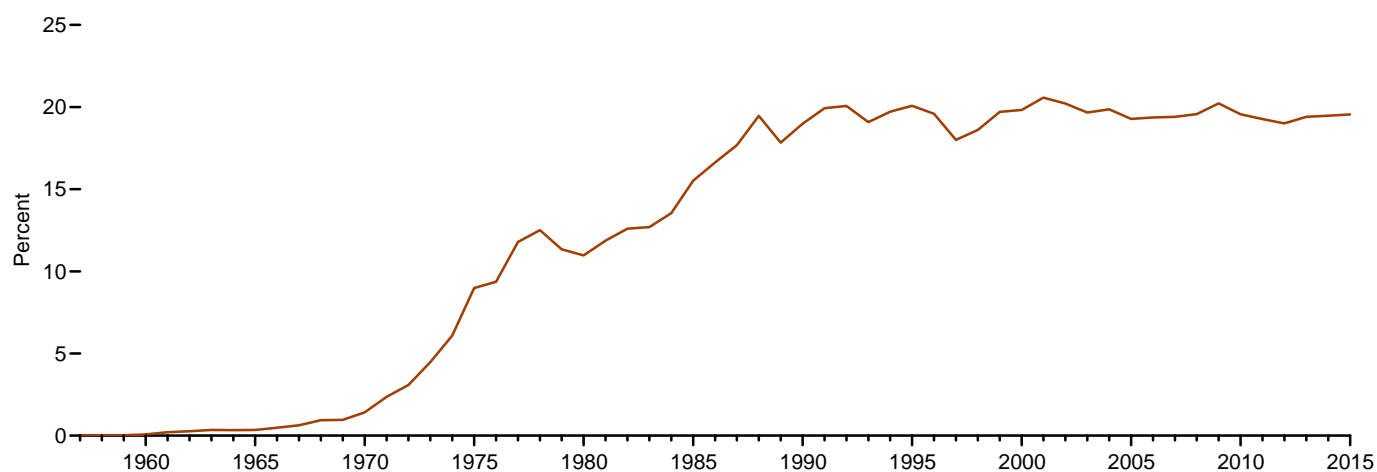
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## Figure 8.1 Nuclear Energy Overview

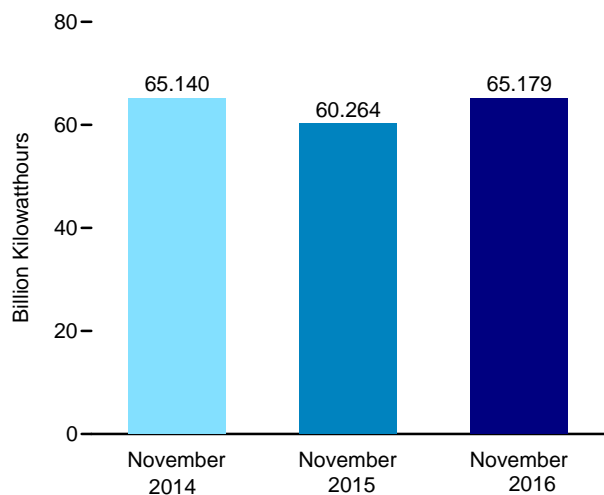
Electricity Net Generation, 1957–2015



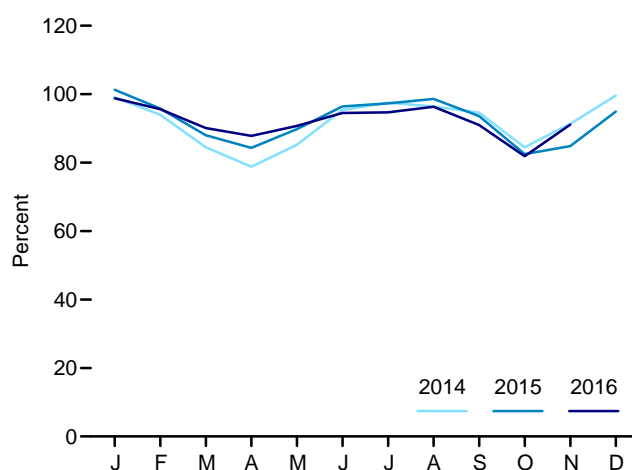
Nuclear Share of Electricity Net Generation, 1957–2015



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 <sup>a,b</sup>	Net Summer Capacity of Operable Units <sup>b,c</sup>	Nuclear Electricity Net Generation	Nuclear Share of Electricity Net Generation	Capacity Factor <sup>d</sup>
	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	<sup>d</sup> 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	<sup>c</sup> 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 January .....	100	99.182	73,163	19.4	99.1
February .....	100	99.182	62,639	19.3	94.0
March .....	100	99.182	62,397	18.8	84.5
April .....	100	99.182	56,385	18.9	78.8
May .....	100	99.182	62,947	19.4	85.2
June .....	100	99.182	68,138	19.0	95.4
July .....	100	99.182	71,940	18.6	97.5
August .....	100	99.182	71,129	18.5	96.4
September .....	100	99.182	67,535	19.9	94.6
October .....	100	99.182	62,391	19.8	84.5
November .....	100	99.182	65,140	20.5	91.3
December .....	99	98.569	73,363	21.7	99.6
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	<sup>E</sup> 98.672	72,536	20.6	<sup>E</sup> 98.8
February .....	99	<sup>E</sup> 98.672	65,638	20.9	<sup>E</sup> 95.6
March .....	99	<sup>E</sup> 98.672	66,149	21.8	<sup>E</sup> 90.1
April .....	99	<sup>E</sup> 98.672	62,365	21.3	<sup>E</sup> 87.8
May .....	99	<sup>E</sup> 98.672	66,563	21.0	<sup>E</sup> 90.7
June .....	99	<sup>E</sup> 99.794	67,175	18.2	<sup>E</sup> 94.5
July .....	100	<sup>E</sup> 99.794	70,349	17.1	<sup>E</sup> 94.7
August .....	100	<sup>E</sup> 99.794	71,526	17.5	<sup>E</sup> 96.3
September .....	100	<sup>E</sup> 99.794	65,420	18.6	<sup>E</sup> 91.0
October .....	99	<sup>E</sup> 99.316	60,733	19.4	<sup>E</sup> 81.9
November .....	99	<sup>E</sup> 99.316	65,179	21.9	<sup>E</sup> 91.1
11-Month Total .....	99	<sup>E</sup> 99.316	733,632	19.7	<sup>E</sup> 92.0
2015 11-Month Total .....	99	98.672	727,544	19.4	92.0
2014 11-Month Total .....	100	99.182	723,803	19.3	91.0

<sup>a</sup> 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.

<sup>b</sup> At end of period.

<sup>c</sup> 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.

<sup>d</sup> 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.

<sup>E</sup>=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 generally defined as operable while it possessed 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 is liberal in that it does not exclude units retaining full-power licenses during long, non-routine shutdowns that for a time rendered them unable to generate electricity. Examples are:

(a) In 1985 the five then-active Tennessee Valley Authority (TVA) units (Browns Ferry 1, 2, and 3, and Sequoyah 1 and 2) were shut down under a regulatory forced outage. All five units were idle for several years, restarting in 2007, 1991, 1995, 1988, and 1988, respectively and were counted as operable during the shutdowns.

(b) Shippingport was shut down from 1974 through 1976 for conversion to a light-water breeder reactor, but is counted as operable from 1957 until its retirement in 1982.

(c) Calvert Cliffs 2 was shut down in 1989 and 1990 for replacement of pressurizer heater sleeves but is counted as operable during those years.

Exceptions to the definition are Shoreham and Three Mile Island 2. Shoreham was granted a full-power license in April 1989, but was shut down two months later and never restarted. In 1991, the license was changed to Possession Only. Although not operable at the end of the year, Shoreham is counted as operable during 1989. A major accident closed Three Mile Island 2 in 1979, and although the unit retained its full-power license for several years, it is considered permanently shut down since that year.

The following nuclear generating units were retired in 2013: Crystal River 3 in February; Kewaunee in May; and San Onofre 2 and 3 in June. Vermont Yankee was retired in December 2014.

**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. For a list of operable units as of November 2011, see [http://www.eia.gov/nuclear/reactors/stats\\_table1.html](http://www.eia.gov/nuclear/reactors/stats_table1.html).

#### 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.

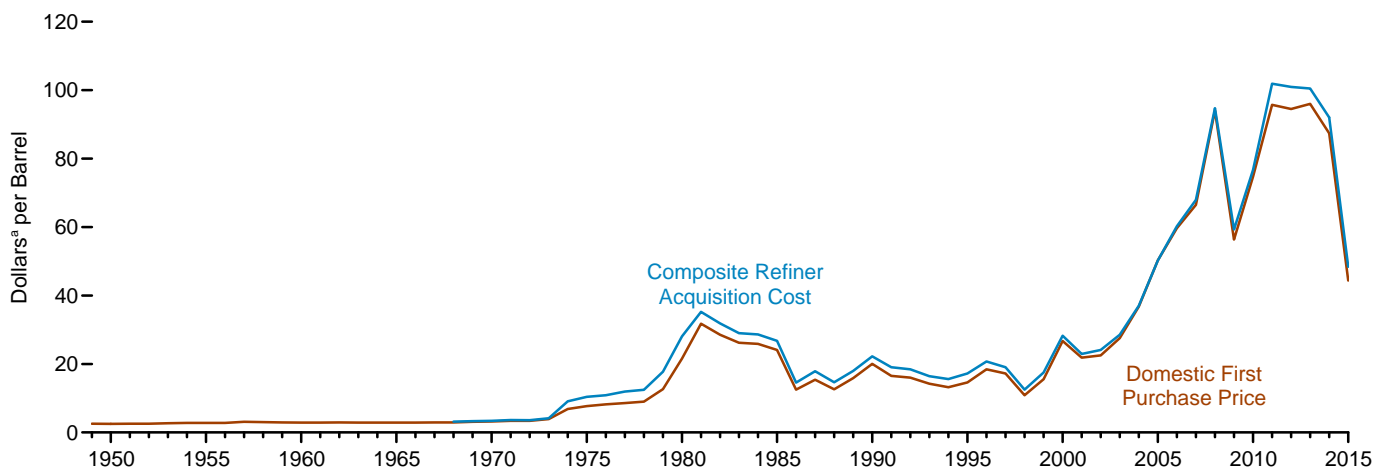
2008 forward: EIA, Form EIA-860, “Annual Electric Generator Report”; Form EIA-860M, “Monthly Update to the Annual Electric Generator Report”; and Form EIA-923, “Power Plant Operations Report.”

## 9. Energy Prices

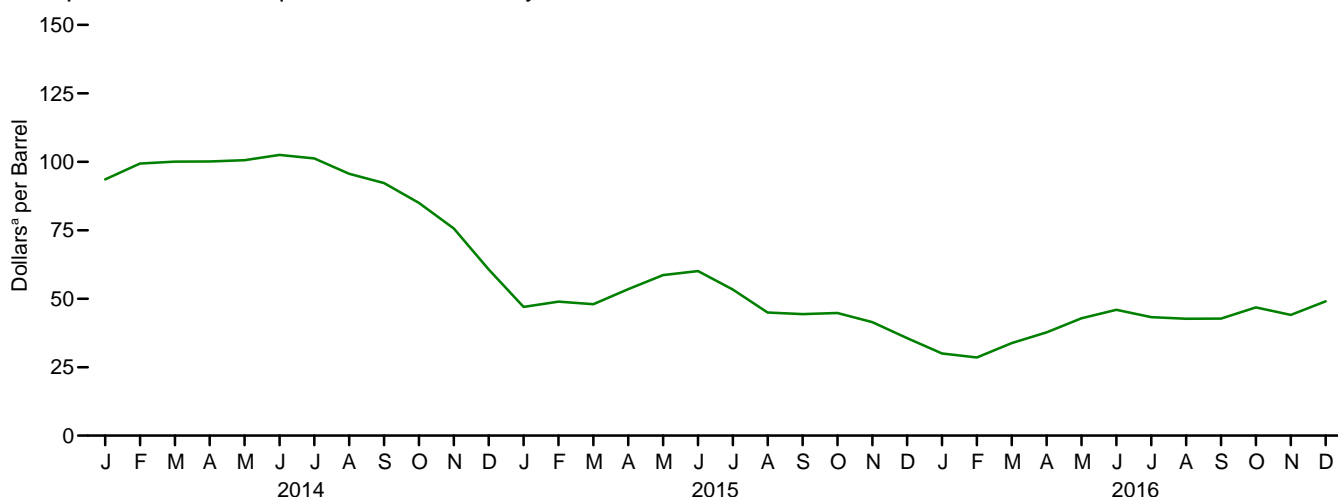
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## Figure 9.1 Petroleum Prices

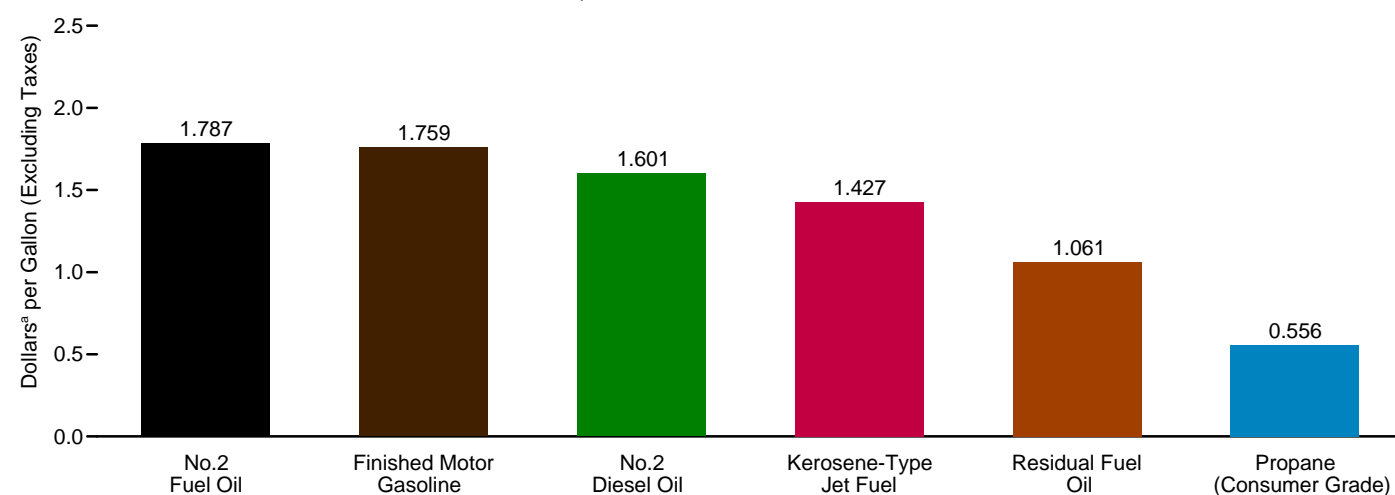
Crude Oil Prices, 1949–2015



Composite Refiner Acquisition Cost, Monthly



Refiner Prices to End Users: Selected Products, November 2016



<sup>a</sup> 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<sup>a</sup> per Barrel)

	Domestic First Purchase Price <sup>c</sup>	F.O.B. Cost of Imports <sup>d</sup>	Landed Cost of Imports <sup>e</sup>	Refiner Acquisition Cost <sup>b</sup>		
				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
<b>2014</b> January .....	89.57	90.93	90.97	97.21	89.71	93.58
February .....	96.86	92.76	95.38	102.35	96.10	99.36
March .....	96.17	93.05	95.54	102.61	97.13	100.09
April .....	96.49	94.15	96.51	102.53	97.33	100.15
May .....	95.74	96.16	97.99	102.40	98.46	100.61
June .....	98.68	97.57	99.27	104.21	100.26	102.51
July .....	96.70	93.79	96.59	103.21	98.75	101.22
August .....	90.72	89.28	91.53	97.60	93.23	95.61
September .....	86.87	85.26	87.31	94.62	89.38	92.26
October .....	78.84	76.73	80.13	86.73	82.75	84.99
November .....	71.07	67.48	70.94	76.67	74.34	75.66
December .....	54.86	50.01	54.86	63.26	57.36	60.70
<b>Average .....</b>	<b>87.39</b>	<b>85.65</b>	<b>88.16</b>	<b>94.05</b>	<b>89.56</b>	<b>92.02</b>
<b>2015</b> 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
<b>Average .....</b>	<b>44.39</b>	<b>41.91</b>	<b>45.38</b>	<b>49.94</b>	<b>46.38</b>	<b>48.39</b>
<b>2016</b> January .....	27.02	23.56	27.34	32.17	27.48	29.99
February .....	25.51	24.68	26.97	30.30	26.61	28.53
March .....	31.87	29.73	31.99	35.31	32.21	33.82
April .....	35.59	32.76	35.42	39.30	35.90	37.71
May .....	41.02	38.32	40.73	44.77	40.88	42.88
June .....	43.96	41.92	43.55	47.57	44.13	45.96
July .....	40.70	38.76	41.03	44.88	41.48	43.26
August .....	40.46	38.27	40.40	44.18	41.21	42.70
September .....	40.54	R 38.28	R 40.76	44.47	40.86	42.73
October .....	45.00	R 42.37	R 43.87	R 48.66	44.76	R 46.85
November .....	R 41.65	R 39.60	R 41.34	R 46.10	41.80	R 44.06
December .....	NA	NA	NA	E 49.98	E 47.82	E 49.05

<sup>a</sup> Prices are not adjusted for inflation. See "Nominal Dollars" in Glossary.

<sup>b</sup> See Note 1, "Crude Oil Refinery Acquisition Costs," at end of section.

<sup>c</sup> See Note 2, "Crude Oil Domestic First Purchase Prices," at end of section.

<sup>d</sup> See Note 3, "Crude Oil F.O.B. Costs," at end of section.

<sup>e</sup> 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<sup>a</sup> per Barrel)

	Selected Countries							Persian Gulf Nations <sup>b</sup>	Total OPEC <sup>c</sup>	Total Non-OPEC <sup>c</sup>
	Angola	Colombia	Mexico	Nigeria	Saudi Arabia	United Kingdom	Venezuela			
<b>1973 Average<sup>d</sup></b> .....	W	W	—	7.81	3.25	—	5.39	3.68	5.43	4.80
<b>1975 Average</b> .....	10.97	—	11.44	11.82	10.87	—	11.04	10.88	11.34	10.62
<b>1980 Average</b> .....	33.45	W	31.06	35.93	28.17	34.36	24.81	28.92	32.21	32.85
<b>1985 Average</b> .....	26.30	—	25.33	28.04	22.04	27.64	23.64	23.31	25.67	25.96
<b>1990 Average</b> .....	20.23	20.75	19.26	22.46	20.36	23.43	19.55	18.54	20.40	20.32
<b>1995 Average</b> .....	16.58	16.73	15.64	17.40	W	16.94	13.86	W	15.36	16.02
<b>2000 Average</b> .....	27.90	29.04	25.39	28.70	24.62	27.21	24.45	24.72	25.56	26.77
<b>2001 Average</b> .....	23.25	24.25	18.89	24.85	18.98	23.30	18.01	18.89	19.73	21.04
<b>2002 Average</b> .....	24.09	24.64	21.60	25.38	23.92	24.50	20.13	23.38	22.18	22.93
<b>2003 Average</b> .....	28.22	28.89	24.83	29.40	25.03	28.76	23.81	25.17	25.36	26.21
<b>2004 Average</b> .....	37.26	37.73	31.55	38.71	34.08	37.30	31.78	33.08	33.95	33.58
<b>2005 Average</b> .....	52.48	51.89	43.00	55.95	47.96	54.48	46.39	47.21	49.60	45.79
<b>2006 Average</b> .....	62.23	59.77	52.91	65.69	56.09	66.03	55.80	56.02	59.18	55.35
<b>2007 Average</b> .....	67.80	67.93	61.35	76.64	W	69.96	64.10	69.93	69.58	62.69
<b>2008 Average</b> .....	95.66	91.17	84.61	102.06	93.03	96.33	88.06	91.44	93.15	87.15
<b>2009 Average</b> .....	57.07	57.90	56.47	64.61	57.87	65.63	55.58	59.53	58.53	57.16
<b>2010 Average</b> .....	78.18	72.56	72.46	80.83	76.44	W	70.30	75.65	75.23	73.24
<b>2011 Average</b> .....	111.82	100.21	100.90	115.35	107.08	—	97.23	106.47	105.34	98.49
<b>2012 Average</b> .....	111.23	106.43	101.84	114.51	106.65	—	100.15	105.45	104.39	95.71
<b>2013 Average</b> .....	107.71	101.24	98.40	110.06	101.16	W	97.52	100.62	100.57	93.67
<b>2014</b>										
January .....	W	95.84	89.30	—	99.21	—	89.69	98.44	94.85	87.56
February .....	W	96.04	91.77	—	102.26	—	92.88	100.70	97.51	89.73
March .....	W	W	91.38	W	101.25	—	92.27	100.67	97.19	90.59
April .....	W	98.61	93.22	W	99.76	—	95.26	99.02	99.15	90.49
May .....	W	98.75	95.31	—	100.58	—	96.67	98.89	98.29	94.58
June .....	W	99.03	98.20	—	104.95	—	98.19	102.49	100.67	95.67
July .....	W	100.11	94.65	—	105.25	—	92.45	103.81	97.43	91.37
August .....	W	92.38	91.17	—	99.74	—	89.22	98.95	93.30	86.68
September .....	W	86.08	88.50	—	94.98	—	83.20	93.59	88.39	83.11
October .....	W	72.47	79.79	—	85.77	—	74.19	85.04	79.29	75.20
November .....	W	70.25	71.87	—	W	—	65.55	W	71.14	65.49
December .....	W	50.95	53.20	—	W	—	45.33	60.65	52.49	48.59
<b>Average</b> .....	<b>W</b>	<b>80.75</b>	<b>86.55</b>	<b>W</b>	<b>95.60</b>	<b>—</b>	<b>84.51</b>	<b>94.03</b>	<b>89.76</b>	<b>82.95</b>
<b>2015</b>										
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
<b>Average</b> .....	<b>W</b>	<b>47.52</b>	<b>44.90</b>	<b>W</b>	<b>47.53</b>	<b>—</b>	<b>40.73</b>	<b>46.95</b>	<b>43.25</b>	<b>41.19</b>
<b>2016</b>										
January .....	W	W	24.12	W	26.24	—	20.73	25.73	25.05	22.45
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	—	27.15	32.32	31.35	28.40
April .....	W	33.57	30.79	W	37.13	—	29.07	35.67	34.08	31.95
May .....	W	39.00	39.04	W	42.44	W	36.65	40.55	40.51	37.05
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	36.80
September .....	W	40.36	38.44	W	42.31	—	36.95	40.37	40.01	<sup>R</sup> 37.18
October .....	W	40.59	<sup>R</sup> 42.91	W	47.10	—	<sup>R</sup> 40.38	<sup>R</sup> 45.13	<sup>R</sup> 44.65	<sup>R</sup> 40.40
November .....	W	38.65	39.47	W	42.62	W	37.67	41.08	40.79	38.61

<sup>a</sup> Prices are not adjusted for inflation. See "Nominal Dollars" in Glossary.

<sup>b</sup> Bahrain, Iran, Iraq, Kuwait, Qatar, Saudi Arabia, United Arab Emirates, and the Neutral Zone (between Kuwait and Saudi Arabia).

<sup>c</sup> 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 forward.

<sup>d</sup> Based on October, November, and December data only.

<sup>R</sup> = 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<sup>a</sup> per Barrel)

	Selected Countries								Persian Gulf Nations <sup>b</sup>	Total OPEC <sup>c</sup>	Total Non-OPEC <sup>c</sup>
	Angola	Canada	Colombia	Mexico	Nigeria	Saudi Arabia	United Kingdom	Venezuela			
1973 Average <sup>d</sup>	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 January	W	78.21	97.87	90.85	—	101.30	—	92.53	100.18	98.30	84.91
February	110.96	87.98	98.59	92.92	W	102.62	W	95.33	101.54	100.41	91.27
March	107.52	89.40	98.71	92.44	W	102.15	—	94.63	101.68	100.36	92.15
April	108.70	89.01	99.68	94.01	W	102.48	W	97.08	102.07	101.81	91.99
May	W	91.77	101.24	96.12	W	103.03	—	98.35	102.03	101.54	94.96
June	W	93.03	102.61	99.36	—	104.11	W	99.78	102.78	102.39	97.01
July	W	90.27	101.68	95.61	—	103.01	W	94.12	102.39	100.17	94.03
August	103.69	83.93	95.70	92.07	—	98.80	—	91.64	99.98	97.19	88.15
September	99.49	81.27	91.03	89.25	—	93.39	—	84.78	93.81	91.07	85.08
October	90.74	76.38	80.37	80.42	W	79.85	W	75.72	83.84	82.50	78.56
November	80.21	66.85	73.37	73.18	W	72.72	—	67.59	75.10	73.17	69.65
December	61.33	50.82	56.17	53.54	W	58.56	W	47.86	62.29	58.35	52.75
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	26.21	26.23	24.82	W	31.07	—	21.64	30.92	28.98	26.25
February	33.04	24.61	26.32	25.19	39.44	31.86	W	23.49	30.69	29.49	25.42
March	36.68	29.40	33.38	29.65	42.86	36.19	W	28.70	34.60	33.87	30.39
April	40.91	34.18	36.71	31.91	W	39.75	—	31.20	38.00	36.78	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	42.73	41.75	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	R 38.62	43.43	38.86	R 49.91	R 44.22	—	38.11	R 43.19	R 42.51	R 39.60
October	48.88	R 41.80	R 43.52	43.44	W	R 46.66	—	R 41.61	R 45.38	R 45.58	R 42.65
November	48.34	39.64	41.97	40.08	50.18	46.03	W	38.92	43.96	43.08	40.19

<sup>a</sup> Prices are not adjusted for inflation. See "Nominal Dollars" in Glossary.

<sup>b</sup> Bahrain, Iran, Iraq, Kuwait, Qatar, Saudi Arabia, United Arab Emirates, and the Neutral Zone (between Kuwait and Saudi Arabia).

<sup>c</sup> 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 forward.

<sup>d</sup> 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*, February 2017, Table 22.

**Table 9.4 Retail Motor Gasoline and On-Highway Diesel Fuel Prices**

(Dollars<sup>a</sup> 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			On-Highway Diesel Fuel
	Leaded Regular	Unleaded Regular	Unleaded Premium <sup>b</sup>	All Grades <sup>c</sup>	Conventional Gasoline Areas <sup>d</sup>	Reformulated Gasoline Areas <sup>e</sup>	All Areas	
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 January .....	--	3.320	3.651	3.378	3.252	3.438	3.313	3.893
February .....	--	3.364	3.694	3.422	3.305	3.464	3.356	3.984
March .....	--	3.532	3.858	3.590	3.474	3.658	3.533	4.001
April .....	--	3.659	3.986	3.717	3.590	3.809	3.661	3.964
May .....	--	3.691	4.020	3.745	3.601	3.824	3.673	3.943
June .....	--	3.695	4.027	3.750	3.626	3.831	3.692	3.906
July .....	--	3.633	3.976	3.690	3.539	3.763	3.611	3.884
August .....	--	3.481	3.835	3.540	3.425	3.616	3.487	3.838
September .....	--	3.403	3.758	3.463	3.354	3.516	3.406	3.792
October .....	--	3.182	3.547	3.241	3.120	3.277	3.171	3.681
November .....	--	2.887	3.262	2.945	2.875	2.990	2.912	3.647
December .....	--	2.560	2.940	2.618	2.488	2.657	2.543	3.411
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

<sup>a</sup> Prices are not adjusted for inflation. See "Nominal Dollars" in Glossary.

<sup>b</sup> The 1981 average (available in Web file) is based on September through December data only.

<sup>c</sup> Also includes grades of motor gasoline not shown separately.

<sup>d</sup> Any area that does not require the sale of reformulated gasoline.

<sup>e</sup> "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<sup>a</sup> 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
<b>1978 Average</b> .....	0.293	0.314	0.245	0.275	0.263	0.298
<b>1980 Average</b> .....	.608	.675	.479	.523	.528	.607
<b>1985 Average</b> .....	.610	.644	.560	.582	.577	.610
<b>1990 Average</b> .....	.472	.505	.372	.400	.413	.444
<b>1995 Average</b> .....	.383	.436	.338	.377	.363	.392
<b>2000 Average</b> .....	.627	.708	.512	.566	.566	.602
<b>2001 Average</b> .....	.523	.642	.428	.492	.476	.531
<b>2002 Average</b> .....	.546	.640	.508	.544	.530	.569
<b>2003 Average</b> .....	.728	.804	.588	.651	.661	.698
<b>2004 Average</b> .....	.764	.835	.601	.692	.681	.739
<b>2005 Average</b> .....	1.115	1.168	.842	.974	.971	1.048
<b>2006 Average</b> .....	1.202	1.342	1.085	1.173	1.136	1.218
<b>2007 Average</b> .....	1.406	1.436	1.314	1.350	1.350	1.374
<b>2008 Average</b> .....	1.918	2.144	1.843	1.889	1.866	1.964
<b>2009 Average</b> .....	1.337	1.413	1.344	1.306	1.342	1.341
<b>2010 Average</b> .....	1.756	1.920	1.679	1.619	1.697	1.713
<b>2011 Average</b> .....	2.389	2.736	2.316	2.257	2.336	2.401
<b>2012 Average</b> .....	2.548	3.025	2.429	2.433	2.457	2.592
<b>2013 Average</b> .....	2.363	2.883	2.249	2.353	2.278	2.482
<b>2014 January</b> .....	2.337	NA	2.117	2.400	2.173	2.481
February .....	2.459	NA	2.139	2.459	2.207	2.532
March .....	2.470	NA	2.175	2.376	2.255	2.476
April .....	2.401	NA	2.149	2.323	2.226	2.464
May .....	2.350	2.902	2.198	2.304	2.267	2.420
June .....	2.358	2.888	2.247	2.314	2.293	2.423
July .....	2.287	2.977	2.186	2.324	2.223	2.455
August .....	2.148	W	2.130	2.350	2.136	2.471
September .....	2.100	2.756	2.068	2.255	2.077	2.362
October .....	1.893	2.573	1.858	2.099	1.866	2.194
November .....	1.639	2.294	1.604	1.848	1.611	1.946
December .....	1.237	1.916	1.310	1.611	1.287	1.676
<b>Average</b> .....	<b>2.153</b>	<b>2.694</b>	<b>1.996</b>	<b>2.221</b>	<b>2.044</b>	<b>2.325</b>
<b>2015 January</b> .....	.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
<b>Average</b> .....	<b>.971</b>	<b>1.529</b>	<b>.999</b>	<b>1.227</b>	<b>.996</b>	<b>1.285</b>
<b>2016 January</b> .....	.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	1.061

<sup>a</sup> 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*, February 2017, Table 16.

**Table 9.6 Refiner Prices of Petroleum Products for Resale**  
(Dollars<sup>a</sup> per Gallon, Excluding Taxes)

	Finished Motor Gasoline <sup>b</sup>	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 January .....	2.604	3.538	2.964	3.237	3.059	2.981	1.641
February .....	2.699	3.712	2.981	3.353	3.051	3.091	1.654
March .....	2.855	3.865	2.939	3.153	2.979	3.031	1.198
April .....	2.981	3.940	2.911	2.938	2.911	3.027	1.121
May .....	2.951	3.881	2.932	2.939	2.883	2.987	1.057
June .....	3.001	4.056	2.917	2.926	2.878	2.973	1.054
July .....	2.855	3.914	2.882	2.863	2.825	2.921	1.075
August .....	2.759	3.799	2.882	2.922	2.784	2.900	1.055
September .....	2.669	3.803	2.823	2.851	2.701	2.806	1.097
October .....	2.333	3.548	2.547	2.687	2.476	2.639	1.044
November .....	2.111	3.163	2.410	2.594	2.371	2.558	.966
December .....	1.634	2.635	1.998	2.195	2.050	1.980	.819
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	<sup>R</sup> 2.551	1.471	1.580	1.443	1.592	.608
November .....	1.427	2.433	1.403	1.485	1.384	1.469	.587

<sup>a</sup> Prices are not adjusted for inflation. See "Nominal Dollars" in Glossary.

<sup>b</sup> 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*, February 2017, Table 4.

**Table 9.7 Refiner Prices of Petroleum Products to End Users**  
(Dollars<sup>a</sup> per Gallon, Excluding Taxes)

	Finished Motor Gasoline <sup>b</sup>	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
<b>2014</b> January .....	2.816	W	2.987	W	3.591	3.024	1.457
February .....	2.913	4.142	2.994	W	3.687	3.139	1.513
March .....	3.104	W	2.942	4.067	3.621	3.115	1.137
April .....	3.214	W	2.931	4.108	3.572	3.109	1.122
May .....	3.245	W	2.965	4.056	3.546	3.081	1.056
June .....	3.265	W	2.945	W	3.493	3.064	1.072
July .....	3.128	W	2.906	3.965	3.428	3.030	1.063
August .....	3.016	W	2.916	3.903	3.408	3.012	1.038
September .....	2.936	W	2.834	W	3.324	2.925	1.074
October .....	2.670	W	2.576	W	NA	2.802	.994
November .....	2.406	W	2.433	W	3.213	2.700	.904
December .....	2.013	W	2.028	W	2.901	2.193	.690
<b>Average .....</b>	<b>2.855</b>	<b>3.986</b>	<b>2.772</b>	<b>W</b>	<b>3.329</b>	<b>2.923</b>	<b>1.097</b>
<b>2015</b> 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
<b>Average .....</b>	<b>2.003</b>	<b>W</b>	<b>1.629</b>	<b>W</b>	<b>2.016</b>	<b>1.819</b>	<b>.481</b>
<b>2016</b> 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	1.427	W	1.787	1.601	.556

<sup>a</sup> Prices are not adjusted for inflation. See "Nominal Dollars" in Glossary.

<sup>b</sup> See Note 5, "Motor Gasoline Prices," at end of section.

NA=Not available. W=Value withheld to avoid disclosure of individual company data.

Notes: • Sales to end users are those made directly to ultimate consumers, including bulk consumers (such as agriculture, industry, and electric utilities) and residential and commercial consumers. Sales for resale are shown in Table 9.6; they are sales made to purchasers other than ultimate consumers. • Values for the current month are preliminary. • Through 1982, prices are U.S. Energy

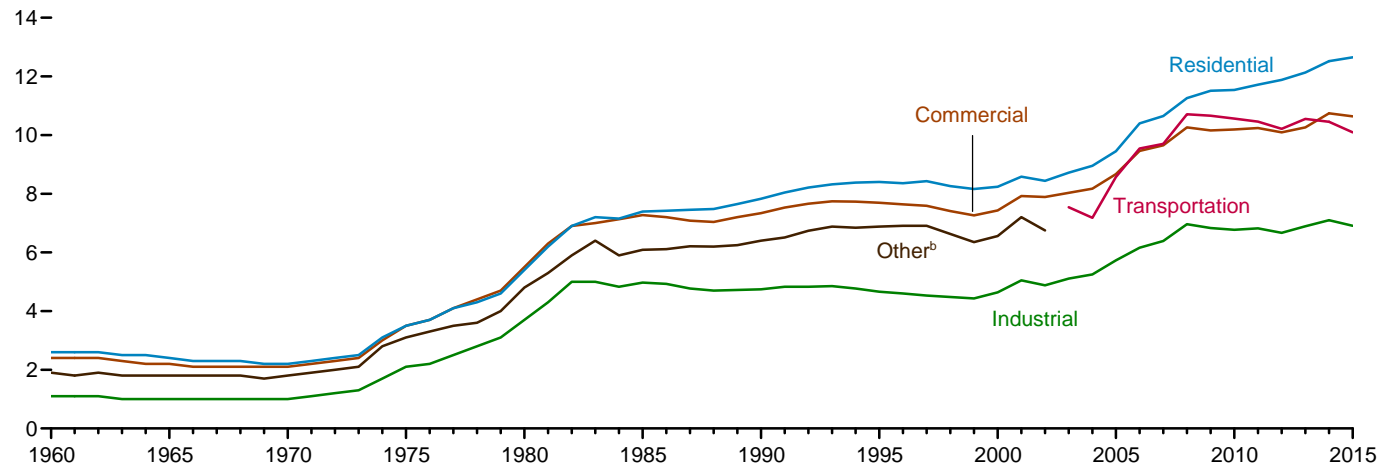
Information Administration (EIA) estimates. See Note 6, "Historical Petroleum Prices," at end of section. • Geographic coverage is the 50 states and the District of Columbia.

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

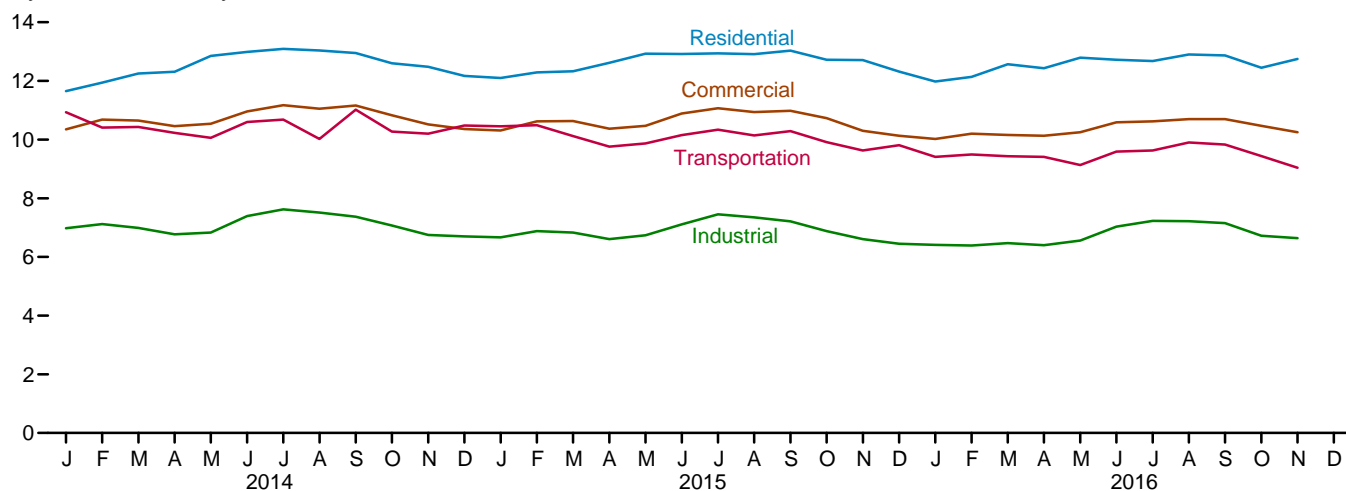
Sources: • **1978–2007:** EIA, *Petroleum Marketing Annual 2007*, Table 2. • **2008 forward:** EIA, *Petroleum Marketing Monthly*, February 2017, Table 2.

**Figure 9.2 Average Retail Prices of Electricity**  
(Cents<sup>a</sup> per Kilowatthour)

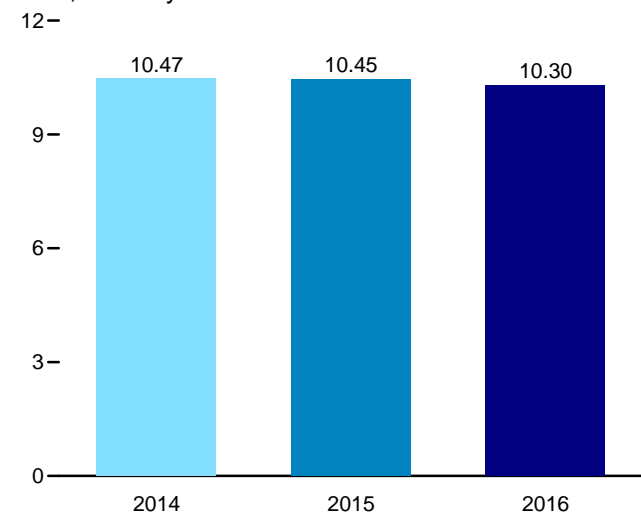
By Sector, 1960–2015



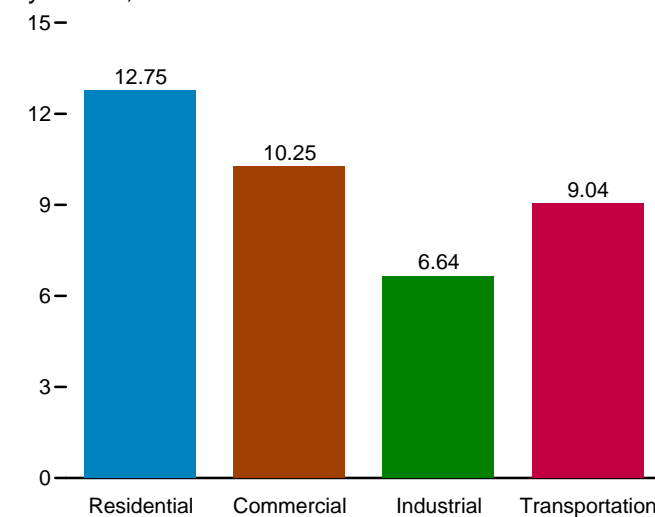
By Sector, Monthly



Total, January–November



By Sector, November 2016



<sup>a</sup> Prices are not adjusted for inflation. See "Nominal Price" in Glossary.

<sup>b</sup> 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<sup>a</sup> per Kilowatthour, Including Taxes)

	Residential	Commercial <sup>b</sup>	Industrial <sup>c</sup>	Transportation <sup>d</sup>	Other <sup>e</sup>	Total
<b>1960 Average</b> .....	2.60	2.40	1.10	NA	1.90	1.80
<b>1965 Average</b> .....	2.40	2.20	1.00	NA	1.80	1.70
<b>1970 Average</b> .....	2.20	2.10	1.00	NA	1.80	1.70
<b>1975 Average</b> .....	3.50	3.50	2.10	NA	3.10	2.90
<b>1980 Average</b> .....	5.40	5.50	3.70	NA	4.80	4.70
<b>1985 Average</b> .....	7.39	7.27	4.97	NA	6.09	6.44
<b>1990 Average</b> .....	7.83	7.34	4.74	NA	6.40	6.57
<b>1995 Average</b> .....	8.40	7.69	4.66	NA	6.88	6.89
<b>2000 Average</b> .....	8.24	7.43	4.64	NA	6.56	6.81
<b>2001 Average</b> .....	8.58	7.92	5.05	NA	7.20	7.29
<b>2002 Average</b> .....	8.44	7.89	4.88	NA	6.75	7.20
<b>2003 Average</b> .....	8.72	8.03	5.11	7.54	---	7.44
<b>2004 Average</b> .....	8.95	8.17	5.25	7.18	---	7.61
<b>2005 Average</b> .....	9.45	8.67	5.73	8.57	---	8.14
<b>2006 Average</b> .....	10.40	9.46	6.16	9.54	---	8.90
<b>2007 Average</b> .....	10.65	9.65	6.39	9.70	---	9.13
<b>2008 Average</b> .....	11.26	10.26	6.96	10.71	---	9.74
<b>2009 Average</b> .....	11.51	10.16	6.83	10.66	---	9.82
<b>2010 Average</b> .....	11.54	10.19	6.77	10.56	---	9.83
<b>2011 Average</b> .....	11.72	10.24	6.82	10.46	---	9.90
<b>2012 Average</b> .....	11.88	10.09	6.67	10.21	---	9.84
<b>2013 Average</b> .....	12.13	10.26	6.89	10.55	---	10.07
<b>2014 January</b> .....	11.65	10.35	6.98	10.93	---	10.12
February .....	11.94	10.68	7.12	10.41	---	10.33
March .....	12.25	10.65	6.99	10.43	---	10.28
April .....	12.31	10.46	6.77	10.23	---	10.00
May .....	12.85	10.54	6.83	10.06	---	10.21
June .....	12.99	10.96	7.39	10.60	---	10.75
July .....	13.09	11.17	7.62	10.68	---	11.03
August .....	13.04	11.05	7.51	10.02	---	10.91
September .....	12.95	11.16	7.37	11.02	---	10.83
October .....	12.60	10.83	7.07	10.27	---	10.34
November .....	12.48	10.52	6.75	10.20	---	10.13
December .....	12.17	10.36	6.70	10.48	---	10.12
<b>Average</b> .....	<b>12.52</b>	<b>10.74</b>	<b>7.10</b>	<b>10.45</b>	---	<b>10.44</b>
<b>2015 January</b> .....	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
<b>Average</b> .....	<b>12.65</b>	<b>10.64</b>	<b>6.91</b>	<b>10.09</b>	---	<b>10.41</b>
<b>2016 January</b> .....	11.98	10.02	6.41	9.41	---	9.96
February .....	12.14	10.20	6.39	9.49	---	10.00
March .....	12.57	10.16	6.47	9.43	---	10.02
April .....	12.43	10.13	6.40	9.41	---	9.83
May .....	12.79	10.25	6.56	9.13	---	10.07
June .....	12.72	10.59	7.03	9.59	---	10.53
July .....	12.68	10.62	7.23	9.63	---	10.71
August .....	12.90	10.70	7.22	9.90	---	10.82
September .....	12.87	10.70	7.15	9.83	---	10.69
October .....	12.45	10.47	6.72	9.44	---	10.15
November .....	12.75	10.25	6.64	9.04	---	10.10
<b>11-Month Average</b> .....	<b>12.58</b>	<b>10.39</b>	<b>6.76</b>	<b>9.49</b>	---	<b>10.30</b>
<b>2015 11-Month Average</b> .....	<b>12.68</b>	<b>10.68</b>	<b>6.95</b>	<b>10.11</b>	---	<b>10.45</b>
<b>2014 11-Month Average</b> .....	<b>12.55</b>	<b>10.78</b>	<b>7.14</b>	<b>10.44</b>	---	<b>10.47</b>

<sup>a</sup> Prices are not adjusted for inflation. See "Nominal Price" in Glossary.

<sup>b</sup> Commercial sector. For 1960–2002, prices exclude public street and highway lighting, interdepartmental sales, and other sales to public authorities.

<sup>c</sup> Industrial sector. For 1960–2002, prices exclude agriculture and irrigation.

<sup>d</sup> Transportation sector, including railroads and railways.

<sup>e</sup> Public street and highway lighting, interdepartmental sales, other sales to public authorities, agriculture and irrigation, and transportation including railroads and railways.

NA=Not available. --=Not applicable.

Notes: • Beginning in 2003, the category "Other" has been replaced by "Transportation," and the categories "Commercial" and "Industrial" have been redefined. • Prices are calculated by dividing revenue by sales. Revenue may not correspond to sales for a particular month because of energy service provider billing and accounting procedures. That lack of correspondence could result in uncharacteristic increases or decreases in the monthly prices. • Prices include state and local taxes, energy or demand charges, customer service charges, environmental surcharges, franchise fees, fuel adjustments, and other miscellaneous charges applied to end-use customers during normal billing operations. Prices do not include deferred charges, credits, or other adjustments, such as fuel or revenue from purchased power, from previous reporting periods. • Through 1979, data are for Classes A and B privately owned electric utilities only.

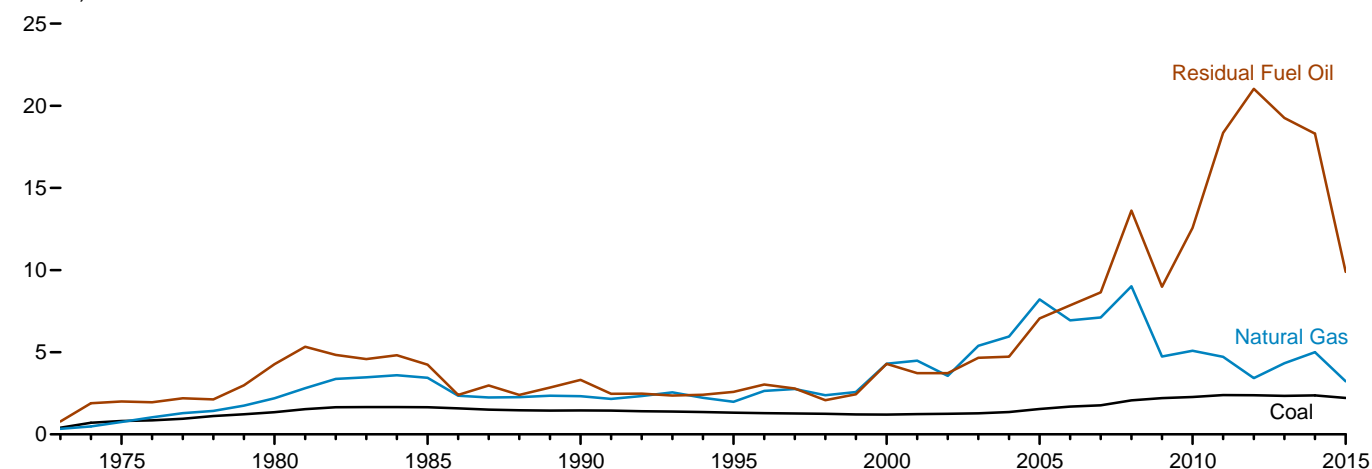
(Class A utilities are those with operating revenues of \$2.5 million or more; Class B utilities are those with operating revenues between \$1 million and \$2.5 million.) For 1980–1982, data are for selected Class A utilities whose electric operating revenues were \$100 million or more during the previous year. For 1983, data are for a selected sample of electric utilities. Beginning in 1984, data are for a census of electric utilities. Beginning in 1996, data also include energy service providers selling to retail customers. • See Note 7, "Electricity Retail Prices," at end of section for plant coverage, and for information on preliminary and final values. • Geographic coverage is the 50 states and the District of Columbia.

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

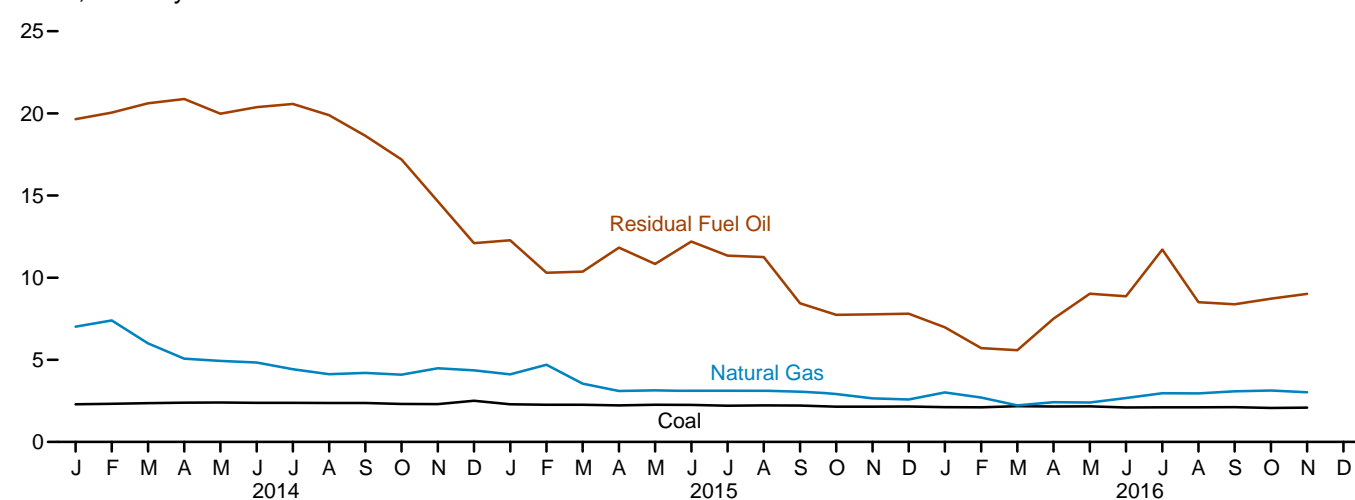
Sources: • **1960–September 1977:** Federal Power Commission, Form FPC-5, "Monthly Statement of Electric Operating Revenues and Income." • **October 1977–February 1980:** Federal Energy Regulatory Commission (FERC), Form FPC-5, "Monthly Statement of Electric Operating Revenues and Income." • **March 1980–1982:** FERC, Form FERC-5, "Electric Utility Company Monthly Statement." • **1983:** U.S. Energy Information Administration (EIA), Form EIA-826, "Electric Utility Company Monthly Statement." • **1984–2010:** EIA, Form EIA-861, "Annual Electric Power Industry Report." • **2011 forward:** EIA, *Electric Power Monthly*, January 2017, Table 5.3.

**Figure 9.3 Cost of Fossil-Fuel Receipts at Electric Generating Plants**  
(Dollars<sup>a</sup> per Million Btu, Including Taxes)

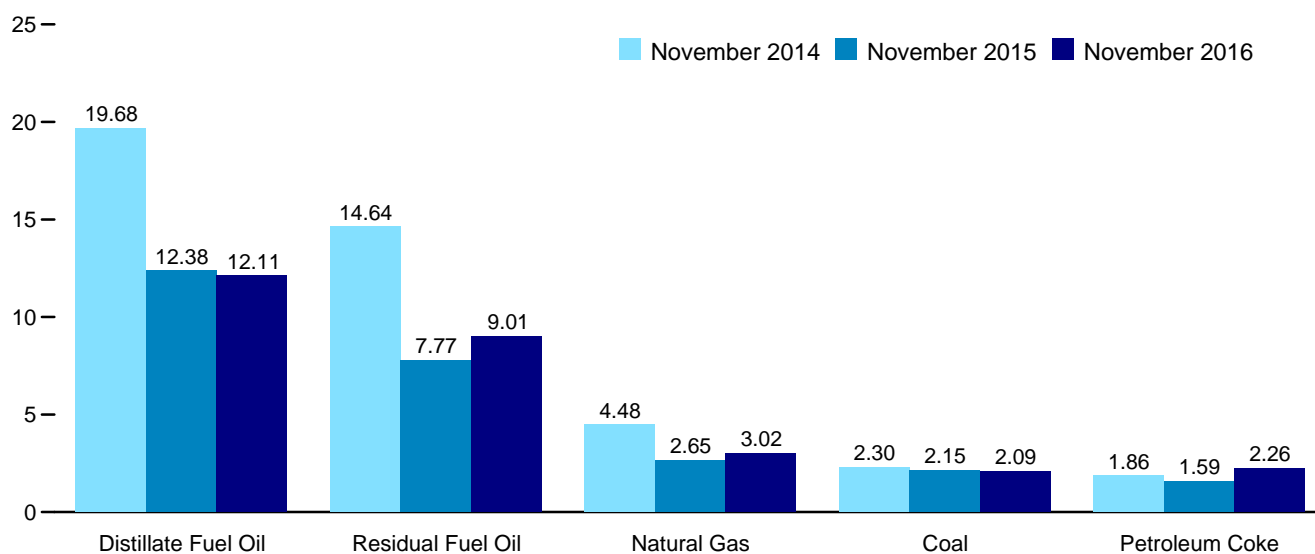
Costs, 1973–2015



Costs, Monthly



By Fuel Type



<sup>a</sup> 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<sup>a</sup> per Million Btu, Including Taxes)

	Coal	Petroleum				Natural Gas <sup>e</sup>	All Fossil Fuels <sup>f</sup>
		Residual Fuel Oil <sup>b</sup>	Distillate Fuel Oil <sup>c</sup>	Petroleum Coke	Total <sup>d</sup>		
<b>1973 Average</b> .....	<b>0.41</b>	<b>0.79</b>	<b>NA</b>	<b>NA</b>	<b>0.80</b>	<b>0.34</b>	<b>0.48</b>
<b>1975 Average</b> .....	<b>.81</b>	<b>2.01</b>	<b>NA</b>	<b>NA</b>	<b>2.02</b>	<b>.75</b>	<b>1.04</b>
<b>1980 Average</b> .....	<b>1.35</b>	<b>4.27</b>	<b>NA</b>	<b>NA</b>	<b>4.35</b>	<b>2.20</b>	<b>1.93</b>
<b>1985 Average</b> .....	<b>1.65</b>	<b>4.24</b>	<b>NA</b>	<b>NA</b>	<b>4.32</b>	<b>3.44</b>	<b>2.09</b>
<b>1990 Average</b> .....	<b>1.45</b>	<b>3.32</b>	<b>5.38</b>	<b>.80</b>	<b>3.35</b>	<b>2.32</b>	<b>1.69</b>
<b>1995 Average</b> .....	<b>1.32</b>	<b>2.59</b>	<b>3.99</b>	<b>.65</b>	<b>2.57</b>	<b>1.98</b>	<b>1.45</b>
<b>2000 Average</b> .....	<b>1.20</b>	<b>4.29</b>	<b>6.65</b>	<b>.58</b>	<b>4.18</b>	<b>4.30</b>	<b>1.74</b>
<b>2001 Average</b> .....	<b>1.23</b>	<b>3.73</b>	<b>6.30</b>	<b>.78</b>	<b>3.69</b>	<b>4.49</b>	<b>1.73</b>
<b>2002 Average<sup>g</sup></b> .....	<b>1.25</b>	<b>3.73</b>	<b>5.34</b>	<b>.78</b>	<b>3.34</b>	<b>3.56</b>	<b>1.86</b>
<b>2003 Average</b> .....	<b>1.28</b>	<b>4.66</b>	<b>6.82</b>	<b>.72</b>	<b>4.33</b>	<b>5.39</b>	<b>2.28</b>
<b>2004 Average</b> .....	<b>1.36</b>	<b>4.73</b>	<b>8.02</b>	<b>.83</b>	<b>4.29</b>	<b>5.96</b>	<b>2.48</b>
<b>2005 Average</b> .....	<b>1.54</b>	<b>7.06</b>	<b>11.72</b>	<b>1.11</b>	<b>6.44</b>	<b>8.21</b>	<b>3.25</b>
<b>2006 Average</b> .....	<b>1.69</b>	<b>7.85</b>	<b>13.28</b>	<b>1.33</b>	<b>6.23</b>	<b>6.94</b>	<b>3.02</b>
<b>2007 Average</b> .....	<b>1.77</b>	<b>8.64</b>	<b>14.85</b>	<b>1.51</b>	<b>7.17</b>	<b>7.11</b>	<b>3.23</b>
<b>2008 Average</b> .....	<b>2.07</b>	<b>13.62</b>	<b>21.46</b>	<b>2.11</b>	<b>10.87</b>	<b>9.01</b>	<b>4.12</b>
<b>2009 Average</b> .....	<b>2.21</b>	<b>8.98</b>	<b>13.22</b>	<b>1.61</b>	<b>7.02</b>	<b>4.74</b>	<b>3.04</b>
<b>2010 Average</b> .....	<b>2.27</b>	<b>12.57</b>	<b>16.61</b>	<b>2.28</b>	<b>9.54</b>	<b>5.09</b>	<b>3.26</b>
<b>2011 Average</b> .....	<b>2.39</b>	<b>18.35</b>	<b>22.46</b>	<b>3.03</b>	<b>12.48</b>	<b>4.72</b>	<b>3.29</b>
<b>2012 Average</b> .....	<b>2.38</b>	<b>21.03</b>	<b>23.49</b>	<b>2.24</b>	<b>12.48</b>	<b>3.42</b>	<b>2.83</b>
<b>2013 Average</b> .....	<b>2.34</b>	<b>19.26</b>	<b>23.03</b>	<b>2.18</b>	<b>11.57</b>	<b>4.33</b>	<b>3.09</b>
<b>2014 January</b> .....	<b>2.29</b>	<b>19.65</b>	<b>23.12</b>	<b>1.82</b>	<b>16.63</b>	<b>7.02</b>	<b>4.07</b>
February .....	2.32	20.05	23.97	W	16.38	7.40	W
March .....	2.36	20.61	23.83	2.02	12.63	6.00	3.52
April .....	2.39	20.88	22.82	2.13	10.14	5.07	3.23
May .....	2.40	19.98	22.77	2.19	9.91	4.93	3.25
June .....	2.38	20.38	22.72	2.07	10.67	4.84	3.27
July .....	2.38	20.57	22.36	1.90	10.07	4.43	3.17
August .....	2.37	19.89	21.94	1.97	9.77	4.12	3.06
September .....	2.37	18.64	21.38	1.92	9.93	4.20	3.06
October .....	2.31	17.19	20.09	1.79	10.67	4.10	2.96
November .....	2.30	14.64	19.68	1.86	10.50	4.48	3.06
December .....	2.51	12.10	16.50	2.00	8.15	4.36	3.14
<b>Average</b> .....	<b>2.37</b>	<b>18.30</b>	<b>21.88</b>	<b>1.98</b>	<b>11.60</b>	<b>5.00</b>	<b>3.31</b>
<b>2015 January</b> .....	<b>2.29</b>	<b>12.28</b>	<b>13.37</b>	<b>2.00</b>	<b>7.07</b>	<b>4.11</b>	<b>2.92</b>
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
<b>Average</b> .....	<b>2.22</b>	<b>9.89</b>	<b>14.06</b>	<b>1.84</b>	<b>6.74</b>	<b>3.23</b>	<b>2.65</b>
<b>2016 January</b> .....	<b>2.12</b>	<b>6.98</b>	<b>8.91</b>	<b>1.38</b>	<b>4.50</b>	<b>3.01</b>	<b>2.52</b>
February .....	2.11	5.71	8.78	1.30	3.63	2.70	2.37
March .....	2.18	5.59	9.46	1.41	3.60	2.23	2.22
April .....	2.16	7.50	9.98	1.35	4.51	2.42	2.31
May .....	2.17	9.02	10.75	W	5.71	2.40	W
June .....	2.10	8.87	12.22	1.41	6.08	2.67	2.40
July .....	2.11	11.71	12.08	1.47	6.36	2.97	2.56
August .....	2.11	8.51	11.41	1.75	5.20	2.96	2.53
September .....	2.12	8.38	11.36	2.04	5.20	3.08	2.56
October .....	2.07	8.72	11.99	1.98	5.80	3.13	2.51
November .....	2.09	9.01	12.11	2.26	6.17	3.02	2.47
<b>11-Month Average</b> ...	<b>2.12</b>	<b>8.32</b>	<b>10.78</b>	<b>1.61</b>	<b>5.14</b>	<b>2.79</b>	<b>2.44</b>
<b>2015 11-Month Average</b> ...	<b>2.23</b>	<b>10.05</b>	<b>14.30</b>	<b>1.86</b>	<b>6.88</b>	<b>3.29</b>	<b>2.67</b>
<b>2014 11-Month Average</b> ...	<b>2.35</b>	<b>19.11</b>	<b>22.47</b>	<b>1.98</b>	<b>12.04</b>	<b>5.05</b>	<b>3.32</b>

<sup>a</sup> Prices are not adjusted for inflation. See "Nominal Dollars" in Glossary.

<sup>b</sup> For 1973–2001, electric utility data are for heavy oil (fuel oil nos. 5 and 6, and small amounts of fuel oil no. 4).

<sup>c</sup> For 1973–2001, electric utility data are for light oil (fuel oil nos. 1 and 2).

<sup>d</sup> 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.

<sup>e</sup> 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.

<sup>f</sup> Weighted average of costs shown under "Coal," "Petroleum," and "Natural Gas."

<sup>g</sup> Through 2001, data are for electric utilities only. Beginning in 2002, data also include independent power producers, and electric generating plants in the

commercial and industrial sectors.

NA=Not available. W=Value withheld to avoid disclosure of individual company data.

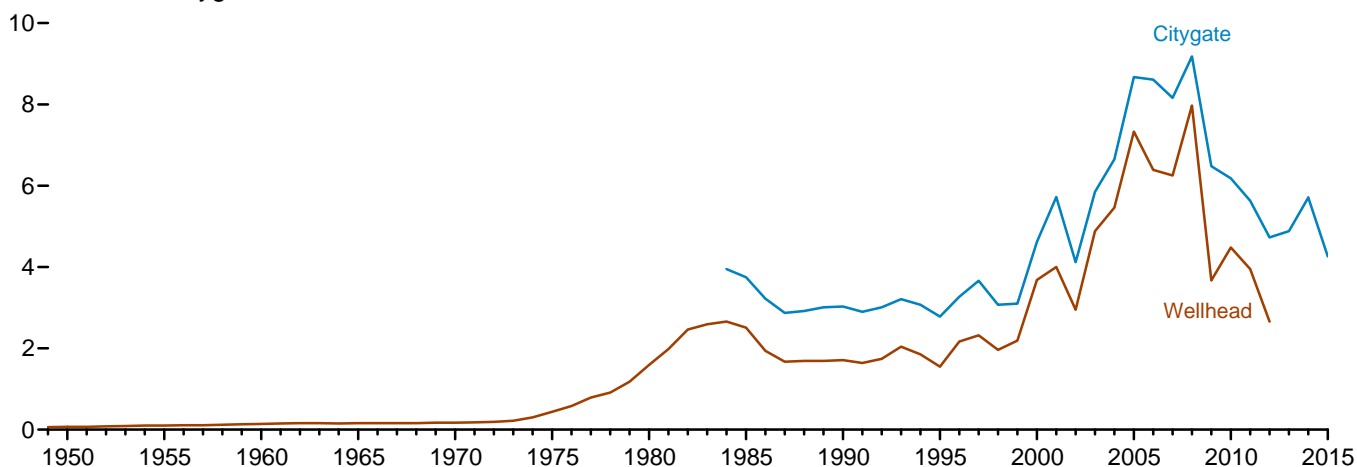
Notes: • Receipts are purchases of fuel. • Yearly costs are averages of monthly values, weighted by quantities in Btu. • For this table, there are several breaks in the data series related to what plants and fuels are covered. Beginning in 2013, data cover all regulated generating plants; plus unregulated plants whose total fossil-fueled nameplate generating capacity is 50 megawatts or more for coal, and 200 megawatts or more for natural gas, residual fuel oil, distillate fuel oil, and petroleum coke. For data coverage before 2013, see EIA, *Electric Power Monthly*, Appendix C, Form EIA-923 notes, "Receipts and cost and quality of fossil fuels" section. • Geographic coverage is the 50 states and the District of Columbia.

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

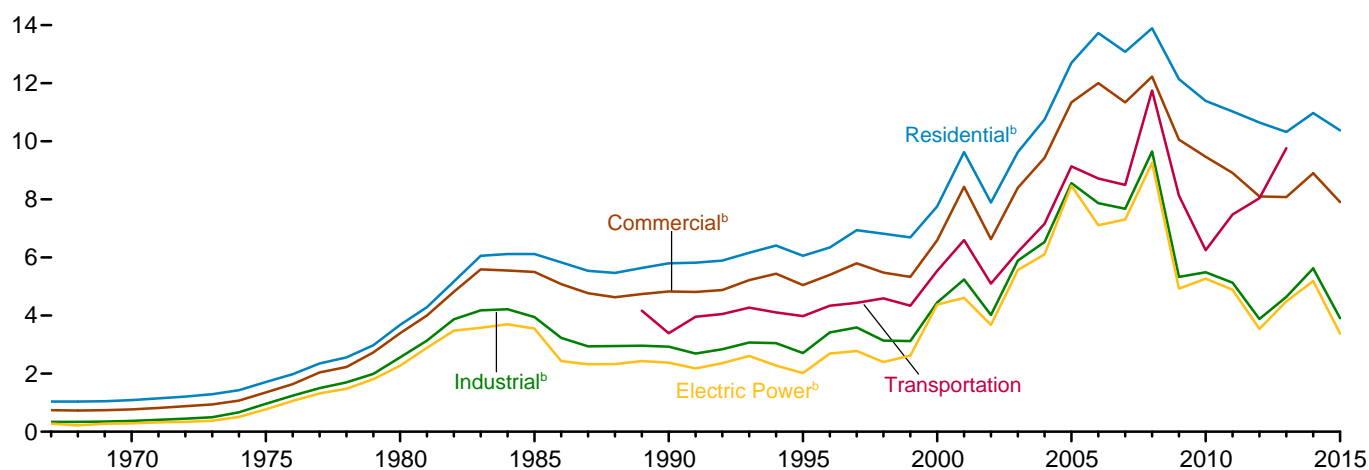
Sources: See end of section.

**Figure 9.4 Natural Gas Prices**  
(Dollars<sup>a</sup> per Thousand Cubic Feet)

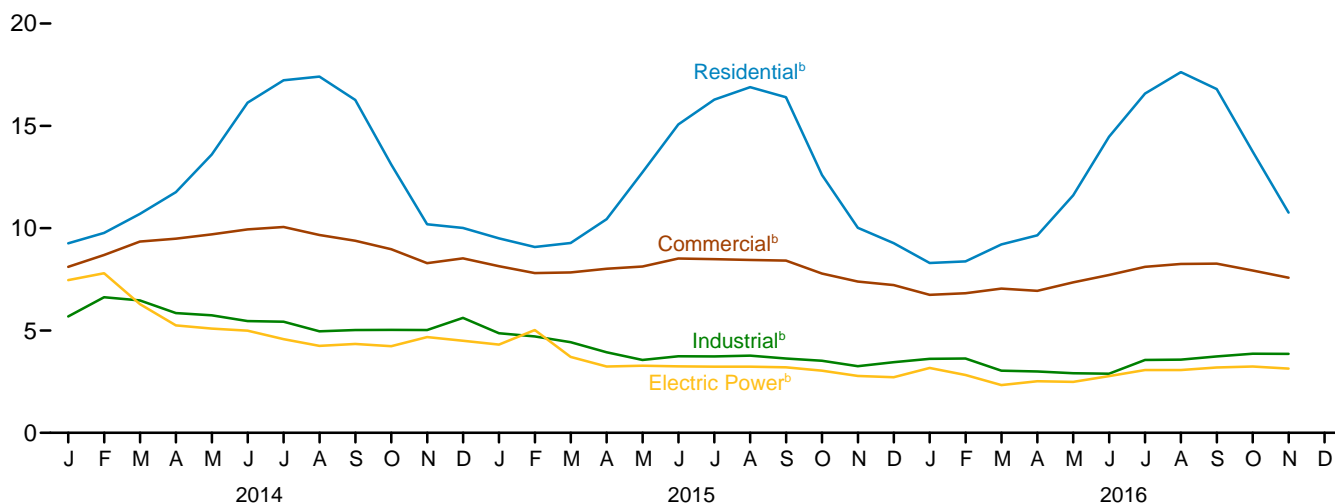
Wellhead and Citygate, 1949–2015



Consuming Sectors, 1967–2015



Consuming Sectors, Monthly



<sup>a</sup> Prices are not adjusted for inflation. See "Nominal Dollars" in Glossary.

<sup>b</sup> Includes taxes.

Web Page: <http://www.eia.gov/totalenergy/data/monthly/#prices>.

Source: Table 9.10.

**Table 9.10 Natural Gas Prices**  
(Dollars<sup>a</sup> per Thousand Cubic Feet)

	Wellhead Price <sup>e</sup>	City-gate Price <sup>g</sup>	Consuming Sectors <sup>b</sup>								
			Residential		Commercial <sup>c</sup>		Industrial <sup>d</sup>		Transportation	Electric Power <sup>e</sup>	
			Price <sup>h</sup>	Percentage of Sector <sup>i</sup>	Price <sup>h</sup>	Percentage of Sector <sup>i</sup>	Price <sup>h</sup>	Percentage of Sector <sup>i</sup>	Vehicle Fuel Price <sup>h</sup>	Price <sup>h</sup>	Percentage of Sector <sup>k,l</sup>
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	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 January .....	NA	5.56	9.26	95.7	8.11	70.7	5.69	15.5	NA	7.46	94.5
February .....	NA	6.41	9.77	95.5	8.69	70.6	6.63	16.1	NA	7.80	93.6
March .....	NA	6.57	10.70	95.4	9.35	69.4	6.47	15.8	NA	6.29	94.1
April .....	NA	5.64	11.76	95.3	9.49	65.1	5.85	14.9	NA	5.25	95.0
May .....	NA	5.90	13.60	95.4	9.70	60.5	5.74	14.8	NA	5.09	94.7
June .....	NA	6.05	16.13	95.5	9.94	58.1	5.46	14.5	NA	4.99	94.4
July .....	NA	5.99	17.23	95.5	10.06	55.7	5.43	14.7	NA	4.58	94.7
August .....	NA	5.49	17.41	95.6	9.67	55.2	4.96	14.3	NA	4.25	95.1
September .....	NA	5.51	16.27	95.6	9.39	55.7	5.02	13.9	NA	4.34	94.8
October .....	NA	5.16	13.11	95.3	8.97	58.8	5.03	13.7	NA	4.23	94.6
November .....	NA	4.91	10.19	95.8	8.29	66.0	5.02	14.7	NA	4.68	94.7
December .....	NA	5.15	10.01	95.6	8.53	68.4	5.62	15.0	NA	4.50	94.8
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	8.14	70.9	4.87	15.0	NA	4.31	93.6
February .....	NA	4.57	9.08	95.6	7.81	71.0	4.71	15.4	NA	5.02	93.7
March .....	NA	4.36	9.28	95.4	7.84	69.9	4.43	15.6	NA	3.71	94.4
April .....	NA	3.93	10.44	95.4	8.02	64.8	3.94	14.9	NA	3.24	95.6
May .....	NA	4.24	12.73	95.4	8.13	61.2	3.56	15.4	NA	3.28	95.5
June .....	NA	4.44	15.07	95.5	8.52	57.9	3.74	14.9	NA	3.25	94.9
July .....	NA	4.65	16.28	95.7	8.49	56.9	3.73	14.9	NA	3.23	94.9
August .....	NA	4.59	16.89	95.4	8.45	55.6	3.77	14.6	NA	3.23	94.7
September .....	NA	4.56	16.40	95.9	8.42	55.8	3.63	14.8	NA	3.20	94.4
October .....	NA	4.00	12.60	95.5	7.78	59.5	3.52	14.9	NA	3.04	94.6
November .....	NA	3.68	10.02	96.0	7.39	63.9	3.26	15.1	NA	2.78	94.8
December .....	NA	3.75	9.27	96.1	7.22	67.6	3.45	15.2	NA	2.72	94.2
Average .....	NA	4.26	10.38	95.7	7.91	65.9	3.91	15.1	NA	3.38	94.6
2016 January .....	NA	3.39	8.30	96.1	6.74	70.4	3.62	R 15.3	NA	3.17	94.4
February .....	NA	3.48	8.38	95.9	6.82	69.4	3.63	R 15.4	NA	2.83	94.9
March .....	NA	3.49	9.21	95.6	7.05	66.8	3.04	15.2	NA	2.33	95.4
April .....	NA	3.22	9.65	95.6	6.94	65.1	3.00	R 14.5	NA	2.52	95.3
May .....	NA	3.45	11.61	95.4	7.35	60.2	2.91	R 14.6	NA	2.49	95.4
June .....	NA	3.98	14.47	95.7	7.71	57.9	R 2.89	R 14.6	NA	2.77	95.4
July .....	NA	4.45	16.58	95.9	8.11	R 56.9	3.56	R 14.3	NA	3.07	94.9
August .....	NA	4.37	17.63	95.8	8.25	R 54.7	3.58	R 14.7	NA	3.07	94.4
September .....	NA	4.59	16.80	96.1	8.27	R 56.0	3.73	R 14.6	NA	3.19	95.6
October .....	NA	4.19	13.74	95.9	7.93	59.8	3.87	R 14.5	NA	3.24	95.3
November .....	NA	3.88	10.76	96.0	7.58	63.6	3.86	14.7	NA	3.14	95.6
11-Month Average ...	NA	3.67	10.26	95.8	7.25	64.3	3.43	14.8	NA	2.91	95.1
2015 11-Month Average ...	NA	4.33	10.53	95.6	7.99	65.5	3.95	15.0	NA	3.43	94.7
2014 11-Month Average ...	NA	5.80	11.13	95.5	8.96	65.4	5.62	14.8	NA	5.25	94.6

<sup>a</sup> Prices are not adjusted for inflation. See "Nominal Dollars" in Glossary.

<sup>b</sup> See Note 8, "Natural Gas Prices," at end of section.

<sup>c</sup> 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.

<sup>d</sup> 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.

<sup>e</sup> 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.

<sup>f</sup> See "Natural Gas Wellhead Price" in Glossary.

<sup>g</sup> See "Citygate" in Glossary.

<sup>h</sup> Includes taxes.

<sup>i</sup> 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.

<sup>j</sup> 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.

<sup>k</sup> 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-826, “Monthly Electric Sales and Revenue Report With State Distributions 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-826 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*, February 2017, Table 1.

### F.O.B. and Landed Cost of Imports

October 1973–September 1977: Federal Energy Administration, Form FEA-F701-M-0, “Transfer Pricing Report.”

October–December 1977: EIA, Form FEA-F701-M-0, “Transfer Pricing Report.”

1978–2009: EIA, *Petroleum Marketing Annual 2009*, Table 1.

2010 forward: EIA, *Petroleum Marketing Monthly*, February 2017, Table 1.

### Refiner Acquisition Cost

1968–1973: EIA estimates. The cost of domestic crude oil was derived by adding estimated transportation costs to the reported average domestic first purchase price. The cost of imported crude oil was derived by adding an estimated ocean transport cost based on the published “Average Freight Rate Assessment” to the average “Free Alongside Ship” value published by the U.S. Census Bureau.

1974–1976: DOI, BOM, *Minerals Yearbook*, “Crude Petroleum and Petroleum Products” chapter.

1977: January–September, FEA, based on Form FEA-P110-M-1, “Refiners’ Monthly Cost Allocation Report.”

1977: October–December, EIA, based on Form FEA-P110-M-1, “Refiners’ Monthly Cost Allocation Report.”

1978–2009: EIA, *Petroleum Marketing Annual* 2009, Table 1.  
2010 forward: EIA, *Petroleum Marketing Monthly*, February 2017, Table 1.

## Table 9.2 Sources

October 1973–September 1977: Federal Energy Administration, Form FEA-F701-M-0, “Transfer Pricing Report.”  
October 1977–December 1977: U.S. Energy Information Administration (EIA), Form FEA-F701-M-0, “Transfer Pricing Report.”  
1978–2009: EIA, *Petroleum Marketing Annual* 2009, Table 21.  
2010 forward: EIA, *Petroleum Marketing Monthly* February 2017, Table 21.

## Table 9.9 Sources

1973–September 1977: Federal Power Commission, Form FPC-423, “Monthly Report of Cost and Quality of Fuels for Electric Utility Plants.”  
October 1977–December 1977: Federal Energy Regulatory Commission, Form FERC-423, “Monthly Report of Cost and Quality of Fuels for Electric Utility Plants.”  
1978 and 1979: U.S. Energy Information Administration (EIA), Form FERC-423, “Monthly Report of Cost and Quality of Fuels for Electric Utility Plants.”  
1980–1989: EIA, *Electric Power Monthly*, May issues.  
1990–2000: EIA, *Electric Power Monthly*, March 2003, Table 26.  
2001–2007: EIA, *Electric Power Monthly*, October 2008, Table 4.1; Federal Energy Regulatory Commission, Form FERC-423, “Monthly Report of Cost and Quality of Fuels for Electric Utility Plants”; and EIA, Form EIA-423, “Monthly Cost and Quality of Fuels for Electric Plants Report.”  
2008 forward: EIA, *Electric Power Monthly*, January 2017, Table 4.1; and Form EIA-923, “Power Plant Operations Report.”

## Table 9.10 Sources

### All Prices Except Vehicle Fuel and Electric Power

1949–2013: U.S. Energy Information Administration (EIA), *Natural Gas Annual* (NGA), annual reports and unpublished revisions.  
2014 forward: EIA, *Natural Gas Monthly* (NGM), January 2017, Table 3.

### Vehicle Fuel Price

1989–2015: EIA, NGA, annual reports.

### Electric Power Sector Price

1967–1972: EIA, NGA, annual reports.

1973–1998: EIA, NGA 2000, Table 96.

1999–2002: EIA, NGM, October 2004, Table 4.

2003–2007: Federal Energy Regulatory Commission, Form FERC-423, “Monthly Report of Cost and Quality of Fuels for Electric Utility Plants,” and EIA, Form EIA-423 “Monthly Cost and Quality of Fuels for Electric Plants Report.”

2008 forward: Form EIA-923, “Power Plant Operations Report.”

### Percentage of Residential Sector

1989–2013: EIA, Form EIA-176, “Annual Report of Natural and Supplemental Gas Supply and Disposition.” Calculated as the total amount of natural gas delivered to residential consumers minus the amount delivered for the account of others, and then divided by the total amount delivered to residential consumers.

2014 forward: EIA, Form EIA-857, “Monthly Report of Natural Gas Purchases and Deliveries to Consumers.”

### Percentage of Commercial Sector

1987–2013: 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.

2014 forward: EIA, NGM, January 2017, Table 3.

### Percentage of Industrial Sector

1982–2013: 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.

2014 forward: EIA, NGM, January 2017, Table 3.

### Percentage of Electric Power Sector

1973–2001: Calculated by EIA as the quantity of natural gas receipts by electric utilities reported on Form FERC-423, “Monthly Report of Cost and Quality of Fuels for Electric Utility Plants” (and predecessor forms) divided by the quantity of natural gas consumed by the electric power sector (for 1973–1988, see *Monthly Energy Review* (MER), Table 7.3b; for 1989–2001, see MER, Table 7.4b).

2002–2007: Calculated by EIA as the quantity of natural gas receipts by electric utilities and independent power producers reported on Form FERC-423, “Monthly Report of Cost and Quality of Fuels for Electric Utility Plants,” and EIA-423, “Monthly Cost and Quality of Fuels for Electric Plants Report,” divided by the quantity of natural gas consumed by the electric power sector (see MER, Table 7.4b).

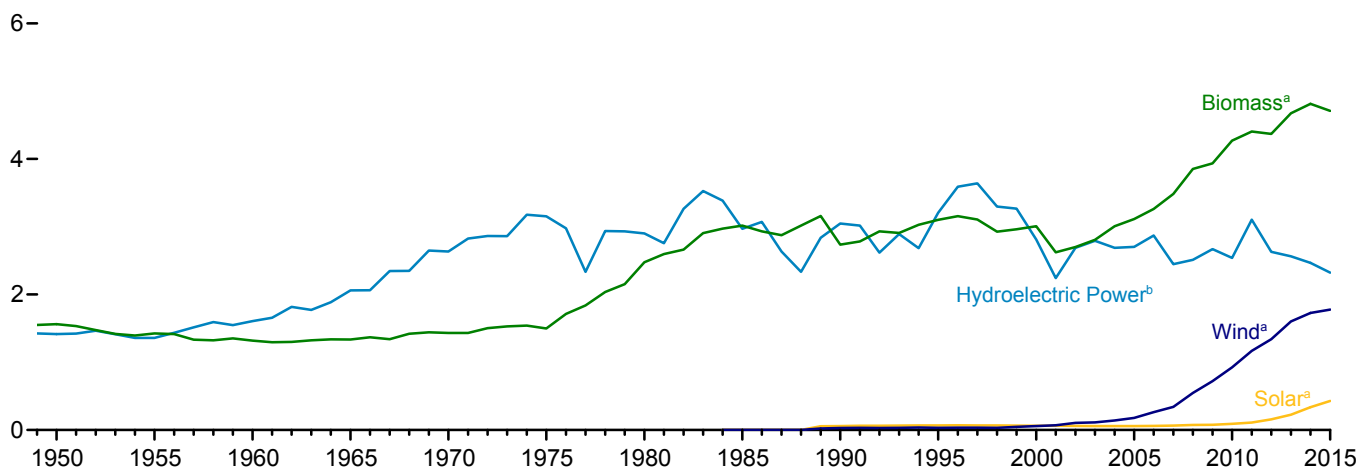
2008 forward: Calculated by EIA as the quantity of natural gas receipts by electric utilities and independent power producers reported on Form EIA-923, “Power Plant Operations Report,” divided by the quantity of natural gas consumed by the electric power sector (see MER, Table 7.4b).

# 10. Renewable Energy

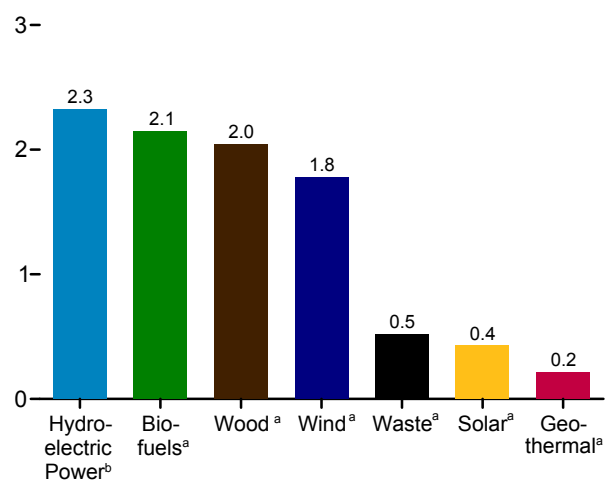
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**Figure 10.1 Renewable Energy Consumption**  
(Quadrillion Btu)

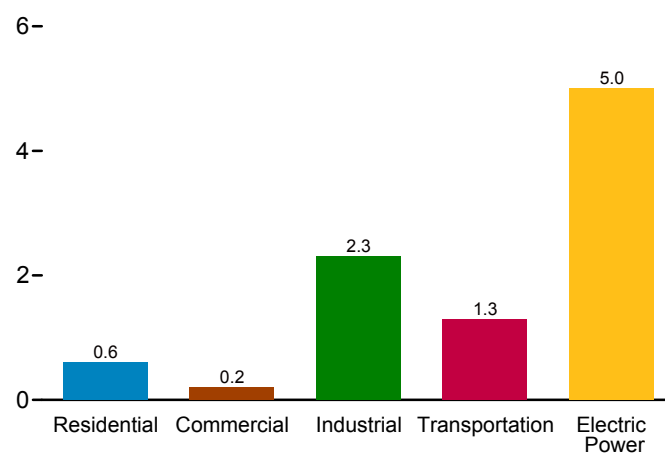
Major Sources, 1949–2015



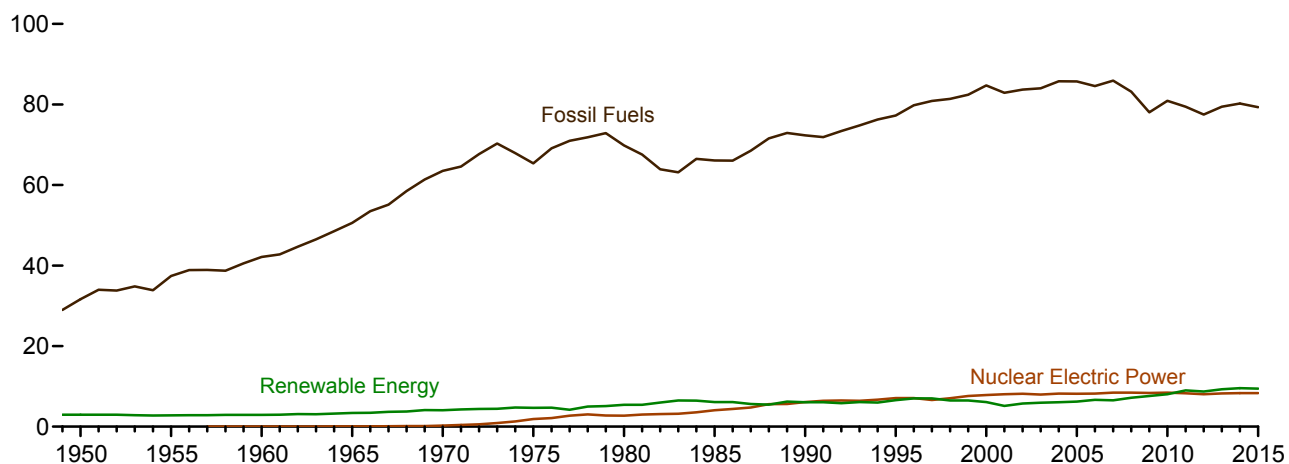
By Source, 2015



By Sector, 2015



Compared With Other Resources, 1949–2015



<sup>a</sup> See Table 10.1 for definition.

<sup>b</sup> 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 <sup>a</sup>			Consumption								
	Biomass		Total Renewable Energy <sup>d</sup>	Hydro-electric Power <sup>e</sup>	Geo-thermal <sup>f</sup>	Solar <sup>g</sup>	Wind <sup>h</sup>	Biomass				Total Renewable Energy
	Bio-fuels <sup>b</sup>	Total <sup>c</sup>						Wood <sup>i</sup>	Waste <sup>j</sup>	Bio-fuels <sup>k</sup>	Total	
1950 Total .....	NA	1,562	2,978	1,415	NA	NA	NA	1,562	NA	NA	1,562	2,978
1955 Total .....	NA	1,424	2,784	1,360	NA	NA	NA	1,424	NA	NA	1,424	2,784
1960 Total .....	NA	1,320	2,928	1,608	(s)	NA	NA	1,320	NA	NA	1,320	2,928
1965 Total .....	NA	1,335	3,396	2,059	2	NA	NA	1,335	NA	NA	1,335	3,396
1970 Total .....	NA	1,431	4,070	2,634	6	NA	NA	1,429	2	NA	1,431	4,070
1975 Total .....	NA	1,499	4,687	3,155	34	NA	NA	1,497	2	NA	1,499	4,687
1980 Total .....	NA	2,475	5,428	2,900	53	NA	NA	2,474	2	NA	2,475	5,428
1985 Total .....	93	3,016	6,084	2,970	97	(s)	(s)	2,687	236	93	3,016	6,084
1990 Total .....	111	2,735	6,040	3,046	171	59	29	2,216	408	111	2,735	6,040
1995 Total .....	198	3,099	6,557	3,205	152	68	33	2,370	531	200	3,101	6,559
2000 Total .....	233	3,006	6,102	2,811	164	63	57	2,262	511	236	3,008	6,104
2001 Total .....	254	2,624	5,162	2,242	164	62	70	2,006	364	253	2,622	5,160
2002 Total .....	308	2,705	5,731	2,689	171	60	105	1,995	402	303	2,701	5,726
2003 Total .....	401	2,805	5,942	2,793	173	58	113	2,002	401	403	2,806	5,944
2004 Total .....	486	2,996	6,063	2,688	178	58	142	2,121	389	498	3,008	6,075
2005 Total .....	561	3,101	6,221	2,703	181	58	178	2,137	403	574	3,114	6,233
2006 Total .....	716	3,212	6,586	2,869	181	61	264	2,099	397	766	3,262	6,637
2007 Total .....	970	3,472	6,510	2,446	186	65	341	2,089	413	983	3,485	6,523
2008 Total .....	1,374	3,868	7,191	2,511	192	74	546	2,059	435	1,357	3,851	7,174
2009 Total .....	1,570	3,953	7,620	2,669	200	78	721	1,931	452	1,553	3,936	7,604
2010 Total .....	1,868	4,316	8,077	2,539	208	90	923	1,981	468	1,821	4,270	8,030
2011 Total .....	2,029	4,501	9,095	3,103	212	111	1,168	2,010	462	1,933	4,405	8,999
2012 Total .....	1,929	4,406	8,743	2,629	212	157	1,340	2,010	467	1,892	4,369	8,706
2013 Total .....	1,981	4,647	9,249	2,562	214	225	1,601	2,170	496	2,007	4,673	9,275
2014 January .....	170	404	815	206	18	17	170	190	45	163	397	808
February .....	153	367	700	165	16	18	133	173	41	150	364	697
March .....	173	406	850	231	18	26	169	189	45	167	401	845
April .....	170	392	858	242	18	29	177	179	44	167	390	856
May .....	178	403	855	252	18	33	148	182	43	176	401	853
June .....	177	406	853	245	18	35	150	186	42	173	402	849
July .....	183	420	820	232	18	34	116	192	45	180	417	817
August .....	179	416	754	188	18	35	97	193	43	182	418	756
September .....	173	396	709	153	18	33	110	182	41	172	394	708
October .....	179	407	758	163	18	31	138	186	42	180	408	759
November .....	177	403	803	177	18	25	179	185	42	173	399	799
December .....	191	428	820	212	18	21	140	194	44	183	420	812
Total .....	2,103	4,849	9,595	2,467	214	337	1,728	2,230	516	2,067	4,812	9,558
2015 January .....	178	401	806	225	18	21	141	179	43	163	386	792
February .....	162	363	751	208	17	25	139	162	39	158	358	747
March .....	180	393	815	226	18	35	143	170	43	176	389	811
April .....	172	380	812	209	17	40	167	165	42	170	378	810
May .....	183	396	805	188	18	43	160	170	43	185	398	807
June .....	184	395	771	190	17	43	125	168	42	186	397	773
July .....	187	410	796	196	18	45	127	176	46	189	411	797
August .....	185	406	770	178	18	45	122	177	44	189	411	774
September .....	175	385	721	150	17	39	130	168	42	182	392	728
October .....	183	393	753	155	18	34	153	165	45	184	394	754
November .....	182	394	806	180	18	30	183	167	45	179	391	802
December .....	190	412	860	216	18	27	187	175	47	185	406	855
Total .....	2,161	4,727	9,466	2,321	213	427	1,777	2,043	522	2,145	4,711	9,450
2016 January .....	184	401	856	236	19	27	173	171	45	172	388	843
February .....	175	376	845	225	18	37	188	159	41	174	375	844
March .....	189	397	916	252	19	45	203	163	44	188	395	914
April .....	174	372	868	237	18	49	192	153	45	173	372	868
May .....	188	391	880	236	20	57	175	160	44	191	394	883
June .....	188	394	836	213	18	58	152	162	44	191	396	838
July .....	195	407	852	198	19	63	164	167	45	201	413	858
August .....	197	410	797	180	19	61	126	167	45	204	417	804
September .....	186	385	766	152	19	56	153	158	41	192	391	772
October .....	192	393	813	161	20	50	190	157	43	193	393	813
November .....	191	396	812	175	20	41	180	162	43	196	400	817
11-Month Total ...	2,060	4,321	9,239	2,267	209	546	1,896	1,781	480	2,074	4,335	9,253
2015 11-Month Total ...	1,972	4,315	8,606	2,105	195	400	1,590	1,869	475	1,960	4,304	8,594
2014 11-Month Total ...	1,912	4,421	8,774	2,254	196	316	1,588	2,036	472	1,884	4,392	8,746

<sup>a</sup> Production equals consumption for all renewable energy sources except biofuels.

<sup>b</sup> Total biomass inputs to the production of fuel ethanol and biodiesel.

<sup>c</sup> Wood and wood-derived fuels, biomass waste, and total biomass inputs to the production of fuel ethanol and biodiesel.

<sup>d</sup> Hydroelectric power, geothermal, solar, wind, and biomass.

<sup>e</sup> Conventional hydroelectricity net generation (converted to Btu by multiplying by the total fossil fuels heat rate factors in Table A6).

<sup>f</sup> 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.

<sup>g</sup> 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.

<sup>h</sup> Wind electricity net generation (converted to Btu by multiplying by the total fossil fuels heat rate factors in Table A6).

<sup>i</sup> Wood and wood-derived fuels.

<sup>j</sup> 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).

<sup>k</sup> Fuel ethanol (minus denaturant) and biodiesel consumption, plus losses and co-products from the production of fuel ethanol and biodiesel.

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

Notes: • Most data for the residential, commercial, industrial, and transportation sectors are estimates. See notes and sources for Tables 10.2a and 10.2b. • See Note, "Renewable Energy Production and Consumption," at end of section.

• Totals may not equal sum of components due to independent rounding.

• Geographic coverage is the 50 states and the District of Columbia.

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

Sources: Tables 10.2a–10.5.

**Table 10.2a Renewable Energy Consumption: Residential and Commercial Sectors**  
(Trillion Btu)

	Residential Sector				Commercial Sector <sup>a</sup>								
	Geo-thermal <sup>b</sup>	Solar <sup>c</sup>	Biomass	Total	Hydro-electric Power <sup>e</sup>	Geo-thermal <sup>b</sup>	Solar <sup>f</sup>	Wind <sup>g</sup>	Biomass				Total
			Wood <sup>d</sup>						Wood <sup>d</sup>	Waste <sup>h</sup>	Fuel Ethanol <sup>i,j</sup>	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	443	(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	52	380	451	1	14	2	—	65	36	1	103	120
2007 Total .....	22	55	420	497	1	14	3	—	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	70	450	560	(s)	20	19	(s)	69	43	3	115	154
2012 Total .....	40	79	420	538	(s)	20	32	1	61	45	3	108	160
2013 Total .....	40	92	580	711	(s)	20	41	1	70	47	3	120	182
2014 January .....	3	6	49	59	(s)	2	3	(s)	6	4	(s)	11	16
February .....	3	6	44	54	(s)	2	3	(s)	6	3	(s)	9	14
March .....	3	9	49	61	(s)	2	4	(s)	6	4	(s)	10	17
April .....	3	9	48	60	(s)	2	5	(s)	6	4	(s)	10	16
May .....	3	11	49	63	(s)	2	5	(s)	6	4	(s)	11	18
June .....	3	11	48	62	(s)	2	5	(s)	6	4	(s)	10	17
July .....	3	11	49	64	(s)	2	5	(s)	6	4	(s)	11	18
August .....	3	11	49	64	(s)	2	5	(s)	6	4	(s)	11	18
September .....	3	10	48	61	(s)	2	5	(s)	6	4	(s)	10	17
October .....	3	10	49	62	(s)	2	4	(s)	6	4	(s)	10	16
November .....	3	8	48	59	(s)	2	3	(s)	6	4	(s)	10	15
December .....	3	8	49	60	(s)	2	3	(s)	6	4	(s)	10	15
Total .....	40	109	580	729	(s)	20	52	1	73	47	4	124	198
2015 January .....	3	7	37	47	(s)	2	3	(s)	6	4	i2	12	17
February .....	3	7	33	43	(s)	2	4	(s)	6	3	2	11	16
March .....	3	10	37	50	(s)	2	5	(s)	6	4	2	12	19
April .....	3	11	35	50	(s)	2	5	(s)	6	4	2	12	19
May .....	3	13	37	53	(s)	2	6	(s)	6	4	2	12	20
June .....	3	13	35	52	(s)	2	6	(s)	6	4	2	12	20
July .....	3	14	37	54	(s)	2	6	(s)	6	4	2	13	21
August .....	3	14	37	54	(s)	2	6	(s)	6	4	2	13	20
September .....	3	12	35	51	(s)	2	5	(s)	6	4	2	12	19
October .....	3	11	37	51	(s)	2	5	(s)	6	4	2	12	18
November .....	3	9	35	48	(s)	2	4	(s)	6	4	2	12	17
December .....	3	9	37	49	(s)	2	3	(s)	6	4	2	12	18
Total .....	41	129	432	601	(s)	20	57	1	73	47	26	146	224
2016 January .....	4	8	33	45	(s)	2	4	(s)	6	4	2	13	18
February .....	3	10	31	44	(s)	2	5	(s)	6	4	2	12	18
March .....	4	13	33	49	(s)	2	6	(s)	6	5	2	13	21
April .....	4	14	32	50	(s)	2	7	(s)	6	4	2	12	21
May .....	4	16	33	52	(s)	2	7	(s)	6	4	2	12	21
June .....	4	17	32	52	(s)	2	7	(s)	6	4	2	12	21
July .....	4	17	33	54	(s)	2	8	(s)	6	4	2	13	22
August .....	4	17	32	53	(s)	2	7	(s)	6	4	2	13	22
September .....	4	15	32	50	(s)	2	6	(s)	6	4	2	12	20
October .....	4	14	33	50	(s)	2	6	(s)	6	4	2	13	20
November .....	4	11	32	46	(s)	2	5	(s)	6	4	2	12	19
11-Month Total ...	40	152	353	545	1	18	68	1	67	44	25	136	224
2015 11-Month Total ...	37	120	395	553	(s)	18	53	1	67	43	24	134	206
2014 11-Month Total ...	36	102	531	669	(s)	18	49	1	67	43	3	114	182

<sup>a</sup> 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.

<sup>b</sup> Geothermal heat pump and direct use energy.

<sup>c</sup> 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.

<sup>d</sup> Wood and wood-derived fuels.

<sup>e</sup> Conventional hydroelectricity net generation (converted to Btu by multiplying by the total fossil fuels heat rate factors in Table A6).

<sup>f</sup> 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.

<sup>g</sup> Wind electricity net generation (converted to Btu by multiplying by the total fossil fuels heat rate factors in Table A6).

<sup>h</sup> 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).

<sup>i</sup> The fuel ethanol (minus denaturant) portion of motor fuels, such as E10, consumed by the commercial sector.

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

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

Notes: • Data are estimates, except for commercial sector hydroelectric power, wind, and waste. • Totals may not equal sum of components due to independent rounding. • Geographic coverage is the 50 states and the District of Columbia.

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

Sources: See end of section.

**Table 10.2b Renewable Energy Consumption: Industrial and Transportation Sectors**  
(Trillion Btu)

	Industrial Sector <sup>a</sup>										Transportation Sector		
	Hydro-electric Power <sup>b</sup>	Geo-thermal <sup>c</sup>	Solar <sup>d</sup>	Wind <sup>e</sup>	Biomass					Total	Biomass		
					Wood <sup>f</sup>	Waste <sup>g</sup>	Fuel Ethanol <sup>h,i</sup>	Losses and Co-products <sup>j</sup>	Total		Fuel Ethanol <sup>k</sup>	Bio-diesel <sup>l</sup>	Total <sup>m</sup>
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	34	NA	NA	NA	855	NA	NA	NA	855	888	NA	NA	NA
1970 Total	33	NA	NA	NA	1,019	NA	NA	NA	1,019	1,053	NA	NA	NA
1975 Total	32	NA	NA	NA	1,063	NA	NA	NA	1,063	1,096	NA	NA	NA
1980 Total	33	NA	NA	NA	1,600	NA	NA	NA	1,600	1,633	NA	NA	NA
1985 Total	33	NA	NA	NA	1,645	230	1	42	1,918	1,951	50	NA	50
1990 Total	31	2	(s)	—	1,442	192	1	49	1,684	1,717	60	NA	60
1995 Total	55	3	(s)	—	1,652	195	2	86	1,934	1,992	112	NA	112
2000 Total	42	4	(s)	—	1,636	145	1	99	1,881	1,928	135	NA	135
2001 Total	33	5	(s)	—	1,443	129	3	108	1,681	1,719	141	1	142
2002 Total	39	5	(s)	—	1,396	146	3	130	1,676	1,720	168	2	170
2003 Total	43	3	(s)	—	1,363	142	4	168	1,678	1,725	228	2	230
2004 Total	33	4	(s)	—	1,476	132	6	201	1,815	1,852	286	3	290
2005 Total	32	4	(s)	—	1,452	148	7	227	1,834	1,871	327	12	339
2006 Total	29	4	1	—	1,472	130	10	280	1,892	1,926	442	33	475
2007 Total	16	5	1	—	1,413	145	10	369	1,937	1,958	557	45	602
2008 Total	17	5	1	—	1,339	143	12	519	2,012	2,035	786	39	825
2009 Total	18	4	2	—	1,178	154	13	603	1,948	1,972	894	41	935
2010 Total	16	4	3	—	1,273	168	17	727	2,185	2,208	1,041	33	1,075
2011 Total	17	4	4	(s)	1,309	165	17	756	2,246	2,272	1,045	113	1,158
2012 Total	22	4	7	(s)	1,339	159	17	711	2,226	2,259	1,045	115	1,162
2013 Total	33	4	9	(s)	1,312	187	18	709	2,226	2,272	1,072	182	1,278
2014 January	1	(s)	1	(s)	113	16	1	63	193	195	87	10	99
February	1	(s)	1	(s)	102	15	1	56	175	177	82	10	93
March	1	(s)	1	(s)	112	17	1	62	192	194	88	14	103
April	1	(s)	1	(s)	107	17	1	62	187	189	90	12	104
May	1	(s)	1	(s)	109	15	1	64	190	192	94	15	110
June	1	(s)	1	(s)	111	15	1	64	190	193	92	16	108
July	1	(s)	1	(s)	114	16	1	65	196	199	96	15	113
August	1	(s)	1	(s)	115	15	1	64	195	198	95	19	117
September	1	(s)	1	(s)	107	14	1	62	185	187	89	19	109
October	1	(s)	1	(s)	110	17	1	64	192	194	96	16	115
November	1	(s)	1	(s)	109	16	1	64	190	192	92	17	108
December	1	(s)	1	(s)	116	17	1	68	202	204	94	18	113
Total	12	4	11	1	1,325	190	14	757	2,286	2,314	1,093	181	1,292
2015 January	1	(s)	1	(s)	114	17	1	65	198	200	88	6	94
February	1	(s)	1	(s)	102	15	1	59	177	179	83	11	95
March	1	(s)	1	(s)	106	17	1	65	190	192	92	13	107
April	1	(s)	1	(s)	106	16	1	61	185	188	88	15	105
May	1	(s)	1	(s)	109	16	2	65	192	195	97	18	116
June	1	(s)	1	(s)	106	15	1	65	188	191	94	21	117
July	1	(s)	1	(s)	111	16	2	67	195	198	97	18	118
August	1	(s)	1	(s)	111	16	2	66	194	197	98	20	120
September	1	(s)	1	(s)	106	15	1	63	186	188	94	20	116
October	1	(s)	1	(s)	105	17	1	66	189	192	94	17	114
November	1	(s)	1	(s)	107	17	1	65	190	193	92	14	110
December	1	(s)	1	(s)	110	18	1	68	198	200	93	17	113
Total	13	4	14	(s)	1,295	194	18	776	2,283	2,315	1,109	191	1,325
2016 January	1	(s)	1	(s)	112	16	1	66	195	198	88	13	102
February	1	(s)	1	(s)	102	15	1	62	181	184	91	15	108
March	1	(s)	1	(s)	105	16	2	67	190	193	98	16	117
April	1	(s)	2	(s)	101	16	1	61	179	183	90	17	109
May	1	(s)	2	(s)	105	16	2	66	189	192	97	22	121
June	1	(s)	2	(s)	106	16	2	66	190	193	97	21	121
July	1	(s)	2	(s)	108	17	2	68	195	198	100	27	129
August	1	(s)	2	(s)	108	16	2	69	194	197	101	28	131
September	1	(s)	2	(s)	102	15	1	65	184	186	94	26	123
October	1	(s)	1	(s)	103	14	1	67	187	189	94	26	122
November	1	(s)	1	(s)	107	16	2	67	191	194	95	26	125
11-Month Total	11	4	16	1	1,159	173	17	725	2,075	2,106	1,046	237	1,308
2015 11-Month Total	12	4	13	(s)	1,185	177	16	708	2,085	2,114	1,017	174	1,213
2014 11-Month Total	11	4	10	(s)	1,209	173	13	689	2,084	2,110	999	163	1,179

<sup>a</sup> 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.

<sup>b</sup> Conventional hydroelectricity net generation (converted to Btu by multiplying by the total fossil fuels heat rate factors in Table A6).

<sup>c</sup> Geothermal heat pump and direct use energy.

<sup>d</sup> 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.

<sup>e</sup> Wind electricity net generation (converted to Btu by multiplying by the total fossil fuels heat rate factors in Table A6).

<sup>f</sup> Wood and wood-derived fuels.

<sup>g</sup> 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).

<sup>h</sup> The fuel ethanol (minus denaturant) portion of motor fuels, such as E10, consumed by the industrial sector.

<sup>i</sup> 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.

<sup>j</sup> 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.

<sup>k</sup> The fuel ethanol (minus denaturant) portion of motor fuels, such as E10 and E85, consumed by the transportation sector.

<sup>l</sup> Although there is biodiesel use in other sectors, all biodiesel consumption is assigned to the transportation sector.

<sup>m</sup> Beginning in 2009, includes imports minus stock change of other renewable diesel fuel and other renewable fuels. See "Renewable Diesel Fuel (Other)" and "Renewable Fuels (Other)" in Glossary.

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

Notes: • Data are estimates, except for industrial sector hydroelectric power in 1949–1978 and 1989 forward, and wind. • Totals may not equal sum of components due to independent rounding. • Geographic coverage is the 50 states and the District of Columbia.

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

Sources: See end of section.

**Table 10.2c Renewable Energy Consumption: Electric Power Sector**  
(Trillion Btu)

	Hydro-electric Power <sup>a</sup>	Geo-thermal <sup>b</sup>	Solar <sup>c</sup>	Wind <sup>d</sup>	Biomass			Total
					Wood <sup>e</sup>	Waste <sup>f</sup>	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 <sup>g</sup> .....	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 January .....	205	13	7	170	21	24	45	440
February .....	164	11	8	133	20	22	42	359
March .....	230	13	12	169	22	24	46	469
April .....	241	12	14	177	18	23	41	485
May .....	251	13	16	148	17	24	41	469
June .....	244	12	18	150	22	24	45	470
July .....	231	13	17	116	23	25	48	423
August .....	187	13	17	97	23	24	46	361
September .....	152	12	17	109	21	22	43	334
October .....	162	13	16	138	20	22	42	371
November .....	176	13	13	179	22	22	44	425
December .....	211	13	10	140	22	23	45	419
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	14	14	172	21	25	45	480
February .....	224	13	22	188	21	23	43	490
March .....	250	14	24	203	20	23	43	534
April .....	236	12	27	191	15	25	40	506
May .....	235	14	32	175	16	24	40	496
June .....	212	13	32	152	19	24	42	452
July .....	197	13	37	164	20	24	45	456
August .....	180	13	36	126	21	25	46	401
September .....	151	14	33	153	18	23	41	392
October .....	160	14	29	190	15	24	39	431
November .....	175	14	24	180	17	23	40	433
11-Month Total ...	2,255	147	310	1,894	201	262	464	5,070
2015 11-Month Total ...	2,093	136	214	1,589	222	256	478	4,509
2014 11-Month Total ...	2,243	138	155	1,586	229	256	485	4,607

<sup>a</sup> Conventional hydroelectricity net generation (converted to Btu by multiplying by the total fossil fuels heat rate factors in Table A6).

<sup>b</sup> Geothermal electricity net generation (converted to Btu by multiplying by the total fossil fuels heat rate factors in Table A6).

<sup>c</sup> 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.

<sup>d</sup> Wind electricity net generation (converted to Btu by multiplying by the total fossil fuels heat rate factors in Table A6).

<sup>e</sup> Wood and wood-derived fuels.

<sup>f</sup> 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).

<sup>g</sup> Through 1988, data are for electric utilities only. Beginning in 1989, data are for electric utilities and independent power producers.

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

Notes: • The electric power sector comprises electricity-only and combined-heat-and-power (CHP) plants within the NAICS 22 category whose primary business is to sell electricity, or electricity and heat, to the public. • Totals may not equal sum of components due to independent rounding. • Geographic coverage is the 50 states and the District of Columbia.

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

Sources: Tables 7.2b, 7.4b, and A6.

**Table 10.3 Fuel Ethanol Overview**

	Feed-stock <sup>a</sup>	Losses and Co-products <sup>b</sup>	Denaturant <sup>c</sup>	Production <sup>d</sup>			Trade <sup>d</sup>	Stocks <sup>d,f</sup>	Stock Change <sup>d,g</sup>	Consumption <sup>d</sup>			Consumption Minus Denaturant <sup>h</sup>
							Net Imports <sup>e</sup>						
	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 January .....	160	62	558	28,194	1,184	100	-2,024	17,153	729	25,441	1,069	91	88
February .....	144	56	498	25,269	1,061	90	-1,473	16,865	-288	24,084	1,012	86	84
March .....	160	62	544	28,120	1,181	100	-1,985	17,310	445	25,690	1,079	91	89
April .....	158	61	551	27,733	1,165	99	-1,202	17,610	300	26,231	1,102	93	91
May .....	164	64	565	28,888	1,213	103	-704	18,330	720	27,464	1,153	98	95
June .....	163	63	524	28,629	1,202	102	-1,278	18,785	455	26,896	1,130	96	93
July .....	167	65	542	29,413	1,235	105	-1,495	18,696	-89	28,007	1,176	100	97
August .....	163	64	534	28,665	1,204	102	-1,283	18,218	-478	27,860	1,170	99	97
September .....	158	62	509	27,807	1,168	99	-1,346	18,724	506	25,955	1,090	92	90
October .....	163	64	502	28,644	1,203	102	-1,919	17,341	-1,383	28,108	1,181	100	98
November .....	163	63	540	28,588	1,201	102	-2,081	17,035	-306	26,813	1,126	95	93
December .....	175	68	609	30,831	1,295	110	-1,580	18,739	1,704	27,547	1,157	98	96
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 .....	171	66	615	30,319	1,273	108	-2,073	23,168	<sup>i</sup> 1,730	26,516	1,114	94	92
February .....	162	62	583	28,678	1,204	102	-1,595	23,004	-164	27,247	1,144	97	94
March .....	174	67	600	30,812	1,294	110	-2,268	22,301	-703	29,247	1,228	104	101
April .....	158	61	554	28,059	1,178	100	-2,273	20,992	-1,309	27,095	1,138	96	94
May .....	171	66	584	30,228	1,270	108	-1,327	20,792	-200	29,101	1,222	104	101
June .....	171	66	564	30,258	1,271	108	-858	21,199	407	28,993	1,218	103	101
July .....	177	68	565	31,251	1,313	111	-1,338	21,167	-32	29,945	1,258	107	104
August .....	179	69	560	31,669	1,330	113	-1,601	21,042	-125	30,193	1,268	107	105
September .....	169	65	542	29,876	1,255	106	-2,342	20,605	-437	27,971	1,175	100	97
October .....	174	67	560	30,797	1,293	110	-3,135	20,005	-600	28,262	1,187	101	98
November .....	173	66	556	30,565	1,284	109	-2,904	19,136	-869	28,530	1,198	102	99
11-Month Total .....	1,877	723	6,283	332,512	13,966	1,183	-21,715	19,136	-2,302	313,099	13,150	1,114	1,087
2015 11-Month Total .....	1,822	706	6,012	321,472	13,502	1,144	-15,865	20,099	1,360	304,247	12,778	1,083	1,057
2014 11-Month Total .....	1,763	687	5,867	309,950	13,018	1,103	-16,792	17,035	611	292,547	12,287	1,041	1,016

<sup>a</sup> Total corn and other biomass inputs to the production of undenatured ethanol used for fuel ethanol.

<sup>b</sup> 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.

<sup>c</sup> The amount of denaturant in fuel ethanol produced.

<sup>d</sup> Includes denaturant.

<sup>e</sup> 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.

<sup>f</sup> Stocks are at end of period.

<sup>g</sup> A negative value indicates a decrease in stocks and a positive value indicates an increase.

<sup>h</sup> 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.

<sup>i</sup> Derived from the preliminary 2015 stocks value (21,438 thousand barrels), not the final 2015 value (21,596 thousand barrels) that is shown under "Stocks."

NA=Not available.

Notes: • Mbbl = thousand barrels. MMgal = million U.S. gallons. TBtu = trillion Btu. • Fuel ethanol data in thousand barrels are converted to million gallons by multiplying by 0.042, and are converted to Btu by multiplying by the approximate heat content of fuel ethanol—see Table A3. • Through 1980, data are not available. For 1981–1992, data are estimates. For 1993–2008, only data for feedstock, losses and co-products, and denaturant are estimates. Beginning in 2009, only data for feedstock, and losses and co-products, are estimates. • See "Denaturant," "Ethanol," "Fuel Ethanol," and "Fuel Ethanol Minus Denaturant" in Glossary. • Totals may not equal sum of components due to independent rounding. • Geographic coverage is the 50 states and the District of Columbia.

Web Page: See <http://www.eia.gov/totalenergy/data/monthly/#renewable> (Excel and CSV files) for all available annual and monthly data beginning in 1981.

Sources: See end of section.

**Table 10.4 Biodiesel and Other Renewable Fuels Overview**

	Biodiesel													Other Renewable Fuels <sup>f</sup>
	Feed-stock <sup>a</sup>	Losses and Co-products <sup>b</sup>	Production			Trade			Stocks <sup>d</sup>	Stock Change <sup>e</sup>	Consumption			
						Imports	Exports	Net Imports <sup>c</sup>						
			TBtu	TBtu	Mbbl	MMgal	TBtu	Mbbl	Mbbl	Mbbl	Mbbl	Mbbl	Mbbl	MMgal
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	<sup>g</sup> 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	<sup>h</sup> 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 January .....	9	(s)	1,727	73	9	222	134	88	3,708	-101	1,916	80	10	2
February .....	10	(s)	1,801	76	10	161	141	20	3,726	18	1,803	76	10	1
March .....	13	(s)	2,361	99	13	240	91	149	3,604	-122	2,632	111	14	2
April .....	12	(s)	2,223	93	12	135	261	-126	3,402	-202	2,299	97	12	3
May .....	14	(s)	2,531	106	14	133	208	-75	3,135	-267	2,724	114	15	2
June .....	14	(s)	2,645	111	14	235	263	-28	2,798	-337	2,953	124	16	(s)
July .....	16	(s)	2,926	123	16	493	320	173	3,089	291	2,808	118	15	2
August .....	16	(s)	2,987	125	16	571	264	307	2,786	-304	3,597	151	19	2
September .....	15	(s)	2,754	116	15	352	136	216	2,293	-492	3,462	145	19	1
October .....	16	(s)	2,928	123	16	507	40	467	2,641	347	3,048	128	16	2
November .....	14	(s)	2,610	110	14	989	65	924	3,084	444	3,091	130	17	(s)
December .....	16	(s)	2,958	124	16	540	51	489	3,131	46	3,401	143	18	1
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	211	42	169	4,036	<sup>i</sup> 221	2,437	102	13	1
February .....	14	(s)	2,503	105	13	287	55	232	3,937	-99	2,834	119	15	2
March .....	15	(s)	2,829	119	15	437	234	203	3,923	-14	3,046	128	16	3
April .....	15	(s)	2,827	119	15	891	246	645	4,175	253	3,219	135	17	1
May .....	17	(s)	3,169	133	17	1,117	334	783	4,062	-113	4,065	171	22	2
June .....	17	(s)	3,205	135	17	1,575	220	1,355	4,735	672	3,888	163	21	3
July .....	18	(s)	3,330	140	18	1,681	250	1,431	4,444	-291	5,053	212	27	1
August .....	18	(s)	3,385	142	18	1,829	234	1,595	4,267	-177	5,157	217	28	2
September .....	17	(s)	3,131	132	17	1,793	150	1,643	4,212	-54	4,829	203	26	3
October .....	18	(s)	3,380	142	18	1,824	95	1,729	4,560	347	4,762	200	26	2
November .....	18	(s)	3,388	142	18	2,184	152	2,032	5,078	518	4,902	206	26	4
11-Month Total ...	183	2	33,637	1,413	180	13,829	2,012	11,817	5,078	1,263	44,191	1,856	237	25
2015 11-Month Total ...	149	2	27,507	1,155	147	7,321	1,957	5,364	3,600	469	32,401	1,361	174	22
2014 11-Month Total ...	149	2	27,493	1,155	147	4,038	1,924	2,114	3,084	-726	30,333	1,274	163	17

<sup>a</sup> 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.

<sup>b</sup> 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.

<sup>c</sup> Net imports equal imports minus exports.

<sup>d</sup> Stocks are at end of period. Through 2010, includes stocks at bulk terminals only. Beginning in 2011, includes stocks at bulk terminals and biodiesel production plants.

<sup>e</sup> A negative value indicates a decrease in stocks and a positive value indicates an increase.

<sup>f</sup> Imports minus stock change of other renewable diesel fuel and other renewable fuels. See "Renewable Diesel Fuel (Other)" and "Renewable Fuels (Other)" in Glossary.

<sup>g</sup> 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.

<sup>h</sup> 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."

<sup>i</sup> Derived from the preliminary 2015 stocks value (3,815 thousand barrels), not the final 2015 value (3,943 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 <sup>a</sup> Solar Energy <sup>b</sup>						Utility-Scale <sup>c</sup> Solar Energy <sup>b</sup>				Total <sup>k</sup>
	Heat <sup>f</sup>	Electricity <sup>d</sup>				Total <sup>g</sup>	Electricity <sup>e</sup>				
		Residential Sector	Commercial Sector	Industrial Sector	Total		Commercial Sector <sup>h</sup>	Industrial Sector <sup>i</sup>	Electric Power Sector <sup>j</sup>	Total	
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	3	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	35	93	1	(s)	17	18	111
2012 Total .....	59	20	30	7	56	116	1	(s)	40	41	157
2013 Total .....	61	31	38	8	78	138	3	(s)	83	86	225
2014 January .....	3	2	3	1	6	9	(s)	(s)	7	7	17
February .....	4	3	3	1	6	10	(s)	(s)	8	8	18
March .....	5	4	4	1	9	14	(s)	(s)	12	13	26
April .....	5	4	4	1	9	15	(s)	(s)	14	14	29
May .....	6	4	5	1	10	16	(s)	(s)	16	17	33
June .....	6	5	5	1	10	17	(s)	(s)	18	18	35
July .....	6	5	5	1	11	17	(s)	(s)	17	17	34
August .....	6	5	5	1	11	17	(s)	(s)	17	18	35
September .....	6	4	4	1	10	16	(s)	(s)	17	17	33
October .....	5	4	4	1	9	15	(s)	(s)	16	16	31
November .....	4	4	3	1	8	12	(s)	(s)	13	13	25
December .....	4	3	3	1	7	12	(s)	(s)	10	10	21
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	21	(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	17	(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 .....	64	65	53	14	132	195	4	(s)	228	232	427
2016 January .....	3	5	4	1	10	13	(s)	(s)	14	14	27
February .....	4	6	4	1	11	15	(s)	(s)	22	22	37
March .....	5	8	6	1	15	20	(s)	(s)	24	25	45
April .....	6	9	6	2	16	22	(s)	(s)	27	27	49
May .....	6	10	7	2	18	24	(s)	(s)	32	33	57
June .....	6	10	7	2	19	25	1	(s)	32	33	58
July .....	7	11	7	2	19	26	1	(s)	37	38	63
August .....	7	10	7	2	19	25	1	(s)	36	36	61
September .....	6	9	6	2	17	23	1	(s)	33	34	56
October .....	6	8	5	1	15	21	(s)	(s)	29	29	50
November .....	5	7	4	1	12	17	(s)	(s)	24	25	41
11-Month Total .....	60	92	63	16	170	231	5	(s)	310	315	546
2015 11-Month Total .....	60	61	50	13	123	183	4	(s)	214	217	400
2014 11-Month Total .....	58	44	46	10	100	158	3	(s)	155	158	316

<sup>a</sup> Data are estimates for distributed (small-scale) facilities (combined generator nameplate capacity less than 1 megawatt).

<sup>b</sup> See "Photovoltaic Energy" and "Solar Thermal Energy" in Glossary.

<sup>c</sup> Data are for utility-scale facilities (combined generator nameplate capacity of 1 megawatt or more).

<sup>d</sup> 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).

<sup>e</sup> 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).

<sup>f</sup> 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.

<sup>g</sup> Data are the sum of "Distributed Solar Energy Heat" and "Distributed Solar Energy Electricity."

<sup>h</sup> 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.

<sup>i</sup> 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.

<sup>j</sup> Electricity-only and combined-heat-and-power (CHP) plants within the NAICS 22 category whose primary business is to sell electricity, or electricity and heat, to the public. Through 1988, data are for electric utilities only; beginning in 1989, data are for electric utilities and independent power producers.

<sup>k</sup> Data are the sum of "Distributed Solar Energy Total" and "Utility-Scale Solar Energy Total."

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

Notes: • Distributed (small-scale) solar energy data for all years, and utility-scale solar energy data for the current two years, are estimates. • Totals may not equal sum of components due to independent rounding. • Geographic coverage is the 50 states and the District of Columbia.

Web Page: See <http://www.eia.gov/totalenergy/data/monthly/#renewable> (Excel and CSV files) for all available annual and monthly data beginning in 1984.

Sources: See end of section.

**Table 10.6 Solar Electricity Net Generation**  
(Million Kilowatthours)

	Distributed <sup>a</sup> Solar Generation <sup>b</sup>				Utility-Scale <sup>c</sup> Solar Generation <sup>b</sup>				Total
	Residential Sector	Commercial Sector	Industrial Sector	Total	Commercial Sector <sup>d</sup>	Industrial Sector <sup>e</sup>	Electric Power Sector <sup>f</sup>	Total	
<b>1985 Total</b> .....	NA	NA	NA	NA	NA	NA	11	11	11
<b>1990 Total</b> .....	12	17	4	32	—	—	367	367	399
<b>1995 Total</b> .....	20	29	6	55	—	—	497	497	552
<b>2000 Total</b> .....	39	55	12	106	—	—	493	493	600
<b>2001 Total</b> .....	47	67	15	129	—	—	543	543	671
<b>2002 Total</b> .....	56	79	18	152	—	—	555	555	707
<b>2003 Total</b> .....	65	92	20	178	—	—	534	534	712
<b>2004 Total</b> .....	80	115	25	220	—	—	575	575	796
<b>2005 Total</b> .....	121	172	38	331	—	—	550	550	881
<b>2006 Total</b> .....	176	251	56	482	—	—	508	508	990
<b>2007 Total</b> .....	249	354	78	681	—	—	612	612	1,293
<b>2008 Total</b> .....	400	569	126	1,094	(s)	—	864	864	1,959
<b>2009 Total</b> .....	537	764	169	1,471	(s)	—	891	891	2,362
<b>2010 Total</b> .....	888	1,168	259	2,314	5	2	1,206	1,212	3,526
<b>2011 Total</b> .....	1,317	1,906	422	3,645	84	7	1,727	1,818	5,463
<b>2012 Total</b> .....	2,050	3,162	700	5,913	148	14	4,164	4,327	10,239
<b>2013 Total</b> .....	3,231	4,015	889	8,134	294	17	8,724	9,036	17,170
<b>2014 January</b> .....	263	300	62	624	16	1	734	751	1,375
February .....	277	322	65	664	20	1	814	835	1,499
March .....	382	432	93	907	29	1	1,286	1,317	2,224
April .....	421	467	101	988	33	2	1,453	1,487	2,476
May .....	468	512	111	1,092	38	2	1,710	1,750	2,842
June .....	478	510	113	1,101	39	2	1,883	1,923	3,024
July .....	502	529	117	1,149	38	2	1,748	1,788	2,936
August .....	503	520	116	1,139	39	2	1,839	1,879	3,019
September .....	472	469	106	1,046	35	2	1,795	1,832	2,879
October .....	445	419	100	965	36	1	1,680	1,717	2,682
November .....	373	338	81	792	28	1	1,351	1,380	2,171
December .....	363	329	74	766	20	1	1,011	1,032	1,798
<b>Total</b> .....	<b>4,947</b>	<b>5,146</b>	<b>1,139</b>	<b>11,233</b>	<b>371</b>	<b>16</b>	<b>17,304</b>	<b>17,691</b>	<b>28,924</b>
<b>2015 January</b> .....	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
<b>Total</b> .....	<b>6,999</b>	<b>5,689</b>	<b>1,451</b>	<b>14,139</b>	<b>416</b>	<b>21</b>	<b>24,456</b>	<b>24,893</b>	<b>39,032</b>
<b>2016 January</b> .....	515	407	99	1,021	23	NM	1,469	1,492	2,514
February .....	615	465	109	1,190	44	NM	2,357	2,404	3,593
March .....	826	605	152	1,583	46	NM	2,618	2,667	4,250
April .....	942	657	165	1,764	44	NM	2,851	2,897	4,661
May .....	1,048	715	183	1,946	53	NM	3,483	3,539	5,485
June .....	1,089	719	184	1,993	61	NM	3,480	3,544	5,537
July .....	1,137	740	191	2,068	68	NM	3,953	4,024	6,092
August .....	1,106	714	188	2,008	58	NM	3,816	3,877	5,885
September .....	981	641	170	1,792	55	3	3,555	3,613	5,405
October .....	875	578	156	1,609	45	2	3,085	3,132	4,741
November .....	717	467	123	1,307	38	NM	2,603	2,642	3,950
<b>11-Month Total</b> .....	<b>9,851</b>	<b>6,710</b>	<b>1,720</b>	<b>18,281</b>	<b>534</b>	<b>28</b>	<b>33,270</b>	<b>33,832</b>	<b>52,113</b>
<b>2015 11-Month Total</b> .....	<b>6,527</b>	<b>5,340</b>	<b>1,358</b>	<b>13,225</b>	<b>393</b>	<b>20</b>	<b>22,910</b>	<b>23,323</b>	<b>36,548</b>
<b>2014 11-Month Total</b> .....	<b>4,585</b>	<b>4,817</b>	<b>1,065</b>	<b>10,467</b>	<b>350</b>	<b>16</b>	<b>16,293</b>	<b>16,659</b>	<b>27,126</b>

<sup>a</sup> 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.

<sup>b</sup> See "Photovoltaic Energy" and "Solar Thermal Energy" in Glossary.

<sup>c</sup> Solar photovoltaic (PV) and solar thermal electricity net generation at utility-scale facilities (combined generator nameplate capacity of 1 megawatt or more).

<sup>d</sup> 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.

<sup>e</sup> 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.

<sup>f</sup> Electricity-only and combined-heat-and-power (CHP) plants within the NAICS 22 category whose primary business is to sell electricity, or electricity and heat, to the public. Through 1988, data are for electric utilities only; beginning in 1989, data are for electric utilities and independent power producers.

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 (biofuels production comprises biomass inputs to the production of fuel ethanol and biodiesel).

### 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.

2012–2014: Annual estimates assumed by EIA to be equal to that of 2011.

2015 and 2016: Annual estimates are from EIA, *Short-Term Energy Outlook (STEO)*.

(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: Annual estimate assumed by EIA to be equal to that of 2013.

2015 and 2016: Annual estimates are from EIA, STEO. (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 assumed by EIA to be equal to that of 2013). 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 2014, the annual estimate is assumed by EIA to be equal to that of 2013; for 2015, the annual estimate is from EIA, STEO; for 2016, the annual estimate is assumed by EIA to be equal to that of 2015). 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, the annual estimate is assumed by EIA to be equal to that of 2013; for 2015, the annual estimate is from EIA, STEO; for 2016, the annual estimate is assumed by EIA to be equal to that of 2015). 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 pentanes plus and conventional motor gasoline used as denaturant).

2009–2015: U.S. Energy Information Administration (EIA), *Petroleum Supply Annual (PSA)*, annual reports, Table 1. Data in thousand barrels for net production of pentanes plus 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 pentanes plus). 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 pentanes plus, conventional motor gasoline, and motor gasoline blending components.

2016: EIA, *Petroleum Supply Monthly (PSM)*, monthly reports, Table 1. Data in thousand barrels for net production of pentanes plus 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 pentanes plus). 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 pentanes plus, 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."

2009–2015: EIA, PSA, annual reports, Table 1, data for net production of fuel ethanol at renewable fuels and oxygenate plants.

2016: EIA, PSM, monthly reports, Table 1, data for net production of fuel ethanol at renewable fuels and oxygenate plants.

### Trade, Stocks, and Stock Change

1992–2015: EIA, PSA, annual reports, Table 1.

2016: 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).

2009–2015: EIA, PSA, annual reports, Table 1. Calculated as fuel ethanol refinery and blender net inputs minus fuel ethanol adjustments.

2016: 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.

2011–2015: EIA, *Petroleum Supply Annual (PSA)*, annual reports, Table 1, data for renewable fuels except fuel ethanol.

2016: 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.

2012–2015: EIA, PSA, annual reports, Tables 25 and 31, data for biomass-based diesel fuel.

2016: 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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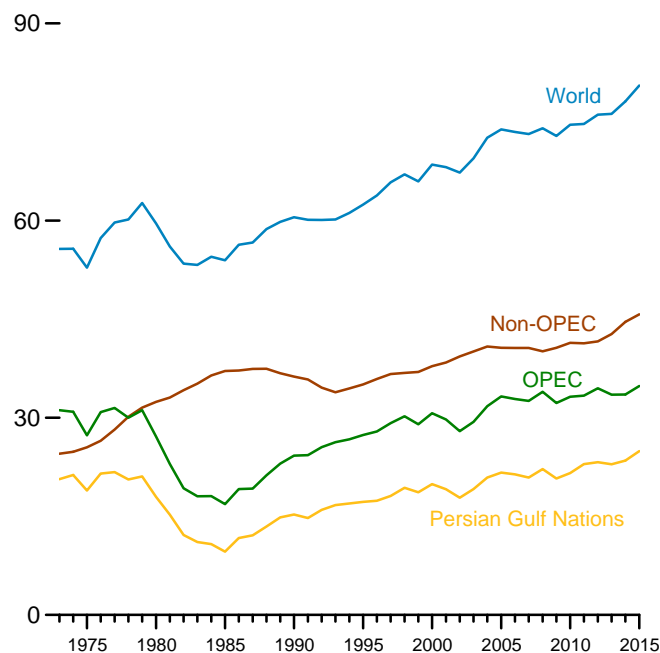


# **11. International Petroleum**

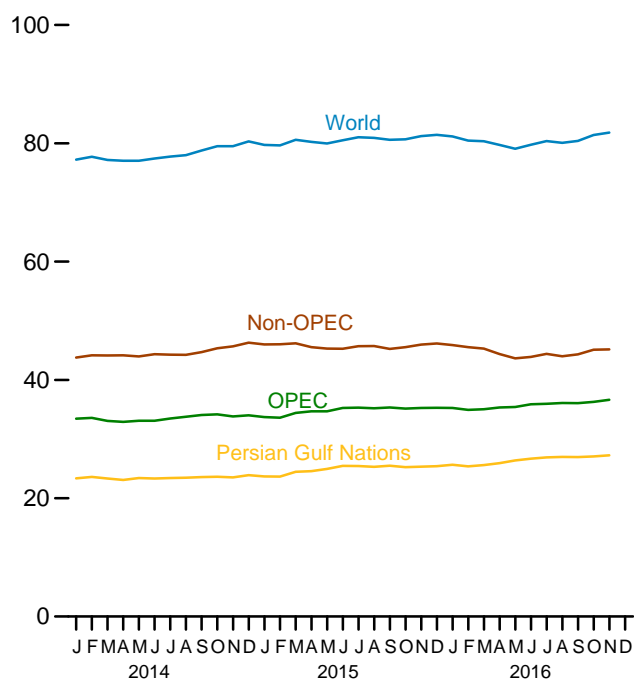
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**Figure 11.1a World Crude Oil Production Overview**  
(Million Barrels per Day)

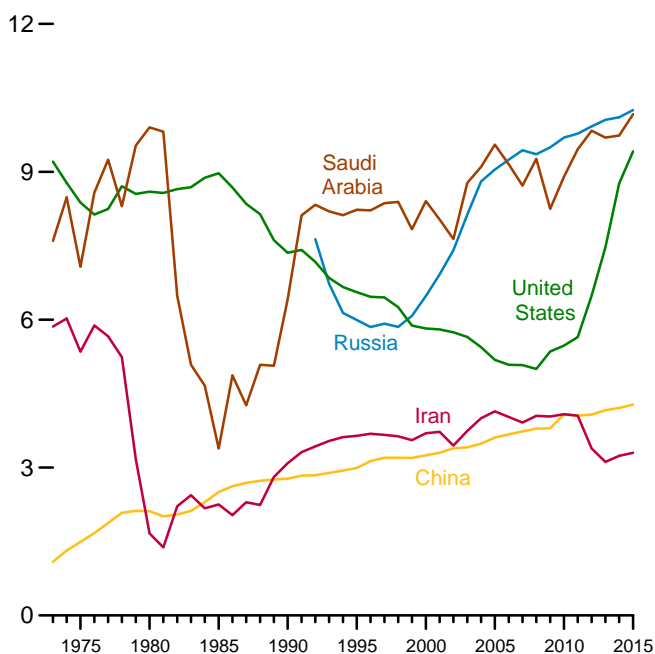
World Production, 1973–2016



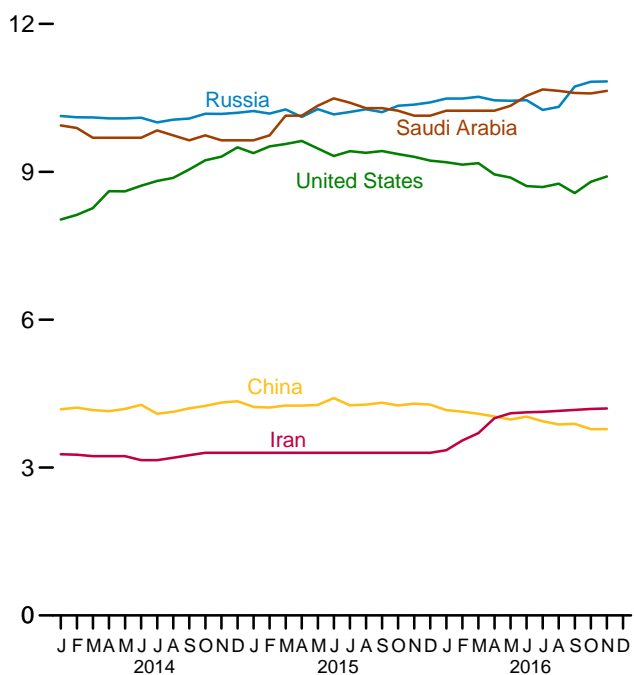
World Production, Monthly



Selected Producers, 1973–2016



Selected Producers, Monthly



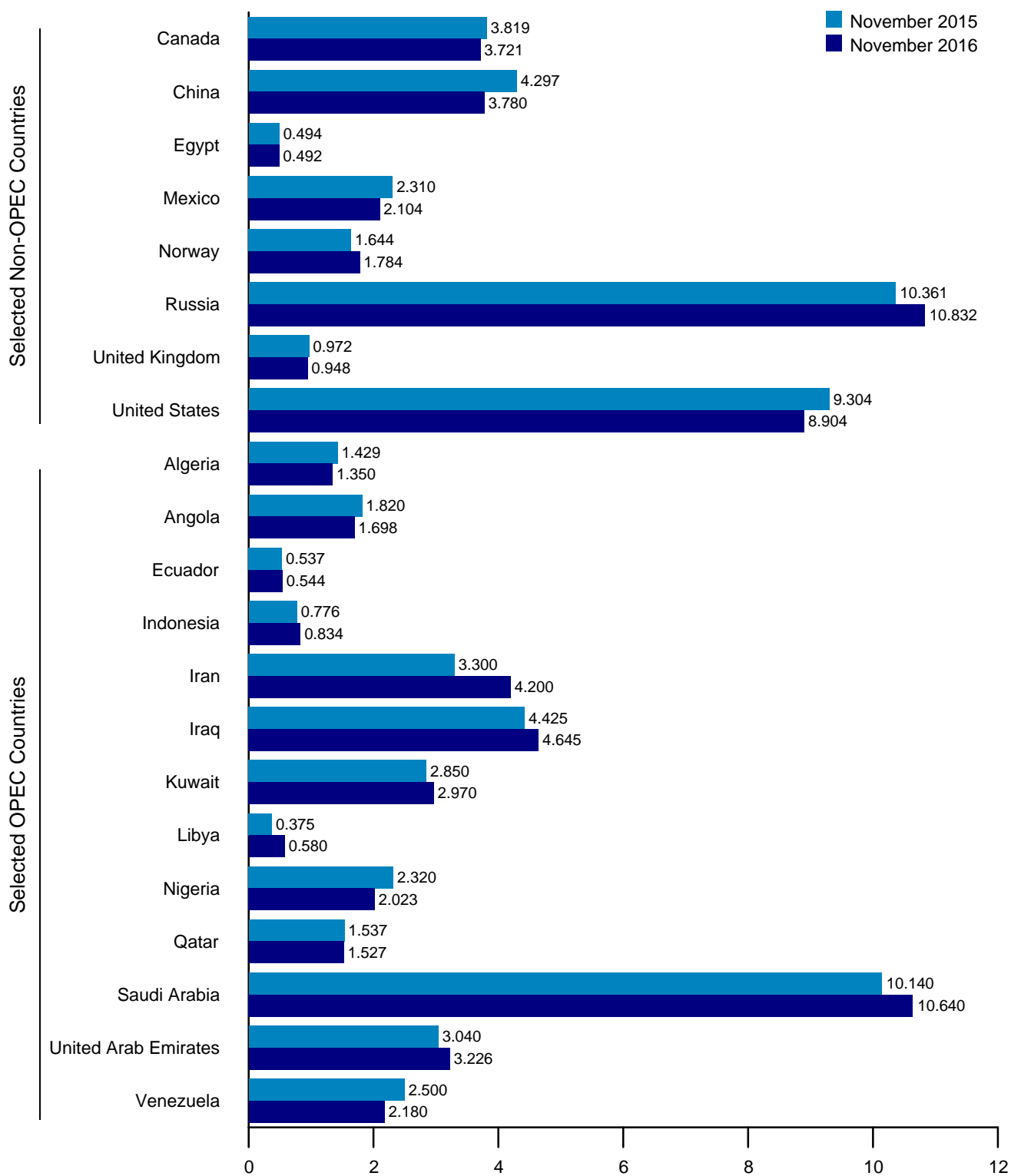
Notes: • OPEC is the Organization of the Petroleum Exporting Countries. • The Persian Gulf Nations are Bahrain, Iran, Iraq, Kuwait, Qatar, Saudi Arabia, and the United Arab Emirates. Production from the Neutral Zone between Kuwait and Saudi Arabia is included in "Per-

sian 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	Indonesia	Iran	Iraq	Kuwait <sup>a</sup>	Libya	Nigeria	Qatar	Saudi Arabia <sup>a</sup>	United Arab Emirates	Venezuela	Total OPEC <sup>b</sup>
1973 Average .....	1,097	162	209	1,339	5,861	2,018	3,020	2,175	2,054	570	7,596	1,533	3,366	31,150
1975 Average .....	983	165	161	1,307	5,350	2,262	2,084	1,480	1,783	438	7,075	1,664	2,346	27,319
1980 Average .....	1,106	150	204	1,577	1,662	2,514	1,656	1,787	2,055	472	9,900	1,709	2,168	27,135
1985 Average .....	1,036	231	281	1,325	2,250	1,433	1,023	1,059	1,495	301	3,388	1,193	1,677	16,864
1990 Average .....	1,180	475	285	1,462	3,088	2,040	1,175	1,375	1,810	406	6,410	2,117	2,137	24,230
1995 Average .....	1,162	646	392	1,503	3,643	560	2,057	1,390	1,993	442	8,231	2,233	2,750	27,367
1996 Average .....	1,227	709	396	1,547	3,686	579	2,062	1,401	2,001	510	8,218	2,278	2,938	27,919
1997 Average .....	1,259	714	388	1,520	3,664	1,155	2,007	1,446	2,132	550	8,362	2,316	3,280	29,164
1998 Average .....	1,226	735	375	1,518	3,634	2,150	2,085	1,390	2,153	696	8,389	2,345	3,167	30,217
1999 Average .....	1,177	745	373	1,472	3,557	2,508	1,898	1,319	2,130	665	7,833	2,169	2,826	29,002
2000 Average .....	1,214	746	395	1,428	3,696	2,571	2,079	1,410	2,165	742	8,404	2,368	3,155	30,687
2001 Average .....	1,265	742	412	1,340	3,724	2,390	1,998	1,367	2,256	730	8,031	2,205	3,010	29,739
2002 Average .....	1,349	896	393	1,249	3,444	2,023	1,894	1,319	2,118	709	7,634	2,082	2,604	27,965
2003 Average .....	1,516	903	411	1,155	3,743	1,308	2,136	1,421	2,275	807	8,775	2,348	2,335	29,374
2004 Average .....	1,582	1,052	528	1,096	4,001	2,011	2,376	1,515	2,329	901	9,101	2,478	2,557	31,767
2005 Average .....	1,692	1,239	532	1,067	4,139	1,878	2,529	1,633	2,627	978	9,550	2,535	2,565	33,230
2006 Average .....	1,699	1,398	536	1,019	4,028	1,996	2,535	1,681	2,440	996	9,152	2,636	2,511	32,863
2007 Average .....	1,708	1,724	511	964	3,912	2,086	2,464	1,702	2,350	1,083	8,722	2,603	2,490	32,562
2008 Average .....	1,705	1,951	505	974	4,050	2,375	2,586	1,736	2,165	1,198	9,261	2,681	2,510	33,945
2009 Average .....	1,585	1,877	486	949	4,037	2,391	2,350	1,650	2,208	1,279	8,250	2,413	2,520	32,236
2010 Average .....	1,540	1,909	486	945	4,080	2,399	2,300	1,650	2,455	1,459	8,900	2,415	2,410	33,194
2011 Average .....	1,540	1,756	500	902	4,054	2,626	2,530	465	2,550	1,571	9,458	2,679	2,500	33,373
2012 Average .....	1,532	1,787	504	860	3,387	2,983	2,635	1,367	2,520	1,551	9,832	2,804	2,500	34,492
2013 Average .....	1,462	1,803	526	828	3,113	3,054	2,650	918	2,367	1,553	9,693	2,820	2,500	33,508
2014 January .....	1,420	1,663	550	789	3,270	3,125	R 2,600	510	2,470	1,563	9,940	2,820	2,500	R 33,440
February .....	1,420	1,733	551	789	3,260	3,425	R 2,600	380	2,420	1,563	9,890	2,820	2,500	R 33,571
March .....	1,420	1,673	557	789	3,230	3,325	R 2,550	250	2,370	1,563	9,690	2,920	2,500	R 33,057
April .....	1,420	1,743	560	789	3,230	3,300	R 2,550	210	2,420	1,553	9,690	2,720	2,500	R 32,905
May .....	1,420	1,683	554	789	3,230	3,325	R 2,650	230	2,320	1,553	9,690	2,920	2,500	R 33,084
June .....	1,420	1,663	555	789	3,150	3,325	R 2,600	235	2,420	1,553	9,690	2,970	2,500	R 33,090
July .....	1,420	1,713	558	789	3,150	3,195	R 2,650	435	2,470	1,553	9,840	2,970	2,500	R 33,463
August .....	1,420	1,813	558	789	3,200	3,225	R 2,700	530	2,520	1,553	9,740	3,000	2,500	R 33,768
September .....	1,420	1,823	551	789	3,250	3,515	R 2,700	785	2,470	1,513	9,640	2,900	2,500	R 34,076
October .....	1,420	1,848	557	789	3,300	3,465	R 2,700	950	2,320	1,513	9,740	2,860	2,500	R 34,182
November .....	1,420	1,813	563	789	3,300	3,425	R 2,700	615	2,440	1,503	9,640	2,890	2,500	R 33,818
December .....	1,420	1,733	561	789	3,300	3,775	R 2,700	510	2,440	1,503	9,640	2,930	2,500	R 34,021
Average .....	1,420	1,742	556	789	3,239	3,368	R 2,642	471	2,423	1,540	9,735	2,894	2,500	R 33,540
2015 January .....	R 1,429	1,820	558	789	3,300	3,475	R 2,750	370	2,407	1,514	9,640	2,960	2,500	R 33,727
February .....	R 1,429	1,770	553	789	3,300	3,325	R 2,750	360	2,389	1,520	9,740	2,970	2,500	R 33,610
March .....	R 1,429	1,720	553	778	3,300	3,725	R 2,750	475	2,332	1,525	10,140	2,980	2,500	R 34,422
April .....	R 1,429	1,790	548	808	3,300	3,775	R 2,770	505	2,380	1,531	10,140	3,010	2,500	R 34,691
May .....	R 1,429	1,770	543	810	3,300	3,925	R 2,780	430	2,105	1,532	10,340	3,020	2,500	R 34,689
June .....	R 1,429	1,820	541	763	3,300	4,275	R 2,780	410	2,155	1,537	10,490	3,030	2,500	R 35,245
July .....	R 1,429	1,850	538	772	3,300	4,325	R 2,810	400	2,205	1,537	10,400	3,030	2,500	R 35,311
August .....	R 1,429	1,870	537	784	3,300	4,225	R 2,850	360	2,255	1,537	10,290	3,040	2,500	R 35,192
September .....	R 1,429	1,800	539	780	3,300	4,425	R 2,850	375	2,255	1,537	10,290	3,040	2,500	R 35,335
October .....	R 1,429	1,770	538	776	3,300	4,275	R 2,800	415	2,305	1,537	10,240	3,050	2,500	R 35,150
November .....	R 1,429	1,820	537	776	3,300	4,425	R 2,850	375	2,320	1,537	10,140	3,040	2,500	R 35,264
December .....	R 1,429	1,820	533	791	3,300	4,425	R 2,900	370	2,260	1,537	10,140	3,060	2,500	R 35,280
Average .....	R 1,429	1,802	543	785	3,300	4,054	R 2,804	404	2,280	1,532	10,168	3,019	2,500	R 34,833
2016 January .....	1,350	1,798	462	825	3,350	4,475	R 2,950	370	2,238	1,497	10,240	3,105	2,400	R 35,270
February .....	1,350	1,793	468	835	3,550	4,225	R 2,910	360	2,193	1,517	10,240	2,885	2,400	R 34,936
March .....	1,350	1,798	479	842	3,700	4,225	R 2,930	320	2,113	1,537	10,240	2,910	2,400	R 35,054
April .....	1,350	1,793	482	821	4,000	4,475	R 2,700	330	2,093	1,537	10,240	2,920	2,400	R 35,351
May .....	1,350	1,818	483	832	4,100	4,355	R 2,910	285	1,808	1,537	10,340	3,100	2,300	R 35,428
June .....	1,330	1,823	479	839	4,120	4,405	R 2,910	330	1,938	1,537	10,540	3,135	2,280	R 35,876
July .....	1,350	1,829	473	840	4,130	4,415	R 2,950	310	1,873	1,537	10,670	3,156	2,220	R 35,963
August .....	1,350	1,833	549	837	4,150	4,460	R 2,960	250	1,913	1,537	10,640	3,186	2,210	R 36,085
September .....	1,350	1,768	560	837	4,170	4,480	R 2,960	310	1,943	1,477	10,600	3,216	2,200	R 36,081
October .....	1,350	1,618	552	839	4,190	4,565	R 2,960	550	1,988	1,507	10,590	3,196	2,190	R 36,295
November .....	1,350	1,698	544	834	4,200	4,645	2,970	580	2,023	1,527	10,640	3,226	2,180	R 36,637
11-Month Average .....	1,348	1,779	503	835	3,970	4,430	2,920	363	2,010	1,523	10,453	3,095	2,289	35,727
2015 11-Month Average .....	1,429	1,800	544	784	3,300	4,020	2,795	407	2,282	1,531	10,171	3,016	2,500	34,791
2014 11-Month Average .....	1,420	1,742	556	789	3,233	3,330	2,637	467	2,422	1,544	9,744	2,891	2,500	33,496

<sup>a</sup> 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.

<sup>b</sup> 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, Ecuador

rejoined OPEC in 2007 and is thus included in "Total OPEC" for all years.

R=Revised.

Notes: • Data are for crude oil and lease condensate; they exclude natural gas plant liquids. • Monthly data are often preliminary figures and may not average to the annual totals because of rounding or because updates to the preliminary monthly data are not available.

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

Sources: See end of section.

**Table 11.1b World Crude Oil Production: Persian Gulf Nations, Non-OPEC, and World**  
(Thousand Barrels per Day)

	Persian Gulf Nations <sup>b</sup>	Selected Non-OPEC <sup>a</sup> Producers									Total Non-OPEC <sup>a</sup>	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	24,529	55,679
1975 Average	18,934	1,430	1,490	235	705	189	9,523	NA	12	8,375	25,509	52,828
1980 Average	17,961	1,435	2,114	595	1,936	486	11,706	NA	1,622	8,597	32,423	59,558
1985 Average	9,630	1,471	2,505	887	2,745	773	11,585	NA	2,530	8,971	37,101	53,965
1990 Average	15,278	1,553	2,774	873	2,553	1,630	10,975	NA	1,820	7,355	36,267	60,497
1995 Average	17,208	1,805	2,990	920	2,711	2,766	--	5,995	2,489	6,560	35,066	62,434
1996 Average	17,367	1,837	3,131	922	2,944	3,091	--	5,850	2,568	6,465	35,899	63,818
1997 Average	18,095	1,922	3,200	856	3,104	3,142	--	5,920	2,518	6,452	36,641	65,806
1998 Average	19,337	1,981	3,198	834	3,160	3,011	--	5,854	2,616	6,252	36,815	67,032
1999 Average	18,667	1,907	3,195	852	2,998	3,019	--	6,079	2,684	5,881	36,965	65,967
2000 Average	19,897	1,977	3,249	768	3,104	3,222	--	6,479	2,275	5,822	37,839	68,527
2001 Average	19,114	2,029	3,300	720	3,218	3,226	--	6,917	2,282	5,801	38,393	68,132
2002 Average	17,824	2,171	3,390	715	3,263	3,131	--	7,408	2,292	5,744	39,325	67,290
2003 Average	19,154	2,306	3,409	713	3,459	3,042	--	8,132	2,093	5,649	40,086	69,460
2004 Average	20,906	2,398	3,485	673	3,476	2,954	--	8,805	1,845	5,441	40,829	72,595
2005 Average	21,644	2,369	3,609	623	3,423	2,698	--	9,043	1,649	5,184	40,635	73,866
2006 Average	21,377	2,525	3,673	535	3,345	2,491	--	9,247	1,490	5,086	40,613	73,476
2007 Average	20,904	2,628	3,736	530	3,143	2,270	--	9,437	1,498	5,077	40,613	73,175
2008 Average	22,186	2,579	3,790	566	2,839	2,182	--	9,357	1,391	5,000	40,103	74,048
2009 Average	20,754	2,579	3,796	587	2,646	2,067	--	9,495	1,328	5,353	40,633	72,869
2010 Average	21,589	2,741	4,078	568	2,621	1,871	--	9,694	1,233	5,475	41,396	74,590
2011 Average	22,953	2,901	4,052	551	2,600	1,760	--	9,774	1,026	5,646	41,328	74,701
2012 Average	23,233	3,138	4,074	539	2,593	1,612	--	9,922	888	6,487	41,616	76,108
2013 Average	22,932	3,325	4,164	524	2,562	1,533	--	10,054	801	7,468	42,726	76,234
2014 January	R 23,367	3,568	4,182	518	2,545	1,629	--	10,131	825	8,033	43,792	77,232
February	R 23,607	3,578	4,215	513	2,541	1,611	--	10,106	929	8,127	44,155	77,726
March	R 23,327	3,685	4,167	513	2,511	1,597	--	10,103	909	8,262	44,118	77,175
April	R 23,092	3,556	4,142	507	2,518	1,613	--	10,083	820	8,605	44,155	77,060
May	R 23,417	3,467	4,189	514	2,530	1,358	--	10,083	869	8,604	43,970	77,055
June	R 23,337	3,548	4,272	510	2,476	1,459	--	10,095	752	8,718	44,346	77,437
July	R 23,408	3,589	4,091	516	2,427	1,588	--	10,003	705	8,815	44,278	77,741
August	R 23,468	3,547	4,129	509	2,455	1,546	--	10,056	468	8,876	44,229	77,997
September	R 23,568	3,595	4,202	517	2,430	1,517	--	10,079	748	9,047	44,703	78,779
October	R 23,628	3,727	4,252	522	2,402	1,615	--	10,176	790	9,233	45,337	79,519
November	R 23,508	3,714	4,319	537	2,401	1,600	--	10,173	798	9,307	45,681	79,499
December	R 23,898	3,780	4,344	527	2,392	1,616	--	10,197	846	9,496	46,289	80,310
Average	R 23,469	3,613	4,208	517	2,469	1,562	--	10,107	787	8,764	44,590	78,130
2015 January	R 23,689	3,885	4,232	508	2,290	1,579	--	10,231	872	9,379	45,999	79,726
February	R 23,655	3,906	4,218	516	2,370	1,589	--	10,181	812	9,517	46,030	79,641
March	R 24,470	3,775	4,256	525	2,356	1,586	--	10,264	867	9,566	46,182	80,604
April	R 24,576	3,463	4,258	503	2,235	1,614	--	10,111	925	9,627	45,544	80,235
May	R 24,947	3,212	4,271	512	2,263	1,555	--	10,270	1,016	9,472	45,288	79,977
June	R 25,462	3,457	4,408	504	2,283	1,596	--	10,166	870	9,320	45,262	80,507
July	R 25,452	3,821	4,263	524	2,308	1,611	--	10,213	839	9,418	45,701	81,012
August	R 25,292	3,922	4,278	523	2,291	1,599	--	10,268	788	9,384	45,731	80,923
September	R 25,492	3,422	4,317	501	2,306	1,581	--	10,209	862	9,423	45,250	80,585
October	R 25,252	3,582	4,259	517	2,314	1,685	--	10,341	912	9,358	45,532	80,682
November	R 25,342	3,819	4,297	494	2,310	1,644	--	10,361	972	9,304	45,963	81,227
December	R 25,412	3,866	4,275	509	2,308	1,682	--	10,407	979	9,225	46,160	81,440
Average	R 24,927	3,677	4,278	511	2,302	1,610	--	10,253	893	9,415	45,720	80,553
2016 January	R 25,667	3,877	4,166	498	2,294	1,657	--	10,485	1,002	9,194	45,884	81,154
February	R 25,377	3,797	4,133	497	2,247	1,675	--	10,485	1,014	9,147	45,532	80,468
March	R 25,592	3,767	4,091	497	2,249	1,632	--	10,522	987	9,174	45,289	80,343
April	R 25,922	3,429	4,036	496	2,210	1,666	--	10,450	989	8,947	44,376	79,727
May	R 26,392	2,811	3,973	495	2,207	1,608	--	10,440	991	8,882	43,637	79,065
June	R 26,697	3,112	4,034	495	2,213	1,480	--	10,453	900	8,711	43,874	79,750
July	R 26,908	3,657	3,938	494	2,192	1,762	--	10,254	979	8,691	44,411	80,374
August	R 26,983	R 3,855	3,874	493	R 2,179	1,603	--	10,316	837	E 8,759	43,985	80,070
September	R 26,953	R 3,849	3,887	493	R 2,146	1,430	--	10,729	821	RE 8,567	44,312	80,393
October	R 27,058	R 3,893	3,780	492	R 2,136	1,766	--	10,826	R 760	RE 8,799	45,111	81,406
November	27,258	3,721	3,780	492	2,104	1,784	--	10,832	948	E 8,904	45,171	81,808
11-Month Average	26,440	3,615	3,971	495	2,198	1,643	--	10,526	929	E 8,888	44,687	80,414
2015 11-Month Average	24,882	3,660	4,278	512	2,302	1,604	--	10,239	885	9,433	45,679	80,471
2014 11-Month Average	23,429	3,598	4,196	516	2,476	1,557	--	10,099	782	8,696	44,432	77,928

<sup>a</sup> 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, Ecuador rejoined OPEC in 2007 and is thus included in "Total OPEC" for all years.

<sup>b</sup> 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

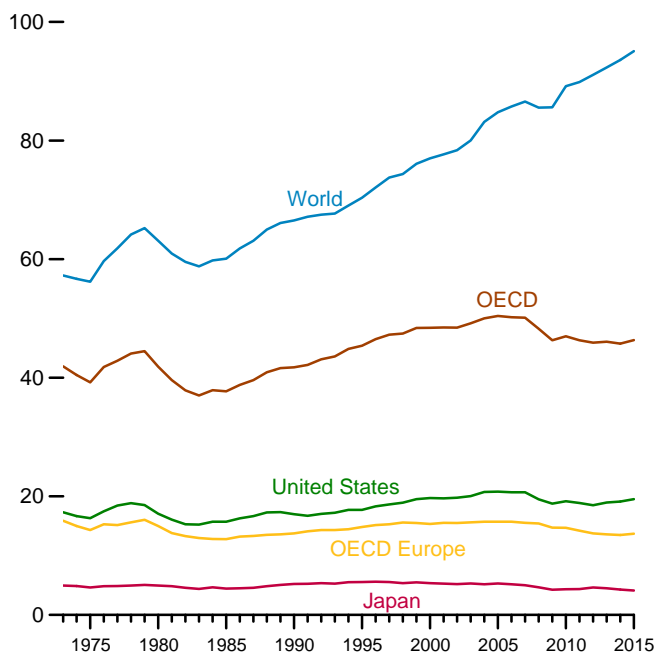
plant liquids. • Monthly data are often preliminary figures and may not average to the annual totals because of rounding or because updates to the preliminary monthly data are not available. • Data for countries may not sum to World totals due to independent rounding. • U.S. geographic coverage is the 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.

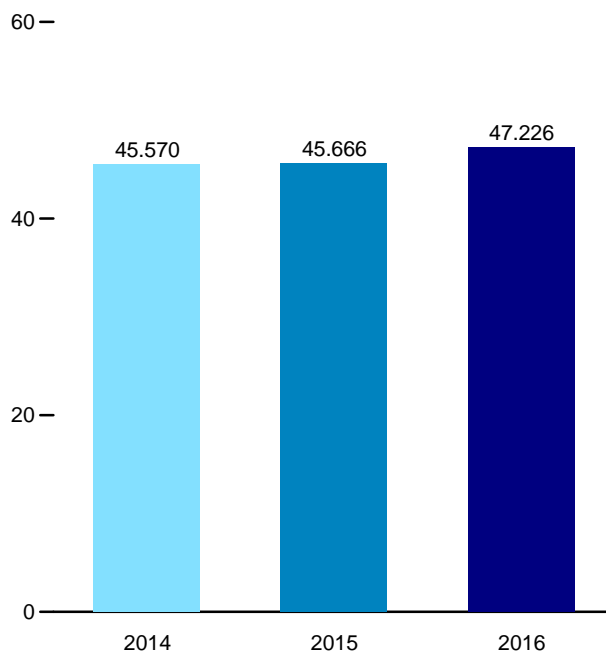
Sources: See end of section.

**Figure 11.2 Petroleum Consumption in OECD Countries**  
(Million Barrels per Day)

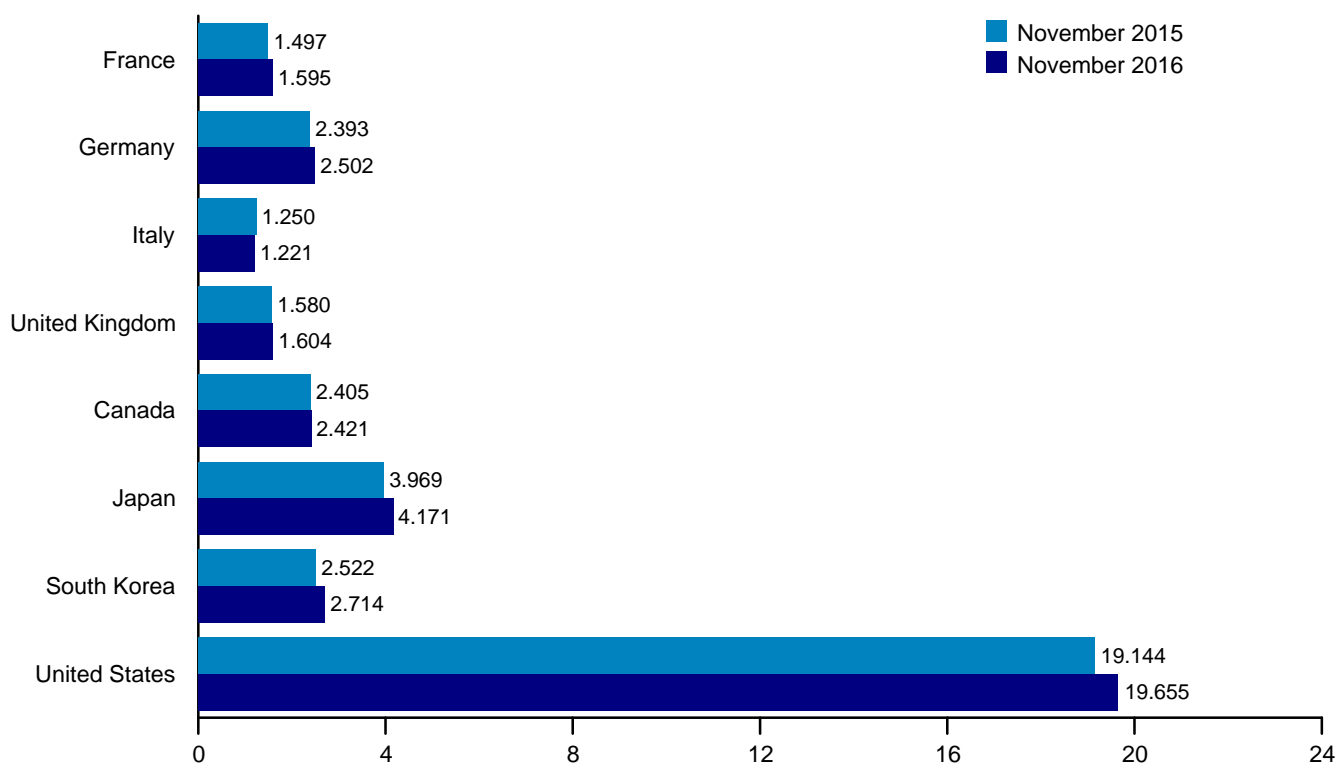
Overview, 1973–2015



OECD Total, November



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 <sup>a</sup>	Italy	United Kingdom	OECD Europe <sup>b</sup>	Canada	Japan	South Korea	United States	Other OECD <sup>c</sup>	OECD <sup>d</sup>	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	14,832	1,799	5,546	2,008	17,725	3,478	45,388	70,357
1996 Average .....	1,943	2,922	1,920	1,852	15,144	1,853	5,591	2,101	18,309	3,513	46,511	72,085
1997 Average .....	1,962	2,917	1,934	1,810	15,292	1,940	5,549	2,255	18,620	3,604	47,261	73,769
1998 Average .....	2,040	2,923	1,943	1,792	15,592	1,931	5,348	1,917	18,917	3,739	47,444	74,340
1999 Average .....	2,034	2,836	1,891	1,811	15,503	2,016	5,486	2,084	19,519	3,775	48,384	76,089
2000 Average .....	2,001	2,767	1,854	1,765	15,352	2,008	5,357	2,135	19,701	3,871	48,424	76,986
2001 Average .....	2,054	2,807	1,835	1,747	15,533	2,029	5,265	2,132	19,649	3,873	48,480	77,672
2002 Average .....	1,991	2,710	1,870	1,739	15,491	2,040	5,187	2,149	19,761	3,825	48,453	78,360
2003 Average .....	2,001	2,679	1,860	1,759	15,616	2,155	5,298	2,175	20,034	3,897	49,174	80,016
2004 Average .....	2,008	2,648	1,829	1,789	15,718	2,233	5,163	2,155	20,731	4,001	50,002	83,159
2005 Average .....	1,990	2,624	1,781	1,819	15,714	2,296	5,298	2,191	20,802	4,114	50,416	84,754
2006 Average .....	1,991	2,636	1,777	1,806	15,718	2,294	5,168	2,180	20,687	4,150	50,197	85,740
2007 Average .....	1,978	2,407	1,729	1,751	15,534	2,389	5,009	2,240	20,680	4,268	50,121	86,580
2008 Average .....	1,940	2,533	1,667	1,730	15,424	2,342	4,664	2,142	19,498	4,191	48,261	85,545
2009 Average .....	1,863	2,434	1,544	1,649	14,711	2,283	4,257	2,188	18,771	4,105	46,316	85,601
2010 Average .....	1,822	2,467	1,544	1,626	14,694	2,375	4,328	2,269	19,180	4,153	46,998	89,173
2011 Average .....	1,779	2,392	1,494	1,582	14,215	2,405	4,345	2,259	18,882	4,216	46,322	89,880
2012 Average .....	1,739	2,389	1,370	1,535	13,741	2,470	4,630	2,322	18,490	4,271	45,924	91,089
2013 Average .....	1,714	2,435	1,260	1,527	13,582	2,455	4,504	2,328	18,961	4,240	46,069	92,318
<b>2014</b> January .....	1,630	2,270	1,219	1,405	12,621	2,414	4,996	2,361	19,102	4,043	45,537	NA
February .....	1,733	2,285	1,269	1,611	13,338	2,528	5,242	2,382	18,908	4,257	46,654	NA
March .....	1,663	2,436	1,227	1,453	13,280	2,338	4,832	2,335	18,464	4,172	45,421	NA
April .....	1,727	2,388	1,236	1,533	13,513	2,259	4,020	2,286	18,849	4,115	45,042	NA
May .....	1,573	2,326	1,272	1,446	13,190	2,328	3,752	2,336	18,585	4,185	44,376	NA
June .....	1,720	2,266	1,261	1,587	13,670	2,409	3,738	2,327	18,890	4,124	45,158	NA
July .....	1,825	2,463	1,348	1,489	14,032	2,480	3,889	2,311	19,283	4,209	46,204	NA
August .....	1,661	2,414	1,218	1,561	13,605	2,394	3,861	2,378	19,400	4,048	45,686	NA
September .....	1,768	2,476	1,316	1,553	14,076	2,489	3,757	2,302	19,246	4,115	45,984	NA
October .....	1,762	2,484	1,309	1,526	13,972	2,437	3,911	2,254	19,691	4,194	46,459	NA
November .....	1,513	2,368	1,208	1,526	13,087	2,378	4,260	2,368	19,370	4,107	45,570	NA
December .....	1,729	2,301	1,313	1,560	13,421	2,434	5,002	2,533	19,457	4,242	47,090	NA
<b>Average</b> .....	<b>1,692</b>	<b>2,374</b>	<b>1,266</b>	<b>1,520</b>	<b>13,484</b>	<b>2,407</b>	<b>4,267</b>	<b>2,348</b>	<b>19,106</b>	<b>4,150</b>	<b>45,761</b>	<b>93,593</b>
<b>2015</b> January .....	1,642	2,291	1,123	1,432	12,983	2,443	4,547	2,466	19,218	4,045	45,702	NA
February .....	1,782	2,431	1,227	1,655	13,871	2,528	5,062	2,506	19,677	4,215	47,858	NA
March .....	1,691	2,388	1,219	1,478	13,484	2,339	4,530	2,403	19,352	4,213	46,321	NA
April .....	1,720	2,360	1,307	1,570	13,691	2,282	4,154	2,377	19,263	4,037	45,805	NA
May .....	1,540	2,189	1,224	1,486	13,005	2,321	3,589	2,201	19,301	4,124	44,540	NA
June .....	1,773	2,317	1,293	1,559	13,955	2,393	3,669	2,304	19,841	4,185	46,346	NA
July .....	1,809	2,390	1,391	1,495	14,143	2,441	3,791	2,289	20,126	4,278	47,069	NA
August .....	1,675	2,415	1,240	1,579	13,901	2,457	3,909	2,442	19,930	4,190	46,828	NA
September .....	1,792	2,530	1,328	1,624	14,358	2,460	3,851	2,355	19,418	4,182	46,624	NA
October .....	1,663	2,431	1,285	1,529	13,812	2,441	3,828	2,407	19,500	4,258	46,246	NA
November .....	1,497	2,393	1,250	1,580	13,415	2,405	3,969	2,522	19,144	4,211	45,666	NA
December .....	1,716	2,345	1,303	1,570	13,801	2,368	4,607	2,618	19,600	4,274	47,268	NA
<b>Average</b> .....	<b>1,691</b>	<b>2,372</b>	<b>1,266</b>	<b>1,545</b>	<b>13,698</b>	<b>2,406</b>	<b>4,120</b>	<b>2,407</b>	<b>19,531</b>	<b>4,185</b>	<b>46,347</b>	<b>95,079</b>
<b>2016</b> January .....	1,591	2,314	1,122	1,499	12,934	2,425	4,336	2,631	19,055	4,075	45,457	NA
February .....	1,725	2,476	1,258	1,649	13,967	2,387	4,620	2,684	19,680	4,262	47,599	NA
March .....	1,759	2,477	1,266	1,545	13,965	2,358	4,348	2,470	19,616	4,290	47,047	NA
April .....	1,702	2,479	1,296	1,618	14,031	2,314	3,930	2,453	19,264	4,040	46,032	NA
May .....	1,709	2,297	1,260	1,556	13,691	2,359	3,537	2,511	19,202	4,119	45,418	NA
June .....	1,582	2,345	1,317	1,661	14,043	2,445	3,518	2,479	19,799	4,197	46,481	NA
July .....	1,718	2,414	1,319	1,558	14,105	2,456	3,737	2,409	19,712	4,089	46,508	NA
August .....	1,726	2,472	1,265	1,602	14,585	2,586	3,818	2,621	20,131	4,211	47,952	NA
September .....	1,770	2,440	1,334	1,653	14,547	2,511	3,680	2,577	19,864	4,065	47,243	NA
October .....	1,700	2,456	1,251	1,601	14,257	2,401	3,774	2,468	19,622	4,125	46,648	NA
November .....	1,595	2,502	1,221	1,604	14,069	2,421	4,171	2,714	19,655	4,196	47,226	NA
<b>11-Month Average</b> ...	<b>1,689</b>	<b>2,424</b>	<b>1,264</b>	<b>1,594</b>	<b>14,016</b>	<b>2,424</b>	<b>3,949</b>	<b>2,546</b>	<b>19,599</b>	<b>4,151</b>	<b>46,686</b>	<b>NA</b>
<b>2015 11-Month Average</b> ...	<b>1,688</b>	<b>2,375</b>	<b>1,262</b>	<b>1,543</b>	<b>13,689</b>	<b>2,409</b>	<b>4,075</b>	<b>2,387</b>	<b>19,524</b>	<b>4,176</b>	<b>46,261</b>	<b>NA</b>
<b>2014 11-Month Average</b> ...	<b>1,688</b>	<b>2,381</b>	<b>1,262</b>	<b>1,516</b>	<b>13,490</b>	<b>2,404</b>	<b>4,199</b>	<b>2,331</b>	<b>19,073</b>	<b>4,142</b>	<b>45,638</b>	<b>NA</b>

<sup>a</sup> Data are for unified Germany, i.e., the former East Germany and West Germany.

<sup>b</sup> "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.

<sup>c</sup> "Other OECD" consists of Australia, New Zealand, and the U.S. Territories; for 1984 forward, Mexico; and, for 2000 forward, Chile, Estonia, and Israel.

<sup>d</sup> 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

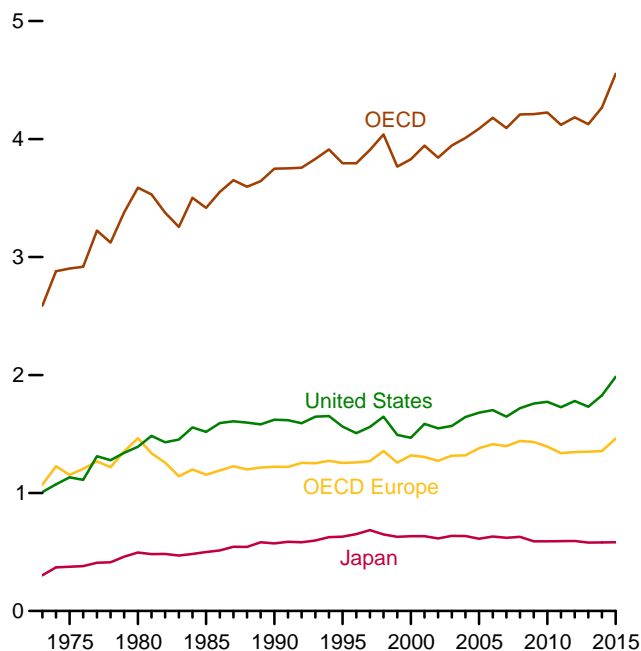
rounding. • U.S. geographic coverage is the 50 states and the District of Columbia.

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.

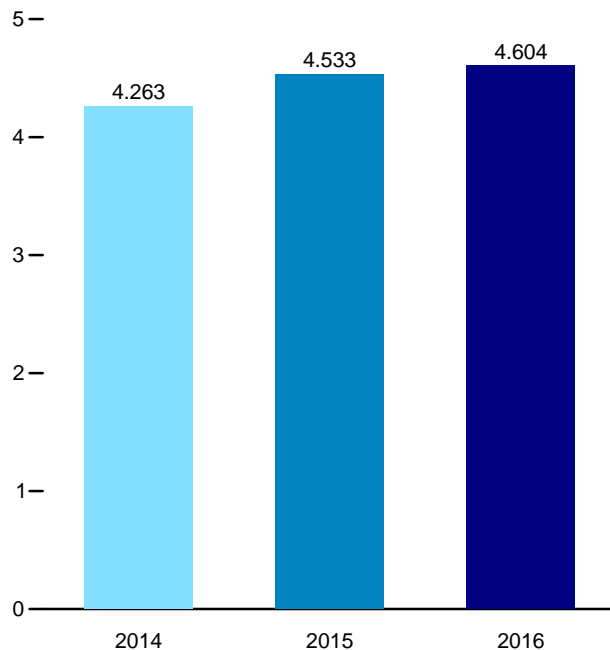
Sources: • **United States:** Table 3.1. • **Chile, East Germany, Former Czechoslovakia, Hungary, Mexico, Poland, South Korea, Non-OECD Countries, U.S. Territories, and World: 1973–1979**—U.S. Energy Information Administration (EIA), International Energy Database. • **Countries Other Than United States: 1980–2008**—EIA, International Energy Statistics (IES). • **OECD Countries, and U.S. Territories: 2009 forward**—EIA, IES. • **World: 2009 forward**—EIA, *Short-Term Energy Outlook*, February 2017, Table 3a. • **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)

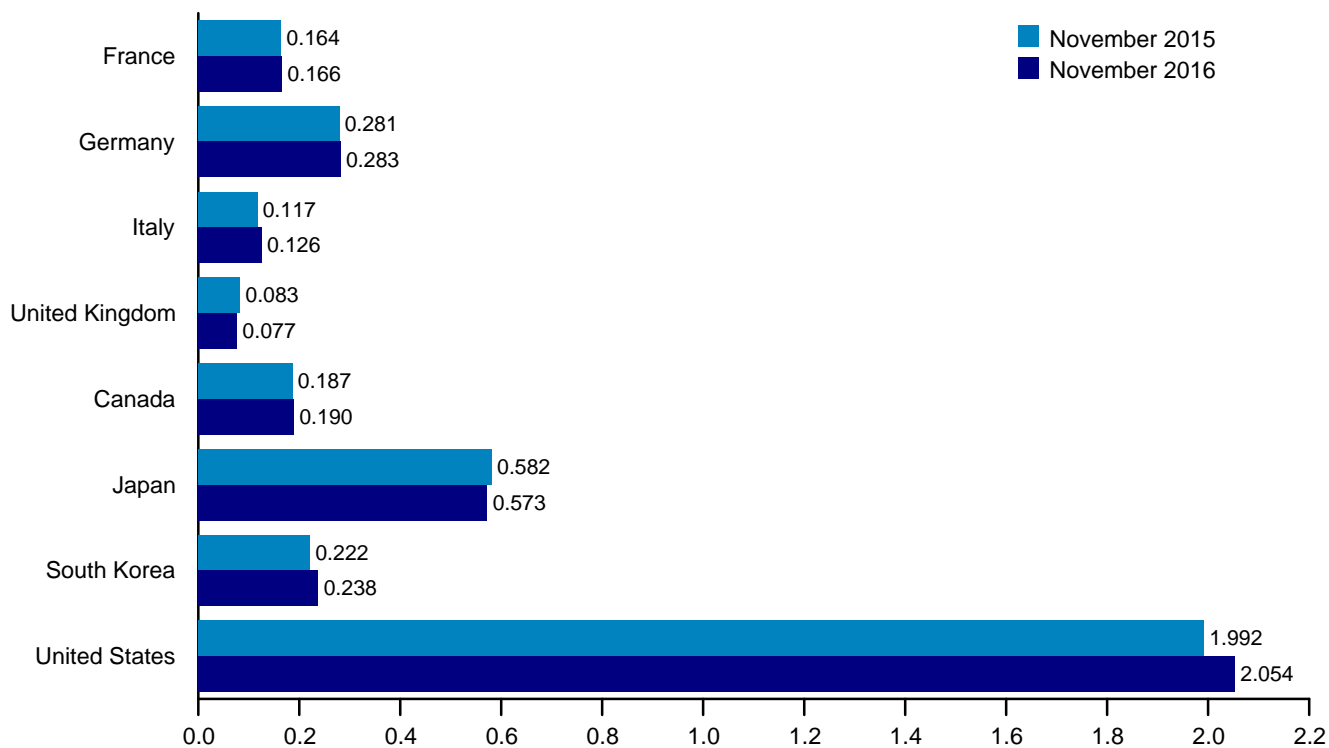
Overview, End of Year, 1973–2015



OECD Stocks, End of Month, November



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 <sup>a</sup>	Italy	United Kingdom	OECD Europe <sup>b</sup>	Canada	Japan	South Korea	United States	Other OECD <sup>c</sup>	OECD <sup>d</sup>
<b>1973 Year</b> .....	201	181	152	156	1,070	140	303	NA	1,008	67	2,588
<b>1975 Year</b> .....	225	187	143	165	1,154	174	375	NA	1,133	67	2,903
<b>1980 Year</b> .....	243	319	170	168	1,464	164	495	NA	1,392	72	3,587
<b>1985 Year</b> .....	139	277	156	131	1,154	112	500	13	1,519	119	3,417
<b>1990 Year</b> .....	143	280	171	103	1,222	143	572	64	1,621	126	3,749
<b>1995 Year</b> .....	155	302	162	101	1,256	132	631	92	1,563	122	3,795
<b>1996 Year</b> .....	154	303	152	103	1,259	127	651	123	1,507	127	3,794
<b>1997 Year</b> .....	161	299	147	100	1,271	144	685	124	1,560	123	3,907
<b>1998 Year</b> .....	169	323	153	104	1,355	139	649	129	1,647	120	4,039
<b>1999 Year</b> .....	160	290	148	101	1,258	141	629	132	1,493	114	3,766
<b>2000 Year</b> .....	170	272	157	100	1,318	143	634	140	1,468	126	3,829
<b>2001 Year</b> .....	165	273	151	113	1,306	154	634	143	1,586	120	3,944
<b>2002 Year</b> .....	170	253	156	104	1,273	155	615	140	1,548	112	3,843
<b>2003 Year</b> .....	179	273	153	100	1,316	165	636	155	1,568	105	3,945
<b>2004 Year</b> .....	177	267	154	101	1,319	154	635	149	1,645	108	4,010
<b>2005 Year</b> .....	185	283	151	95	1,380	168	612	135	1,682	112	4,088
<b>2006 Year</b> .....	182	283	153	103	1,413	169	631	152	1,703	113	4,180
<b>2007 Year</b> .....	180	275	152	92	1,398	163	621	143	1,648	121	4,094
<b>2008 Year</b> .....	179	279	148	93	1,441	162	629	135	1,719	124	4,209
<b>2009 Year</b> .....	175	284	146	89	1,432	157	591	155	1,758	118	4,212
<b>2010 Year</b> .....	168	287	143	83	1,393	184	590	165	1,773	119	4,224
<b>2011 Year</b> .....	165	281	135	80	1,338	178	592	167	1,728	117	4,120
<b>2012 Year</b> .....	162	288	126	80	1,347	174	594	181	1,780	107	4,184
<b>2013 Year</b> .....	167	290	125	78	1,350	170	580	185	1,732	111	4,127
<b>2014 January</b> .....	171	290	128	76	1,370	170	583	184	1,718	112	4,137
February .....	167	295	124	77	1,365	176	580	188	1,719	114	4,142
March .....	167	288	123	76	1,353	174	589	193	1,727	110	4,147
April .....	167	290	122	75	1,349	178	578	187	1,755	112	4,159
May .....	172	292	128	75	1,372	176	587	191	1,784	115	4,225
June .....	168	290	122	75	1,357	179	589	188	1,787	112	4,212
July .....	170	286	120	72	1,351	187	595	190	1,791	114	4,227
August .....	173	286	125	77	1,371	187	605	197	1,796	117	4,273
September .....	171	283	123	75	1,365	186	608	197	1,809	116	4,280
October .....	169	280	117	73	1,349	185	609	196	1,803	114	4,256
November .....	168	282	124	76	1,351	188	597	202	1,812	112	4,263
December .....	168	284	119	78	1,355	193	581	197	1,827	114	4,267
<b>2015 January</b> .....	170	284	116	73	1,371	192	574	197	1,850	114	4,298
February .....	170	286	113	75	1,383	184	568	198	1,850	112	4,294
March .....	173	284	121	76	1,407	183	568	201	1,883	110	4,352
April .....	170	284	124	85	1,411	185	558	210	1,909	110	4,382
May .....	175	288	122	78	1,419	181	582	224	1,931	107	4,444
June .....	170	286	117	77	1,409	176	578	225	1,941	113	4,442
July .....	168	281	116	74	1,401	184	589	223	1,939	113	4,449
August .....	167	283	123	77	1,429	185	594	227	1,962	110	4,508
September .....	167	281	117	79	1,432	182	590	226	1,971	110	4,512
October .....	165	280	118	80	1,436	183	588	223	1,979	106	4,514
November .....	164	281	117	83	1,446	187	582	222	1,992	104	4,533
December .....	168	285	117	81	1,461	188	582	228	1,985	109	4,553
<b>2016 January</b> .....	171	287	120	83	1,486	187	580	219	2,009	111	4,592
February .....	169	289	123	81	1,493	183	564	233	2,013	107	4,592
March .....	166	289	120	77	1,477	184	560	236	2,021	109	4,586
April .....	171	287	126	77	1,478	180	566	230	2,032	111	4,597
May .....	167	290	123	81	1,485	169	574	235	2,048	112	4,622
June .....	167	288	121	82	1,476	175	573	238	2,047	114	4,624
July .....	169	290	125	<sup>R</sup> 74	<sup>R</sup> 1,496	186	577	238	2,062	116	4,675
August .....	167	286	130	79	<sup>R</sup> 1,482	186	585	233	2,063	111	4,661
September .....	167	284	127	77	1,464	185	587	239	2,048	110	4,633
October .....	163	286	128	76	<sup>R</sup> 1,446	<sup>R</sup> 190	587	238	2,050	<sup>R</sup> 108	4,618
November .....	166	283	126	77	1,449	190	573	238	2,054	100	4,604

<sup>a</sup> 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.

<sup>b</sup> "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.

<sup>c</sup> "Other OECD" consists of Australia, New Zealand, and the U.S. Territories; for 1984 forward, Mexico; and, for 2000 forward, Chile, Estonia, and Israel.

<sup>d</sup> The Organization for Economic Cooperation and Development (OECD) consists of "OECD Europe," Canada, Japan, South Korea, the United States, and "Other OECD."

<sup>R</sup>=Revised. NA=Not available.

Notes: • Stocks are at end of period. • Petroleum stocks include crude oil (including strategic reserves), unfinished oils, natural gas plant 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, February 10, 2017.

# International Petroleum

## Tables 11.1a and 11.1b Sources

### United States

Table 3.1.

### All Other Countries and World, Annual Data

1973–1979: U.S. Energy Information Administration (EIA), *International Energy Annual 1981*, Table 8.

1980 forward: EIA, International Energy Statistics Database, February 2017.

### All Other Countries and World, Monthly Data

1973–1980: *Petroleum Intelligence Weekly (PIW)*, *Oil & Gas Journal (OGJ)*, and EIA adjustments.

1981–1993: *PIW*, *OGJ*, and other industry sources.

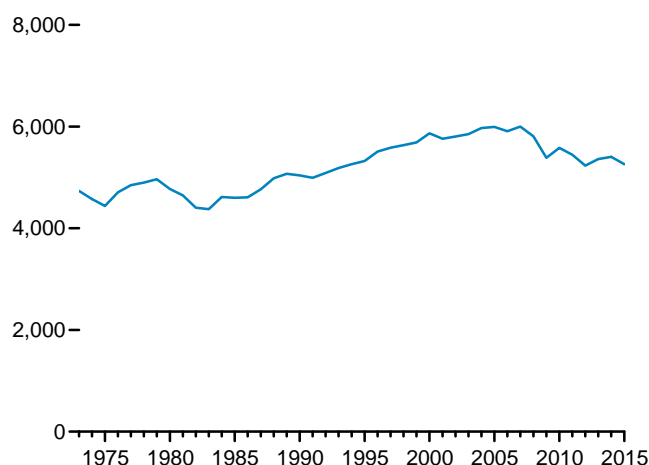
1994 forward: EIA, International Energy Statistics Database, February 2017.

## **12. Environment**

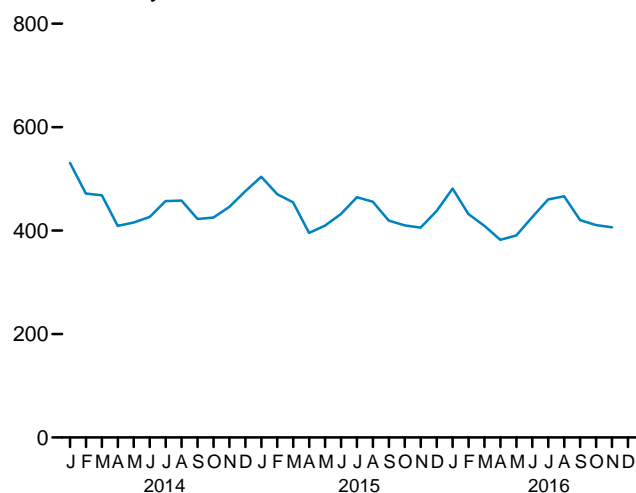
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**Figure 12.1 Carbon Dioxide Emissions From Energy Consumption by Source**  
(Million Metric Tons of Carbon Dioxide)

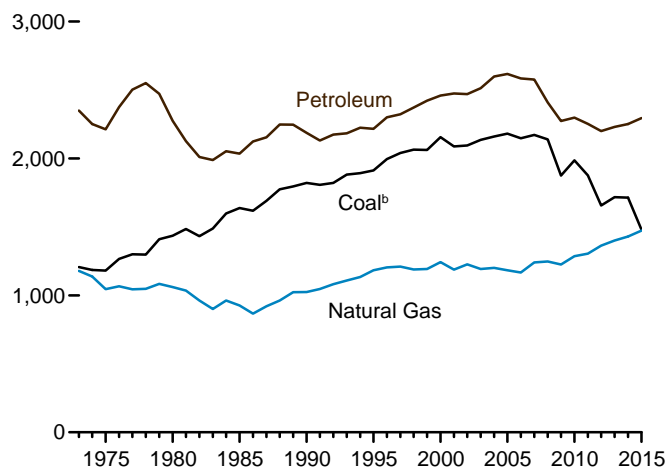
Total,<sup>a</sup> 1973–2015



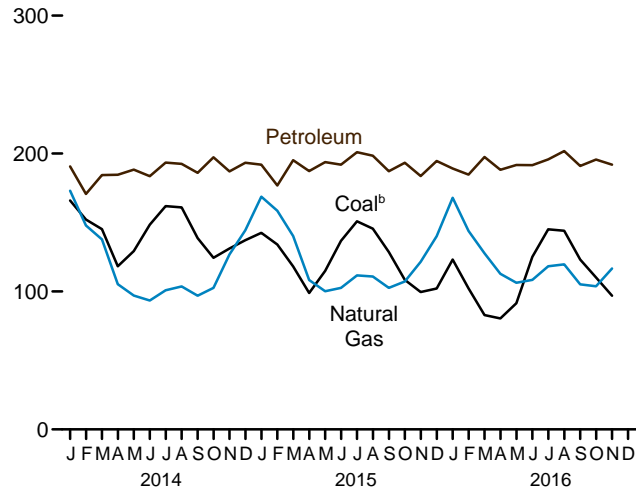
Total,<sup>a</sup> Monthly



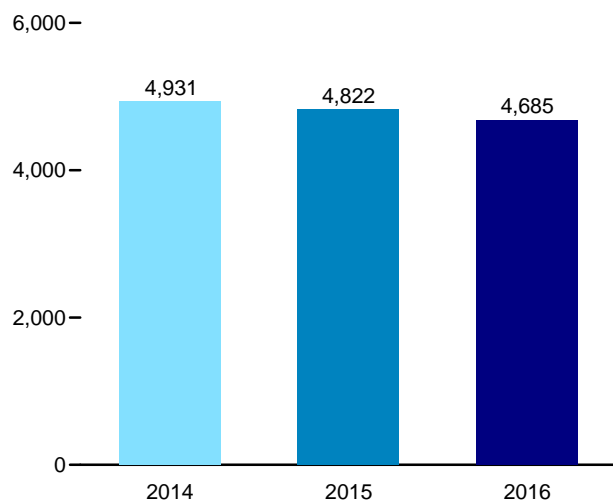
By Major Source, 1973–2015



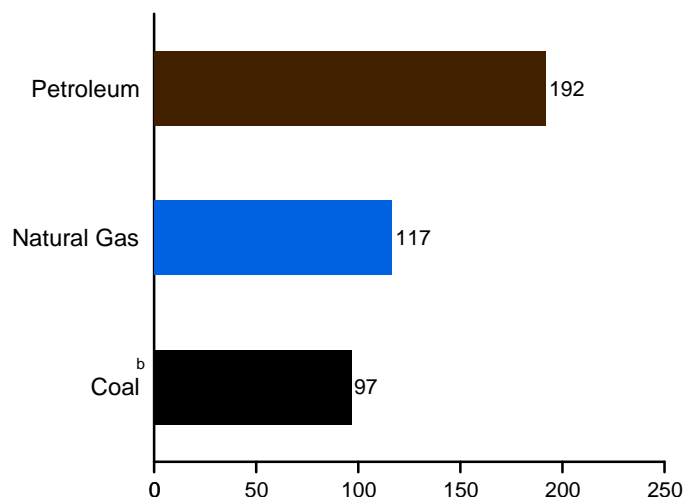
By Major Source, Monthly



Total,<sup>a</sup> January–November



By Major Source, November 2016



<sup>a</sup> Excludes emissions from biomass energy consumption.

<sup>b</sup> 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<sup>a</sup>)

	Coal <sup>b</sup>	Natural Gas <sup>c</sup>	Petroleum										Total <sup>h,i</sup>
			Aviation Gasoline	Distillate Fuel Oil <sup>d</sup>	Jet Fuel	Kero-sene	LPG <sup>e</sup>	Lubri-cants	Motor Gasoline <sup>f</sup>	Petroleum Coke	Residual Fuel Oil	Other <sup>g</sup>	
1973 Total .....	1,207	1,178	6	480	155	32	92	13	911	54	508	100	4,735
1975 Total .....	1,181	1,046	5	443	146	24	82	11	911	51	443	97	4,439
1980 Total .....	1,436	1,061	4	446	156	24	87	13	900	49	453	142	4,771
1985 Total .....	1,638	926	3	445	178	17	87	12	930	54	216	93	4,600
1990 Total .....	1,821	1,024	3	470	223	6	67	13	988	70	220	127	5,039
1995 Total .....	1,913	1,183	3	498	222	8	80	13	1,045	76	152	121	5,323
1996 Total .....	1,995	1,204	3	524	232	9	86	12	1,063	79	152	139	5,510
1997 Total .....	2,040	1,210	3	534	234	10	87	13	1,075	80	142	145	5,584
1998 Total .....	2,064	1,189	2	537	238	12	82	14	1,107	93	158	128	5,635
1999 Total .....	2,062	1,193	3	555	245	11	90	14	1,128	96	148	133	5,688
2000 Total .....	2,155	1,243	3	579	254	10	97	14	1,136	86	163	118	5,868
2001 Total .....	2,088	1,188	2	597	243	11	88	13	1,152	89	144	135	5,761
2002 Total .....	2,095	1,227	2	586	237	6	91	12	1,183	96	125	130	5,804
2003 Total .....	2,136	1,193	2	610	231	8	87	11	1,187	96	138	142	5,853
2004 Total .....	2,160	1,200	2	632	240	10	87	12	1,210	107	155	144	5,970
2005 Total .....	2,182	1,183	2	639	246	10	84	12	1,209	106	165	143	5,993
2006 Total .....	2,147	1,167	2	645	240	8	80	11	1,217	106	122	152	5,910
2007 Total .....	2,172	1,241	2	647	238	5	83	12	1,211	100	128	150	6,000
2008 Total .....	2,140	1,248	2	610	226	2	79	11	1,143	93	110	132	5,809
2009 Total .....	1,876	1,225	2	559	204	3	78	10	1,129	87	90	112	5,386
2010 Total .....	1,986	1,286	2	585	210	3	79	11	1,112	82	93	122	5,582
2011 Total .....	1,876	1,305	2	599	209	2	78	10	1,078	79	79	117	5,445
2012 Total .....	1,657	1,363	2	574	206	1	81	9	1,071	79	65	113	5,232
2013 Total .....	1,718	1,400	2	581	210	1	88	10	1,087	77	56	119	5,360
2014 January .....	166	173	(s)	56	17	(s)	10	1	86	8	5	8	531
February .....	152	148	(s)	49	16	(s)	7	1	81	5	3	9	472
March .....	145	138	(s)	52	18	(s)	7	1	91	3	3	9	468
April .....	118	105	(s)	50	18	(s)	6	1	90	6	4	10	409
May .....	129	97	(s)	51	17	(s)	5	1	94	7	3	9	416
June .....	148	93	(s)	49	19	(s)	6	1	91	6	4	9	426
July .....	162	101	(s)	50	19	(s)	6	1	96	8	4	9	457
August .....	161	104	(s)	50	19	(s)	6	1	97	6	3	9	458
September .....	139	97	(s)	49	18	(s)	6	1	89	7	4	11	423
October .....	124	103	(s)	55	18	(s)	7	1	95	7	4	10	425
November .....	131	127	(s)	49	18	(s)	8	1	90	7	5	9	446
December .....	137	144	(s)	54	19	(s)	8	1	93	5	4	9	476
Total .....	1,713	1,430	2	614	216	1	83	10	1,095	76	45	110	5,406
2015 January .....	143	169	(s)	54	17	(s)	9	1	90	7	4	8	504
February .....	134	159	(s)	53	16	(s)	8	1	83	4	3	9	470
March .....	118	140	(s)	53	19	(s)	7	1	94	7	4	9	455
April .....	99	108	(s)	50	18	(s)	6	1	93	7	2	9	395
May .....	115	100	(s)	49	19	(s)	6	1	96	7	4	12	410
June .....	137	103	(s)	49	20	(s)	6	1	95	7	3	11	432
July .....	151	112	(s)	50	21	(s)	7	1	99	7	5	11	465
August .....	145	111	(s)	50	20	(s)	7	1	99	8	4	10	456
September .....	129	103	(s)	51	18	(s)	6	1	94	5	4	9	419
October .....	108	107	(s)	52	20	(s)	7	1	96	6	4	7	410
November .....	100	122	(s)	47	18	(s)	7	1	92	5	4	9	406
December .....	102	140	(s)	49	20	(s)	8	1	95	5	5	10	438
Total .....	1,480	1,473	1	607	227	1	85	11	1,126	76	46	115	5,259
2016 January .....	123	168	(s)	49	18	(s)	9	1	90	6	5	10	481
February .....	102	144	(s)	48	18	(s)	8	1	90	6	3	11	432
March .....	83	128	(s)	51	19	(s)	7	1	98	7	6	9	409
April .....	80	113	(s)	48	19	(s)	6	1	93	5	7	9	382
May .....	91	106	(s)	48	19	(s)	6	1	98	5	5	9	391
June .....	125	108	(s)	48	21	(s)	5	1	97	4	6	9	426
July .....	R 145	R 118	(s)	46	21	(s)	6	1	100	6	7	9	460
August .....	R 144	120	(s)	50	21	(s)	6	1	100	8	5	11	466
September .....	R 123	105	(s)	49	20	(s)	7	1	96	5	4	10	420
October .....	110	104	(s)	52	20	(s)	7	1	95	6	5	10	411
November .....	97	117	(s)	49	20	(s)	7	1	93	9	5	8	406
11-Month Total ...	1,225	1,331	1	537	216	1	74	10	1,049	68	58	104	4,685
2015 11-Month Total ...	1,378	1,333	1	557	207	1	76	10	1,030	71	41	104	4,822
2014 11-Month Total ...	1,576	1,285	1	559	196	1	75	10	1,002	71	41	101	4,931

<sup>a</sup> Metric tons of carbon dioxide can be converted to metric tons of carbon equivalent by multiplying by 12/44.

<sup>b</sup> Includes coal coke net imports.

<sup>c</sup> Natural gas, excluding supplemental gaseous fuels.

<sup>d</sup> Distillate fuel oil, excluding biodiesel.

<sup>e</sup> Liquefied petroleum gases.

<sup>f</sup> Finished motor gasoline, excluding fuel ethanol.

<sup>g</sup> Aviation gasoline blending components, crude oil, motor gasoline blending components, pentanes plus, petrochemical feedstocks, special naphthas, still gas, unfinished oils, waxes, and miscellaneous petroleum products.

<sup>h</sup> Includes electric power sector use of geothermal energy and non-biomass waste. See Table 12.6.

<sup>i</sup> Excludes emissions from biomass energy consumption. See Table 12.7.

R=Revised. (s)=Less than 0.5 million metric tons.

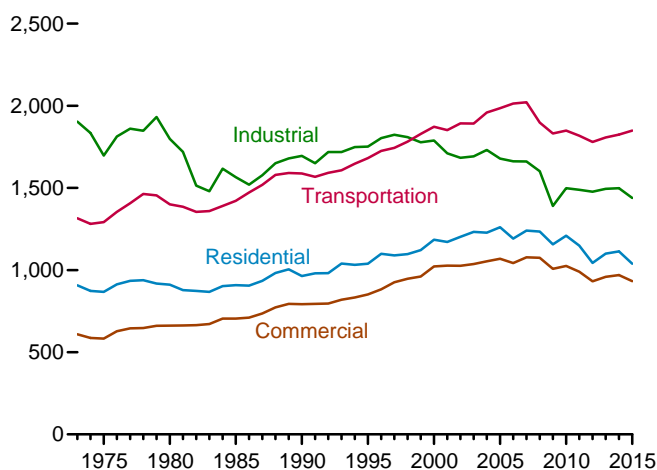
Notes: • Data are estimates for carbon dioxide emissions from energy consumption, including the nonfuel use of fossil fuels. See "Section 12 Methodology and Sources" at end of section. • See "Carbon Dioxide" in Glossary. • See Note 1, "Emissions of Carbon Dioxide and Other Greenhouse Gases," at end of 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.

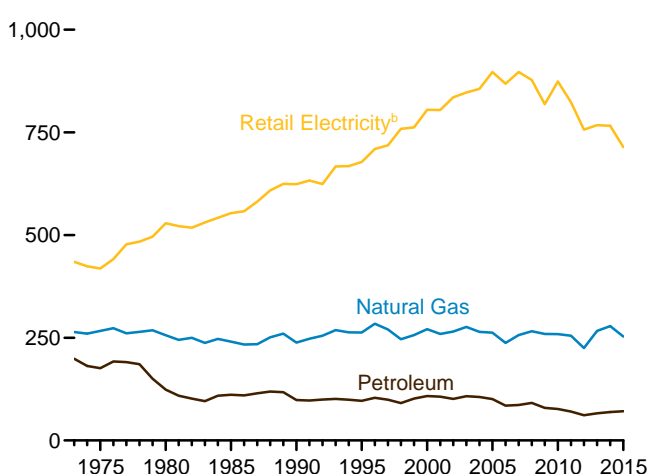
Sources: See end of section.

**Figure 12.2 Carbon Dioxide Emissions From Energy Consumption by Sector**  
(Million Metric Tons of Carbon Dioxide)

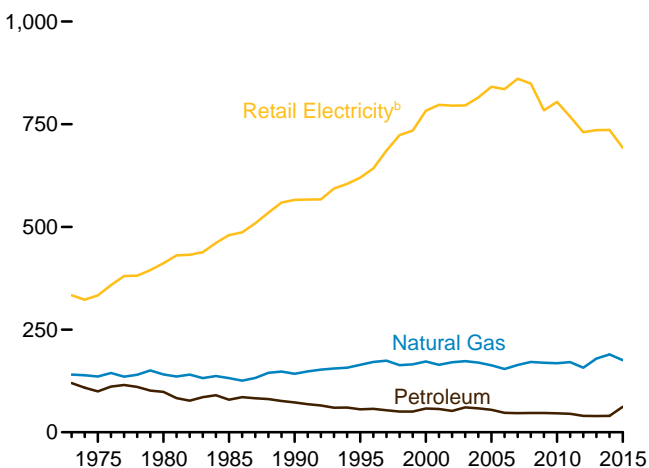
Total<sup>a</sup> by End-Use Sector,<sup>b</sup> 1973–2015



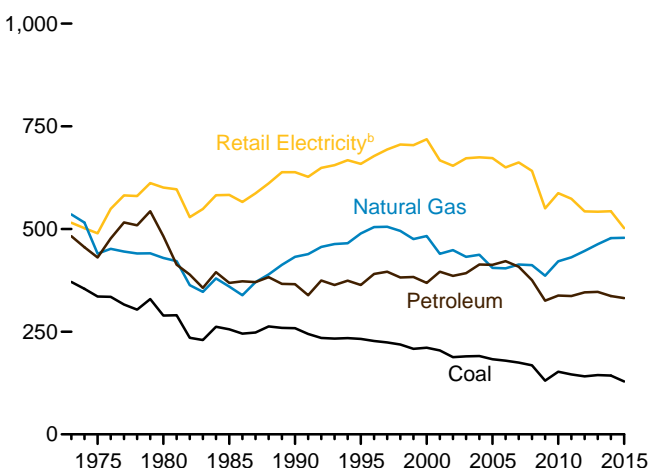
Residential Sector by Major Source, 1973–2015



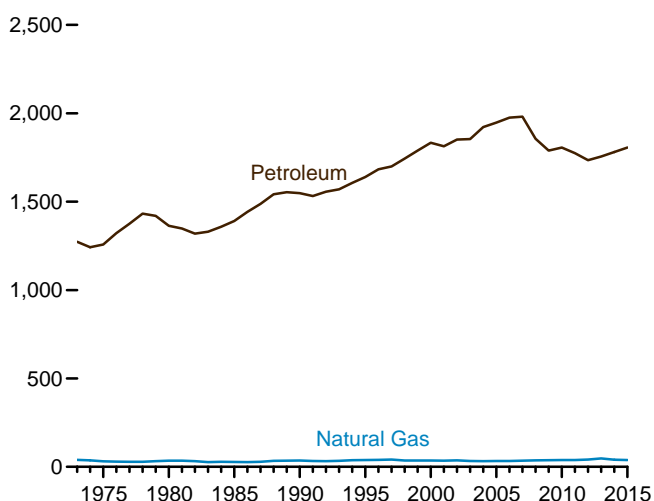
Commercial Sector by Major Source, 1973–2015



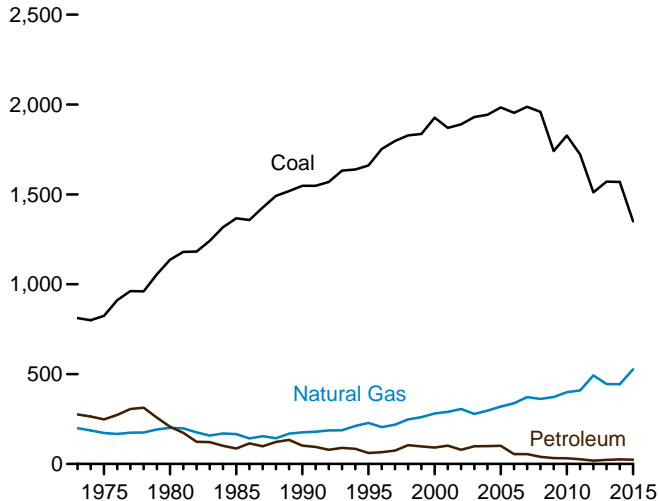
Industrial Sector by Major Source, 1973–2015



Transportation Sector by Major Source, 1973–2015



Electric Power Sector by Major Source, 1973–2015



<sup>a</sup> Excludes emissions from biomass energy consumption.

<sup>b</sup> 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<sup>a</sup>)

	Coal	Natural Gas <sup>b</sup>	Petroleum				Retail Electricity <sup>e</sup>	Total <sup>f</sup>
			Distillate Fuel Oil <sup>c</sup>	Kerosene	LPG <sup>d</sup>	Total		
1973 Total .....	9	264	147	16	36	199	435	907
1975 Total .....	6	266	132	12	32	176	419	867
1980 Total .....	3	256	96	8	20	124	529	911
1985 Total .....	4	241	80	11	20	111	553	909
1990 Total .....	3	238	72	5	22	98	624	963
1995 Total .....	2	263	66	5	25	96	678	1,039
1996 Total .....	2	284	68	6	30	104	710	1,099
1997 Total .....	2	270	64	7	29	99	719	1,090
1998 Total .....	1	247	56	8	27	91	759	1,097
1999 Total .....	1	257	60	8	33	102	762	1,122
2000 Total .....	1	271	66	7	35	108	805	1,185
2001 Total .....	1	259	66	7	33	106	805	1,171
2002 Total .....	1	265	63	4	34	101	835	1,203
2003 Total .....	1	276	68	5	34	108	847	1,232
2004 Total .....	1	264	67	6	32	106	856	1,227
2005 Total .....	1	262	62	6	32	101	897	1,261
2006 Total .....	1	237	52	5	28	85	869	1,191
2007 Total .....	1	257	53	3	31	86	897	1,241
2008 Total .....	NA	266	55	2	35	91	877	1,234
2009 Total .....	NA	259	43	2	35	79	819	1,157
2010 Total .....	NA	259	41	2	33	77	874	1,210
2011 Total .....	NA	255	38	1	31	70	823	1,148
2012 Total .....	NA	225	35	1	25	61	757	1,043
2013 Total .....	NA	267	36	1	30	66	768	1,100
2014 January .....	NA	57	4	(s)	3	8	84	149
February .....	NA	47	5	(s)	2	7	72	126
March .....	NA	38	4	(s)	2	7	63	108
April .....	NA	19	2	(s)	2	4	47	70
May .....	NA	11	3	(s)	2	5	51	67
June .....	NA	7	2	(s)	2	5	65	77
July .....	NA	6	2	(s)	2	4	77	88
August .....	NA	6	2	(s)	2	5	77	88
September .....	NA	7	3	(s)	2	5	63	76
October .....	NA	12	3	(s)	2	6	51	68
November .....	NA	30	4	(s)	3	6	54	90
December .....	NA	39	4	(s)	3	7	63	110
Total .....	NA	278	39	1	29	69	766	1,113
2015 January .....	NA	51	6	(s)	3	8	72	132
February .....	NA	50	5	(s)	3	8	66	123
March .....	NA	35	4	(s)	2	6	57	98
April .....	NA	18	2	(s)	2	5	42	64
May .....	NA	10	2	(s)	2	5	49	63
June .....	NA	7	1	(s)	2	4	65	76
July .....	NA	6	2	(s)	2	4	81	90
August .....	NA	6	2	(s)	2	4	77	87
September .....	NA	6	2	(s)	2	4	64	74
October .....	NA	11	5	(s)	2	7	48	66
November .....	NA	22	5	(s)	3	8	44	74
December .....	NA	32	5	(s)	3	8	51	92
Total .....	NA	253	40	1	30	71	714	1,038
2016 January .....	NA	49	6	(s)	3	9	65	123
February .....	NA	38	6	(s)	3	9	52	100
March .....	NA	25	4	(s)	3	7	41	73
April .....	NA	18	4	(s)	2	6	38	62
May .....	NA	11	3	(s)	2	6	43	60
June .....	NA	7	2	(s)	2	5	66	77
July .....	NA	6	2	(s)	2	5	84	95
August .....	NA	6	2	(s)	2	4	83	93
September .....	NA	6	3	(s)	2	5	65	76
October .....	NA	10	4	(s)	2	7	49	67
November .....	NA	21	4	(s)	2	7	43	71
11-Month Total .....	NA	197	42	1	27	70	631	898
2015 11-Month Total .....	NA	221	35	(s)	27	62	665	948
2014 11-Month Total .....	NA	239	35	1	26	62	705	1,006

<sup>a</sup> Metric tons of carbon dioxide can be converted to metric tons of carbon equivalent by multiplying by 12/44.

<sup>b</sup> Natural gas, excluding supplemental gaseous fuels.

<sup>c</sup> Distillate fuel oil, excluding biodiesel.

<sup>d</sup> Liquefied petroleum gases.

<sup>e</sup> 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.

<sup>f</sup> Excludes emissions from biomass energy consumption. See Table 12.7.

NA=Not available. (s)=Less than 0.5 million metric tons.

Notes: • Data are estimates for carbon dioxide emissions from energy consumption. See "Section 12 Methodology and Sources" at end of section.

• See "Carbon Dioxide" in Glossary. • See Note 1, "Emissions of Carbon Dioxide and Other Greenhouse Gases," at end of section. • Data exclude emissions from biomass energy consumption. See Table 12.7 and Note 2, "Accounting for Carbon Dioxide Emissions From Biomass Energy Combustion," at end of section. • Totals may not equal sum of components due to independent rounding. • Geographic coverage is the 50 states and the District of Columbia.

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

Sources: See end of section.

**Table 12.3 Carbon Dioxide Emissions From Energy Consumption: Commercial Sector**  
(Million Metric Tons of Carbon Dioxide<sup>a</sup>)

	Coal	Natural Gas <sup>b</sup>	Petroleum							Retail Electricity <sup>f</sup>	Total <sup>g</sup>
			Distillate Fuel Oil <sup>c</sup>	Kerosene	LPG <sup>d</sup>	Motor Gasoline <sup>e</sup>	Petroleum Coke	Residual Fuel Oil	Total		
1973 Total .....	15	141	47	5	9	6	NA	52	120	334	609
1975 Total .....	14	136	43	4	8	6	NA	39	100	333	583
1980 Total .....	11	141	38	3	6	8	NA	44	98	412	662
1985 Total .....	13	132	46	2	6	7	NA	18	79	480	704
1990 Total .....	12	142	39	1	6	8	0	18	73	566	793
1995 Total .....	11	164	35	2	7	1	(s)	11	56	620	851
1996 Total .....	12	171	35	2	8	2	(s)	11	57	643	883
1997 Total .....	12	174	32	2	8	3	(s)	9	54	686	926
1998 Total .....	9	164	31	2	7	3	(s)	7	50	724	947
1999 Total .....	10	165	32	2	9	2	(s)	6	51	735	960
2000 Total .....	9	173	36	2	9	3	(s)	7	58	783	1,022
2001 Total .....	9	164	37	2	9	3	(s)	6	57	797	1,027
2002 Total .....	9	170	32	1	9	3	(s)	6	52	795	1,026
2003 Total .....	8	173	36	1	10	4	(s)	9	60	796	1,037
2004 Total .....	10	170	34	1	10	3	(s)	10	58	815	1,053
2005 Total .....	9	163	33	2	8	3	(s)	9	55	841	1,069
2006 Total .....	6	154	29	1	8	3	(s)	6	47	835	1,043
2007 Total .....	7	164	28	1	8	4	(s)	6	46	861	1,078
2008 Total .....	8	171	28	(s)	10	3	(s)	6	47	849	1,075
2009 Total .....	7	169	29	(s)	9	4	(s)	6	47	784	1,007
2010 Total .....	7	168	29	(s)	9	3	(s)	5	46	804	1,025
2011 Total .....	6	171	29	(s)	9	3	(s)	4	45	768	990
2012 Total .....	4	157	26	(s)	9	3	(s)	2	40	731	932
2013 Total .....	4	179	25	(s)	10	3	(s)	2	40	736	959
2014 January .....	1	31	3	(s)	1	(s)	(s)	(s)	4	66	102
February .....	1	27	3	(s)	1	(s)	(s)	(s)	4	59	90
March .....	(s)	23	3	(s)	1	(s)	(s)	(s)	4	59	87
April .....	(s)	14	1	(s)	1	(s)	(s)	(s)	2	52	68
May .....	(s)	10	2	(s)	1	(s)	(s)	(s)	3	59	71
June .....	(s)	8	2	(s)	1	(s)	0	(s)	3	66	76
July .....	(s)	8	1	(s)	1	(s)	(s)	(s)	2	71	81
August .....	(s)	7	1	(s)	1	(s)	(s)	(s)	3	72	82
September .....	(s)	8	2	(s)	1	(s)	(s)	(s)	3	63	74
October .....	(s)	11	2	(s)	1	(s)	(s)	(s)	3	58	73
November .....	(s)	20	3	(s)	1	(s)	(s)	(s)	4	56	80
December .....	(s)	23	3	(s)	1	(s)	(s)	(s)	4	57	84
Total .....	4	190	26	(s)	10	4	(s)	1	40	736	970
2015 January .....	(s)	29	4	(s)	1	2	(s)	(s)	7	59	95
February .....	(s)	28	3	(s)	1	2	(s)	(s)	6	56	91
March .....	(s)	21	2	(s)	1	2	(s)	(s)	5	52	79
April .....	(s)	13	1	(s)	1	2	(s)	(s)	4	48	65
May .....	(s)	9	1	(s)	1	2	(s)	(s)	4	56	69
June .....	(s)	7	1	(s)	1	2	0	(s)	4	65	76
July .....	(s)	7	1	(s)	1	2	0	(s)	4	71	82
August .....	(s)	7	1	(s)	1	2	(s)	(s)	4	69	81
September .....	(s)	8	1	(s)	1	2	(s)	(s)	4	62	74
October .....	(s)	11	3	(s)	1	2	(s)	(s)	6	55	72
November .....	(s)	16	3	(s)	1	2	(s)	(s)	6	50	72
December .....	(s)	19	4	(s)	1	2	(s)	(s)	7	49	75
Total .....	3	176	26	(s)	10	25	(s)	(s)	62	692	933
2016 January .....	(s)	28	4	(s)	1	2	(s)	(s)	7	55	90
February .....	(s)	23	4	(s)	1	2	(s)	(s)	7	47	77
March .....	(s)	16	3	(s)	1	2	(s)	(s)	6	43	66
April .....	(s)	13	2	(s)	1	2	(s)	(s)	5	43	62
May .....	(s)	9	2	(s)	1	2	0	(s)	5	50	64
June .....	(s)	8	2	(s)	1	2	(s)	(s)	4	63	75
July .....	(s)	7	2	(s)	1	2	(s)	(s)	5	71	83
August .....	(s)	8	1	(s)	1	2	0	(s)	4	72	84
September .....	(s)	8	2	(s)	1	2	0	(s)	5	62	75
October .....	(s)	11	3	(s)	1	2	0	(s)	6	55	71
November .....	(s)	16	3	(s)	1	2	(s)	(s)	6	49	70
11-Month Total .....	2	146	28	(s)	9	24	(s)	(s)	60	609	817
2015 11-Month Total .....	3	156	23	(s)	9	23	(s)	(s)	55	643	857
2014 11-Month Total .....	3	166	23	(s)	9	3	(s)	1	36	679	884

<sup>a</sup> Metric tons of carbon dioxide can be converted to metric tons of carbon equivalent by multiplying by 12/44.

<sup>b</sup> Natural gas, excluding supplemental gaseous fuels.

<sup>c</sup> Distillate fuel oil, excluding biodiesel.

<sup>d</sup> Liquefied petroleum gases.

<sup>e</sup> Finished motor gasoline, excluding fuel ethanol.

<sup>f</sup> 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.

<sup>g</sup> Excludes emissions from biomass energy consumption. See Table 12.7.

NA=Not available. (s)=Less than 0.5 million metric tons.

Notes: • Data are estimates for carbon dioxide emissions from energy consumption. See "Section 12 Methodology and Sources" at end of section. • See "Carbon Dioxide" in Glossary. • See Note 1, "Emissions of Carbon Dioxide and Other Greenhouse Gases," at end of section. • Data exclude emissions from biomass energy consumption. See Table 12.7 and Note 2, "Accounting for Carbon Dioxide Emissions From Biomass Energy Combustion," at end of section. • Totals may not equal sum of components due to independent rounding. • Geographic coverage is the 50 states and the District of Columbia.

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

Sources: See end of section.



**Table 12.4 Carbon Dioxide Emissions From Energy Consumption: Industrial Sector**  
(Million Metric Tons of Carbon Dioxide<sup>a</sup>)

	Coal	Coal Coke Net Imports	Natural Gas <sup>b</sup>	Petroleum									Retail Elec- tricity <sup>g</sup>	Total <sup>h</sup>
				Distillate Fuel Oil <sup>c</sup>	Kero- sene	LPG <sup>d</sup>	Lubri- cants	Motor Gasoline <sup>e</sup>	Petroleum Coke	Residual Fuel Oil	Other <sup>f</sup>	Total		
<b>1973 Total</b> .....	371	-1	536	106	11	44	7	18	52	144	100	483	515	1,904
<b>1975 Total</b> .....	336	2	440	97	9	39	6	16	51	117	97	431	490	1,697
<b>1980 Total</b> .....	289	-4	429	96	13	61	7	11	48	105	142	483	601	1,798
<b>1985 Total</b> .....	256	-2	360	81	3	59	6	15	54	57	93	369	583	1,566
<b>1990 Total</b> .....	258	1	432	84	1	37	7	13	67	31	127	366	638	1,695
<b>1995 Total</b> .....	233	7	489	82	1	47	7	14	67	25	121	364	659	1,751
<b>1996 Total</b> .....	227	3	505	86	1	48	6	14	71	24	139	391	678	1,803
<b>1997 Total</b> .....	224	5	505	88	1	50	7	15	70	21	145	396	694	1,824
<b>1998 Total</b> .....	219	8	495	88	2	47	7	14	80	16	128	382	706	1,809
<b>1999 Total</b> .....	208	7	475	86	1	47	7	11	85	14	133	383	704	1,778
<b>2000 Total</b> .....	211	7	483	87	1	52	7	11	76	17	118	369	719	1,788
<b>2001 Total</b> .....	204	3	440	95	2	45	6	21	79	14	135	396	667	1,711
<b>2002 Total</b> .....	188	7	448	88	1	47	6	22	79	13	130	386	654	1,683
<b>2003 Total</b> .....	190	6	432	85	2	41	6	23	78	16	142	392	672	1,692
<b>2004 Total</b> .....	191	16	437	88	2	44	6	26	85	18	144	413	674	1,731
<b>2005 Total</b> .....	183	5	405	92	3	42	6	25	82	20	143	413	672	1,678
<b>2006 Total</b> .....	179	7	404	91	2	43	6	26	85	16	152	422	650	1,662
<b>2007 Total</b> .....	175	3	414	91	1	43	6	21	83	13	150	408	662	1,661
<b>2008 Total</b> .....	168	5	412	98	(s)	32	6	17	78	13	132	376	642	1,602
<b>2009 Total</b> .....	131	-3	386	78	(s)	33	5	16	73	8	112	325	550	1,390
<b>2010 Total</b> .....	153	-1	421	84	1	35	6	17	68	6	122	338	587	1,498
<b>2011 Total</b> .....	146	1	431	90	(s)	36	5	17	65	6	117	337	574	1,489
<b>2012 Total</b> .....	141	(s)	447	93	(s)	45	5	17	70	3	113	346	543	1,477
<b>2013 Total</b> .....	144	-2	463	92	(s)	46	5	17	65	2	119	347	542	1,495
<b>2014 January</b> .....	12	(s)	44	12	(s)	5	(s)	1	7	(s)	8	34	46	135
February .....	12	(s)	40	8	(s)	4	(s)	1	4	(s)	9	27	42	121
March .....	12	(s)	42	9	(s)	4	1	1	2	(s)	9	25	44	124
April .....	11	(s)	39	9	(s)	3	(s)	1	5	(s)	10	29	41	120
May .....	12	(s)	38	8	(s)	2	(s)	1	6	(s)	9	27	46	122
June .....	12	(s)	37	7	(s)	3	(s)	1	5	(s)	9	25	47	121
July .....	12	(s)	38	7	(s)	3	(s)	1	7	(s)	9	27	50	127
August .....	12	(s)	39	6	(s)	3	(s)	1	5	(s)	9	26	51	127
September .....	12	(s)	37	7	(s)	3	1	1	6	(s)	11	29	45	123
October .....	12	(s)	39	10	(s)	3	(s)	1	6	(s)	10	31	44	126
November .....	12	(s)	41	7	(s)	4	(s)	1	6	(s)	9	29	44	126
December .....	13	(s)	43	10	(s)	4	(s)	1	4	(s)	9	29	42	126
<b>Total</b> .....	143	-2	478	100	(s)	42	5	14	64	2	110	337	543	1,498
<b>2015 January</b> .....	12	(s)	45	9	(s)	5	1	1	6	(s)	8	31	42	129
February .....	11	(s)	41	10	(s)	4	(s)	1	2	(s)	9	27	41	120
March .....	11	(s)	42	9	(s)	4	1	1	6	(s)	9	30	39	122
April .....	10	(s)	39	8	(s)	3	1	1	6	(s)	9	28	37	114
May .....	11	(s)	39	6	(s)	3	1	1	6	(s)	12	29	42	120
June .....	11	(s)	37	7	(s)	3	(s)	1	6	(s)	11	29	47	124
July .....	11	(s)	38	7	(s)	3	1	2	6	(s)	11	30	48	127
August .....	11	(s)	39	6	(s)	3	(s)	2	7	(s)	10	28	47	125
September .....	10	(s)	37	8	(s)	3	(s)	1	4	(s)	9	26	43	117
October .....	11	(s)	39	6	(s)	3	1	1	5	(s)	7	24	40	114
November .....	10	(s)	40	4	(s)	3	(s)	1	5	(s)	9	23	38	111
December .....	10	(s)	42	5	(s)	4	(s)	1	4	(s)	10	26	36	115
<b>Total</b> .....	129	-2	478	85	(s)	42	6	17	65	2	115	332	502	1,439
<b>2016 January</b> .....	10	(s)	45	6	(s)	5	(s)	1	6	(s)	10	28	38	120
February .....	10	(s)	R 41	6	(s)	4	(s)	1	5	(s)	11	29	33	R 113
March .....	10	(s)	42	7	(s)	4	1	1	6	(s)	9	27	31	110
April .....	9	(s)	39	5	(s)	3	(s)	1	4	(s)	9	24	32	R 104
May .....	9	(s)	39	5	(s)	3	(s)	1	4	(s)	9	22	36	107
June .....	9	(s)	38	5	(s)	2	1	1	3	(s)	9	22	42	112
July .....	R 9	(s)	39	3	(s)	3	(s)	2	5	(s)	9	22	46	R 116
August .....	R 9	(s)	40	6	(s)	3	(s)	2	7	(s)	11	28	46	R 123
September .....	R 9	(s)	R 38	6	(s)	3	(s)	1	4	(s)	10	25	40	R 113
October .....	11	(s)	R 39	6	(s)	3	(s)	1	5	(s)	10	27	38	115
November .....	9	-1	41	6	(s)	3	(s)	1	8	(s)	8	28	35	112
<b>11-Month Total</b> ...	105	-2	442	63	(s)	36	5	16	57	2	104	283	418	1,245
<b>2015 11-Month Total</b> ...	119	-2	436	80	(s)	38	5	16	60	1	104	305	465	1,323
<b>2014 11-Month Total</b> ...	130	-2	435	90	(s)	37	5	13	60	2	101	308	500	1,371

<sup>a</sup> Metric tons of carbon dioxide can be converted to metric tons of carbon equivalent by multiplying by 12/44.

<sup>b</sup> Natural gas, excluding supplemental gaseous fuels.

<sup>c</sup> Distillate fuel oil, excluding biodiesel.

<sup>d</sup> Liquefied petroleum gases.

<sup>e</sup> Finished motor gasoline, excluding fuel ethanol.

<sup>f</sup> Aviation gasoline blending components, crude oil, motor gasoline blending components, pentanes plus, petrochemical feedstocks, special naphthas, still gas, unfinished oils, waxes, and miscellaneous petroleum products.

<sup>g</sup> 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.

<sup>h</sup> 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, including the nonfuel 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<sup>a</sup>)

	Coal	Natural Gas <sup>b</sup>	Petroleum							Retail Elec- tricity <sup>f</sup>	Total <sup>g</sup>	
			Aviation Gasoline	Distillate Fuel Oil <sup>c</sup>	Jet Fuel	LPG <sup>d</sup>	Lubri- cants	Motor Gasoline <sup>e</sup>	Residual Fuel Oil			Total
1973 Total .....	(s)	39	6	163	152	3	6	886	57	1,273	2	1,315
1975 Total .....	(s)	32	5	155	145	3	6	889	56	1,258	2	1,292
1980 Total .....	(h)	34	4	204	155	1	6	881	110	1,363	2	1,400
1985 Total .....	(h)	28	3	232	178	2	6	908	62	1,391	3	1,421
1990 Total .....	(h)	36	3	268	223	1	7	967	80	1,548	3	1,588
1995 Total .....	(h)	38	3	307	222	1	6	1,029	72	1,640	3	1,681
1996 Total .....	(h)	39	3	327	232	1	6	1,047	67	1,683	3	1,725
1997 Total .....	(h)	41	3	341	234	1	6	1,057	56	1,700	3	1,744
1998 Total .....	(h)	35	2	352	238	1	7	1,090	53	1,743	3	1,782
1999 Total .....	(h)	36	3	365	245	1	7	1,115	52	1,789	3	1,828
2000 Total .....	(h)	36	3	377	254	1	7	1,122	70	1,833	4	1,873
2001 Total .....	(h)	35	2	387	243	1	6	1,128	46	1,813	4	1,852
2002 Total .....	(h)	37	2	394	237	1	6	1,158	53	1,852	4	1,892
2003 Total .....	(h)	33	2	408	231	1	6	1,161	45	1,854	5	1,892
2004 Total .....	(h)	32	2	433	240	1	6	1,181	58	1,922	5	1,959
2005 Total .....	(h)	33	2	444	246	2	6	1,182	66	1,948	5	1,986
2006 Total .....	(h)	33	2	467	240	2	5	1,188	71	1,976	5	2,014
2007 Total .....	(h)	35	2	469	238	1	6	1,186	78	1,980	5	2,021
2008 Total .....	(h)	37	2	424	226	3	5	1,124	73	1,856	5	1,898
2009 Total .....	(h)	38	2	405	204	2	5	1,109	62	1,789	5	1,832
2010 Total .....	(h)	38	2	426	210	2	5	1,091	70	1,806	5	1,849
2011 Total .....	(h)	39	2	437	209	2	5	1,058	61	1,774	4	1,818
2012 Total .....	(h)	41	2	416	206	2	5	1,051	53	1,735	4	1,780
2013 Total .....	(h)	47	2	424	210	3	5	1,066	46	1,756	4	1,807
2014 January .....	(h)	5	(s)	35	17	(s)	(s)	85	2	140	(s)	145
February .....	(h)	4	(s)	32	16	(s)	(s)	80	2	130	(s)	135
March .....	(h)	4	(s)	36	18	(s)	(s)	89	2	146	(s)	150
April .....	(h)	3	(s)	37	18	(s)	(s)	89	3	148	(s)	151
May .....	(h)	3	(s)	38	17	(s)	(s)	93	3	152	(s)	155
June .....	(h)	3	(s)	38	19	(s)	(s)	90	3	150	(s)	153
July .....	(h)	3	(s)	40	19	(s)	(s)	95	3	158	(s)	161
August .....	(h)	3	(s)	40	19	(s)	(s)	96	3	158	(s)	161
September .....	(h)	3	(s)	37	18	(s)	(s)	88	3	147	(s)	150
October .....	(h)	3	(s)	39	18	(s)	(s)	94	3	156	(s)	159
November .....	(h)	4	(s)	35	18	(s)	(s)	88	4	146	(s)	150
December .....	(h)	4	(s)	37	19	(s)	(s)	92	3	152	(s)	156
Total .....	(h)	40	2	443	216	3	5	1,077	35	1,781	4	1,825
2015 January .....	(h)	4	(s)	35	17	(s)	1	87	3	143	(s)	148
February .....	(h)	4	(s)	34	16	(s)	(s)	80	(s) 3	131	(s)	136
March .....	(h)	4	(s)	37	19	(s)	1	91	3	152	(s)	156
April .....	(h)	3	(s)	38	18	(s)	(s)	89	2	149	(s)	152
May .....	(h)	3	(s)	38	19	(s)	1	93	3	154	(s)	157
June .....	(h)	3	(s)	39	20	(s)	(s)	91	2	154	(s)	157
July .....	(h)	3	(s)	41	21	(s)	1	95	4	161	(s)	165
August .....	(h)	3	(s)	41	20	(s)	(s)	95	4	160	(s)	163
September .....	(h)	3	(s)	39	18	(s)	(s)	90	3	151	(s)	154
October .....	(h)	3	(s)	38	20	(s)	(s)	93	3	155	(s)	158
November .....	(h)	3	(s)	34	18	(s)	(s)	88	4	145	(s)	149
December .....	(h)	4	(s)	35	20	(s)	(s)	92	4	151	(s)	155
Total .....	(h)	39	1	449	227	3	5	1,083	37	1,806	4	1,849
2016 January .....	(h)	4	(s)	33	18	(s)	(s)	87	4	143	(s)	147
February .....	(h)	4	(s)	31	18	(s)	(s)	86	2	138	(s)	142
March .....	(h)	3	(s)	36	19	(s)	(s)	94	5	156	(s)	159
April .....	(h)	3	(s)	36	19	(s)	(s)	89	6	151	(s)	154
May .....	(h)	3	(s)	37	19	(s)	(s)	95	4	157	(s)	160
June .....	(h)	3	(s)	38	21	(s)	(s)	94	5	158	(s)	162
July .....	(h)	3	(s)	38	21	(s)	(s)	96	6	162	(s)	166
August .....	(h)	3	(s)	40	21	(s)	(s)	96	4	163	(s)	166
September .....	(h)	3	(s)	37	20	(s)	(s)	92	4	153	(s)	157
October .....	(h)	3	(s)	38	20	(s)	(s)	91	5	155	(s)	158
November .....	(h)	3	(s)	35	20	(s)	(s)	89	5	150	(s)	153
11-Month Total .....	(h)	35	1	401	216	3	5	1,010	51	1,686	3	1,724
2015 11-Month Total .....	(h)	35	1	414	207	3	5	991	32	1,655	4	1,694
2014 11-Month Total .....	(h)	36	1	406	196	3	5	986	32	1,629	4	1,669

<sup>a</sup> Metric tons of carbon dioxide can be converted to metric tons of carbon equivalent by multiplying by 12/44.

<sup>b</sup> Natural gas, excluding supplemental gaseous fuels.

<sup>c</sup> Distillate fuel oil, excluding biodiesel.

<sup>d</sup> Liquefied petroleum gases.

<sup>e</sup> Finished motor gasoline, excluding fuel ethanol.

<sup>f</sup> 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.

<sup>g</sup> Excludes emissions from biomass energy consumption. See Table 12.7.

<sup>h</sup> Beginning in 1978, the small amounts of coal consumed for transportation are reported as industrial sector consumption.

(s)=Less than 0.5 million metric tons.

Notes: • Data are estimates for carbon dioxide emissions from energy consumption, including the nonfuel 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.

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Sources: See end of section.

**Table 12.6 Carbon Dioxide Emissions From Energy Consumption: Electric Power Sector**  
(Million Metric Tons of Carbon Dioxide<sup>a</sup>)

	Coal	Natural Gas <sup>b</sup>	Petroleum				Geo-thermal	Non-Biomass Waste <sup>d</sup>	Total <sup>e</sup>
			Distillate Fuel Oil <sup>c</sup>	Petroleum Coke	Residual Fuel Oil	Total			
<b>1973 Total</b> .....	812	199	20	2	254	276	NA	NA	1,286
<b>1975 Total</b> .....	824	172	17	(s)	231	248	NA	NA	1,244
<b>1980 Total</b> .....	1,137	200	12	1	194	207	NA	NA	1,544
<b>1985 Total</b> .....	1,367	166	6	1	79	86	NA	NA	1,619
<b>1990 Total</b> .....	1,548	176	7	3	92	102	(s)	6	1,831
<b>1995 Total</b> .....	1,661	228	8	8	45	61	(s)	10	1,960
<b>1996 Total</b> .....	1,752	205	8	8	50	66	(s)	10	2,033
<b>1997 Total</b> .....	1,797	219	8	10	56	75	(s)	10	2,101
<b>1998 Total</b> .....	1,828	248	10	13	82	105	(s)	10	2,192
<b>1999 Total</b> .....	1,836	260	10	11	76	97	(s)	10	2,204
<b>2000 Total</b> .....	1,927	281	13	10	69	91	(s)	10	2,310
<b>2001 Total</b> .....	1,870	290	12	11	79	102	(s)	11	2,273
<b>2002 Total</b> .....	1,890	306	9	18	52	79	(s)	13	2,288
<b>2003 Total</b> .....	1,931	278	12	18	69	98	(s)	11	2,319
<b>2004 Total</b> .....	1,943	297	8	22	69	99	(s)	11	2,350
<b>2005 Total</b> .....	1,984	319	8	24	69	101	(s)	11	2,416
<b>2006 Total</b> .....	1,954	338	5	21	28	55	(s)	12	2,358
<b>2007 Total</b> .....	1,987	372	6	17	31	54	(s)	11	2,425
<b>2008 Total</b> .....	1,959	362	5	15	19	39	(s)	12	2,373
<b>2009 Total</b> .....	1,741	373	5	13	14	33	(s)	11	2,158
<b>2010 Total</b> .....	1,828	399	6	14	12	32	(s)	11	2,270
<b>2011 Total</b> .....	1,723	409	5	14	7	26	(s)	11	2,170
<b>2012 Total</b> .....	1,511	493	4	9	6	19	(s)	11	2,034
<b>2013 Total</b> .....	1,571	444	4	13	6	23	(s)	11	2,050
<b>2014 January</b> .....	154	36	2	1	2	5	(s)	1	196
February .....	140	30	1	1	1	2	(s)	1	173
March .....	133	31	1	1	1	3	(s)	1	167
April .....	107	30	(s)	1	(s)	1	(s)	1	139
May .....	118	35	(s)	1	(s)	2	(s)	1	156
June .....	137	39	(s)	1	(s)	2	(s)	1	179
July .....	150	46	(s)	1	(s)	2	(s)	1	198
August .....	149	49	(s)	1	(s)	2	(s)	1	201
September .....	127	42	(s)	1	(s)	2	(s)	1	172
October .....	112	38	(s)	1	(s)	1	(s)	1	153
November .....	119	33	(s)	1	(s)	2	(s)	1	154
December .....	125	35	(s)	1	(s)	2	(s)	1	162
<b>Total</b> .....	<b>1,569</b>	<b>444</b>	<b>6</b>	<b>12</b>	<b>7</b>	<b>26</b>	<b>(s)</b>	<b>11</b>	<b>2,050</b>
<b>2015 January</b> .....	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
<b>Total</b> .....	<b>1,350</b>	<b>527</b>	<b>5</b>	<b>11</b>	<b>7</b>	<b>24</b>	<b>(s)</b>	<b>11</b>	<b>1,913</b>
<b>2016 January</b> .....	113	42	(s)	1	1	2	(s)	1	159
February .....	92	38	(s)	1	1	2	(s)	1	133
March .....	73	41	(s)	1	(s)	2	(s)	1	116
April .....	71	40	(s)	1	(s)	2	(s)	1	113
May .....	82	44	(s)	1	(s)	2	(s)	1	129
June .....	116	53	(s)	1	(s)	2	(s)	1	172
July .....	136	63	(s)	1	1	2	(s)	1	201
August .....	135	63	(s)	1	1	2	(s)	1	201
September .....	114	50	(s)	1	(s)	2	(s)	1	167
October .....	100	41	(s)	1	(s)	1	(s)	1	143
November .....	88	36	(s)	1	(s)	2	(s)	1	127
<b>11-Month Total</b> .....	<b>1,120</b>	<b>511</b>	<b>3</b>	<b>11</b>	<b>5</b>	<b>20</b>	<b>(s)</b>	<b>10</b>	<b>1,661</b>
<b>2015 11-Month Total</b> .....	<b>1,259</b>	<b>484</b>	<b>5</b>	<b>11</b>	<b>7</b>	<b>22</b>	<b>(s)</b>	<b>10</b>	<b>1,776</b>
<b>2014 11-Month Total</b> .....	<b>1,445</b>	<b>409</b>	<b>6</b>	<b>11</b>	<b>7</b>	<b>24</b>	<b>(s)</b>	<b>10</b>	<b>1,888</b>

<sup>a</sup> Metric tons of carbon dioxide can be converted to metric tons of carbon equivalent by multiplying by 12/44.

<sup>b</sup> Natural gas, excluding supplemental gaseous fuels.

<sup>c</sup> Distillate fuel oil, excluding biodiesel.

<sup>d</sup> 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.

<sup>e</sup> Excludes emissions from biomass energy consumption. See Table 12.7.

NA=Not available. (s)=Less than 0.5 million metric tons.

Notes: • Data are estimates for carbon dioxide emissions from energy

consumption. See "Section 12 Methodology and Sources" at end of section.

• See "Carbon Dioxide" in Glossary. • See Note 1, "Emissions of Carbon Dioxide and Other Greenhouse Gases," at end of section. • Data exclude emissions from biomass energy consumption. See Table 12.7 and Note 2, "Accounting for Carbon Dioxide Emissions From Biomass Energy Combustion," at end of section. • Totals may not equal sum of components due to independent rounding. • Geographic coverage is the 50 states and the District of Columbia.

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

Sources: See end of section.

**Table 12.7 Carbon Dioxide Emissions From Biomass Energy Consumption**  
(Million Metric Tons of Carbon Dioxide<sup>a</sup>)

	By Source					By Sector					
	Wood <sup>b</sup>	Biomass Waste <sup>c</sup>	Fuel Ethanol <sup>d</sup>	Bio-diesel	Total	Residential	Commercial <sup>e</sup>	Industrial <sup>f</sup>	Transportation	Electric Power <sup>g</sup>	Total
1973 Total .....	143	(s)	NA	NA	143	33	1	109	NA	(s)	143
1975 Total .....	140	(s)	NA	NA	141	40	1	100	NA	(s)	141
1980 Total .....	232	(s)	NA	NA	232	80	2	150	NA	(s)	232
1985 Total .....	252	14	3	NA	270	95	2	168	3	1	270
1990 Total .....	208	24	4	NA	237	54	8	147	4	23	237
1995 Total .....	222	30	8	NA	260	49	9	166	8	28	260
1996 Total .....	229	32	6	NA	266	51	10	170	6	30	266
1997 Total .....	222	30	7	NA	259	40	10	172	7	30	259
1998 Total .....	205	30	8	NA	242	36	9	160	8	30	242
1999 Total .....	208	29	8	NA	245	37	9	161	8	30	245
2000 Total .....	212	27	9	NA	248	39	9	161	9	29	248
2001 Total .....	188	33	10	(s)	231	35	9	147	10	31	231
2002 Total .....	187	36	12	(s)	235	36	9	144	12	35	235
2003 Total .....	188	36	16	(s)	240	38	9	141	16	37	240
2004 Total .....	199	35	20	(s)	255	38	10	151	20	36	255
2005 Total .....	200	37	23	1	261	40	10	150	23	37	261
2006 Total .....	197	36	31	2	266	36	9	151	33	38	266
2007 Total .....	196	37	39	3	276	39	9	146	41	39	276
2008 Total .....	193	39	55	3	290	44	10	139	57	40	290
2009 Total .....	181	41	62	3	287	47	10	125	64	41	287
2010 Total .....	186	42	73	2	303	41	10	136	74	42	303
2011 Total .....	189	42	73	8	312	42	11	139	80	40	312
2012 Total .....	189	42	73	8	312	39	10	141	80	42	312
2013 Total .....	204	45	75	13	337	54	11	141	87	43	337
2014 January .....	18	4	6	1	29	5	1	12	7	4	29
February .....	16	4	6	1	26	4	1	11	6	4	26
March .....	18	4	6	1	29	5	1	12	7	4	29
April .....	17	4	6	1	28	4	1	12	7	4	28
May .....	17	4	7	1	29	5	1	12	7	4	29
June .....	17	4	6	1	29	4	1	12	7	4	29
July .....	18	4	7	1	30	5	1	12	8	4	30
August .....	18	4	7	1	30	5	1	12	8	4	30
September .....	17	4	6	1	28	4	1	11	7	4	28
October .....	17	4	7	1	29	5	1	12	8	4	29
November .....	17	4	6	1	29	4	1	12	7	4	29
December .....	18	4	7	1	30	5	1	12	8	4	30
Total .....	209	47	76	13	345	54	11	142	88	49	345
2015 January .....	17	4	6	(s)	27	3	1	12	6	4	27
February .....	15	4	6	1	25	3	1	11	7	4	25
March .....	16	4	7	1	27	3	1	12	7	4	27
April .....	16	4	6	1	27	3	1	12	7	4	27
May .....	16	4	7	1	28	3	1	12	8	4	28
June .....	16	4	7	2	28	3	1	11	8	4	28
July .....	17	4	7	1	29	3	1	12	8	4	29
August .....	17	4	7	1	29	3	1	12	8	4	29
September .....	16	4	7	1	28	3	1	11	8	4	28
October .....	15	4	7	1	28	3	1	11	8	4	28
November .....	16	4	7	1	27	3	1	12	7	4	27
December .....	16	4	7	1	29	3	1	12	8	4	29
Total .....	192	47	79	14	332	40	13	140	90	48	332
2016 January .....	16	4	6	1	27	3	1	12	7	4	27
February .....	15	4	6	1	26	3	1	11	7	4	26
March .....	15	4	7	1	27	3	1	11	8	4	27
April .....	14	4	6	1	26	3	1	11	7	4	26
May .....	15	4	7	2	27	3	1	11	8	4	27
June .....	15	4	7	2	28	3	1	12	8	4	28
July .....	16	4	7	2	29	3	1	12	9	4	29
August .....	16	4	7	2	29	3	1	12	9	4	29
September .....	15	4	7	2	27	3	1	11	8	4	27
October .....	15	4	7	2	27	3	1	11	8	4	27
November .....	15	4	7	2	28	3	1	12	8	4	28
11-Month Total .....	167	44	74	17	303	33	12	126	89	43	303
2015 11-Month Total .....	175	43	72	13	304	37	12	128	82	44	304
2014 11-Month Total .....	191	43	70	12	315	50	10	130	80	45	315

<sup>a</sup> Metric tons of carbon dioxide can be converted to metric tons of carbon equivalent by multiplying by 12/44.

<sup>b</sup> Wood and wood-derived fuels.

<sup>c</sup> Municipal solid waste from biogenic sources, landfill gas, sludge waste, agricultural byproducts, and other biomass.

<sup>d</sup> Fuel ethanol minus denaturant.

<sup>e</sup> Commercial sector, including commercial combined-heat-and-power (CHP) and commercial electricity-only plants.

<sup>f</sup> Industrial sector, including industrial combined-heat-and-power (CHP) and industrial electricity-only plants.

<sup>g</sup> The electric power sector comprises electricity-only and combined-heat-and-power (CHP) plants within the NAICS 22 category whose primary business is to sell electricity, or electricity and heat, to the public.

NA=Not available. (s)=Less than 0.5 million metric tons.

Notes: • Carbon dioxide emissions from biomass energy consumption are excluded from the energy-related carbon dioxide emissions reported in Tables 12.1–12.6. See Note 2, "Accounting for Carbon Dioxide Emissions From Biomass Energy Combustion," at end of section. • Data are estimates. See "Section 12 Methodology and Sources" at end of section. • See "Carbon Dioxide" in Glossary. • See Note 1, "Emissions of Carbon Dioxide and Other Greenhouse Gases," at end of section. • Totals may not equal sum of components due to independent rounding. • Geographic coverage is the 50 states and the District of Columbia.

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

Sources: See end of section.

## Environment

**Note 1. Emissions of Carbon Dioxide and Other Greenhouse Gases.** Greenhouse gases are those gases—such as water vapor, carbon dioxide (CO<sub>2</sub>), 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<sub>2</sub> emissions. The vast majority of CO<sub>2</sub> emissions come from fossil fuel combustion, with smaller amounts from the nonfuel use of fossil fuels, as well as from electricity generation using geothermal energy and non-biomass waste. Other sources of CO<sub>2</sub> 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<sub>2</sub> emissions from energy consumption, including the nonfuel use of fossil fuels (excluded are estimates for CO<sub>2</sub> emissions from biomass energy consumption, which appear in MER Table 12.7).

For annual U.S. estimates for emissions of CO<sub>2</sub> 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/](http://www.eia.gov/environment/emissions/ghg_report/).

**Note 2. Accounting for Carbon Dioxide Emissions From Biomass Energy Combustion.** Carbon dioxide (CO<sub>2</sub>) emissions from the combustion of biomass to produce energy are excluded from the energy-related CO<sub>2</sub> 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<sub>2</sub> emissions from biomass can potentially lead to confusion in accounting for and understanding the flow of CO<sub>2</sub> emissions within energy and non-energy systems. In recognition of this issue, reporting of CO<sub>2</sub> emissions from biomass combustion alongside other energy-related CO<sub>2</sub> 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<sub>2</sub> emissions from biomass and energy-related CO<sub>2</sub> 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, jet fuel, kerosene, liquefied petroleum gases (LPG), 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 LPG (ethane/ethylene, propane/propylene, normal butane/butylene, and isobutane/isobutylene) and "other petroleum" (aviation gasoline blending components, crude oil, motor gasoline blending components, naphthas for petrochemical feedstock use, other oils for petrochemical feedstock use, pentanes plus, 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., pentanes plus—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 Nonfuel Use

The following fuels have industrial nonfuel uses as chemical feedstocks and other products: coal, natural gas, asphalt and road oil, distillate fuel oil, liquefied petroleum gases (ethane/ethylene, propane/propylene, normal butane/butylene, and isobutane/isobutylene), lubricants (which have industrial and transportation nonfuel uses), naphthas for petrochemical feedstock use, other oils for petrochemical feedstock use, pentanes plus, petroleum coke, residual fuel oil, special naphthas, still gas, waxes, and miscellaneous petroleum products. In the nonfuel 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 nonfuel 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/oiaf/1605/ggrrpt/documentation/pdf/0638\(2008\).pdf](http://www.eia.gov/oiaf/1605/ggrrpt/documentation/pdf/0638(2008).pdf).

To obtain monthly estimates of nonfuel use and associated carbon sequestration, monthly patterns for industrial consumption and product supplied data series are used. For coal nonfuel 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.

## Step 4. Determine Carbon Dioxide Emissions From Energy Consumption

Carbon dioxide (CO<sub>2</sub>) 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 nonfuel use in Step 3) by the CO<sub>2</sub> emissions factors at [http://www.eia.gov/oiaf/1605/ggrrpt/excel/CO2\\_coeffs\\_09\\_v2.xls](http://www.eia.gov/oiaf/1605/ggrrpt/excel/CO2_coeffs_09_v2.xls). Beginning in 2010, the 2009 factors are used.

**Coal**—CO<sub>2</sub> 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<sub>2</sub> emissions for coal coke net imports are calculated.

**Natural Gas**—CO<sub>2</sub> 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<sub>2</sub> emissions are calculated for each petroleum product. Total petroleum emissions are the sum of the product emissions. Total LPG emissions are the sum of the emissions for the component products (ethane/ethylene, propane/propylene, normal butane/butylene, and isobutane/isobutylene); residential, commercial, and transportation sector LPG 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 LPG emissions are estimated as total LPG emissions minus emissions by the other sectors.

**Geothermal and Non-Biomass Waste**—Annual CO<sub>2</sub> 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<sub>2</sub> 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<sub>2</sub> 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	<sup>a</sup> 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	<sup>b</sup> 5.359; <sup>b</sup> 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	<sup>c</sup> 6.287; <sup>c</sup> 6.000
Hydrogen	<sup>a</sup> 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			

<sup>a</sup> Per residual fuel oil equivalent barrel (6.287 million Btu per barrel).

<sup>b</sup> 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.”

<sup>c</sup> 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			
			Crude Oil <sup>a</sup>	Petroleum Products		Total	Crude Oil <sup>a</sup>	Petroleum Products		Total
	Crude Oil <sup>a</sup>	Natural Gas Plant Liquids		Motor Gasoline <sup>b</sup>	Total Products			Motor Gasoline <sup>c</sup>	Total Products	
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 .....	<sup>E</sup> 5.717	<sup>E</sup> 3.744	<sup>E</sup> 6.065	<sup>E</sup> 5.222	<sup>E</sup> 5.504	<sup>E</sup> 5.941	<sup>E</sup> 5.682	<sup>E</sup> 5.218	<sup>E</sup> 5.279	<sup>E</sup> 5.319

<sup>a</sup> Includes lease condensate.

<sup>b</sup> Excludes fuel ethanol, methyl tertiary butyl ether (MTBE), and other oxygenates blended into motor gasoline.

<sup>c</sup> 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.

<sup>E</sup>=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 <sup>a</sup> Consumption by Sector						Distillate Fuel Oil Consumption <sup>f</sup>	Liquefied Petroleum Gases Consumption <sup>g</sup>	Motor Gasoline (Finished) Consumption <sup>h</sup>	Petroleum Coke Consumption <sup>i</sup>	Fuel Ethanol <sup>j</sup>	Fuel Ethanol Feed-stock Factor <sup>k</sup>
	Residential	Commercial <sup>b</sup>	Industrial <sup>b</sup>	Transportation <sup>b,c</sup>	Electric Power <sup>d,e</sup>	Total <sup>b,c</sup>						
1950 .....	5.473	5.817	5.953	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	<sup>g</sup> 3.779	5.253	6.024	NA	NA
1975 .....	5.253	5.649	5.513	5.392	6.250	5.494	5.825	3.715	5.253	6.024	NA	NA
1980 .....	5.321	5.751	5.366	5.441	6.254	5.479	5.825	3.674	5.253	6.024	3.563	6.586
1981 .....	5.283	5.693	5.299	5.433	6.258	5.448	5.825	3.643	5.253	6.024	3.563	6.562
1982 .....	5.266	5.698	5.247	5.423	6.258	5.415	5.825	3.615	5.253	6.024	3.563	6.539
1983 .....	5.140	5.591	5.254	5.416	6.255	5.406	5.825	3.614	5.253	6.024	3.563	6.515
1984 .....	5.307	5.657	5.207	5.418	6.251	5.395	5.825	3.599	5.253	6.024	3.563	6.492
1985 .....	5.263	5.598	5.199	5.423	6.247	5.387	5.825	3.603	5.253	6.024	3.563	6.469
1986 .....	5.268	5.632	5.269	5.426	6.257	5.418	5.825	3.640	5.253	6.024	3.563	6.446
1987 .....	5.239	5.594	5.233	5.429	6.249	5.403	5.825	3.659	5.253	6.024	3.563	6.423
1988 .....	5.257	5.597	5.228	5.433	6.250	5.410	5.825	3.652	5.253	6.024	3.563	6.400
1989 .....	5.194	5.549	5.219	5.438	<sup>d</sup> 6.240	5.410	5.825	3.683	5.253	6.024	3.563	6.377
1990 .....	5.145	5.553	5.253	5.442	6.244	5.411	5.825	3.625	5.253	6.024	3.563	6.355
1991 .....	5.094	5.528	5.167	5.441	6.246	5.384	5.825	3.614	5.253	6.024	3.563	6.332
1992 .....	5.124	5.513	5.168	5.443	6.238	5.378	5.825	3.624	5.253	6.024	3.563	6.309
1993 .....	5.102	<sup>b</sup> 5.504	<sup>b</sup> 5.177	<sup>b</sup> 5.422	6.230	<sup>b</sup> 5.370	5.825	3.606	<sup>h</sup> 5.232	6.024	3.563	6.287
1994 .....	5.095	5.512	5.149	5.424	6.213	5.360	<sup>f</sup> 5.820	3.635	5.231	6.024	3.563	6.264
1995 .....	5.060	5.475	5.121	5.418	6.187	5.342	5.820	3.623	5.218	6.024	3.563	6.242
1996 .....	4.995	5.430	5.114	5.420	6.194	5.336	5.820	3.613	5.218	6.024	3.563	6.220
1997 .....	4.986	5.388	5.119	5.416	6.198	5.336	5.820	3.616	5.215	6.024	3.563	6.198
1998 .....	4.972	5.362	5.136	5.414	6.210	5.349	5.819	3.614	5.215	6.024	3.563	6.176
1999 .....	4.899	5.288	5.091	5.413	6.204	5.328	5.819	3.616	5.213	6.024	3.563	6.167
2000 .....	4.905	5.313	5.056	5.423	6.188	5.326	5.819	3.607	5.214	6.024	3.563	6.159
2001 .....	4.934	5.322	5.141	5.413	6.199	5.346	5.819	3.614	5.214	6.024	3.563	6.151
2002 .....	4.883	5.290	5.092	5.411	6.172	5.324	5.819	3.613	5.211	6.024	3.563	6.143
2003 .....	4.918	5.312	5.143	5.404	6.182	5.338	5.819	3.629	5.203	6.024	3.563	6.106
2004 .....	4.949	5.323	5.144	5.410	6.134	5.341	5.818	3.618	5.201	<sup>i</sup> 5.982	3.563	6.069
2005 .....	4.913	5.359	5.179	5.412	6.126	5.353	5.818	3.620	5.198	5.982	3.563	6.032
2006 .....	4.883	5.296	5.159	5.409	6.038	5.336	5.803	3.605	5.191	5.987	3.563	5.995
2007 .....	4.830	5.270	5.122	5.384	6.064	5.309	5.784	3.591	5.155	5.996	3.563	5.959
2008 .....	4.769	5.156	5.147	5.355	6.013	5.287	5.780	3.600	5.126	5.992	3.563	5.922
2009 .....	4.661	5.216	5.014	<sup>c</sup> 5.328	5.987	<sup>c</sup> 5.236	5.781	3.558	5.101	6.017	3.563	5.901
2010 .....	4.660	5.193	4.983	5.321	5.956	5.222	5.778	3.557	5.078	6.059	3.561	5.880
2011 .....	4.660	5.180	4.957	5.317	5.900	5.212	5.776	3.528	5.068	6.077	3.560	5.859
2012 .....	4.703	5.117	4.909	5.305	5.925	5.191	5.774	3.534	5.063	6.084	3.560	5.838
2013 .....	4.637	5.045	4.871	5.301	5.892	5.175	5.774	3.556	5.062	6.089	3.559	5.817
2014 .....	4.688	5.038	4.868	5.299	5.906	5.177	5.773	3.534	5.060	6.100	3.558	5.797
2015 .....	<sup>E</sup> 4.689	<sup>E</sup> 5.037	<sup>E</sup> 4.844	<sup>E</sup> 5.303	5.915	5.172	<sup>E</sup> 5.773	3.536	5.060	6.085	3.558	5.776
2016 .....	<sup>E</sup> 4.689	<sup>E</sup> 5.037	<sup>E</sup> 4.844	<sup>E</sup> 5.303	<sup>E</sup> 5.915	<sup>E</sup> 5.172	<sup>E</sup> 5.773	<sup>E</sup> 3.536	<sup>E</sup> 5.060	<sup>E</sup> 6.085	<sup>E</sup> 3.558	5.755

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

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

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

<sup>d</sup> Electricity-only and combined-heat-and-power (CHP) plants within the NAICS 22 category whose primary business is to sell electricity, or electricity and heat, to the public. Through 1988, data are for electric utilities only; beginning in 1989, data are for electric utilities and independent power producers.

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

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

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

<sup>g</sup> There is a discontinuity in this time series between 1966 and 1967; beginning in 1967, the single constant factor is replaced by a quantity-weighted factor.

Quantity-weighted averages of the major components of liquefied petroleum gases are calculated by using heat content values shown in Table A1.

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

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

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

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

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

<sup>E</sup>=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 <sup>a</sup>			Imports	Exports
	Marketed	Dry	End-Use Sectors <sup>b</sup>	Electric Power Sector <sup>c</sup>	Total		
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	<sup>c</sup> 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	1,037	1,035	1,037	1,025	1,009
2016 .....	<sup>E</sup> 1,124	<sup>E</sup> 1,037	<sup>E</sup> 1,037	<sup>E</sup> 1,035	<sup>E</sup> 1,037	<sup>E</sup> 1,025	<sup>E</sup> 1,009

<sup>a</sup> Consumption factors are for natural gas, plus a small amount of supplemental gaseous fuels.

<sup>b</sup> Residential, commercial, industrial, and transportation sectors.

<sup>c</sup> Electricity-only and combined-heat-and-power (CHP) plants within the NAICS 22 category whose primary business is to sell electricity, or electricity and heat, to the public. Through 1988, data are for electric utilities only; beginning in 1989, data are for electric utilities and independent power producers.

<sup>E</sup>=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
	Production <sup>a</sup>	Waste Coal Supplied <sup>b</sup>	Consumption					Imports	Exports	Imports and Exports
			Residential and Commercial Sectors <sup>c</sup>	Industrial Sector		Electric Power Sector <sup>e,f</sup>				
				Coke Plants	Other <sup>d</sup>					
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	<sup>b</sup> 10.391	23.650	26.800	22.347	<sup>e</sup> 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 .....	<sup>a</sup> 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	<sup>c</sup> 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 .....	<sup>E</sup> 19.880	<sup>E</sup> 11.527	<sup>E</sup> 20.699	<sup>E</sup> 28.526	<sup>E</sup> 21.258	<sup>E</sup> 19.146	<sup>E</sup> 19.482	<sup>E</sup> 22.633	<sup>E</sup> 25.048	<sup>E</sup> 24.800

<sup>a</sup> 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).

<sup>b</sup> 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."

<sup>c</sup> 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.

<sup>d</sup> Includes transportation. Excludes coal synfuel plants.

<sup>e</sup> Electricity-only and combined-heat-and-power (CHP) plants within the NAICS 22 category whose primary business is to sell electricity, or electricity and heat, to the public. Through 1988, data are for electric utilities only; beginning in 1989, data are for electric utilities and independent power producers.

<sup>f</sup> 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 <sup>a</sup> for Electricity Net Generation						Heat Content <sup>j</sup> of Electricity <sup>k</sup>
	Fossil Fuels <sup>b</sup>				Nuclear <sup>h</sup>	Noncombustible Renewable Energy <sup>g,i</sup>	
	Coal <sup>c</sup>	Petroleum <sup>d</sup>	Natural Gas <sup>e</sup>	Total Fossil Fuels <sup>f,g</sup>			
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	<sup>b</sup> 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 .....	<sup>E</sup> 10,495	<sup>E</sup> 10,687	<sup>E</sup> 7,878	<sup>E</sup> 9,319	<sup>E</sup> 10,458	<sup>E</sup> 9,319	3,412

<sup>a</sup> The values in columns 1–6 of this table are for net heat rates. See "Heat Rate" in Glossary.

<sup>b</sup> 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.

<sup>c</sup> Includes anthracite, bituminous coal, subbituminous coal, lignite, and, beginning in 2002, waste coal and coal synfuel.

<sup>d</sup> Includes distillate fuel oil, residual fuel oil, jet fuel, kerosene, petroleum coke, and waste oil.

<sup>e</sup> Includes natural gas and supplemental gaseous fuels.

<sup>f</sup> 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).

<sup>g</sup> 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.

<sup>h</sup> Used as the thermal conversion factor for nuclear electricity net generation.

<sup>i</sup> 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.

<sup>j</sup> See "Heat Content" in Glossary.

<sup>k</sup> 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.

<sup>E</sup>=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 Plant 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) =  $141.5 / (131.5 + \text{API gravity})$ . The higher heating value (HHV) in million Btu per barrel =  $\text{SG} * (7.801796 - 1.3213 * \text{SG}^2)$ .

**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) =  $141.5 / (131.5 + \text{API gravity})$ . The higher heating value (HHV) in million Btu per barrel =  $\text{SG} * (7.801796 - 1.3213 * \text{SG}^2)$ .

**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**.

**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.”

**Liquefied Petroleum Gases Consumption.** • 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 liquefied petroleum gases consumed (see Table A1) weighted by the quantities consumed. The component products of liquefied petroleum gases are ethane (including ethylene), propane (including propylene), normal butane (including butylene), butane-propane mixtures, ethane-propane mixtures, and isobutane. 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.

**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 State-ment, 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 Petro-leum 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.

**Pentanes Plus.** Assumed by EIA to be 4.620 million Btu per barrel or equal to the thermal conversion factor for **Natural Gasoline**.

**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**.

**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](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](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](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](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), pentanes plus 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 pentanes plus used as denaturant is from PSA/PSM, Table 1, data for renewable fuels and oxygenate plant net production of pentanes plus, 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 plant liquids produced (see **Natural Gas Plant 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 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 Non-Electric Sector Coal Data” (formerly called “Quarterly Coal Consumption and Quality Report—Manufacturing and Transformation/Processing Coal Plants and Commercial and Institutional Users”).

#### **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 Non-Electric Sector Coal Data” (formerly called “Quarterly Coal Consumption and Quality Report—Manufacturing and Transformation/Processing Coal Plants and Commercial and Institutional Users”).

**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 on Non-Electric Sector Coal Data” (formerly called “Quarterly Coal Consumption and Quality Report—Manufacturing and Transformation/Processing Coal Plants and Commercial and Institutional Users”), 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 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 Non-Electric Sector Coal Data” (formerly called “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” (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 Non-Electric Sector Coal Data” (formerly called “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” (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 Non-Electric Sector Coal Data” (formerly called “Quarterly Coal Consumption and Quality Report—Manufacturing and Transformation/Processing Coal Plants and Commercial and Institutional Users”), and predecessor form. Consumption

data are from Form EIA-923, "Power Plant Operations Report," and predecessor forms.

## Approximate Heat Rates for Electricity

**Electricity Net Generation, Coal.** • 2001 forward: Calculated annually by EIA by using fuel consumption and net generation data reported on Form EIA-923, "Power Plant Operations Report," and predecessor forms. The computation includes data for all electric utilities and electricity-only independent power producers using anthracite, bituminous coal, subbituminous coal, lignite, and beginning in 2002, waste coal and coal synfuel.

**Electricity Net Generation, Natural Gas.** • 2001 forward: Calculated annually by EIA by using fuel consumption and net generation data reported on Form EIA-923, "Power Plant Operations Report," and predecessor forms. The computation includes data for all electric utilities and electricity-only independent power producers using natural gas and supplemental gaseous fuels.

**Electricity Net Generation, Noncombustible Renewable Energy.** There is no generally accepted practice for measuring the thermal conversion rates for power plants that generate electricity from hydro, geothermal, solar thermal, photovoltaic, and wind energy sources. Therefore, EIA calculates a rate factor that is equal to the annual average heat rate factor for fossil-fueled power plants in the United States (see "Electricity Net Generation, Total Fossil Fuels"). By using that factor it is possible to evaluate fossil fuel requirements for replacing those sources during periods of interruption, such as droughts. See Appendix E for more information.

**Electricity Net Generation, Nuclear.** • 1957–1984: Calculated annually by dividing the total heat content consumed in nuclear generating units by the total (net) electricity generated by nuclear generating units. The heat content and electricity generation were reported on Form FERC-1, "Annual Report of Major Electric Utilities, Licensees, and Others"; Form EIA-412, "Annual Report of Public

Electric Utilities"; and predecessor forms. For 1982, the factors were published in EIA, *Historical Plant Cost and Annual Production Expenses for Selected Electric Plants 1982*, page 215. For 1983 and 1984, the factors were published in EIA, *Electric Plant Cost and Power Production Expenses 1991*, Table 13. • 1985 forward: Calculated annually by EIA by using the heat rate data reported on Form EIA-860, "Annual Electric Generator Report," and predecessor forms.

**Electricity Net Generation, Petroleum.** • 2001 forward: Calculated annually by EIA by using fuel consumption and net generation data reported on Form EIA-923, "Power Plant Operations Report," and predecessor forms. The computation includes data for all electric utilities and electricity-only independent power producers using distillate fuel oil, residual fuel oil, jet fuel, kerosene, petroleum coke, and waste oil.

### Electricity Net Generation, Total Fossil Fuels.

• 1949–1955: The weighted annual average heat rate for fossil-fueled steam-electric power plants in the United States, as published by EIA in *Thermal-Electric Plant Construction Cost and Annual Production Expenses—1981* and *Steam-Electric Plant Construction Cost and Annual Production Expenses—1978*. • 1956–1988: The weighted annual average heat rate for fossil-fueled steam-electric power plants in the United States, as published in EIA, *Electric Plant Cost and Power Production Expenses 1991*, Table 9. • 1989–2000: Calculated annually by EIA by using heat rate data reported on Form EIA-860, "Annual Electric Generator Report," and predecessor forms; and net generation data reported on Form EIA-759, "Monthly Power Plant Report." The computation includes data for all electric utility steam-electric plants using fossil fuels. • 2001 forward: Calculated annually by EIA by using fuel consumption and net generation data reported on Form EIA-923, "Power Plant Operations Report," and predecessor forms. The computation includes data for all electric utilities and electricity-only independent power producers using coal, petroleum, natural gas, and other gases (blast furnace gas, propane gas, and other manufactured and waste gases derived from fossil fuels).

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# Appendix B

## Metric Conversion Factors, Metric Prefixes, and Other Physical Conversion Factors

Data presented in the *Monthly Energy Review* and in other U.S. Energy Information Administration publications are expressed predominately in units that historically have been used in the United States, such as British thermal units, barrels, cubic feet, and short tons. The metric conversion factors presented in Table B1 can be used to calculate the metric-unit equivalents of values expressed in U.S. Customary units. For example, 500 short tons are the equivalent of 453.6 metric tons (500 short tons x 0.9071847 metric tons/short ton = 453.6 metric tons).

In the metric system of weights and measures, the names of multiples and subdivisions of any unit may be derived

by combining the name of the unit with prefixes, such as deka, hecto, and kilo, meaning, respectively, 10, 100, 1,000, and deci, centi, and milli, meaning, respectively, one-tenth, one-hundredth, and one-thousandth. Common metric prefixes can be found in Table B2.

The conversion factors presented in Table B3 can be used to calculate equivalents in various physical units commonly used in energy analyses. For example, 10 barrels are the equivalent of 420 U.S. gallons (10 barrels x 42 gallons/barrel = 420 gallons).

**Table B1. Metric Conversion Factors**

Type of Unit	U.S. Unit		Equivalent in	Metric Units
<b>Mass</b>	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 <sup>a</sup>	kilograms (kg)
	1 pound uranium oxide (lb U <sub>3</sub> O <sub>8</sub> )	=	0.384 647 <sup>b</sup>	kilograms uranium (kgU)
	1 ounce, avoirdupois (avdp oz)	=	28.349 52	grams (g)
<b>Volume</b>	1 barrel of oil (bbl)	=	0.158 987 3	cubic meters (m <sup>3</sup> )
	1 cubic yard (yd <sup>3</sup> )	=	0.764 555	cubic meters (m <sup>3</sup> )
	1 cubic foot (ft <sup>3</sup> )	=	0.028 316 85	cubic meters (m <sup>3</sup> )
	1 U.S. gallon (gal)	=	3.785 412	liters (L)
	1 ounce, fluid (fl oz)	=	29.573 53	milliliters (mL)
	1 cubic inch (in <sup>3</sup> )	=	16.387 06	milliliters (mL)
<b>Length</b>	1 mile (mi)	=	1.609 344 <sup>a</sup>	kilometers (km)
	1 yard (yd)	=	0.914 4 <sup>a</sup>	meters (m)
	1 foot (ft)	=	0.304 8 <sup>a</sup>	meters (m)
	1 inch (in)	=	2.54 <sup>a</sup>	centimeters (cm)
<b>Area</b>	1 acre	=	0.404 69	hectares (ha)
	1 square mile (mi <sup>2</sup> )	=	2.589 988	square kilometers (km <sup>2</sup> )
	1 square yard (yd <sup>2</sup> )	=	0.836 127 4	square meters (m <sup>2</sup> )
	1 square foot (ft <sup>2</sup> )	=	0.092 903 04 <sup>a</sup>	square meters (m <sup>2</sup> )
	1 square inch (in <sup>2</sup> )	=	6.451 6 <sup>a</sup>	square centimeters (cm <sup>2</sup> )
<b>Energy</b>	1 British thermal unit (Btu) <sup>c</sup>	=	1,055.055 852 62 <sup>a</sup>	joules (J)
	1 calorie (cal)	=	4.186 8 <sup>a</sup>	joules (J)
	1 kilowatthour (kWh)	=	3.6 <sup>a</sup>	megajoules (MJ)
<b>Temperature<sup>d</sup></b>	32 degrees Fahrenheit (°F)	=	0 <sup>a</sup>	degrees Celsius (°C)
	212 degrees Fahrenheit (°F)	=	100 <sup>a</sup>	degrees Celsius (°C)

<sup>a</sup>Exact conversion.<sup>b</sup>Calculated by the U.S. Energy Information Administration.<sup>c</sup>The Btu used in this table is the International Table Btu adopted by the Fifth International Conference on Properties of Steam, London, 1956.<sup>d</sup>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 <sup>1</sup>	deka	da	10 <sup>-1</sup>	deci	d
10 <sup>2</sup>	hecto	h	10 <sup>-2</sup>	centi	c
10 <sup>3</sup>	kilo	k	10 <sup>-3</sup>	milli	m
10 <sup>6</sup>	mega	M	10 <sup>-6</sup>	micro	μ
10 <sup>9</sup>	giga	G	10 <sup>-9</sup>	nano	n
10 <sup>12</sup>	tera	T	10 <sup>-12</sup>	pico	p
10 <sup>15</sup>	peta	P	10 <sup>-15</sup>	femto	f
10 <sup>18</sup>	exa	E	10 <sup>-18</sup>	atto	a
10 <sup>21</sup>	zetta	Z	10 <sup>-21</sup>	zepto	z
10 <sup>24</sup>	yotta	Y	10 <sup>-24</sup>	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
<b>Petroleum</b>	1 barrel (bbl)	=	42 <sup>a</sup> U.S. gallons (gal)
<b>Coal</b>	1 short ton	=	2,000 <sup>a</sup> pounds (lb)
	1 long ton	=	2,240 <sup>a</sup> pounds (lb)
	1 metric ton (t)	=	1,000 <sup>a</sup> kilograms (kg)
<b>Wood</b>	1 cord (cd)	=	1.25 <sup>b</sup> shorts tons
	1 cord (cd)	=	128 <sup>a</sup> cubic feet (ft <sup>3</sup> )

<sup>a</sup>Exact conversion.

<sup>b</sup>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 <sup>a</sup>
	United States <sup>b</sup>	World	United States as Share of World	Billion Nominal Dollars <sup>d</sup>	Billion Chained (2009) Dollars <sup>e</sup>	Implicit Price Deflator <sup>c</sup> (2009 = 1.00000)	Billion Nominal Dollars <sup>d</sup>
	Million People		Percent				
1950 .....	152.3	2,557.6	6.0	300.2	2,184.0	0.13745	NA
1955 .....	165.9	2,782.1	6.0	426.2	2,739.0	.15559	NA
1960 .....	180.7	3,043.0	5.9	543.3	3,108.7	.17476	NA
1965 .....	194.3	3,350.4	5.8	743.7	3,976.7	.18702	NA
1970 .....	205.1	3,712.7	5.5	1,075.9	4,722.0	.22784	NA
1975 .....	216.0	4,089.1	5.3	1,688.9	5,385.4	.31361	NA
1980 .....	227.2	4,451.4	5.1	2,862.5	6,450.4	.44377	NA
1981 .....	229.5	4,534.4	5.1	3,211.0	6,617.7	.48520	NA
1982 .....	231.7	4,614.6	5.0	3,345.0	6,491.3	.51530	NA
1983 .....	233.8	4,695.7	5.0	3,638.1	6,792.0	.53565	NA
1984 .....	235.8	4,774.6	4.9	4,040.7	7,285.0	.55466	NA
1985 .....	237.9	4,856.5	4.9	4,346.7	7,593.8	.57240	NA
1986 .....	240.1	4,940.6	4.9	4,590.2	7,860.5	.58395	NA
1987 .....	242.3	5,027.2	4.8	4,870.2	8,132.6	.59885	8,639.9
1988 .....	244.5	5,114.6	4.8	5,252.6	8,474.5	.61982	9,359.5
1989 .....	246.8	5,201.4	4.7	5,657.7	8,786.4	.64392	9,969.6
1990 .....	249.6	5,289.0	4.7	5,979.6	8,955.0	.66773	10,511.1
1991 .....	253.0	5,371.6	4.7	6,174.0	8,948.4	.68996	10,676.5
1992 .....	256.5	5,456.1	4.7	6,539.3	9,266.6	.70569	11,242.4
1993 .....	259.9	5,538.3	4.7	6,878.7	9,521.0	.72248	11,857.6
1994 .....	263.1	5,618.7	4.7	7,308.8	9,905.4	.73785	12,647.2
1995 .....	266.3	5,699.2	4.7	7,664.1	10,174.8	.75324	13,451.6
1996 .....	269.4	5,779.4	4.7	8,100.2	10,561.0	.76699	14,259.9
1997 .....	272.6	5,858.0	4.7	8,608.5	11,034.9	.78012	15,355.4
1998 .....	275.9	5,935.2	4.6	9,089.2	11,525.9	.78859	16,171.3
1999 .....	279.0	6,012.1	4.6	9,660.6	12,065.9	.80065	17,244.8
2000 .....	282.2	6,088.6	4.6	10,284.8	12,559.7	.81887	18,564.6
2001 .....	285.0	6,165.2	4.6	10,621.8	12,682.2	.83754	18,863.1
2002 .....	287.6	6,242.0	4.6	10,977.5	12,908.8	.85039	19,175.0
2003 .....	290.1	6,318.6	4.6	11,510.7	13,271.1	.86735	20,135.1
2004 .....	292.8	6,395.7	4.6	12,274.9	13,773.5	.89120	21,697.3
2005 .....	295.5	6,473.0	4.6	13,093.7	14,234.2	.91988	23,514.9
2006 .....	298.4	6,551.3	4.6	13,855.9	14,613.8	.94814	24,888.0
2007 .....	301.2	6,629.9	4.5	14,477.6	14,873.7	.97337	26,151.3
2008 .....	304.1	6,709.0	4.5	14,718.6	14,830.4	.99246	26,825.7
2009 .....	306.8	6,788.2	4.5	14,418.7	14,418.7	1.00000	24,657.2
2010 .....	309.3	6,866.3	4.5	14,964.4	14,783.8	1.01221	26,093.5
2011 .....	311.7	6,944.1	4.5	15,517.9	15,020.6	1.03311	27,536.0
2012 .....	314.1	7,022.3	4.5	16,155.3	15,354.6	1.05214	28,663.2
2013 .....	316.4	7,101.0	4.5	16,663.2	15,583.3	1.06929	29,571.6
2014 .....	318.9	7,178.7	4.4	17,348.1	15,961.7	1.08686	30,971.0
2015 .....	321.4	7,256.5	4.4	17,947.0	16,348.9	1.09775	31,386.5

<sup>a</sup> Gross output is the value of gross domestic product (GDP) plus the value of intermediate inputs used to produce GDP.

<sup>b</sup> Resident population of the 50 states and the District of Columbia estimated for July 1 of each year.

<sup>c</sup> The gross domestic product implicit price deflator is used to convert nominal dollars to chained (2009) dollars.

<sup>d</sup> See "Nominal Dollars" in Glossary.

<sup>e</sup> See "Chained Dollars" in Glossary.

NA=Not available.

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

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

Sources: • **United States Population: 1949–1989**—U.S. Department of

Commerce (DOC), U.S. Census Bureau, Current Population Reports Series P-25 (June 2000). **1990–1999**—DOC, U.S. Census Bureau, "Time Series of Intercensal State Population Estimates" (April 2002). **2000–2009**—DOC, U.S. Census Bureau, "Intercensal Estimates of the Resident Population for the United States, Regions, States, and Puerto Rico" (September 2011). **2010 forward**—DOC, U.S. Census Bureau, "Annual Estimates of the Resident Population for the United States, Regions, States, and Puerto Rico" (December 2015). • **World Population: 1950 forward**—DOC, U.S. Census Bureau, International Database (July 2015). • **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 (April 2016), Tables 1.1.5, 1.1.6, and 1.1.9. • **U.S. Gross Output: 1987 forward**—DOC, BEA, GDP by Industry data (April 2016).

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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			Electricity Net Imports <sup>b</sup>	Total
	Coal	Natural Gas	Petroleum	Total	Conventional Hydroelectric Power	Biomass	Total		
						Wood <sup>a</sup>			
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	<sup>a</sup> 1.261	2.703	.009	32.665

<sup>a</sup> 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.

<sup>b</sup> 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 kilowatt-hour).

**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

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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.<sup>1</sup> 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.<sup>2</sup>

### 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.<sup>3</sup>

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<sup>1</sup>Direct use of noncombustible renewables in the form of heat (e.g., solar thermal heating) is estimated separately and is measured in Btu.

<sup>2</sup>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.

<sup>3</sup>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 <sup>a</sup>			Geothermal <sup>b</sup>				Wind <sup>c</sup>		
	Trans- formed Into Electricity <sup>d,e</sup>	Adjustment for Fossil Fuel Equivalence <sup>f</sup>	Total Primary Energy <sup>g</sup>	Direct Consump- tion <sup>h</sup>	Trans- formed Into Electricity <sup>d,i</sup>	Adjustment for Fossil Fuel Equivalence <sup>f</sup>	Total Primary Energy <sup>j</sup>	Trans- formed Into Electricity <sup>d,i</sup>	Adjustment for Fossil Fuel Equivalence <sup>f</sup>	Total Primary Energy <sup>g</sup>
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 .....	<sup>e</sup> 928	1,909	2,837	9	<sup>i</sup> 50	102	162	<sup>i</sup> 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	65	54	94	213	651	1,127	1,777

<sup>a</sup> Conventional hydroelectricity net generation. Through 1989, also includes hydroelectric pumped storage.

<sup>b</sup> Geothermal heat pump and direct use energy; and geothermal electricity net generation.

<sup>c</sup> Wind electricity net generation.

<sup>d</sup> Electricity net generation in kilowatthours (kWh) multiplied by 3,412 Btu/kWh, the heat content of electricity (see Table A6).

<sup>e</sup> 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.

<sup>f</sup> 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).

<sup>g</sup> Electricity net generation in kilowatthours multiplied by the total fossil fuels

heat rate factors (see Table A6).

<sup>h</sup> Geothermal heat pump and direct use energy.

<sup>i</sup> Through 1988, data are for electric utilities only. Beginning in 1989, data are for electric utilities, independent power producers, commercial plants, and industrial plants.

<sup>j</sup> 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 <sup>a</sup>						Total <sup>b</sup>		
	Distributed <sup>c</sup>			Utility-Scale <sup>d</sup>		Total Primary Energy <sup>i</sup>	Captured Energy <sup>j</sup>	Adjustment for Fossil Fuel Equivalence <sup>g</sup>	Total Primary Energy <sup>i</sup>
	Direct Consumption <sup>e</sup>	Transformed Into Electricity <sup>f</sup>	Adjustment for Fossil Fuel Equivalence <sup>g</sup>	Transformed Into Electricity <sup>f,h</sup>	Adjustment for Fossil Fuel Equivalence <sup>g</sup>				
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)	<sup>h</sup> 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	3,119
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	2,106	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	12	23	6	11	111	1,692	2,902	4,593
2012 .....	59	20	36	15	26	157	1,634	2,703	4,337
2013 .....	61	28	50	31	55	225	1,726	2,877	4,602
2014 .....	62	38	68	60	108	337	1,783	2,963	4,746
2015 .....	64	48	84	85	147	427	1,816	2,922	4,739

<sup>a</sup> Solar thermal direct use energy; and solar photovoltaic (PV) and solar thermal electricity net generation.

<sup>b</sup> 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.

<sup>c</sup> Distributed (small-scale) facilities (electric generators have a combined generator nameplate capacity of less than 1 megawatt).

<sup>d</sup> Utility-scale facilities (combined generator nameplate capacity of 1 megawatt or more).

<sup>e</sup> Solar thermal direct use energy.

<sup>f</sup> Electricity net generation in kilowatthours (kWh) multiplied by 3,412 Btu/kWh, the heat content of electricity (see Table A6).

<sup>g</sup> 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).

<sup>h</sup> Through 1988, data are for electric utilities only. Beginning in 1989, data are for electric utilities, independent power producers, commercial plants, and industrial plants.

<sup>i</sup> 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).

<sup>j</sup> 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;  $\text{CH}(3)\text{-(CH}(2))_n\text{-OH}$  (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:** **Naphthas** 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 (alcohols, ethers)**, **butane**, and **pentanes plus**. 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 non-fossil material of biological origin constituting a **renewable energy** source. See **Biodiesel**, **Biofuels**, **Biomass Waste**, **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<sub>4</sub>H<sub>10</sub>):** 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<sub>4</sub>H<sub>10</sub>):** 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<sub>4</sub>H<sub>10</sub>):** 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<sub>4</sub>H<sub>8</sub>):** 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<sub>2</sub>):** A colorless, odorless, non-poisonous 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 (casinghead) 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 **pentanes plus** 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**.

**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<sub>2</sub>H<sub>6</sub>):** 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<sub>2</sub>H<sub>5</sub>OH):** 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<sub>2</sub>H<sub>4</sub>):** 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 **pentanes plus** 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<sub>4</sub>H<sub>10</sub>):** 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<sub>4</sub>H<sub>8</sub>):** 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<sub>5</sub>H<sub>12</sub>):** 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<sub>4</sub>):** 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<sub>3</sub>OH):** A light, volatile **alcohol** eligible for gasoline blending. See **Motor Gasoline Blending and Oxygenates**.

**Methyl Tertiary Butyl Ether (MTBE) ((CH<sub>3</sub>)<sub>3</sub>COCH<sub>3</sub>):** 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 pentanes plus. *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 **hydrocarbons** 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 **hydrocarbons** 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.

**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<sub>4</sub>H<sub>10</sub>):** 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<sub>n</sub>H<sub>2n</sub> 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 members (with years of membership) include Algeria (1969 forward), Angola (2007 forward), Ecuador (1973–1992 and 2007 forward), Gabon (1974–1995 and 2016 forward), Indonesia (1962–2008 and

2016 forward), 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 (CO<sub>2</sub>)**. 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, liquefied petroleum gases, pentanes plus, 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.

**Photovoltaic Energy:** Direct-current electricity generated from sunlight through solid-state semiconductor devices that have no moving parts.

**Pipeline Fuel:** Gas consumed in the operation of pipelines, primarily in compressors.

**Plant Condensate:** Liquid **hydrocarbons** 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 plant 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). 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** consumption; **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<sub>3</sub>H<sub>8</sub>):** 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<sub>3</sub>H<sub>6</sub>):** 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 plant 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 oils** and lighter **hydrocarbons** 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)**.

**Solar Energy:** See **Solar Thermal Energy** and **Photovoltaic Energy**.

**Solar Thermal Energy:** The radiant energy of the sun that can be converted into other forms of energy, such as heat or 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 **naphthas** 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.)**.

**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 **hydrocarbons** 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, 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.

